Environmental Notification Form

CAPITAL COMMERCE CENTER

McGovern Blvd. & Lunenburg Road, Lancaster, Massachusetts
Worcester County

<u>Submitted to:</u>
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, 9th Floor, Boston, MA 02114
Attn: MEPA Office

<u>Proponent:</u>
Capital Group Properties
259 Turnpike Road, Suite 100, Southborough, MA 01772

<u>Prepared by:</u>
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BOHLER ENGINEERING

May 31, 2019

#W181228

BOHLER
ENGINEERING

352 Turnpike Road
Southborough, MA 01772
PHONE 508.480.9900

May 31, 2019

Secretary Kathleen Theoharides
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
110 Cambridge Street, Suite 900
Boston, MA 02114

Re: Environmental Notification Form
Capital Commerce Center
McGovern Blvd. & Lunenburg Road
Lancaster, Massachusetts

Dear Ms. Theoharides:

Enclosed please find two (2) copies of the Environmental Notification Form (ENF) for the proposed Capital Commerce Center project located in Lancaster. Additionally, a CD is provided with a full copy of the ENF in digital format.

Included in the ENF is a circulation list prepared in accordance with 301 CMR 11.16. Please notice the ENF in the June 10, 2019 Environmental Monitor to commence public review. In accordance with the 2019 Publication Schedule, Comments and Decisions Deadlines, public comments are due on July 1, 2019 with an ENF Decision expected on July 11, 2019.

Additional agencies or persons who would like to review the ENF should contact Michael J. Dryden by telephone at (508) 480-9900 or via e-mail at mdryden@bohlereng.com.

We trust the enclosed information is sufficient to facilitate your review. Should you have any questions or require additional information, please do not hesitate to contact us at (508) 480-9900.

Sincerely,

BOHLER ENGINEERING

Michael J. Dryden, Project Manager

John A. Kucich, P.E.

Cc: ENF Distribution List
William Depietri, Capital Group Properties

MEPA Cover Ltr (2019-05-31).docx

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APPENDICIES

APPENDIX A: PROJECT MAPS

- *USGS Site Location Map*
- *Existing Site Aerial Map*
- *Town of Lancaster Zoning Map*
- *Town of Lancaster Zoning Overlay Map*
- *Town of Lancaster Integrated Planning Overlay Districts (IPOD) Map*
- *MassGIS Areas of Critical Environmental Concern (ACEC) Map*
- *MassGIS Natural Heritage & Endangered Species (NHESP) Map*
- *MassGIS Wetland Map*
- *MassGIS Interim Wellhead Protection Area (IWPA) + Outstanding Resource Water (ORW) Map*
- *FEM A + MassGIS Flood Insurance Rate (FIRM) Maps*
- *Natural Resources Conservation Service (NRCS) Soil Map*
- *Impaired Waters Map*
- *Massachusetts Stressed Basins Map*

APPENDIX B: EXISTING AND PROPOSED CONDITIONS PLANS

- *Existing Conditions Plan*
- *Existing Conditions Aerial Plan*
- *Proposed Conditions Plan / Preferred Master Plan*

APPENDIX C: SUPPLEMENTAL INFORMATION

- *Alternative Master Plan A*
- *Alternative Master Plan B*
- *Alternative Master Plan C*
- *Water Line Extension Exhibit*
- *Abbreviated Notice of Resource Area Delineation (ANRAD) Plans (Prepared by Control Point Associates, Inc.)*
- *Wetland Resource Evaluation (Prepared by EcoTec, Inc.)*
- *Traffic Impact, Access, and Parking Study (Prepared by TEC, Inc.)*

- *Preliminary Engineering Report on Proposed Wastewater Treatment Facilities (Prepared by Mount Hope Engineering, Inc.)*

APPENDIX D: LIST OF REQUIRED PERMITS

APPENDIX E: PUBLIC NOTICE OF ENVIRONMENTAL REVIEW

APPENDIX F: CIRCULATION LIST

Commonwealth of Massachusetts

Executive Office of Energy and Environmental Affairs
Massachusetts Environmental Policy Act (MEPA) Office

Environmental Notification Form

For Office Use Only

EEA#: _____

MEPA Analyst: _____

The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: Capital Commerce Center		
Street Address: McGovern Boulevard & Lunenburg Road		
Municipality: Lancaster	Watershed: Nashua	
Universal Transverse Mercator Coordinates: 4,709,473 meters N, 277,251 meters E	Latitude: 42° 30' 20" N Longitude: 71° 42' 40" W	
Estimated commencement date: Spring 2020	Estimated completion date: Fall 2027	
Project Type: Industrial, Residential, Retail, Recreational	Status of project design: 10 %complete	
Proponent: Capital Group Properties		
Street Address: 259 Turnpike Road, Suite 100		
Municipality: Southborough	State: MA	Zip Code: 01772
Name of Contact Person: Michael J. Dryden		
Firm/Agency: Bohler Engineering	Street Address: 352 Turnpike Road	
Municipality: Southborough	State: MA	Zip Code: 01772
Phone: (508) 480-9900	Fax: (508) 480-9080	E-mail: mdryden@bohlereng.com

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☒Yes ☐No

If this is an Expanded Environmental Notification Form (ENF) (see 301 CMR 11.05(7)) or a Notice of Project Change (NPC), are you requesting:

a Single EIR? (see 301 CMR 11.06(8)) ☐Yes ☒No
a Special Review Procedure? (see 301CMR 11.09) ☐Yes ☒No
a Waiver of mandatory EIR? (see 301 CMR 11.11) ☐Yes ☒No
a Phase I Waiver? (see 301 CMR 11.11) ☐Yes ☒No
(Note: Greenhouse Gas Emissions analysis must be included in the Expanded ENF.)

Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?

Land:
301 CMR 11.03 (1)(a)(1) – Direct alteration of 50 or more acres of land (EIR)
301 CMR 11.03 (1)(a)(2) – Creation of 10 or more acres of impervious area (EIR)
301 CMR 11.03 (1)(b)(1) – Direct alteration of 25 or more acres of land (ENF)
301 CMR 11.03 (1)(b)(2) – Creation of 5 or more acres of impervious area (ENF)

Wastewater:

301 CMR 11.03 (5)(b)(1) – Construction of a new wastewater treatment facility with a facility of 100,000 or more GPD (ENF)

Transportation:

301 CMR 11.03 (6)(a)(6) – Generation of 3,000 or more new ADT on roadways providing access to a single location (EIR)

301 CMR 11.03 (6)(a)(7) – Construction of 1,000 or more new parking spaces at a single location (EIR)

301 CMR 11.03 (6)(b)(1) – Construction of a new roadway one-quarter or more miles in length (ENF)

301CMR 11.03 (6)(b)(13) – Generation of 2,000 or more new ADT on roadways providing access to a single location (ENF)

301CMR 11.03 (6)(b)(14) – Generation of 1,000 or more new ADT on roadways providing access to a Single location and construction of 150 or more new parking spaces at a single location (ENF)

301CMR 11.03 (6)(b)(15) – Generation of 300 or more new parking spaces at a single location (ENF)

Which State Agency Permits will the project require?

Water Distribution System Modification Permit – MassDEP
Individual Permit for Sewerage Treatment Plant (BRP WP79) – MassDEP
Hydrogeologic Evaluation Report Approval (WP83) - MassDEP

Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres:

N/A

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	471±		
New acres of land altered		+ 55 ±	
Acres of impervious area	13.3 ±	+ 152.7 ±	166 ±
Square feet of new bordering vegetated wetlands alteration		0	
Square feet of new other wetland alteration (1)		0	
Acres of new non-water dependent use of tidelands or waterways		0	
STRUCTURES			
Gross square footage	41,674±	+ 2,648,326±	2,690,000 ±
Number of housing units (2)	1	+ 616 ±	617 ±
Maximum height (feet)	30' ±	+ 40' ±	70' ± (max.)
TRANSPORTATION			
Vehicle trips per day (3)	6,356 ±	+ 11,264 ±	17,620 ±
Parking spaces (3)	353 ±	+ 3,109 ±	3,462 ±
WASTEWATER			
Water Use (Gallons per day) (4)	2,000 ±	+ 155,385 ±	157,385 ±

Water withdrawal (GPD)	0	0	0
Wastewater generation/treatment (GPD) (4)	2,000 ±	+ 155,385 ±	157,385 ±
Length of water mains (miles) (5)	0	+ 4.1 ±	4.1 ±
Length of sewer mains (miles)	0	+ 1.8 ±	1.8 ±

(1) Potential Future Impacts:
Bordering Land Subject to Flooding (BLSF) = 115,000 ± SF alteration (permanent)
Riverfront Area (RA) = 420,000 ± SF alteration (much of which is degraded and will be quantified during the permitting process, permanent)
Previous Impacts:
BLSF = 15,295± SF alteration (permanent)
RA = 22,590 ± SF alteration (permanent)
RA = 19,644 ± SF alteration (temporary)
(2) Total includes single family, duplex & triplex units (117), and multi-family apartments (500). Excludes (120) hotel units.
(3) Existing use includes the recently constructed Dunkin', Mobil Gas Station and outdoor soccer fields.
(4) Existing use includes the recently constructed Dunkin' and Mobil Gas Station. Private well withdrawal associated with the existing residence/horse farm in the western portion of the Site, and JB Hunt Trucking property in the eastern portion of the site are unknown.
(5) Includes 2.5± mile water line extension from Lunenburg

Has this project been filed with MEPA before?
☐ Yes (EEA #_____) ☒No

Has any project on this site been filed with MEPA before?
☒ Yes (EEA #__15604___) ☐No

Refer to the "Previous MEPA Filings" section under "Project Description" for more information.

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION:

Describe the existing conditions and land uses on the project site:_____

Existing Site:

The project site (the "Site") is located off McGovern Boulevard and Lunenburg Road in the Town of Lancaster, Worcester County, Massachusetts. As shown on the Town Assessor's Maps, the Site is identified as:

Map No. 8, Lots 38, 38D, 38F, 38G, 38H, 39, 39A, 39B, 39C, 42 & 45;
Map No. 9, Lots 2, 5, 8A;
Map No. 13, Lots 2, 3, 4, 7, 8; and
Map No. 14, Lots 1, 2, 3, 3A, 3B, 4, 4A, 4B, 4C, 4D, 4F, 4GA, 4GB, 4H, 4I, 4J, 4K, 4L, 4M, 8, 8A, 8B, 9D, 11A, 12, 13, Parcels B-2, B-4, & 9.

The Site consists of approximately 471± acres of land and is bordered by woods, wetlands, and residences to the north, Route 190 to the west, woods, wetlands and the North Nashua River to the south, and Lunenburg Road and Kimball Farm to the east. A portion of the Site to the east was recently developed as part of the Lancaster Crossing development project with a Dunkin', Mobil Gas Station, and soccer fields (F.C. Stars Soccer Complex) with associated driveways, parking areas, utilities, and stormwater management systems. McGovern Boulevard was constructed as the main access point to the Site and to access the Lancaster Crossing development from Lunenburg Road. The existing JB Hunt Trucking facility remains in the eastern portion of the Site with access from Lunenburg Road. A portion of the Site to the west, located off Johnny Appleseed Lane, consists of an existing residence, horse barn, horse track, and associated parking areas and utilities, as well as undeveloped areas consisting of woods and fields. A small piece of land on the westernmost edge of the Site is located within the Town line in Leominster. The remaining portion of the overall Site consists of a gravel pit and gravel access roads, as well as undeveloped fields, woodland, and wetlands. A small parcel of land, located in the central portion of the Site, is land-locked and is not included as part of the Project.

The existing Site, originally under the ownership of one (1) entity, has since been subdivided and sold to five (5) additional ownership entities. Due to MEPA anti-segmentation provisions, all properties that originally made up the Site are included in the MEPA ENF filing. The Lancaster Crossing development project contains approximately 50± acres located in the eastern portion of the Site along Lunenburg Road, and is proposed to be developed by a separate entity with commercial/retail/residential uses. The Dunkin', Mobil Gas Station, and soccer complex have already been constructed as part of this development project.

The Site is located within the Enterprise District, Retail Subdistrict A (EZ-A) and Residential Zoning District, which allows the development of various uses. The Site is also overlaid by the Integrated Planning Overlay District (IPOD-1). The IPOD-1 allows any use that is allowed by right or allowable by special permit in at last one (1) of the underlying zoning districts within which the Integrated Plan is located, and shall also be allowed by right or allowable by special permit at any location within the Integrated Plan, including within underlying zoning districts where such use is not otherwise allowed. Two (2) overlay districts, the Floodplain Overlay District and Water Resources Overlay District, encompass portions of the Site, which require additional local permitting as indicated in **Appendix D**.

Wetland resources:

- Bordering Vegetated Wetland (BVW) – numerous areas containing BVW were field delineated and survey located in September of 2018.
- Perennial Stream – numerous mapped perennial streams were identified on the USGS Map and survey located on-site.
- Intermittent Stream Bank – Unmapped and mapped intermittent streams are identified on the USGS Map and survey located on-site.
- Certified Vernal Pool – One (1) Certified Vernal Pool was identified in the southwestern portion of the Site using the Massachusetts Geographical Information System (MassGIS) Online Maps and survey located on-site.
- Isolated Vegetated Wetland – numerous areas containing isolated vegetated wetlands were field identified and survey located on-site.

According to the most recent Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA) and the MassGIS Online Mapping Tool (Oliver), portions of the Site to the north and east are located within Zone A: 1% Annual Chance of Flooding (100-year flood). A small portion of the Site along the southern perimeter is located within Zone AE: 1% Annual Chance of Flooding (100-year flood) and Zone X: Areas of 0.2% annual chance flood. According to the latest addition of the Massachusetts Natural Heritage Atlas, 14th edition, there are no areas of Priority Habitats or Estimated Habitats located on the Site. The southern half of the site is located within the Central Nashua River Valley ACEC. Two (2) existing public water supply wells are located in the eastern portion of the site and service the existing Dunkin' and Mobil Gas Station properties. An interim wellhead protection area (IWPA) is identified on MassGIS in this general location.

Runoff generated by the existing Dunkin' and Mobil Gas Station properties in the eastern portion of the Site is collected by catch basins and directed to underground stormwater management systems associated with each lot. Overflow from the systems discharges overland to the west. The existing stormwater management system at the F.C. Stars Soccer Complex consists of a surface detention basin and was designed to accommodate flows from four (4) soccer fields and final build-out of the parking lot. Runoff generated on the remaining portions of the Site flows overland to various on-site wetland resource areas.

The Site is associated with the Nashua Watershed. Elevations on-site range from a maximum of 516 feet in the north to 268 feet in the south.

For more information, refer to the Project Maps provided in **Appendix A**, the Existing Conditions Plan provided in **Appendix B**, and the "Wetland Resource Evaluation", prepared by EcoTec, Inc. provided in **Appendix C**.

Existing Utilities:

An existing PWS well is located in the eastern portion of the Site on Parcel L3, Lot 14-8A and permitted for 3,000 GPD withdrawal. The well was previously permitted for use at the former Lancaster Flea Market & Agway Store located off-site at 1340 Lunenburg Road, currently Nationwide Auto Recycling, but was never put into service.

A concrete water tank of approximately 200,000 gallons was constructed to the northeast in an area known as McGovern Hill. The tank provides the Nationwide Auto Recycling building, located off-site, with non-potable water via a 10-inch diameter underground water pipe that runs within the layout of McGovern Boulevard and adjacent to Lunenburg Road. Service connections have also been made to fire

hydrants located in McGovern Boulevard and Lunenburg Road and are available for use by the Lancaster Fire Department. It should be noted that neither the Dunkin' or Mobil Gas Station properties require a fire suppression sprinkler system.

The recently constructed Dunkin' and Mobil Gas Station located in the eastern portion of the Site are serviced by individual Public Water Supply (PWS) wells located on Parcels 14-4H-1A (Lot 4G) and 14-4H-1B (Lot 4N), respectively. Both wells provide approximately 1,000± GPD potable water to the properties. On-site sewage disposal systems are assumed to handle 1,000± GPD sewer flow generated by each use. Underground electric and telephone services are provided to the buildings from utility poles in Lunenburg Road, and on-site propane tanks service the buildings.

Three (3) soccer fields and associated parking lots were recently constructed in the eastern portion of the Site. Electrical service is provided from overhead wires in McGovern Boulevard to service the field and parking lot light poles. There are no known water or sewer services to the soccer facilities.

The existing JB Hunt Trucking facility located in the eastern portion of the Site is serviced by a private water well and on-site sewage disposal system. Overhead electrical wires extend from Lunenburg Road to the facility.

The existing residence and horse barn/track located in the western portion of the Site are likely serviced by a private on-site well and septic system, and electrical service from Johnny Appleseed Lane.

Hydrants were observed servicing the gravel operation in the central portion of the Site, and power is serviced from White Pond Road.

Previous MEPA Filings:

Public Water Supply Permit – ENF 2016 (EEA #15604)
Proposed Dunkin' & Mobil Gas Station – Request for Advisory Opinion 2017

On October 31, 2016, North Lancaster Water LLC filed an ENF with MEPA to modify an existing PWS Permit for potable water service to a Dunkin' facility proposed to be constructed at 1474 Lunenburg Road. The PWS, located on parcel L3 off Lunenburg Road (Map 14, Parcel 8A), was permitted in August 2010 and installed to service the former Lancaster Flea Market and Agway store on Lunenburg Road, but was never placed into service. During the 2016 permitting process, it was discovered the PWS is located within the Central Nashua River Valley ACEC. Due to the location of the well within the ACEC and the Dunkin' project requiring a state PWS permit, North Lancaster Water was required to file an ENF with MEPA.

On December 1, 2016, MEPA requested a "look back" analysis of the 50-acre commercial/retail development (Lancaster Crossing) which included the proposed Dunkin' facility. It was determined there was insufficient time to compile and distribute this information prior to the expiration of the comment period extension, therefore North Lancaster Water withdrew the ENF without prejudice on December 9, 2016.

On March 29, 2017, two applications were filed with MassDEP for PWS wells on parcels within the Lancaster Crossing development to service the Dunkin' and a proposed Mobil Gas Station. In addition, preliminary results of the "look back" analysis were provided and reviewed with MEPA and indicated that no MEPA thresholds would be exceeded. As a result, MEPA indicated the filing of a Request for an Advisory Opinion would be appropriate.

On June 19, 2017, the proponent issued a Request for an Advisory Opinion letter to MEPA requesting confirmation that the proposed Dunkin' and Mobil Gas Station is not subject to review under MEPA. Based on the information provided, MEPA determined that the proposed project was not subject to MEPA review and the submission of an ENF was not required. However, if development of any portion of the remainder of land now or formerly owned by North Lancaster Water is proposed in the next five (5) years, the proponent should consult with MEPA to determine whether it may be subject to MEPA review.

Based on MEPA's determination and anti-segmentation provisions, the property mentioned above has been included as part of the overall project Site included in this ENF.

Describe the proposed project and its programmatic and physical elements: _____

NOTE: The project description should summarize both the project's direct and indirect impacts (including construction period impacts) in terms of their magnitude, geographic extent, duration and frequency, and reversibility, as applicable. It should also discuss the infrastructure requirements of the project and the capacity of the municipal and/or regional infrastructure to sustain these requirements into the future.

Proposed Project:

The Capital Commerce Center project (the "Project") proposes approximately 2,690,000 GSF of mixed uses on-site, along with associated access roadways, parking and circulation areas, stormwater management systems, and utility infrastructure. The Project will generally include the construction of numerous industrial buildings including an automotive sales and service facility; single family, duplex and triplex units; multi-family apartments; a hotel; a new indoor sports facility; and retail space. The Site already contains recently constructed outdoor F.C. Stars Soccer Complex, a Dunkin', and Mobil Gas Station.

Primary access to the Site will be via McGovern Boulevard from Lunenburg Road to the east. Access to the residential component to the west will be via Johnny Appleseed Lane and White Pond Road. For clarity, the Site is hereinafter described as the "eastern", "central", and "western" portions of the overall Project. The eastern portion currently consists of the existing private way known as McGovern Boulevard, F.C. Stars Soccer Complex, Dunkin', and Mobil Gas Station, as well as the existing JB Hunt Trucking facility and undeveloped woodlands. The Proponent proposes to demolish the trucking facility, and construct additional retail properties as well as multi-family apartment buildings, a hotel, and a new indoor sports facility. Additional access driveways are proposed to access retail and residential uses directly from Lunenburg Road.

The central portion of the Site currently consists of existing gravel pits, gravel access roads and undeveloped woodlands and fields. The Proponent proposes to extend McGovern Boulevard approximately 4,200 LF in the westerly direction to provide access to multiple industrial buildings including the automotive sales and service facility proposed as part of the Project. A new wastewater treatment plant is proposed to be constructed to the south, and an existing 200,000-gallon concrete fire suppression tank located to the northeast on McGovern Hill will be maintained, if required.

The western portion of the Site currently consists of an existing cul-de-sac off Johnny Appleseed Lane, a residential property with equestrian facilities, and undeveloped woodlands and fields. The Proponent proposes to construct a residential development consisting of approximately 117 single family, duplex and triplex units. Access will be provided by Johnny Appleseed Lane to the west, and White Pond Road to the east. A small piece of land along the western edge of the Site is located in the Town of

Leominster. Access to the Site from Johnny Appleseed Lane will be provided through Leominster. No structures are proposed in Leominster.

The proposed Project is illustrated on the Preferred Master Plan provided in **Appendix B**. A breakdown of gross square footage (GSF) per use is also provided in the Development Summary Table provided below.

Table 1: Development Summary Table

LAND USE	BUILDING/ STRUCTURE	DESCRIPTION	UNITS	FLOORPLATE (SQ. FT).	STORIES	G.S.F.	SURFACE PARKING	TRAILER PARKING	LOADING DOCKS
INDUSTRIAL	A			1,020,000	1	1,020,000	587	316	214
	B			150,000	1	150,000	146		32
	C			42,000	1	42,000	24		5
	D			145,000	1	145,000	83		13
	E			37,500	1	37,500	84		15
	F			42,000	1	42,000	92		5
	G			37,500	1	37,500	95		15
	H			42,000	1	42,000	42		5
	I			37,500	1	37,500	84		15
	J	AUTO SALES & SERVICE FACILITY		14,000	1	14,000	80		
RESIDENTIAL	K	SINGLE FAMILY, DUPLEX & TRIPLEX UNITS	117	128,700	2	257,400			
	L	MULTI-FAMILY APARTMENTS	140	44,650	4	178,600	260		
	M	MULTI-FAMILY APARTMENTS	160	50,000	4	200,000	270		
	N	MULTI-FAMILY APARTMENTS	200	64,500	4	258,000	210		
HOTEL	O		120	16,000	4	64,000	120		
RECREATIONAL	P	EXISTING SOCCER FIELDS		5000	1	5000	276		
	Q	INDOOR SPORTS FACILITY		86,500	1	86,500	216		
RETAIL	R	PROPOSED RETAIL		65,700	1	65,700	418		
		EXISTING RETAIL		7300	1	7300	59		
TOTAL:			737	2,035,850		2,690,000	3146	316	319

Water:

The project is estimated to generate approximately 157,385± gallons per day (GPD) of potable water demand. The Proponent conducted a feasibility study for development of an on-site public water supply, however it was determined that the yield was insufficient to satisfy the demand of the Project. For this reason, the Proponent investigated other potential water sources, and has executed a Memorandum Of Understanding (MOU) with the Lunenburg water district, which has capacity in their existing system to service the Project. An Intermunicipal Agreement is currently being developed under which the Town of Lancaster will purchase water from the Lunenburg water district. Luneburg will read the meters and bill Lancaster, who will in-turn bill individual users.

A 2.5± mile water line extension is proposed to extend from the connection point at the intersection of Leominster Shirley Road and Reservoir Road in Lunenburg to the north, to the Site at McGovern Boulevard off Lunenburg Road in Lancaster. The water line extension, the size for which has not been determined, will be funded by the Proponent and will service the entire Site and potentially additional properties along Lunenburg Road. Water service to the existing Dunkin' and Mobil Gas Station uses is currently provided via two (2) existing PWS wells located on the Site on the west side of McGovern Brook. Following the construction of the water line extension, these wells will be abandoned and the properties will be serviced from the new water main.

An existing concrete water tank of approximately 200,000 gallons was constructed to the northeast in an area known as McGovern Hill. The tank provides fire protection service to the Nationwide Auto Recycling Building located at 1340 Lunenburg Road, and services existing fire hydrants located within McGovern Boulevard and Lunenburg Road. Neither the Dunkin' nor Mobil Gas Station properties require a fire suppression sprinkler system. Depending upon available capacity of the new water main, the existing water tank may be retained to supplement the water system. Buildings will incorporate fire suppression sprinkler systems, as required by the Massachusetts State Building Code.

Wastewater:

A wastewater treatment plant is proposed as part of the project to treat the approximately 157,385± GPD of sewer generated on-site, and will service the entire Site. The existing septic systems currently servicing the existing Dunkin' and Mobil Gas Station properties will be abandoned and both uses will be connected to the new system. Please refer to **Appendix C** for additional information.

Power:

Power upgrades are proposed to the Site from the appropriate municipality and service providers, and will be fully coordinated with both during the design phase.

The Project will increase the amount of impervious on-site by approximately 152.7± acres. Stormwater runoff generated on-site will be mitigated by the construction of surface and subsurface infiltration/detention systems. The Stormwater Management System will meet or exceed MassDEP Standards and additional Best Management Practices (BMP's) will be incorporated into the design to further enhance the systems treatment effectiveness.

The Project is estimated to generate a total of 17,620± vehicle trips per day. Various traffic improvements are proposed as part of the Project and described in more detail below in the "Mitigation Measures: Transportation" section of this ENF. A traffic report has also been prepared and is provided in **Appendix C**. Improvements proposed immediately adjacent to or on-site consist of a new fully actuated traffic signal at the intersection of McGovern Boulevard and Lunenburg Road, and widening of McGovern Boulevard and Lunenburg Road to provide exclusive left and right turn travel lanes. Proposed pedestrian infrastructure will include an on-site sidewalk system that connects the proposed buildings with McGovern Boulevard and extends along McGovern Boulevard to Lunenburg Road. The Proponent is committed to construct bicycle accommodations along McGovern Boulevard to provide connectivity between land uses on the site and Lunenburg Road. The project will also include exterior bike racks on-site as well as secure, weather protected long-term bicycle parking for employees at several locations on-site.

Describe the on-site project alternatives (and alternative off-site locations, if applicable), considered by the proponent, including at least one feasible alternative that is allowed under current zoning, and the reasons(s) that they were not selected as the preferred alternative:

NOTE*: The purpose of the alternatives analysis is to consider what effect changing the parameters and/or siting of a project, or components thereof, will have on the environment, keeping in mind that the objective of the MEPA review process is to avoid or minimize damage to the environment to the greatest extent feasible. Examples of alternative projects include alternative site locations, alternative site uses, and alternative site configurations.*

Alternatives Analysis:

No-Built Alternative

The "No-Built" alternative is not an economically viable option for the property or the Town of Lancaster. Currently, much of the property is an active gravel pit and the site has been targeted as a priority housing and economic development area by the Town for many years. The development of the parcel aligns with the Town of Lancaster and the Montachusett Regional Planning Commission (MRPC) municipal and regional strategic framework Plans.

Alternative Master Plan A (Residential)

In 2016, the Site was evaluated for residential development with some retail and recreational uses in the eastern portion. The alternative plan depicts approximately 2.8M± GSF of various uses on-site. The conceptual plan identifies three (3) residential villages in the center of the Site that vary by density: one (1) Active Adult Land Bay proposes 4 (four) dwellings/acre; two (2) Village Land Bay proposes ten (10) dwellings/acre; and three (3) Point Line Land Bay proposes three (3) dwellings/acre. In addition to the residential uses mentioned above, the Site would also consist of single family, duplex and triplex units in the western portion of the Site, and existing outdoor soccer fields, an indoor sports facility, a hotel, multi-family apartment buildings, and retail properties in the eastern portion of the Site. The full build-out of Alternative A would result in approximately 250± acres of altered land and 78± acres of impervious coverage. Total vehicular trips generated by the Alternative is 19,640± trips per day on a weekday. Based on the limited economic benefits generated from a mostly residential development plan, the proponent determined that the preferred alternative was best suited for the development of the site.

Alternative Master Plan B (Equestrian)

In late 2018, the Site was evaluated for an equestrian facility. The alternative plan depicts approximately 1.7M± GSF of mixed uses on-site. The Project would propose a racetrack centrally located on-site, consisting of a track, clubhouse, barns, employee housing, maintenance facility, and associated parking and infrastructure. The Site would also consist of single family, duplex and triplex units in the western portion of the Site, and a hotel, multi-family housing, existing outdoor soccer fields, and retail properties in the eastern portion of the Site. The full build-out of Alternative B would result in approximately 280± acres of altered land and 86.0± acres of impervious coverage. Total vehicular trips generated by the Alternative is 19,996± trips per day on a weekday. It was determined that the use of the site as a racetrack with other surrounding uses would not provide as many benefits as the Preferred Alternative. For these reasons, the proponent determined that the Preferred Alternative was best suited for the development of the site.

Alternative Master Plan C (Industrial)

The alternative master plan is similar to the Preferred Master Plan and depicts 3.5M± GSF of mixed uses on-site. The plan proposes construction of new industrial buildings, single family duplex and triplex units, multi-family apartments, a hotel, existing outdoor soccer fields, a new indoor sports facility, and retail space. The full build-out of Alternative C would result in approximately 285± acres of altered land, and 156± acres of impervious coverage. Total vehicular trips generated by the Alternative is 18,610± trips per day on a weekday.

Preferred Master Plan

The Project is limited to this Site and considers no alternate location due to the intensity of the proposed build-out. This site has been identified as a priority housing and economic development area in the Town of Lancaster, as indicated on a map developed by the Montachusett Regional Planning Commission (MRPC) and included in **Appendix C**. The Town has targeted the area along Route 2 and Route 70 (Lunenburg Road) for economic development for many years. In 1990, the Town designated this area as an Economic Opportunity Area, and in the 2007 Town Master Plan labeled it as an Enterprise area. Since then, several initiatives have been introduced, such as the creation of two (2) mixed-use overlay districts identified as the Integrated Planning Overlay Districts (IPODs), and the designation of the Route 2 and 70 areas as Priority Development Sites in the Chapter 43D Expedited Permitting Program. The Town has also identified priority preservation areas located on and within proximity to the Site. The preferred alternative proposes to limit environmental impacts, while promoting economic growth, creating high-quality jobs, and providing various housing options. The Preferred Alternative appears to be the best use of the property.

The Preferred Alternative proposes 2.7M± GSF of mixed uses on-site. The Project will include the construction of new industrial buildings, an automotive sales and service facility, single family duplex and triplex units, multi-family apartments, a hotel, existing outdoor soccer fields, a new indoor sports facility, and retail space. The construction of an on-site wastewater treatment plant is proposed to treat approximately 157,385± GPD sewer flow generated by the preferred alternative. A 2.5± mile water line extension is proposed From Lunenburg to service the approximately 157,385± GPD water service required on-site. The full build-out of the Preferred Alternative would result in approximately 271± acres of altered land and 166± acres of impervious coverage. Total vehicular trips generated by the Preferred Alternative is 17,620± trips per day on a weekday, the lowest of all the alternatives. The Proponent met with MassDOT and MassDEP on numerous occasions to introduce the Preferred Master Plan.

The table below provides a comparison of the alternatives with the Preferred Master Plan. Refer to **Appendix C** for the Alternative Master Plans.

Table 2: Project Alternatives Comparison

Project Impacts	Alternative A	Alternative B	Alternative C	Preferred Master Plan
Total Building Program	2.8M± GSF	1.7M± GSF	3.5M± GSF	2.7M± GSF
Total Impervious Coverage	78± acres	86± acres	156± acres	166± acres
Total Developed Land Area	250± acres	280± acres	285± acres	271± acres
New Land Alteration	34± acres	64± acres	69± acres	55± acres
Trips per day	19,640± trips	19,996± trips	18,610± trips	17,620± trips

Summarize the mitigation measures proposed to offset the impacts of the preferred alternative:

<u>Mitigation Measures:</u>

Transportation

The following mitigation measures are proposed to offset the impacts of the proposed Capital Commerce Center Project (Preferred Alternative):

Transportation Infrastructure:

The Proponent has committed to the following improvements at the intersection of Main Street (Route 70) / Seven Bridge Road (Route 117):

- Modify traffic signal timings and parameters (traffic signal to be constructed as part of MassDOT Project No. 608779) post-occupancy to accommodate the additional traffic flow from the Project site.

The Proponent has committed to the following intersection improvements at the intersection of Lunenburg Road (Route 70) at McGovern Boulevard:

- Construct a fully-actuated traffic signal. Provide new demand-based vehicular and bicycle detection as part of the new traffic signal, as well as providing accommodations for emergency-vehicle pre-emption;
- Widen McGovern Boulevard to provide two eastbound travel lanes including an exclusive left-turn lane and an exclusive right turn-lane;
- Widen the Lunenburg Road northbound approach to introduce an exclusive left-turn lane operating under protected-permitted signal phasing;
- Widen Lunenburg Road southbound approach to introduce an exclusive right-turn lane operating under permissive-overlap signal phasing;
- Provide ADA/AAB-compliant pedestrian accommodations; including a crosswalk across McGovern Boulevard and Lunenburg Road, accessible ramps, and audio/vibratory pedestrian signal equipment; and
- Reconstruct private commercial driveways immediately north of McGovern Boulevard to accommodate the widened roadway.

Pedestrian Accommodations:

The Proponent will construct a five-foot sidewalk along each side of McGovern Boulevard to provide connectivity between land uses on the site and Lunenburg Road. This includes connectivity to the several retail parcels previously construction (Dunkin' and Mobil Gas Station), future retail as programmed for the parcels on the west side of Lunenburg Road, and the existing Kimball's Farms along the east side of Lunenburg Road. Additional pedestrian crossings will be provided across McGovern Boulevard within the site.

Bicycle Accommodations:

The Proponent is committed to constructed bicycle accommodations along McGovern Boulevard to provide connectivity between land uses on the site and Lunenburg Road. These bicycle accommodations will be in the form of shared-use lane markings (sharrows) and supplemented with MUTCD-compliant bicycle signage. In addition, bicycle racks will be provided on-site at various locations to promote the use of bicycle travel. Improvements along Lunenburg Road are generally short in nature and are along a high-speed arterial with wide-shoulders and therefore no formal bicycle improvements are proposed. As reconstructed, shoulders within the limits-of-work will be a minimum of 5-feet wide to support bicycle connectivity along the wide shoulders of the corridor.

Public Transportation Accommodations:

The Project is situated in the Montachusett Regional Transit Authority (MART); however currently no service is provided in the immediately vicinity of the site. There is currently no plan to extend or provide new service to the site as part of this Project.

Transportation Demand Management Measures

The Proponent has explored the feasibility of implementing, and committed to, a number of Transportation Demand Management (TDM) measures to reduce vehicular traffic and single-occupancy vehicle (SOV) trips to and from the site. A full compilation of TDM measures that the Proponent has committed to provide is described in the EENF and as follows:

- Employee Transportation Coordinator (ETC) – An ETC will be provided on-site to oversee, implement, monitor, and evaluate TDM measures, employed or funded by the Proponent. The ETC will be responsible for managing rideshare and carpool programs, as well as distributing information to employees to encourage alternative means of transportation. The ETC will be responsible for posting and distributing announcements, holding promotional events to encourage rideshare, bicycling, and walking.
- NuRide – The ETC will actively register employees with NuRide, as requested, to encourage ride-sharing and "green" trips. The ETC, with NuRide, will develop an employee rideshare program to encourage employees to seek alternatives to driving to work alone.
- Vanpool and Carpool – The Proponent, and the ETC, will encourage vanpool and carpooling participation through marketing, events and vanpool formation meetings. The ETC will implement a ride-matching program to assist employees in finding appropriate carpool matches. The ETC will contact employees to determine if they receive their match-lists, review the lists with them and see if they have contacted anyone on the list or would like assistance in contacting people.
- Guaranteed Ride Home Program – The ETC will be responsible for providing all employees who carpool, bicycle, or walk to work with an emergency ride home. This program eliminates the fear of being stranded on days that the employees are ridesharing or having to walk or bicycle in inclement weather conditions;
- Promotional Events and Activities – The ETC will be responsible for organizing promotional events and activities to encourage rideshare and alternative transportation means. In addition, the ETC will distribute brochures to all new employees and residents during, and post posters and bulletins on various subjects from carpooling to the Guaranteed Ride Home program throughout the site.
- Direct Deposit for Employees – The Proponent will encourage tenants to provide direct deposit for employees to reduce employee trips to the site.
- Site Amenities – The site includes several on-site amenities; such as Dunkin', Mobil Gas Station, and other future retail space currently not constructed. This location will assist in reducing vehicular demand and increase multi-use trips, which include: parking capacity sized to meet minimum local requirements without providing excessive parking.
- Preferential Parking – Provide preferential parking for rideshare, carpool, and hybrid vehicles at locations throughout the site's parking areas in close proximity to major entranceways. The designated spaces will be monitored to ensure that the license plates of those employees parking in the spots each day match the registrations of participants. Employees will only be allowed to use these spaces on the days that they are carpooling;
- Electric Vehicle Stations – Provide electric vehicle charging stations at locations throughout the site's parking areas in close proximity to major entranceways;
- Provide Tractor-trailer Parking On-Site – The site will include parking spaces for tractor-trailers to be stored on-site. As an industrial park complex, this will minimize the need for tractor trailers, which create higher levels of emissions, to make additional site trips to/from a separate location to park when unneeded as part of the day-to-day commerce.
- Reduced Parking Supply – The Proponent is committed to reducing the parking supply by providing minimal number of parking spaces below Town of Lancaster Zoning requirements to a level of the demand need only.
- Pedestrian Signal Equipment – Install new pedestrian signal equipment at the intersection of Lunenburg Road at McGovern Boulevard;

- Sidewalk Connectivity - Provide connectivity of sidewalk infrastructure along McGovern Boulevard to land uses within the site and Lunenburg Road;
- Bicycle Accommodations - Provide striping improvements for sharrows along McGovern Boulevard with complementary bike signs;
- ADA/AAB Compliance in Vicinity of Site - Provide ADA/AAB improvements at curb ramps near the site;
- Bicycle Racks - Provide secure, weather protected, long-term bicycle parking for employees at designated locations within the site. Provide bicycle racks for short-term users at several locations on-site; and
- Employee Shower Facilities - Coordinate with tenants to provide showers for employees who commute by walking or biking.
- Traffic Monitoring Program – The Proponent is committed to implement a Traffic Monitoring Program (TMP), which is intended to monitor traffic operations and parking occupancy throughout the construction and for a period following completion of the Project. The scope of the EMP will be developed in coordination with MassDOT, and will include providing traffic counts, TDM compliance, and parking information to the MassDOT District 3 office and the Town of Lancaster.

Utilities

An on-site wastewater treatment plant (WWTP) is proposed in the central portion of the Site along the southern boundary to treat approximately 157,385± GPD of sewer flow generated by the Project. The existing on-site sewage systems that currently serve Dunkin' and Mobil Gas may eventually be abandoned and those facilities will be connected to the new WWTP. Refer to **Appendix C** for additional details.

A 2.5± mile water line extension is proposed from Lunenburg to service the approximately 157,385± GPD water service required by the Project. The existing public and private water supply wells will be abandoned and facilities that are currently served by the PWS will be connected to the new water system. The Project will implement efficient water use strategies to reduce overall potable water use on-site. The existing on-site water tank may be maintained and will provide supplemental fire suppression service to the Site as needed.

Power and telecommunication services will extend and be upgraded in McGovern Boulevard from Lunenburg Road to service the central and eastern portions of the Site. The western portion of the site will likely be serviced from existing infrastructure located in Johnny Appleseed Lane or White Pond Road. Power and telecommunication services will be fully coordinated with the utility provider and municipality during the design phase.

Stormwater

The Project will increase the amount of impervious area by approximately 152.7± acres. The resulting increase in runoff will be mitigated by the construction of surface and subsurface infiltration/detention basins. The drainage system will be designed to meet or exceed MassDEP Standards by attenuating runoff rates to less than the pre-development condition, providing treatment and TSS removal prior to infiltration and discharge, and promoting groundwater recharge. Additional Best Management Practices (BMPs), such as deep sump and hooded catch basins, proprietary stormwater quality units, and forebays, will be incorporated into the design to further enhance the systems treatment effectiveness. A brief summary of the Standards is described below.

Standard #1: No New Untreated Discharges
The Project will be designed so that proposed impervious areas shall be collected and passed through

the proposed drainage systems for treatment prior to discharge. Therefore, there will be no new untreated discharges proposed as part of the Project.

Standard #2: Peak Rate Attenuation
The Project and associated proposed stormwater management systems will be designed so that post-development peak rates of runoff are below pre-development conditions for the 2-, 10-, 25- and 100-year storm events at all design points.

Standard #3: Recharge
Proposed stormwater management systems will be designed to ensure that groundwater recharge is provided for the increase in impervious area associated with the Project. Recharge will be provided in accordance with the guidance provided in Volumes 2 & 3 of the Massachusetts Stormwater Handbook. Infiltration BMPs will be designed to drain completely within 72 hours of the end of the storm event, and drawdown calculations will be included in the associated Stormwater Reports prepared for the proposed Project. Soil testing will be performed at the locations of all infiltration BMPs to ensure adequate separation to estimated seasonal high groundwater (ESHGW) is provided in accordance with the Standards.

Standard #4: Water Quality
Water quality treatment will be provided via, but not limited to, deep sump catch basins, proprietary water quality units, forebays and stormwater infiltration basins. Proposed infiltration basins will meet or exceed the required 1-inch water quality volume below the lowest outlet for water quality treatment. Stormwater management systems will be designed to provide 44% TSS removal for pretreatment prior to infiltration, and a total of 80% minimum TSS removal prior to discharge to wetland resource areas.

Standard #5: Land Use with Higher Potential Pollutant Loads
The proposed Project involves "Land Uses with Higher Potential Pollutant Loads" because on-site vehicular trips per day are expected to exceed 1,000. Accordingly, the Project will provide 44% TSS removal prior to infiltration, and infiltration basins and proprietary treatment units will be designed for the 1-inch water quality volume.

Standard #6: Critical Areas
The Site contains critical areas, therefore the stormwater management systems will be designed for the 1-inch water quality volume, will provide 44% TSS removal prior to infiltration, and will provide a total of 80% TSS removal. Stormwater systems will be designed in accordance with Volume 2 of the Stormwater Handbook.

Standard #7: Redevelopment
The Project is considered a mix of new development and redevelopment; however, the Site will be designed as if it is a new development.

Standard #8: Construction Period Pollution Prevention and Erosion and Sedimentation Control
The proposed Project will provide construction period erosion and sedimentation controls including but not limited to construction exits, protection for stormwater inlets, protection around temporary material stock piles, and various other techniques. Portions of the Project that have not yet been designed or permitted are required to file a Notice of Intent with the US EPA, and the Project is required to implement a Stormwater Pollution Prevention Plan (SWPPP) during the construction period. The SWPPP will be prepared prior to the start of construction and will be implemented by the site contractor under the guidance and responsibility of the Project's proponent.

Standard #9: Operation and Maintenance Plan (O&M Plan)
An Operation and Maintenance (O&M) Plan will be provided as part of the associated Project filings. The O&M Plan outlines procedures and time tables for the long-term operation and maintenance of the proposed site stormwater management system, including initial inspections upon completion of construction, and periodic monitoring of the system components, in accordance with established practices and the manufacturer's recommendations. The O&M Plan includes a list of responsible parties for inspections and maintenance.

Standard #10: Prohibition of Illicit Discharges
The Proposed stormwater management systems will only convey allowable non-stormwater discharges (firefighting waters, irrigation, air conditioning condensates, etc.) and will not contain any illicit discharges from prohibited sources. An Illicit Discharge Statement will be provided in the associated Project filings.

Wetlands

The project Site contains wetland resource areas associated with White Pond, McGovern Brook and several of its tributary streams, as well as several isolated wetlands. The water line extension route along roadways in Lunenburg and Leominster includes two, unnamed perennial streams and associated wetlands. Regulated resource areas on the Site include: Bordering Vegetated Wetlands (BVW), Inland Bank, Riverfront Area, Land Under Water, ponds (as defined in the Lancaster Wetland Bylaw), vernal pools, Bordering Land Subject to Flooding (FEMA-mapped 100-year floodplain), Isolated Land Subject to Flooding (ILSF), and Isolated Vegetated Wetland.

In the fall of 2018, EcoTec, Inc. delineated wetland resource areas and obtained an Order of Resource Area Delineation ("ORAD") under DEP File: CE 193-0554 for the central portion of the project Site. The approved wetland boundaries and associated buffers are depicted on the project plans, included in **Appendix B**. During the course of review for the ORAD, it was noted that a farm pond/wash pond had been recently filled. This feature was noted on the approved plans as "Approximate Limits of Former Farm Pond/Wash Pond (to be mitigated). Area = 1,815+ square feet." An agreement was reached with the Lancaster Conservation Commission, that mitigation for the fill in this area would be provided as part of any future project to be permitted on the site.

Wetland resource areas, impacts, and mitigation on the eastern portion of the Site were approved by the Lancaster Conservation Commission via multiple Notices of Intent applications for which Orders of Conditions were issued between Fall of 2013 and Spring of 2017. These permits generally include the following:

- DEP File #193-0503
  Date of Issue: 9/18/13 (with subsequent amendment and extension)
  For: F.C. Stars Soccer Complex

- DEP File #193-0504
  Date of Issue: 10/3/13 (with subsequent amendment)
  For: Mobil Gas Station

- DEP File #193-0531
  Date of Issue: 6/28/16
  For: F.C. Stars Club House

- DEP File #193-0542
  Date of Issue: 4/25/17
  For: Well Construction

- DEP File #193-0543
  Date of Issue: 4/25/17
  For: Well Construction / Water Line

A summary of the total impacts and mitigation proposed as part of the Project are described in Section II of the Wetlands, Waterways and Tidelands Section of the ENF. No additional direct alterations to BVW are anticipated as part of the proposed Master Plan, however, approximately 420,000± SF of additional Riverfront Area (RA) and 115,000± SF of Bordering Land Subject to Flooding (BLSF) impact is anticipated in addition to the impacts identified in the previous Orders. The future impacts to RA and BLSF and proposed mitigation will be quantified once the Master Plan evolves. All work that falls under the jurisdiction of the Lancaster Conservation Commission will be subject to future Notice of Intent filings.

Wetland resource areas on the western portion of the Site have not yet been field delineated, however, based on available GIS data, there are no direct impacts anticipated.

Wetlands associated with the proposed water line extension from Lunenburg have not yet been delineated but are expected to be well-defined by the limits of disturbance associated with the existing public roadways.

Construction

The Project will provide construction period erosion and sedimentation controls as required by the National Pollutant Discharge Elimination System (NPDES) General Construction Permit (CGP). This will include a proposed construction entrance, protection for stormwater inlets, temporary sediment basins, protection around temporary material stock piles, and various other best management practices. The Project will require filing of a Notice of Intent (NOI) with the United States Environmental Protection Agency (US EPA). A Stormwater Pollution Prevention Plan (SWPPP) will be prepared prior to the start of construction and will be implemented by the site contractor under the guidance and responsibility of the projects proponent.

An Operation and Maintenance (O&M) Plan for this Site will be included with the project Drainage Report to be included with local permit applications. The O&M Plan will outline procedures and time tables for the long-term operation and maintenance of the proposed site stormwater management system, including initial inspections upon completion of construction, and periodic monitoring of the system components, in accordance with established practices and the manufacturer's recommendations. The O&M will include a list of responsible parties, and the stormwater management system will be maintained by the owner and/or the owner's representative.

If the project is proposed to be constructed in phases, please describe each phase:

Project Phasing:

As is typical for a project of this scale, the build-out will occur in multiple phases over several years. At this time, the project is in very early stages of design development and, therefore, the overall phasing sequence has not yet been determined. The build-out will ultimately be dictated by market demand as individual tenants, buyers, or builders are identified and secured by the proponent.

As described in previous sections of this ENF, there are several components of the Master Plan that have already been constructed. These components were initially permitted as stand-alone projects, but as requested by MEPA during informal meetings, are now retroactively included in the overall Master Plan and MEPA filings so that their cumulative impacts can be considered and quantified. These components include the following uses along with the associated access, utility and drainage infrastructure:

- Dunkin'
- Mobil Gas Station
- F.C. Stars Soccer Complex

The proponent has executed a purchase and sales agreement for the Automotive Sales and Service Facility (Use "F" on the Preferred Master Plan), and is currently in discussions with potential suitors for buildings "B" and "D". It is likely that these components of the Master Plan will be constructed in advance of other uses. Based on this, the proponent anticipates the following phasing sequence:

- Phase 1 – existing components described above
- Phase 2 – construction of the primary access road (extension of McGovern Boulevard) concurrent with construction of the water line extension and wastewater treatment plant. This phase would likely include abandonment of the existing water and sewer infrastructure that currently serves Dunkin' and Mobil Gas, as well as connections to the new water infrastructure.
- Phase 3 – construction of the Automotive Sales and Service Facility (Use "F"), as well as industrial uses "B" & D".
- Future phases - as previously mentioned, subsequent phases will be determined based on market demand.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:

Is the project within or adjacent to an Area of Critical Environmental Concern?
☒Yes (Specify: Central Nashua River Valley ACEC)
☐No
if yes, does the ACEC have an approved Resource Management Plan? ___ Yes X No;
If yes, describe how the project complies with this plan.
_____

Will there be stormwater runoff or discharge to the designated ACEC? X Yes ___ No;
If yes, describe and assess the potential impacts of such stormwater runoff/discharge to the designated ACEC.

Stormwater runoff generated from the Site will be designed to meet or exceed the aforementioned MassDEP Stormwater Standards. The design and construction of surface and subsurface detention/infiltration basins will be assessed and incorporated into the final Project. In addition, best management practices (BMPs), such as deep sump and hooded catch basins, proprietary water quality treatment units, and forebays will be incorporated into the design to further enhance the systems treatment effectiveness.

RARE SPECIES:

Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species? (see http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/priority_habitat_home.htm)
☐Yes (Specify_____) ☒No

HISTORICAL /ARCHAEOLOGICAL RESOURCES:

Does the project site include any structure, site or district listed in the State Register of Historic Place

or the inventory of Historic and Archaeological Assets of the Commonwealth?
☐Yes (Specify_____) ☒No

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? ☐Yes (Specify_____) ☐No

A review of the Massachusetts Cultural Resource Information System (MACRIS) indicated that there are no historic properties or areas located on or near the Site.

WATER RESOURCES:

Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site?
XYes __No; if yes, identify the ORW and its location.

One (1) certified vernal pool is located in the western portion of the site (Refer to the MassGIS NHESP Map in **Appendix A**). In addition, the North Nashua River, located south of the project Site, is considered a Class B Outstanding Resource Water.

(NOTE: Outstanding Resource Waters include Class A public water supplies, their tributaries, and bordering wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern, and certified vernal pools. Outstanding resource waters are listed in the Surface Water Quality Standards, 314 CMR 4.00.)

Are there any impaired water bodies on or within a half-mile radius of the project site? XYes ___ No; if yes, identify the water body and pollutant(s) causing the impairment:_

North Nashua River: Taste & Odor, E.coli
Fall Brook: Not Assessed
White Pond: Non-Native Aquatic Plants
Spectacle Pond: Not Assessed

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? XYes __ No

Based on Figure 5: Stressed Basin Map, provided in a report entitled, "Stressed Basins in Massachusetts", prepared by the Commonwealth of Massachusetts Water Resources Commission, dated December 13, 2001, flows from the site are located within the Nashua Watershed which is identified as a medium Stress Basin. Refer to **Appendix A**.

STORMWATER MANAGEMENT:

Generally describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations:_____

The Dunkin' and Mobil Gas Station constructed along Lunenburg Road in the eastern portion of the Site installed separate stormwater management systems consisting of deep sumps and trap hoods and proprietary stormwater quality units prior to subsurface infiltration systems, ultimately providing treatment and groundwater recharge. The existing F.C. Stars Soccer Complex and associated parking lot in the eastern portion of the Site have been designed with a surface stormwater management system that provides treatment and groundwater recharge for runoff generated on-site. There is no stormwater infrastructure associate with the existing gravel pit in the central portion of the Site or horse farm in the western portion of the Site.
The Project will be designed in accordance with the MassDEP Stormwater Standards. Stormwater runoff will be treated for TSS removal with the use of deep sumps and trap hoods and proprietary stormwater quality units prior to any infiltration or outfall. The proposed drainage design will be consistent with maintaining natural drainage flow patterns to the extent practicable, and will utilize BMPs, including

surface and subsurface infiltration/detention systems to promote groundwater recharge, to the maximum extent feasible, and attenuate peak rates of runoff. The Proponent will work with the Town of Lancaster to evaluate and mitigate any potential impacts to resource areas on and surrounding the project Site.

MASSACHUSETTS CONTINGENCY PLAN:

Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan?
Yes ___ No X ; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification):_____

Is there an Activity and Use Limitation (AUL) on any portion of the project site? Yes ___ No X;
if yes, describe which portion of the site and how the project will be consistent with the AUL: _____.

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN?
Yes ___ No X ; if yes, please describe:_____

SOLID AND HAZARDOUS WASTE:

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:_____

The existing Site contains multiple small structures and a barn associated with the horse property, and a gravel pit operation. These structures will be razed. Minimal solid waste is expected to be generated during demolition of the Site. Refuse will be handled by on-site dumpsters that will routinely be emptied by a private waste disposal company. Excess materials will be reused or recycled when possible or will otherwise be properly disposed of to a licensed facility per the DEP regulations for Solid Waste Facilities, 301 CMR 16.00.

(NOTE: Asphalt pavement, brick, concrete and metal are banned from disposal at Massachusetts landfills and waste combustion facilities and wood is banned from disposal at Massachusetts landfills. See 310 CMR 19.017 for the complete list of banned materials.)

Will your project disturb asbestos containing materials? Yes ___ No X ;
if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

Describe anti-idling and other measures to limit emissions from construction equipment: _____

The Proponent will take the following reasonable efforts to minimize impacts associated with Construction efforts:

- Equipment will not needlessly idle on site during construction
- Enclosures or barriers will be provided on small equipment that operates continuously
- Equipment used throughout construction will be maintained properly with particular attention put to proper operation of equipment mufflers

DESIGNATED WILD AND SCENIC RIVER:

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? Yes ___ No X ;
if yes, specify name of river and designation:

If yes, does the project have the potential to impact any of the "outstandingly remarkable" resources of a federally Wild and Scenic River or the stated purpose of a state designated Scenic River?
Yes ___ No ___ ; if yes, specify name of river and designation: _____;
if yes, will the project will result in any impacts to any of the designated "outstandingly remarkable"

resources of the Wild and Scenic River or the stated purposes of a Scenic River.
Yes ___ No ___ ;
if yes, describe the potential impacts to one or more of the "outstandingly remarkable" resources or stated purposes and mitigation measures proposed.

ATTACHMENTS:

1. List of all attachments to this document.
2. U.S.G.S. map (good quality color copy, 8-½ x 11 inches or larger, at a scale of 1:24,000) indicating the project location and boundaries.
3.. Plan, at an appropriate scale, of existing conditions on the project site and its immediate environs, showing all known structures, roadways and parking lots, railroad rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities.
4 Plan, at an appropriate scale, depicting environmental constraints on or adjacent to the project site such as Priority and/or Estimated Habitat of state-listed rare species, Areas of Critical Environmental Concern, Chapter 91 jurisdictional areas, Article 97 lands, wetland resource area delineations, water supply protection areas, and historic resources and/or districts.
5. Plan, at an appropriate scale, of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase).
6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).
7. List of municipal and federal permits and reviews required by the project, as applicable.

Refer to the Appendices section of this document for the attachments listed above.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
X Yes ___ No; if yes, specify each threshold:

11.03 (1)(a)(1) – Direct alteration of 50 or more acres of land (EIR)
11.03 (1)(a)(2) – Creation of 10 or more acres of impervious area (EIR)
11.03 (1)(b)(1) – Direct alteration of 25 or more acres of land (ENF)
11.03 (1)(b)(2) – Creation of 5 or more acres of impervious area (ENF)

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

	Existing	Change	Total
Footprint of buildings	1.0±	+49.1±	50.1±
Internal roadways	1.4±	+5.4±	6.8±
Parking and other paved areas	10.9±	+51.2±	62.1±
Other altered areas	202.9±	- 50.7±	152.2±
Undeveloped areas	254.8±	- 55.0±	199.8±
Total: Project Site Acreage	471±	0	471±

* The current project Site has been developed with McGovern Road, Dunkin', Mobil Gas Station and F.C. Stars Soccer Complex with associated parking areas. These areas are associated with the overall Project and are considered part of the proposed development, and therefore are included in the total development areas rather than existing areas in the table above.

B. Has any part of the project site been in active agricultural use in the last five years?
___ Yes X No; if yes, how many acres of land in agricultural use (with prime state or locally important agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?
___ Yes X No; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a forest management plan approved by the Department of Conservation and Recreation:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? ___ Yes X No; if yes, describe:

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction?
___ Yes X No; if yes, does the project involve the release or modification of such restriction?
___ Yes ___ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ___ Yes X No; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ___ No X; if yes, describe:

III. Consistency

A. Identify the current municipal comprehensive land use plan
Title: Lancaster Master Plan
Date: December 2007

B. Describe the project's consistency with that plan with regard to:
1) economic development _____

The proposed Capital Commerce Center Project is consistent with Lancaster's 2007 Master Plan vision for strengthening the Town's economic development. The area along Route 2 and Route 70 (Lunenburg Road) was designated as an Economic Opportunity Area in 1990 and was labeled as an Enterprise Area in the Master Plan. The Town strives to provide beneficial and easily available services to Lancaster residents and to attract good job opportunities nearby. Some of the strategies outlined in the Master Plan that are being addressed by the proposed Project include the consideration of more areas for multi-family development and some high-end single-family development, linking businesses to recreation activities through locational choices, encouraging development by enhancing traffic and public water infrastructure, creating mixed-use development, and ensuring environmental protection of natural resources. The proposed mixed-use development will help to diversify the tax base to include a larger non-residential share, helping to ease the tax burden on residential property, which is one of the Town's main strategies. It should be noted that only a minority of the workers living in Lancaster work within the Town. The strategies indicated above aim to enhance the economic development in Town and can enhance the quality of life in Lancaster by opening more job opportunities to residents, and possibly shortening commuting times, distances and overall environmental costs. The Project will align with the goals and objectives of the Town and will create various economic opportunities in the area.

2) adequacy of infrastructure _____

The Site has access to electric and telecommunication services in Lunenburg Road, Johnny Appleseed Lane and White Pond Road. To accommodate future growth, the Project proposes to service the future development with a new on-site wastewater treatment plant. A 2.5± mile water line extension from the Town of Lunenburg is also proposed to service the Site

3) open space impacts _____

Lancaster prides itself in its natural resources and strives to protect these areas in conjunction with planning future development. The Site is located adjacent to the Lancaster State Forest and within the Central Nashua River Valley ACEC, which was designated to bring attention to and better protect the associated rivers, wetlands and ponds, and associated wildlife. The Site includes McGovern Brook, tributary streams, and priority wetlands. No impacts are proposed within designated open space areas and the Proponent will work with the Town of Lancaster to designate open space areas on the Site where feasible.

4) compatibility with adjacent land uses_____

The proposed Project remains consistent with the adjacent land uses. The Site is surrounded by the Enterprise District, EZ-A Sub-district and Residential Zoning Districts. The IPOD-1 allows any use that is allowed by right or allowable by special permit in at least one of the underlying zoning districts, which provides flexibility and encourages mixed-use development as proposed for the Capital Commerce Center Project.

C. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)
RPA: Montachusett Regional Planning Commission

Title: Montachusett Region Comprehensive Economic Development Strategy
Date: February 2014

Title: Montachusett Regional Strategic Framework Plan
Date: April 2011

D. Describe the project's consistency with that plan with regard to:
1) economic development _____

The Project will align with the objectives of the regional plan and will create additional economic opportunity for new businesses in the area. The Comprehensive Economic Development Strategy reveals that this area has been targeted by the Town of Lancaster for mixed-use development for years. The area was designated as an Economic Opportunity Area in 1990 and in the 2007 Master Plan labeled as an Enterprise Area. The creation of the IPOD districts were also meant to promote new businesses and improvements to the area. The Regional Strategic Framework Plan identifies the IPOD-1 as a Priority Housing Area, and areas around Exit 35 off State Route 2 as Economic Development Priority Areas. It is noted that Lancaster's mixed use "IPOD" mixed-use areas can serve as a model for other communities in the Montachusett region to develop mixed-use centers.

2) adequacy of infrastructure _____

The Regional Strategic Framework Plan objectives indicate using infrastructure efficiently and limiting impacts on existing demands and municipal services. To accommodate future growth, the Project proposes to service the future development with a new on-site wastewater treatment plant. A 2.5± mile water line extension from Lunenburg is also proposed to service the Site, and is identified by the Town in the Comprehensive Economic Development Strategy as a potential economic development improvement to this area.

In addition, The Regional Strategic Framework Plan points out that adequate transportation and associated infrastructure are necessary to support development and mixed-use growth. The Project, as described further in the Transportation section of this document and in **Appendix C**, proposes various transportation improvements to the Site as well as Lunenburg Road for the development of the Site.

3) open space impacts _____

The regional plans discuss the preservation of open space, resource areas and protected areas. The vast network of wetland resource areas on-site limits the developable area on-site and will ensure significant wildlife habitats are protected as a result of the future build-out. In addition, the proposed Project will meet the open space requirements as required by the Town of Lancaster.

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ___ Yes X No; if yes, specify, in quantitative terms:

(NOTE: If you are uncertain, it is recommended that you consult with the Natural Heritage and Endangered Species Program (NHESP) prior to submitting the ENF.)

B. Does the project require any state permits related to **rare species or habitat**? ___ Yes X No

C. Does the project site fall within mapped rare species habitat (Priority or Estimated Habitat?) in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes X No.

Refer to the MassGIS NHESP Map in **Appendix A**.

D. If you answered "No" to all questions A, B and C, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes ___ No. If yes,

1. Have you consulted with the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP)? ___Yes ___No; if yes, have you received a determination as to whether the project will result in the "take" of a rare species? ___ Yes ___ No; if yes, attach the letter of determination to this submission.

2. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, provide a summary of proposed measures to minimize and mitigate rare species impacts

3. Which rare species are known to occur within the Priority or Estimated Habitat?

4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? ___ Yes ___ No

4. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? ___ Yes ___ No; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? ___ Yes ___ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, provide a summary of proposed measures to minimize and mitigate impacts to significant habitat:

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? ___ Yes X No; if yes, specify, in quantitative terms:

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? X Yes ___ No; if yes, specify which permit:

The Project will be required to file a Notice of Intent with the Lancaster Conservation Commission.

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? X Yes ___ No; if yes, has a Notice of Intent been filed? X Yes ___No; if yes, list the date and MassDEP file number: See list provided on Pages 16 & 17*; if yes, has a local Order of Conditions been issued? X Yes ___ No; Was the Order of Conditions appealed? __ Yes X No. Will the project require a Variance from the Wetlands regulations? __ Yes X No.

* Additional Notice of Intent filings will be required.

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site:

The Project proposes minimal impacts to wetland resource areas on-site. The Orders of Conditions previously issued by the Conservation Commission for the eastern portion of the project Site are provided in **Appendix C** and further describe any associated impacts.

C. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

Coastal Wetlands	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Land Under the Ocean		
Designated Port Areas		
Coastal Beaches		
Coastal Dunes		
Barrier Beaches		
Coastal Banks		
Rocky Intertidal Shores		
Salt Marshes		
Land Under Salt Ponds		
Land Containing Shellfish		
Fish Runs		
Land Subject to Coastal Storm Flowage		
Inland Wetlands		
Bank (lf)		
Bordering Vegetated Wetlands		
Isolated Vegetated Wetlands		
Land under Water		
Isolated Land Subject to Flooding		
Bordering Land Subject to Flooding	15,295± SF	Previous - permanent
	115,000± SF	Future - permanent
Riverfront Area	22,590± SF	Previous - permanent
	19,644± SF	Previous - temporary
	420,000± SF	Future - permanent

D. Is any part of the project:

1. proposed as a **limited project**? ___ Yes X No; if yes, what is the area (in sf)?____
2. the construction or alteration of a **dam**? ___ Yes X No; if yes, describe:

3. fill or structure in a **velocity zone** or **regulatory floodway**? ___ Yes X No
4. dredging or disposal of dredged material? ___ Yes X No; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to an **Outstanding Resource Water (ORW)** or an **Area of Critical Environmental Concern (ACEC)**? X Yes ___ No
6. subject to a wetlands restriction order? ___ Yes X No; if yes, identify the area (in sf):
7. located in buffer zones? X Yes ___No; if yes, how much (in sf): 995,309± sf

E. Will the project:
1. be subject to a local wetlands ordinance or bylaw? X Yes ___ No
2. alter any federally-protected wetlands not regulated under state law? ___ Yes X No; if yes, what is the area (sf)?

III. Waterways and Tidelands Impacts and Permits

A. Does the project site contain waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? ___ Yes X No; if yes, is there a current Chapter 91 License or Permit affecting the project site? ___ Yes ___ No; if yes, list the date and license or permit number and provide a copy of the historic map used to determine extent of filled tidelands:

B. Does the project require a new or modified license or permit under M.G.L.c.91? ___ Yes X No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water-dependent use? Current ___ Change ___ Total ___
If yes, how many square feet of solid fill or pile-supported structures (in sf)?

C. For non-water-dependent use projects, indicate the following:
Area of filled tidelands on the site:_____
Area of filled tidelands covered by buildings:_____
For portions of site on filled tidelands, list ground floor uses and area of each use:
_____
Does the project include new non-water-dependent uses located over flowed tidelands?
Yes ___ No ___
Height of building on filled tidelands_____

Also show the following on a site plan: Mean High Water, Mean Low Water, Water-dependent Use Zone, location of uses within buildings on tidelands, and interior and exterior areas and facilities dedicated for public use, and historic high and historic low water marks.

D. Is the project located on landlocked tidelands? ___ Yes X No; if yes, describe the project's impact on the public's right to access, use and enjoy jurisdictional tidelands and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

E. Is the project located in an area where low groundwater levels have been identified by a municipality or by a state or federal agency as a threat to building foundations?
___Yes X No; if yes, describe the project's impact on groundwater levels and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

F. Is the project non-water-dependent **and** located on landlocked tidelands **or** waterways or tidelands subject to the Waterways Act **and** subject to a mandatory EIR?
___ Yes X No;
(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)

G. Does the project include dredging? ___ Yes X No; if yes, answer the following questions:

What type of dredging? Improvement ___ Maintenance ___ Both ____

What is the proposed dredge volume, in cubic yards (cys) _____

What is the proposed dredge footprint ____length (ft) ___width (ft)____depth (ft);

Will dredging impact the following resource areas?
Intertidal Yes__ No__; if yes, ___ sq ft
Outstanding Resource Waters Yes__ No__; if yes, ___ sq ft
Other resource area (i.e. shellfish beds, eel grass beds) Yes__ No__;
if yes __ sq ft
If yes to any of the above, have you evaluated appropriate and practicable steps to: 1) avoidance; 2) if avoidance is not possible, minimization; 3) if either avoidance or minimize is not possible, mitigation?
If no to any of the above, what information or documentation was used to support this determination?

Provide a comprehensive analysis of practicable alternatives for improvement dredging in accordance with 314 CMR 9.07(1)(b). Physical and chemical data of the sediment shall be included in the comprehensive analysis.

Sediment Characterization
Existing gradation analysis results? __Yes ___No: if yes, provide results.
Existing chemical results for parameters listed in 314 CMR 9.07(2)(b)6? ___Yes ____No; if yes, provide results.

Do you have sufficient information to evaluate feasibility of the following management options for dredged sediment? If yes, check the appropriate option.

Beach Nourishment ___
Unconfined Ocean Disposal ___
Confined Disposal:
Confined Aquatic Disposal (CAD) ___
Confined Disposal Facility (CDF) ___
Landfill Reuse in accordance with COMM-97-001 ___
Shoreline Placement ___
Upland Material Reuse____
In-State landfill disposal____
Out-of-state landfill disposal ____
(NOTE: This information is required for a 401 Water Quality Certification.)

IV. Consistency:
A. Does the project have effects on the coastal resources or uses, and/or is the project located within the Coastal Zone? ___ Yes X No; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

B. Is the project located within an area subject to a Municipal Harbor Plan? ___ Yes X No; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

WATER SUPPLY SECTION

I. Thresholds / Permits
A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? __ Yes X No; if yes, specify, in quantitative terms: + 157,385 ± GPD

B. Does the project require any state permits related to **water supply**? X Yes ___ No; if yes, specify which permit:

Water Distribution System Modification Permit (MassDEP)
C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits

A. Describe, in gallons per day (gpd), the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Municipal or regional water supply	0	+157,385±	157,385±
Withdrawal from groundwater*	2,000±	-2,000±	0
Withdrawal from surface water	0	0	0
Interbasin transfer	0	0	0

* Existing withdrawal is associated with the recently constructed Dunkin' and Mobil Gas Station properties. Private well withdrawal associated with the existing residence/horse farm in the western portion of the Site, and JB Hunt Trucking property in the eastern portion of the site are unknown.

(NOTE: Interbasin Transfer approval will be required if the basin and community where the proposed water supply source is located is different from the basin and community where the wastewater from the source will be discharged.)

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? X Yes ___ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source, has a pumping test been conducted? ___ Yes ___ No; if yes, attach a map of the drilling sites and a summary of the alternatives considered and the results. N/A

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons per day)? 1.44M GPD Will the project require an increase in that withdrawal? __ Yes _X_ No; if yes, then how much of an increase (gpd)?

Based on conversations with the Lunenburg water department the permitted pumping rate of the source must be increased to satisfy the demand of the project.

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? X Yes ___No. If yes, describe existing and proposed water supply facilities at the project site:

The existing Dunkin' and Mobil Gas Station properties located at the corner of McGovern Boulevard and Lunenburg Road in the eastern portion of the Site are currently serviced by two (2) public water supply wells located on the Site. An existing water tank located on-site currently provides fire protection services to fire hydrants located in McGovern Boulevard and Lunenburg Road, as well as service to the offsite Nationwide Auto Recycling facility. The project proposes to construct a 2.5± mile water line extension from Lunenburg to McGovern Boulevard to service the Site. Upon completion of the water line extension, the public water supply wells will be abandoned and the two (2) properties will be serviced by the new water main. If adequate capacity and pressure is available, fire service will be provided to the Site from the new water main, otherwise the existing water tank will supplement fire protection services.

	Permitted Flow	Existing Avg Daily Flow	Project Flow	Total
Capacity of water supply well(s) (gpd)	2,000±	2,000±	0	0 *
Capacity of water treatment plant (gpd)	_____	_____	_____	_____

*The Project proposes a new 2.5± mile water line extension from Lunenburg to service the Site. Existing public supply wells will be abandoned and the properties will be serviced by the new water line, therefore there is no proposed project flow and no total flow as indicated in the table above.

F. If the project involves a new interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

N/A

G. Does the project involve:

1. new water service by the Massachusetts Water Resources Authority or other agency of the Commonwealth to a municipality or water district? ___ Yes X No
2. a Watershed Protection Act variance? ___ Yes X No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities? ___ Yes X No

III. Consistency

Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

The Project will implement efficient water use strategies to reduce overall potable water use on-site such as the installation of low-flow plumbing fixtures and installation of water conservation equipment for irrigation infrastructure.

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? X Yes ___ No; if yes, specify, in quantitative terms: +157,385 ± GPD

B. Does the project require any state permits related to **wastewater**? X Yes ___ No; if yes, specify which permit:

Individual Permit for Sewerage Treatment Plant (BRP WP79) - MassDEP
Hydrogeologic Evaluation Report Approval (WP83) - MassDEP

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe the volume (in gallons per day) and type of disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00 for septic systems or 314 CMR 7.00 for sewer systems):

	Existing	Change	Total
Discharge of sanitary wastewater	2,000±	+ 31,750±	33,750±
Discharge of industrial wastewater	____0____	0	0
TOTAL	2,000±	+ 31,750±	33,750±

	Existing	Change	Total
Discharge to groundwater	2,000±	-2,000±	___0_____
Discharge to outstanding resource water	___0_____	___0_____	___0_____
Discharge to surface water	___0_____	___0_____	___0_____
Discharge to municipal or regional wastewater facility	___0_____	+ 33,750±	33,750±
TOTAL	2,000±	+ 31,750±	33,750±

B. Is the existing collection system at or near its capacity? ___ Yes X No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

C. Is the existing wastewater disposal facility at or near its permitted capacity? ___ Yes _X No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? X Yes
___ No; if yes, describe as follows:

The recently constructed Dunkin' and Mobil Gas Station located in the eastern portion of the Site are serviced by on-site sewage disposal systems that are sized for approximately 1,000± GPD sewer flow generated by each use. The existing JB Hunt Trucking facility located in the eastern portion of the Site and the existing residence and equestrian use in the western portion of the Site are likely serviced by on-site sewage disposal systems.

A wastewater treatment plant (WWTP) is proposed as part of the Project to treat sewer flows generated on-site. The existing septic systems will be abandoned and the properties to be maintained will be connected to the new WWTP system.

	Permitted	Existing Avg Daily Flow	Project Flow	Total
Wastewater treatment plant capacity (in gallons per day)	_____	_____	157,385±	157,385±

E. If the project requires an interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or new?

(NOTE: Interbasin Transfer approval may be needed if the basin and community where wastewater will be discharged is different from the basin and community where the source of water supply is located.)

The Project will not require an interbasin transfer of wastewater.

F. Does the project involve new sewer service by the Massachusetts Water Resources Authority (MWRA) or other Agency of the Commonwealth to a municipality or sewer district? ___ Yes X No

G. Is there an existing facility, or is a new facility proposed at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, wastewater reuse (gray water) or other sewage residual materials? __ Yes _X_ No; if yes, what is the capacity (tons per day):

	Existing	Change	Total
Storage	_____	_____	_____
Treatment	_____	_____	_____
Processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the water conservation measures to be undertaken by the project, and other wastewater mitigation, such as infiltration and inflow removal.

The Project will introduce new watertight sewer mains which will limit infiltration entering the sewer system on-site. Design strategies will be incorporated to promote conservation of water use within the buildings and on-site, and to reduce potable water consumption. By reducing water consumption, the project will reduce wastewater discharges.

III. Consistency

A. Describe measures that the proponent will take to comply with applicable state, regional, and local plans and policies related to wastewater management:

The Project will comply with all applicable state, regional and local plans and policies, as required.

B. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ___ Yes X No; if yes, indicate the EEA number for the plan and whether the project site is within a sewer service area recommended or approved in that plan:

TRANSPORTATION SECTION (TRAFFIC GENERATION)

I. Thresholds / Permit

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? X Yes ___ No; if yes, specify, in quantitative terms:

11.03(6)(a)6: Generation of 3,000 or more new ADT on roadways providing access to a single location.
11.03(6)(a)7: Construction of 1,000 or more new parking spaces at a single location.
11.03(6)(b)1: Construction of a new roadway one-quarter or more miles in length.
11.03(6)(b)13: Generation of 2,000 or more new ADT on roadways providing access to a single location.
11.03(6)(b)14: Generation of 1,000 or more new ADT on roadways providing access to a single location and construction of 150 or more new parking spaces at a single location.
11.03(6)(b)15: Construction of 300 or more new parking spaces at a single location.

B. Does the project require any state permits related to **state-controlled roadways**? __ Yes X No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	353±	+3,109 ±	3,462 ±
Number of vehicle trips per day	6,356±	+11,264 ±	17,620 ±
ITE Land Use Code(s):	110,210,488 937,960	130,221,310 820	130,210,221 310,448,820, 937,960

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
1. Lunenburg Road*	10,977±	+5,645	16,622±
2. Mechanic Street**	6,727±	+1,545	8,272±

* represents Lunenburg, north of McGovern Boulevard (largest effect from project)
** represents Mechanic Street, east of White Pond Road (location of MassDOT AADT)

C. If applicable, describe proposed mitigation measures on state-controlled roadways that the project proponent will implement:

There are no mitigation measures proposed along state-controlled roadways.

D. How will the project implement and/or promote the use of transit, pedestrian and bicycle facilities and services to provide access to and from the project site?

Pedestrian Accommodations:

The Proponent will construct a five-foot sidewalk along each side of McGovern Boulevard to provide connectivity between land uses on the site and Lunenburg Road. This includes connectivity to the several retail parcels previously construction (Dunkin' and Mobil Gas Station), future retail as programmed for the parcels on the west side of Lunenburg Road, and the existing Kimball's Farms along the east side of Lunenburg Road. Additional pedestrian crossings will be provided across McGovern Boulevard within the site. Finally, the sidewalk network from McGovern Boulevard will branch out to the individual land uses within the site.

Bicycle Accommodations:

The Proponent is committed to constructed bicycle accommodations along McGovern Boulevard to provide connectivity between land uses on the site and Lunenburg Road. These bicycle accommodations will be in the form of shared-use lane markings (sharrows) and supplemented with MUTCD-compliant bicycle signage. In addition, bicycle racks will be provided on-site at various locations to promote the use of bicycle travel.

Public Transportation Accommodations:

The Project is situated in the Montachusett Regional Transit Authority (MART); however currently no service is provided in the immediately vicinity of the site. There is currently no plan to extend or provide new service to the site as part of this Project.

F. Is there a Transportation Management Association (TMA) that provides transportation demand management (TDM) services in the area of the project site? ____ Yes X No; if yes, describe if and how will the project will participate in the TMA:

G. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation facilities? ____ Yes X No; if yes, generally describe:

H. If the project will penetrate approach airspace of a nearby airport, has the proponent filed a Massachusetts Aeronautics Commission Airspace Review Form (780 CMR 111.7) and a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA)

(CFR Title 14 Part 77.13, forms 7460-1 and 7460-2)?

The project will file with the FAA at least 45 days prior to construction.

III. Consistency

Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

Lunenburg Road is under the jurisdiction of the Town of Lancaster. Throughout the permitting and design process, the Proponent will continue to meet with the Town and MassDOT, as well as conform to both Town of Lancaster and MassDOT in their design process. The Proponent is also committed to design and permit on-site transportation and driveway components through the Town of Lancaster Department of Planning and Department of Public Works utilizing the Town Zoning By-Laws and Site Plan Review Regulations.

TRANSPORTATION SECTION (ROADWAYS AND OTHER TRANSPORTATION FACILITIES)

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? ___ Yes X No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? ___ Yes X No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities in the immediate vicinity of the project site:

B. Will the project involve any

1. Alteration of bank or terrain (in linear feet)? _____
2. Cutting of living public shade trees (number)? _____
3. Elimination of stone wall (in linear feet)? _____

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? ___ Yes X No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? ___ Yes X No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you

answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	_____	_____	_____
Length of fuel line (in miles)	_____	_____	_____
Length of transmission lines (in miles)	_____	_____	_____
Capacity of transmission lines (in kilovolts)	_____	_____	_____

B. If the project involves construction or expansion of an electric generating facility, what are:

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way? ___Yes ___No; if yes, please describe:

D. Describe the project's other impacts on energy facilities and services:

III. Consistency

Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? ___ Yes X No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ___ Yes X No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)? ___ Yes ___ No; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter	_____	_____	_____
Carbon monoxide	_____	_____	_____
Sulfur dioxide	_____	_____	_____
Volatile organic compounds	_____	_____	_____
Oxides of nitrogen	_____	_____	_____
Lead	_____	_____	_____
Any hazardous air pollutant	_____	_____	_____
Carbon dioxide	_____	_____	_____

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? ___ Yes X No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**?
___ Yes X No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? ___ Yes ___ No; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ___ Yes ___ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Recycling	_____	_____	_____
Treatment	_____	_____	_____
Disposal	_____	_____	_____

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

D. If the project involves demolition, do any buildings to be demolished contain asbestos?
___ Yes ___ No

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

III. Consistency

Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Have you consulted with the Massachusetts Historical Commission? ___ Yes X No; if yes, attach correspondence. For project sites involving lands under water, have you consulted with the Massachusetts Board of Underwater Archaeological Resources? ____Yes X No; if yes, attach correspondence

A review of the Massachusetts Cultural Resource Information System (MACRIS) indicated that there are no historic properties or areas located on or near the Site.

B. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes X No; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ___ Yes ___ No; if yes, please describe:

C. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes X No; if yes, does the project involve the destruction of all or any part of such archaeological site? ___ Yes ___ No; if yes, please describe:

D. If you answered "No" to all parts of both questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

II. Impacts

Describe and assess the project's impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

III. Consistency

Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):
   (Name) Clinton Item published by Worcester Telegram & Gazette (Date) 5/31/19

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Signatures:

5/31/19			
Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing ENF (if different from above)
William Depietri		Michael Dryden	
Name (print or type)		Name (print or type)	
Capital Group Properties		Bohler Engineering	
Firm/Agency		Firm/Agency	
259 Turnpike Road, Suite 100		352 Turnpike Road	
Street		Street	
Southborough, MA 01772		Southborough, MA 01772	
Municipality/State/Zip		Municipality/State/Zip	
508 229-1810		508 480-9900	
Phone		Phone	

APPENDIX A: PROJECT MAPS

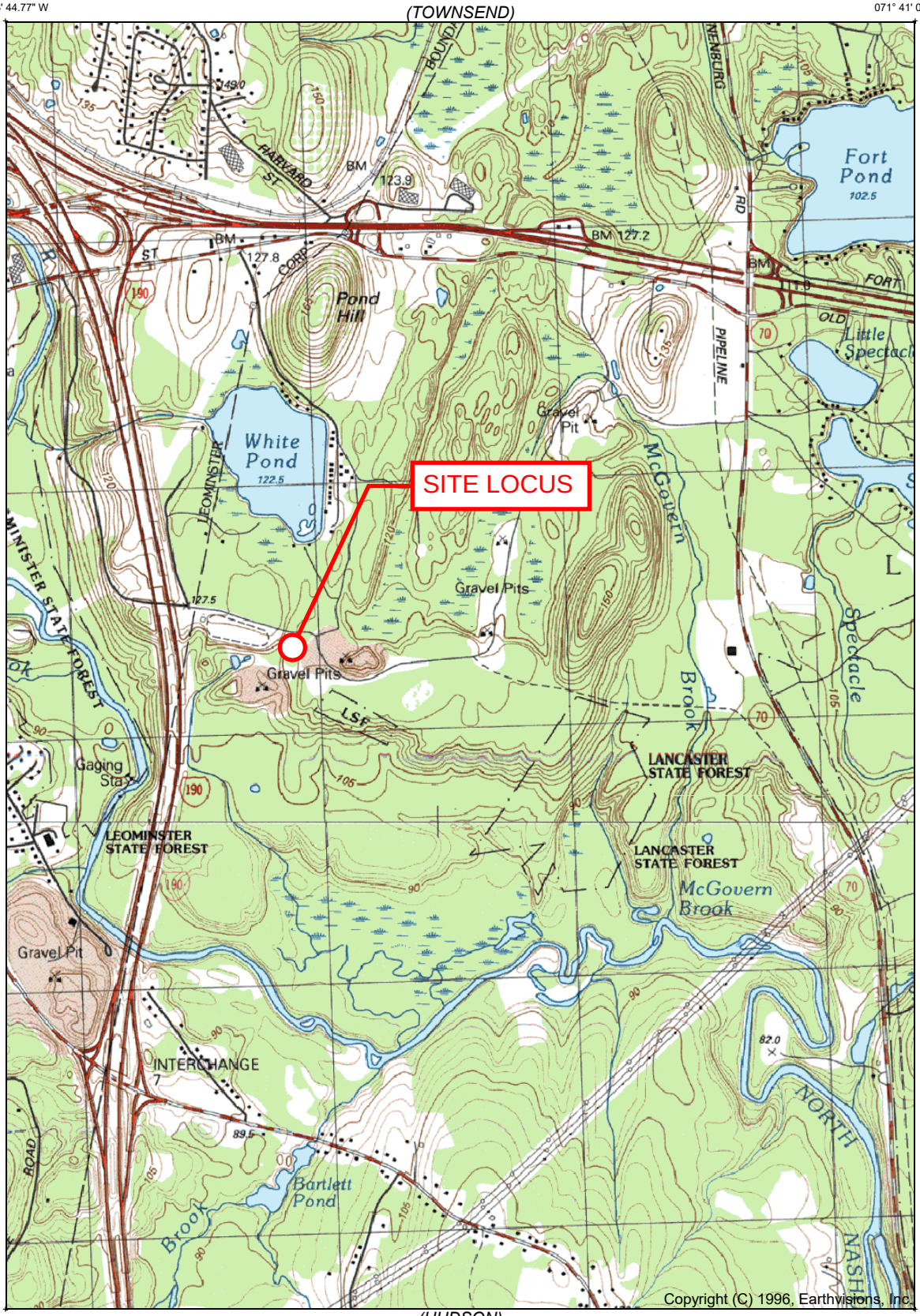
- *USGS Site Location Map*
- *Existing Site Aerial Map*
- *Town of Lancaster Zoning Map*
- *Town of Lancaster Zoning Overlay Map*
- *Town of Lancaster Integrated Planning Overlay Districts (IPOD) Map*
- *MassGIS Areas of Critical Environmental Concern (ACEC) Map*
- *MassGIS Natural Heritage & Endangered Species (NHESP) Map*
- *MassGIS Wetland Map*
- *MassGIS Interim Wellhead Protection Area (IWPA) + Outstanding Resource Water (ORW) Map*
- *FEMA + MassGIS Flood Insurance Rate (FIRM) Maps*
- *Natural Resources Conservation Service (NRCS) Soil Map*
- *Impaired Waters Map*
- *Massachusetts Stressed Basins Map*

(ASHBURNHAM) (TOWNSEND) (LOWELL)

071° 43' 44.77" W
042° 31' 44.44" N

071° 41' 04.33" W
042° 31' 44.44" N

(FITCHBURG)



(BILLERICA)

042° 28' 56.87" N
071° 43' 44.77" W

(HUDSON)

042° 28' 56.87" N
071° 41' 04.33" W

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(STERLING) (MAYNARD)

Declination

MN GN

GN 1.82° W
MN 14.81° W

SCALE 1:24000

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0 1000
YARDS

0 1
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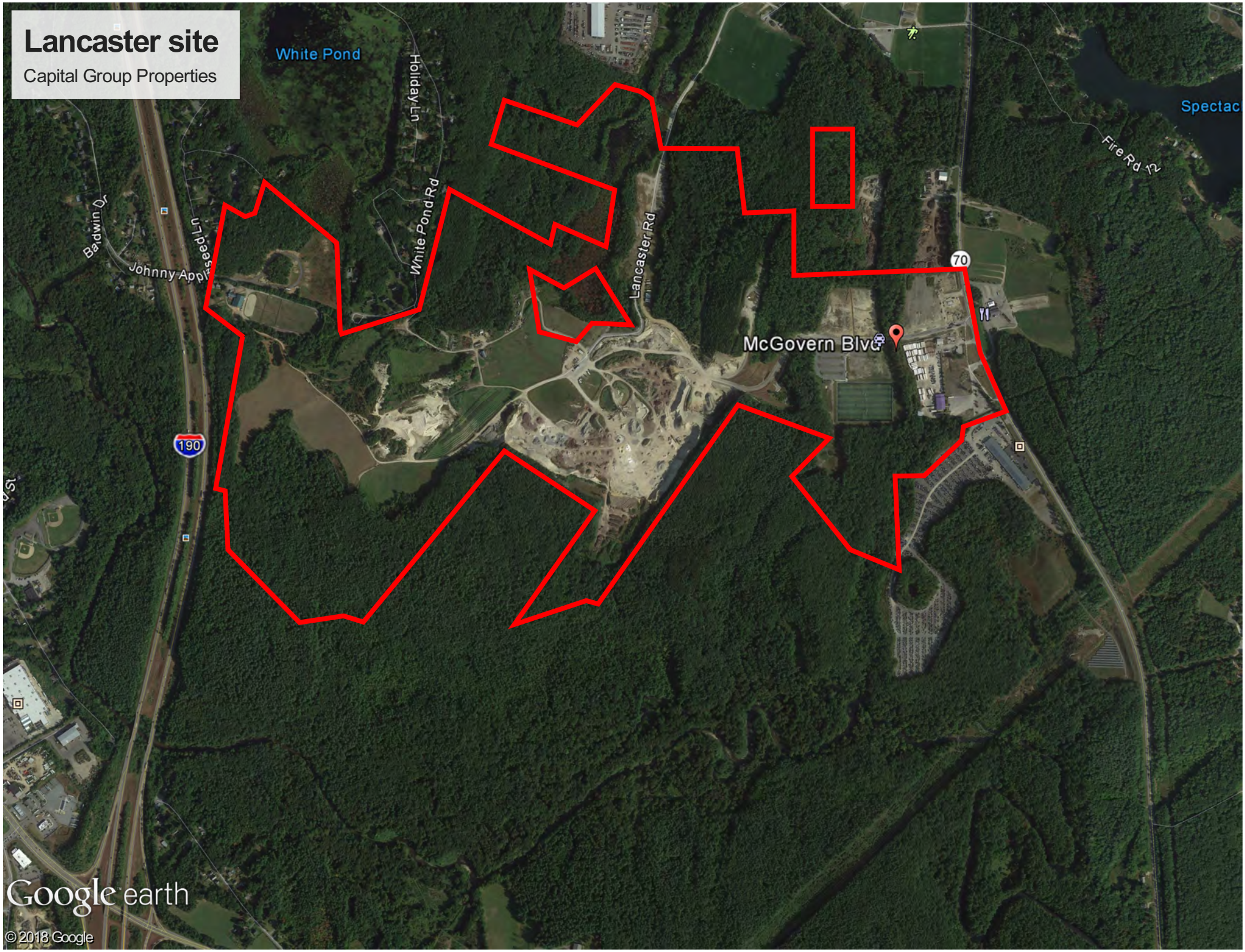
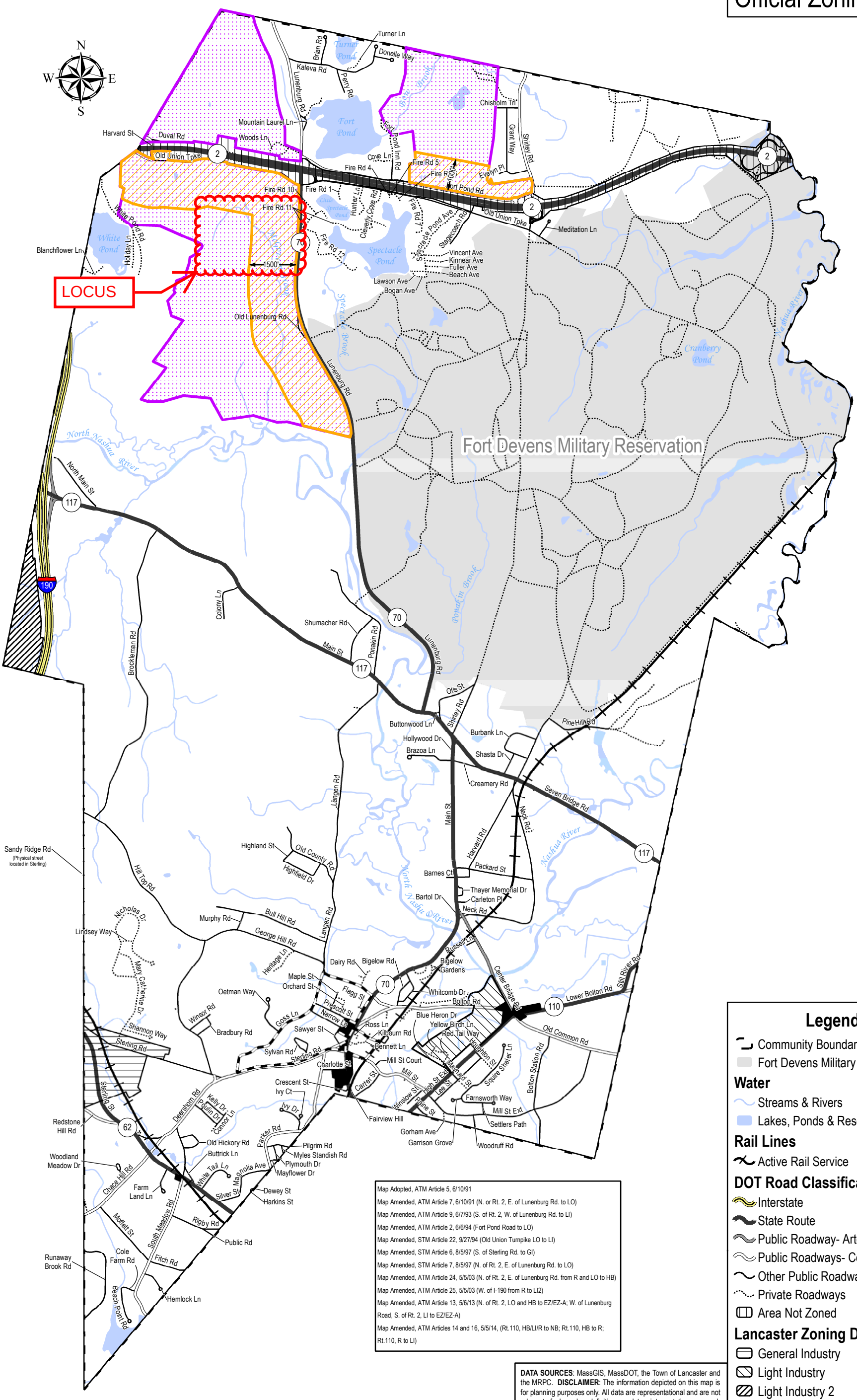
CONTOUR INTERVAL 3 METERS
NATIONAL GEODETIC VERTICAL DATUM 1929


Lancaster site
Capital Group Properties
White Pond
Holiday Ln
White Pond Rd
Lancaster Rd
Badwin Dr
Johnny Appleseed Ln
McGovern Blvd
Fire Rd 12
Spectac
70
190
Google earth
© 2018 Google

Lancaster, MA: Official Zoning Map



Map Adopted, ATM Article 5, 6/10/91
Map Amended, ATM Article 7, 6/10/91 (N. or Rt. 2, E. of Lunenburg Rd. to LO)
Map Amended, ATM Article 9, 6/7/93 (S. of Rt. 2, W. of Lunenburg Rd. to LI)
Map Amended, ATM Article 2, 6/6/94 (Fort Pond Road to LO)
Map Amended, STM Article 22, 9/27/94 (Old Union Turnpike LO to LI)
Map Amended, STM Article 6, 8/5/97 (S. of Sterling Rd. to GI)
Map Amended, STM Article 7, 8/5/97 (N. of Rt. 2, E. of Lunenburg Rd. to LO)
Map Amended, ATM Article 24, 5/5/03 (N. of Rt. 2, E. of Lunenburg Rd. from R and LO to HB)
Map Amended, ATM Article 25, 5/5/03 (W. of I-190 from R to LI2)
Map Amended, ATM Article 13, 5/6/13 (N. of Rt. 2, LO and HB to EZ/EZ-A; W. of Lunenburg Road, S. of Rt. 2, LI to EZ/EZ-A)
Map Amended, ATM Articles 14 and 16, 5/5/14, (Rt.110, HB/LI/R to NB; Rt.110, HB to R; Rt.110, R to LI)

Legend

- Community Boundaries
- Fort Devens Military Reservation

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs

Rail Lines

- Active Rail Service

DOT Road Classifications

- Interstate
- State Route
- Public Roadway- Arterial
- Public Roadways- Collector
- Other Public Roadways
- Private Roadways
- Area Not Zoned

Lancaster Zoning Districts

- General Industry
- Light Industry
- Light Industry 2
- Neighborhood Business
- Residential
- Residential- Multi Family Permitted
- Enterprise District
- EZ-A Retail Sub-District*

* The EZ-A Retail Subdistrict extends from the highway sideline for the distance shown on the map.

0 0.5 1 2 Miles

DATA SOURCES: MassGIS, MassDOT, the Town of Lancaster and the MRPC. **DISCLAIMER**: The information depicted on this map is for planning purposes only. All data are representational and are not adequate for boundary definition, regulatory interpretation, or parcel-based analysis.

PREPARED BY:
Montachusett Regional Planning Commission
GIS Department, August 2014
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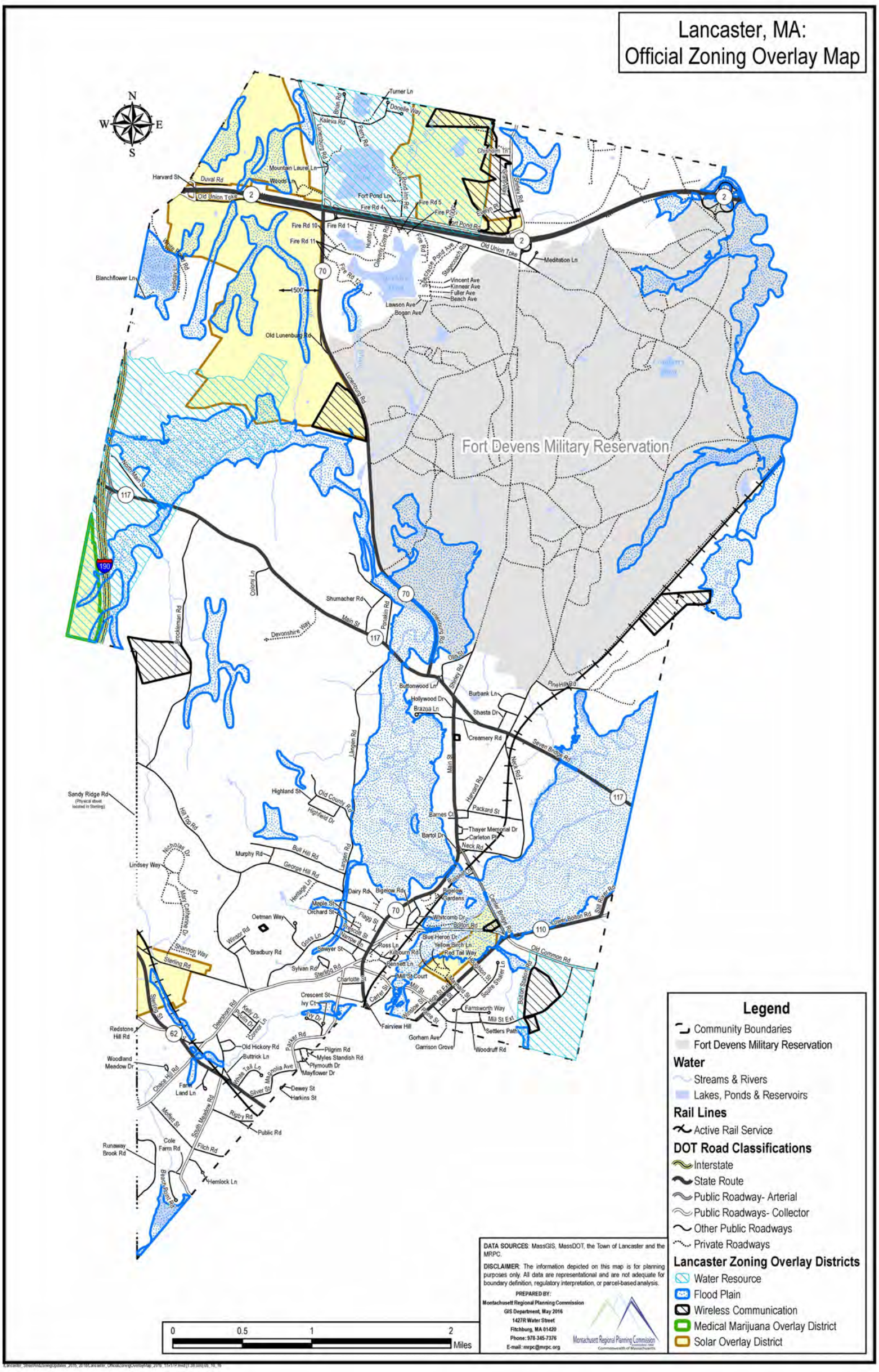
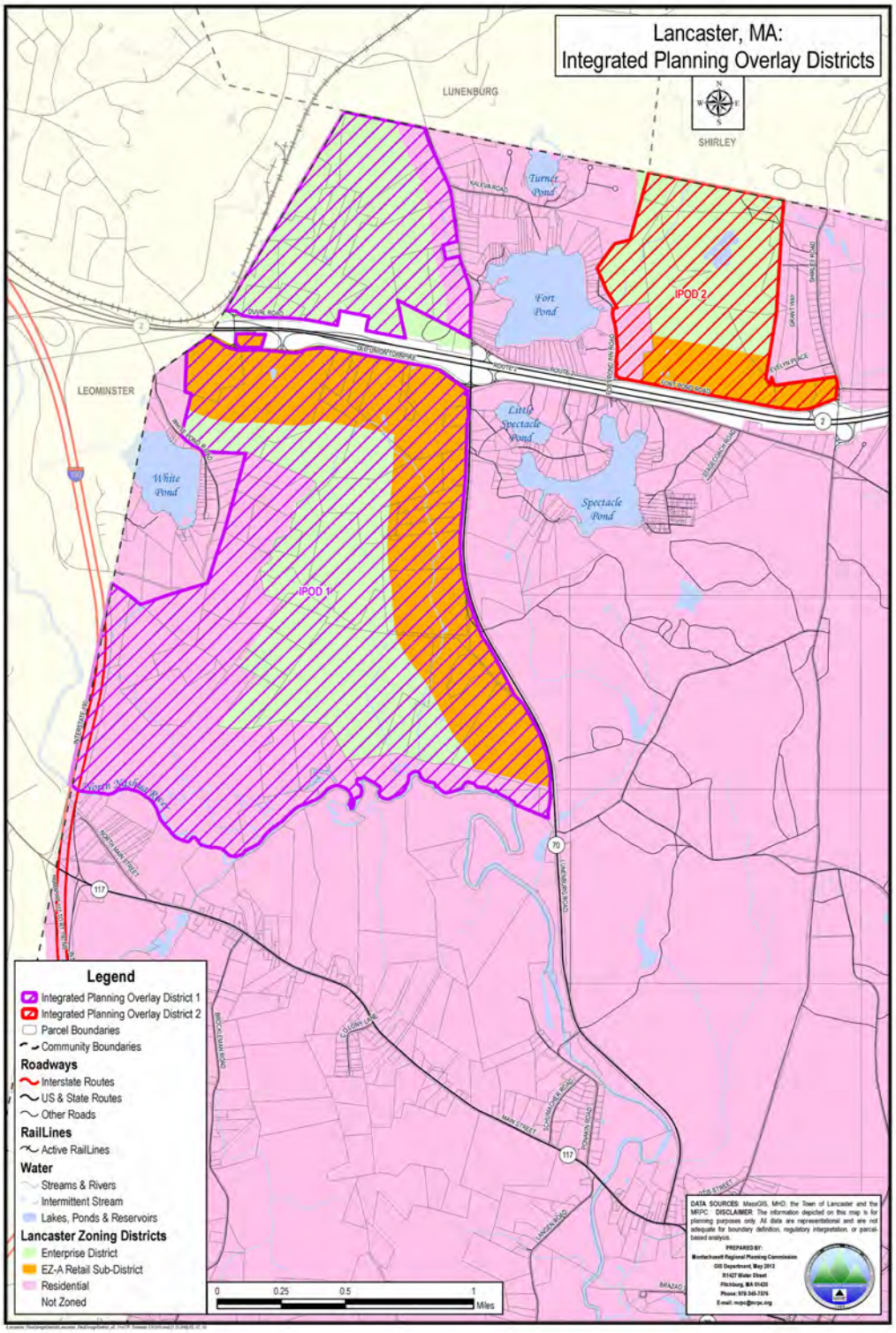
Fitchburg, MA 01420
Phone: 978-345-7376
E-mail: mrpc@mrpc.org

/Lancaster_OfficialStreetAndZoningMaps_2013/Lancaster_OfficialZoningMap_2013_11x17P.mxd [1:38,000] 08_12_14

Town of Lancaster
Official Zoning Overlay Map
[Amended 5-5-2014 by Art. 17; 5-2-2016 ATM by Art. 17]




Lancaster, MA:
Integrated Planning Overlay Districts
LUNENBURG
SHIRLEY
LEOMINSTER
Turnet Pond
Fort Pond
Little Spectacle Pond
Spectacle Pond
White Pond
IPOD 1
IPOD 2
Legend
Integrated Planning Overlay District 1
Integrated Planning Overlay District 2
Parcel Boundaries
Community Boundaries
Roadways
Interstate Routes
US & State Routes
Other Roads
RailLines
Active RailLines
Water
Streams & Rivers
Intermittent Stream
Lakes, Ponds & Reservoirs
Lancaster Zoning Districts
Enterprise District
EZ-A Retail Sub-District
Residential
Not Zoned
0 0.25 0.5 1 Miles
DATA SOURCES: MassGIS, MHD, the Town of Lancaster and the MRPC. DISCLAIMER: The information depicted on this map is for planning purposes only. All data are representational and are not adequate for boundary definition, regulatory interpretation, or parcel-based analysis.
PREPARED BY:
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GIS Department, May 2012
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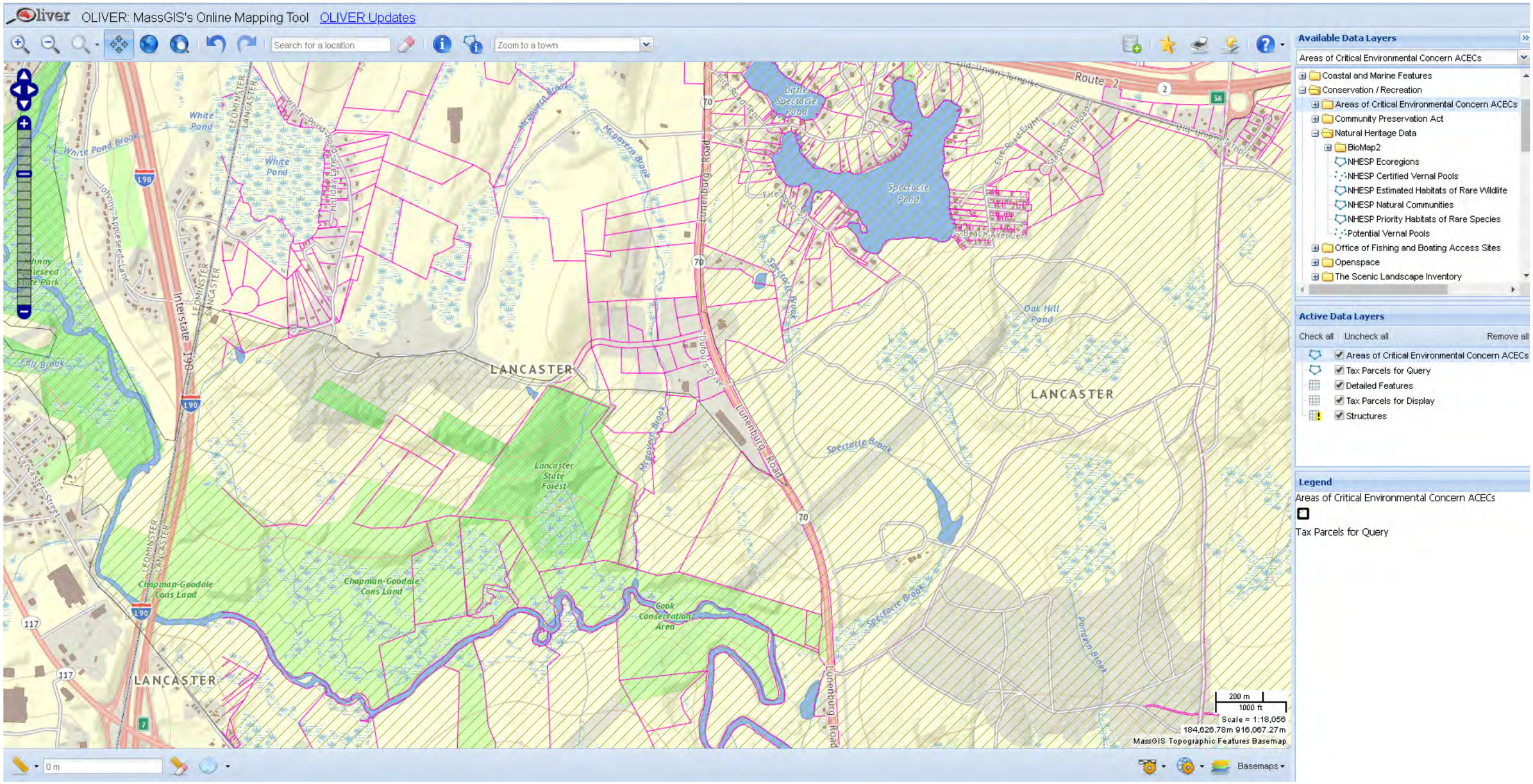
E-mail: mrpc@mrpc.org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OLIVER Updates
Search for a location
Zoom to a town
Available Data Layers
Areas of Critical Environmental Concern ACECs
Coastal and Marine Features
Conservation / Recreation
Areas of Critical Environmental Concern ACECs
Community Preservation Act
Natural Heritage Data
BioMap2
NHESP Ecoregions
NHESP Certified Vernal Pools
NHESP Estimated Habitats of Rare Wildlife
NHESP Natural Communities
NHESP Priority Habitats of Rare Species
Potential Vernal Pools
Office of Fishing and Boating Access Sites
Openspace
The Scenic Landscape Inventory
Active Data Layers
Check all
Uncheck all
Remove all
Areas of Critical Environmental Concern ACECs
Tax Parcels for Query
Detailed Features
Tax Parcels for Display
Structures
Legend
Areas of Critical Environmental Concern ACECs
Tax Parcels for Query
LANCASTER
Lunenburg Road
Spectacle Pond
Little Spectacle Pond
Oak Hill Pond
Lancaster State Forest
Chapman-Goodale Cons Land
Cook Conservation Area
Spectacle Brook
McGovern Brook
White Pond
White Pond Brook
Route 2
Interstate 190
Johnny Appleseed Lane
Johnny Appleseed State Park
Fay Brook
Pumpkin Brook
Beach Avenue
Fire Road Eight
Suggested Trail Road
Old Union Turnpike
Holiday Lane
Lancaster Street
LEOMINSTER
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Scale = 1:18,056
184,626.78m 916,067.27m
MassGIS Topographic Features Basemap
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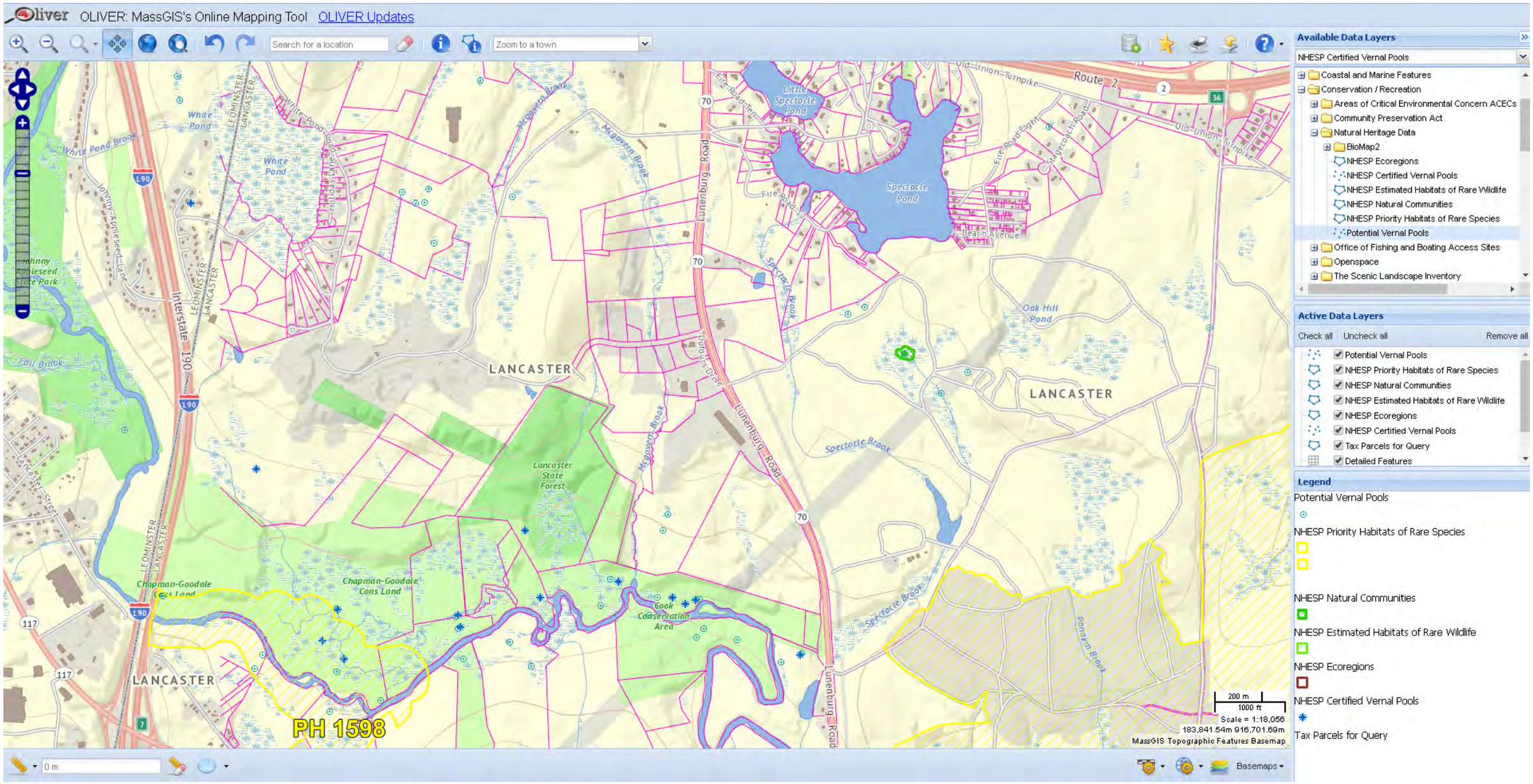
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LANCASTER
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White Pond
White Pond Brook
Johnny Appleseed State Park
Lancaster State Forest
Chapman-Goodale Cons Land
Cook Conservation Area
Oak Hill Pond
Spectacle Brook
Beach Avenue
Fire Road Ten
Fire Road Eight
Stagecoach Road
Holiday Lane
Foil Brook
Lancaster Street
Pondarin Brook
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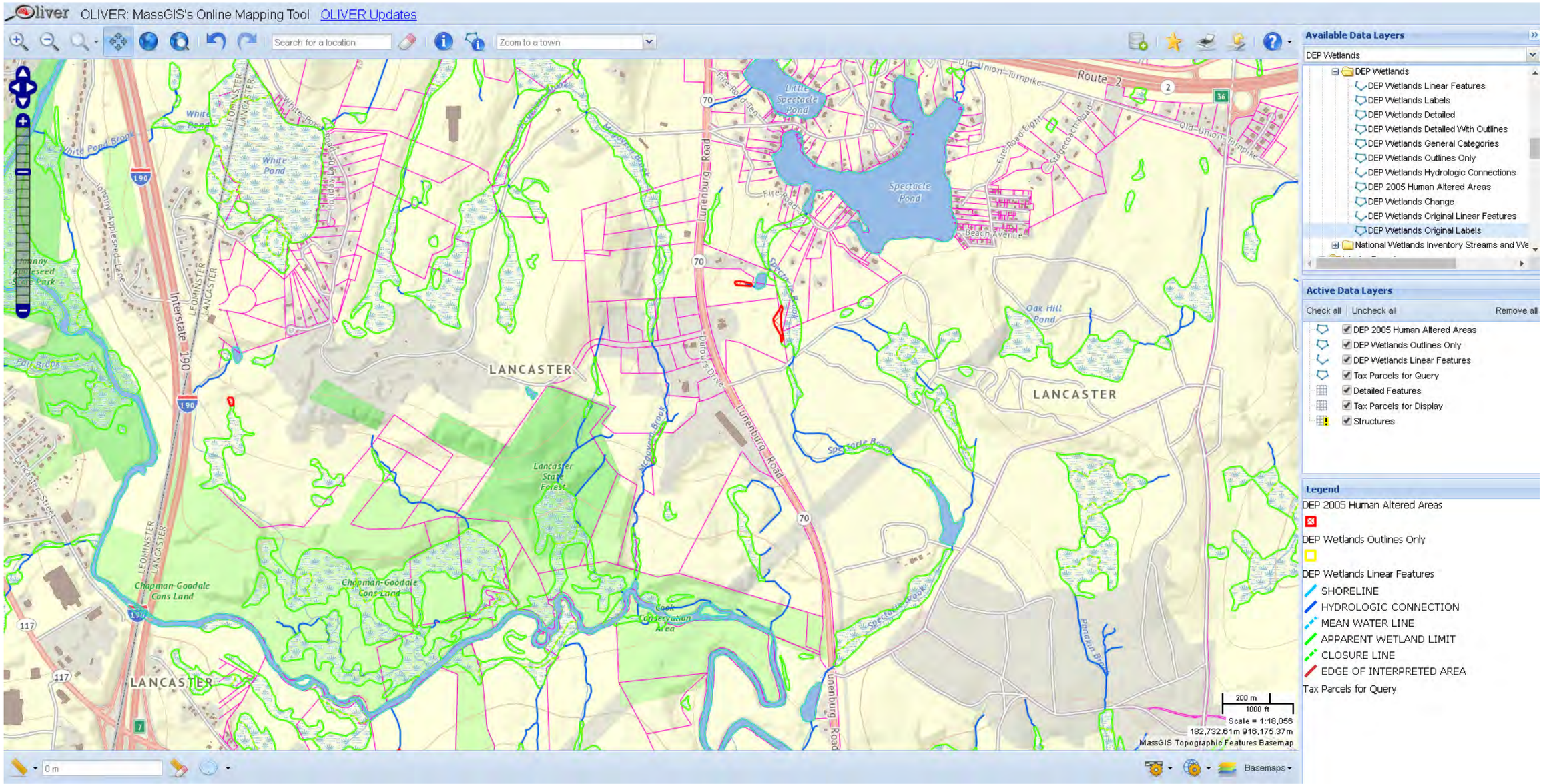
183,841.54m 916,701.69m
MassGIS Topographic Features Basemap
Basemaps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Available Data Layers
DEP Wetlands
DEP Wetlands
DEP Wetlands Linear Features
DEP Wetlands Labels
DEP Wetlands Detailed
DEP Wetlands Detailed With Outlines
DEP Wetlands General Categories
DEP Wetlands Outlines Only
DEP Wetlands Hydrologic Connections
DEP 2005 Human Altered Areas
DEP Wetlands Change
DEP Wetlands Original Linear Features
DEP Wetlands Original Labels
National Wetlands Inventory Streams and We
Active Data Layers
Check all
Uncheck all
Remove all
DEP 2005 Human Altered Areas
DEP Wetlands Outlines Only
DEP Wetlands Linear Features
Tax Parcels for Query
Detailed Features
Tax Parcels for Display
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DEP Wetlands Outlines Only
DEP Wetlands Linear Features
SHORELINE
HYDROLOGIC CONNECTION
MEAN WATER LINE
APPARENT WETLAND LIMIT
CLOSURE LINE
EDGE OF INTERPRETED AREA
Tax Parcels for Query
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LANCASTER
LANCASTER
LEOMINSTER
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Fire Road Eight
Fire Road Ten
Spectacle Brook
Bangkin Brook
Fort Brook
White Pond Brook
Johnny Appleseed Lane
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Lancaster Street
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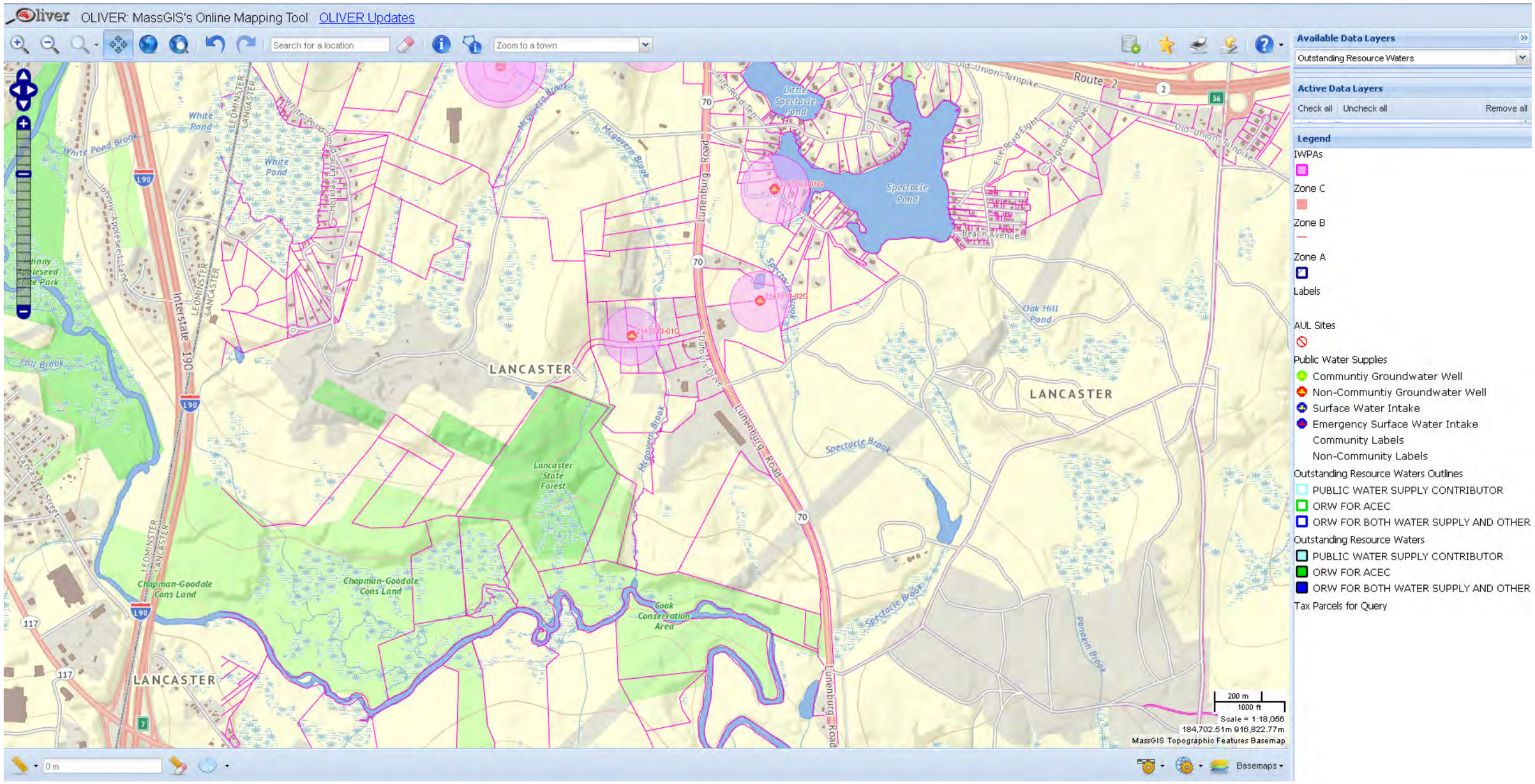
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Uncheck all
Remove all
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IWPAs
Zone C
Zone B
Zone A
Labels
AUL Sites
Public Water Supplies
Communtiy Groundwater Well
Non-Communtiy Groundwater Well
Surface Water Intake
Emergency Surface Water Intake
Community Labels
Non-Community Labels
Outstanding Resource Waters Outlines
PUBLIC WATER SUPPLY CONTRIBUTOR
ORW FOR ACEC
ORW FOR BOTH WATER SUPPLY AND OTHER
Outstanding Resource Waters
PUBLIC WATER SUPPLY CONTRIBUTOR
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Johnny Appleseed State Park
Lancaster State Forest
Chapman-Goodale Cons Land
Cook Conservation Area
Old Union Turnpike
Beach Avenue
Fire Road Eight
Fire Road Ten
Stagecoach Road
Holiday Lane
Ponakin Brook
Fall Brook
200 m
1000 ft
Scale = 1:18,056
184,702.51m 916,822.77m
MassGIS Topographic Features Basemap
Basemaps

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Massachusetts State Plane Mainland Zone (FIPS zone 2001). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from digital orthophotography. Base map files were provided in digital format by Massachusetts Geographic Information Systems (MassGIS). Ortho imagery was produced at a scale of 1:5,000. Aerial photography is dated April 2005.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

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Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

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If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - - - 23	Transect line
	Culvert
	Bridge
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
4989000 M	1000-meter ticks: Massachusetts State Plane Mainland Zone (FIPS Zone 2001), Lambert Conformal Conic projection
$^{49}89^{000m}$ N	1000-meter Universal Transverse Mercator grid values, zone 19N
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
July 4, 2011

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0289E

FIRM

FLOOD INSURANCE RATE MAP

WORCESTER COUNTY, MASSACHUSETTS
(ALL JURISDICTIONS)

PANEL 289 OF 1075

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LANCASTER, TOWN OF	250312	0289	E
LEOMINSTER, CITY OF	250314	0289	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
25027C0289E

EFFECTIVE DATE
JULY 4, 2011

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Massachusetts State Plane Mainland Zone (FIPS zone 2001). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

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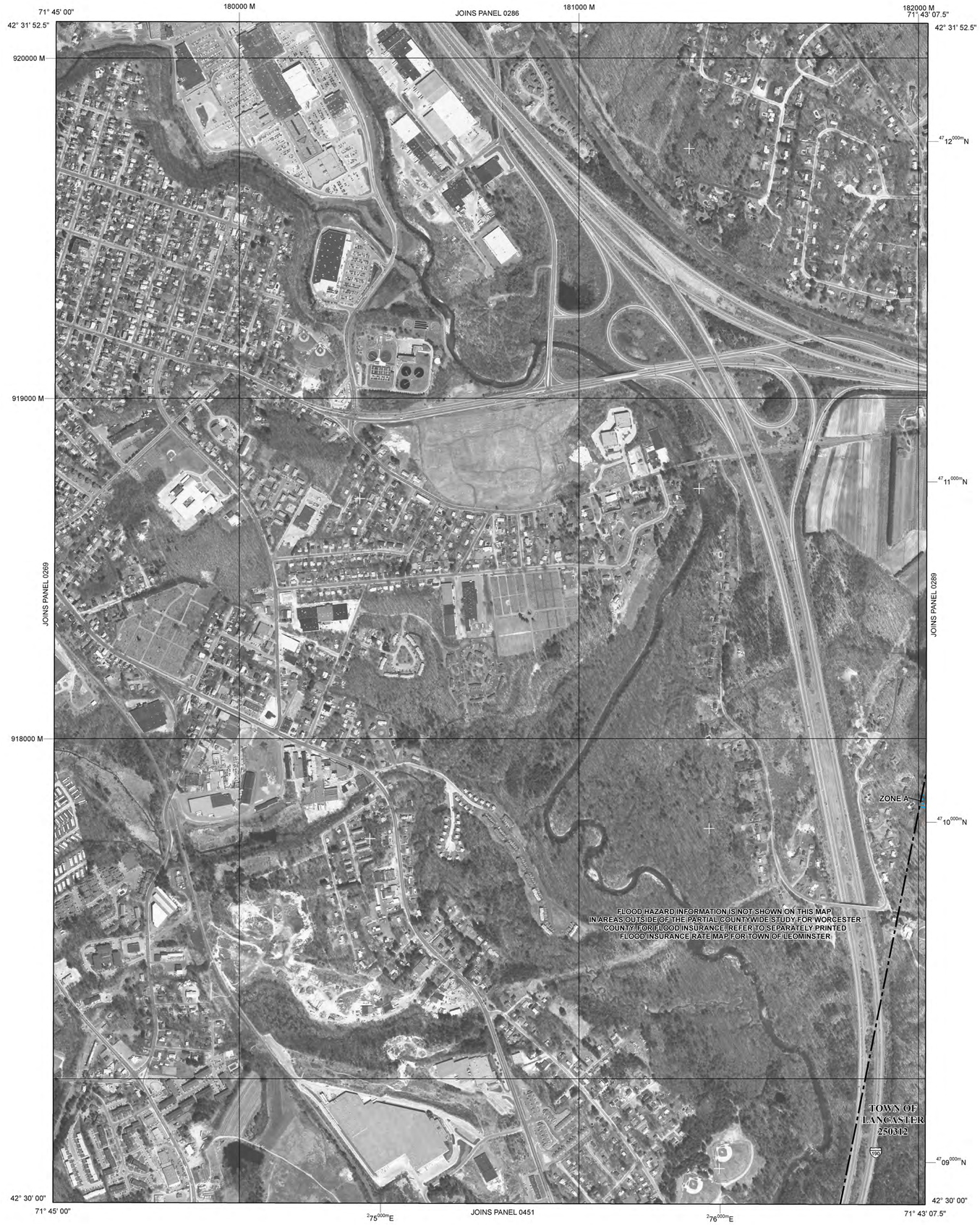

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
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ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
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ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - 23	Transect line
	Culvert
	Bridge
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
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$^{48}86^{000m}$ N	1000-meter Universal Transverse Mercator grid values, zone 19N
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
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EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
July 4, 2011

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

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MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0288E

FIRM

FLOOD INSURANCE RATE MAP

WORCESTER COUNTY, MASSACHUSETTS
(ALL JURISDICTIONS)

PANEL 288 OF 1075

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LANCASTER, TOWN OF	250312	0288	E
LEOMINSTER, CITY OF	250314	0288	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
25027C0288E

EFFECTIVE DATE
JULY 4, 2011

Federal Emergency Management Agency

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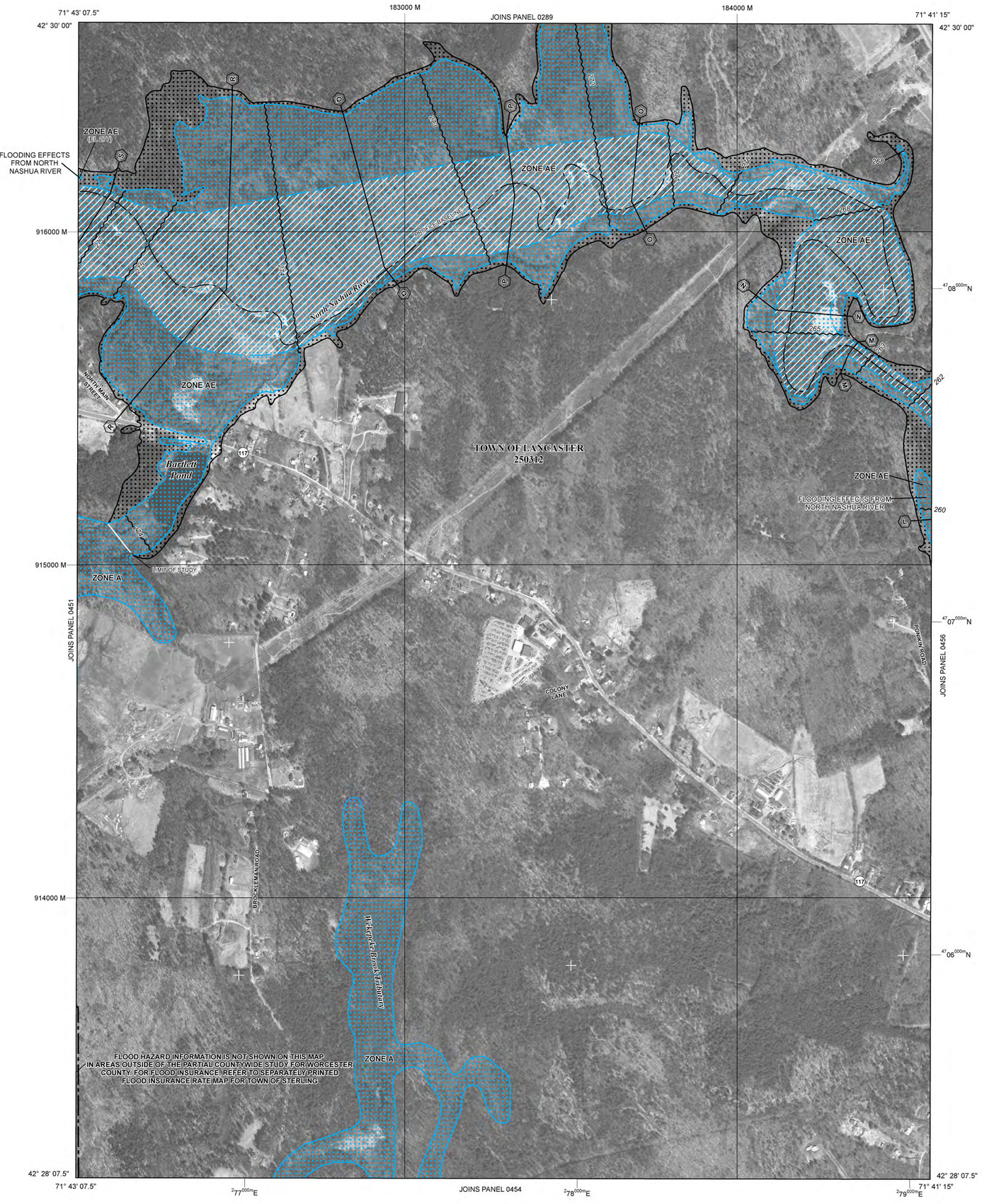

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

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ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
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(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - 23	Transect line
	Culvert
	Bridge
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
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$^{49}80^{000m}$ N	1000-meter Universal Transverse Mercator grid values, zone 19N
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
July 4, 2011

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

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MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0452E

FIRM

FLOOD INSURANCE RATE MAP

WORCESTER COUNTY, MASSACHUSETTS

(ALL JURISDICTIONS)

PANEL 452 OF 1075

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

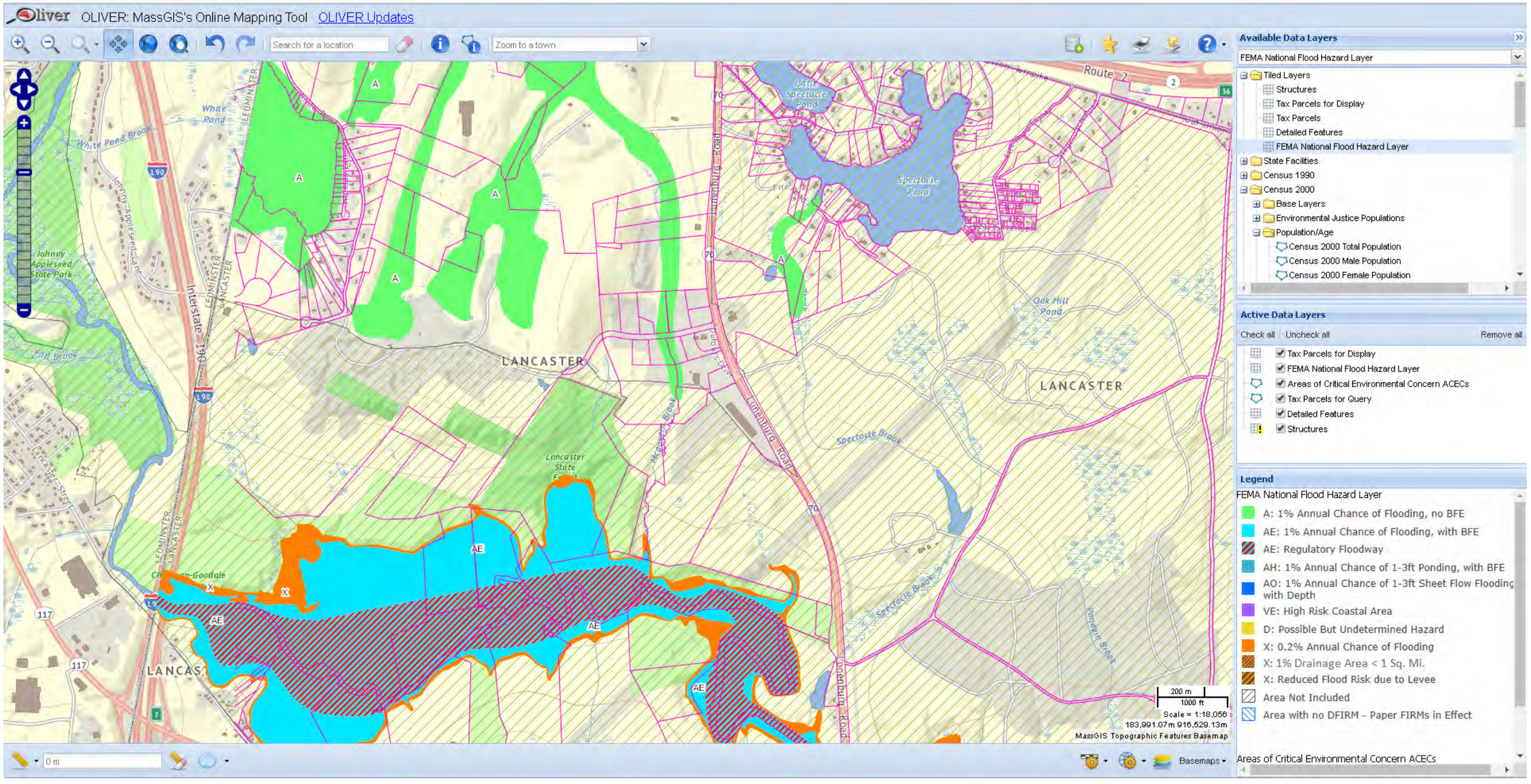
COMMUNITY	NUMBER	PANEL	SUFFIX
LANCASTER, TOWN OF	250312	0452	E
STERLING, TOWN OF	250336	0452	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

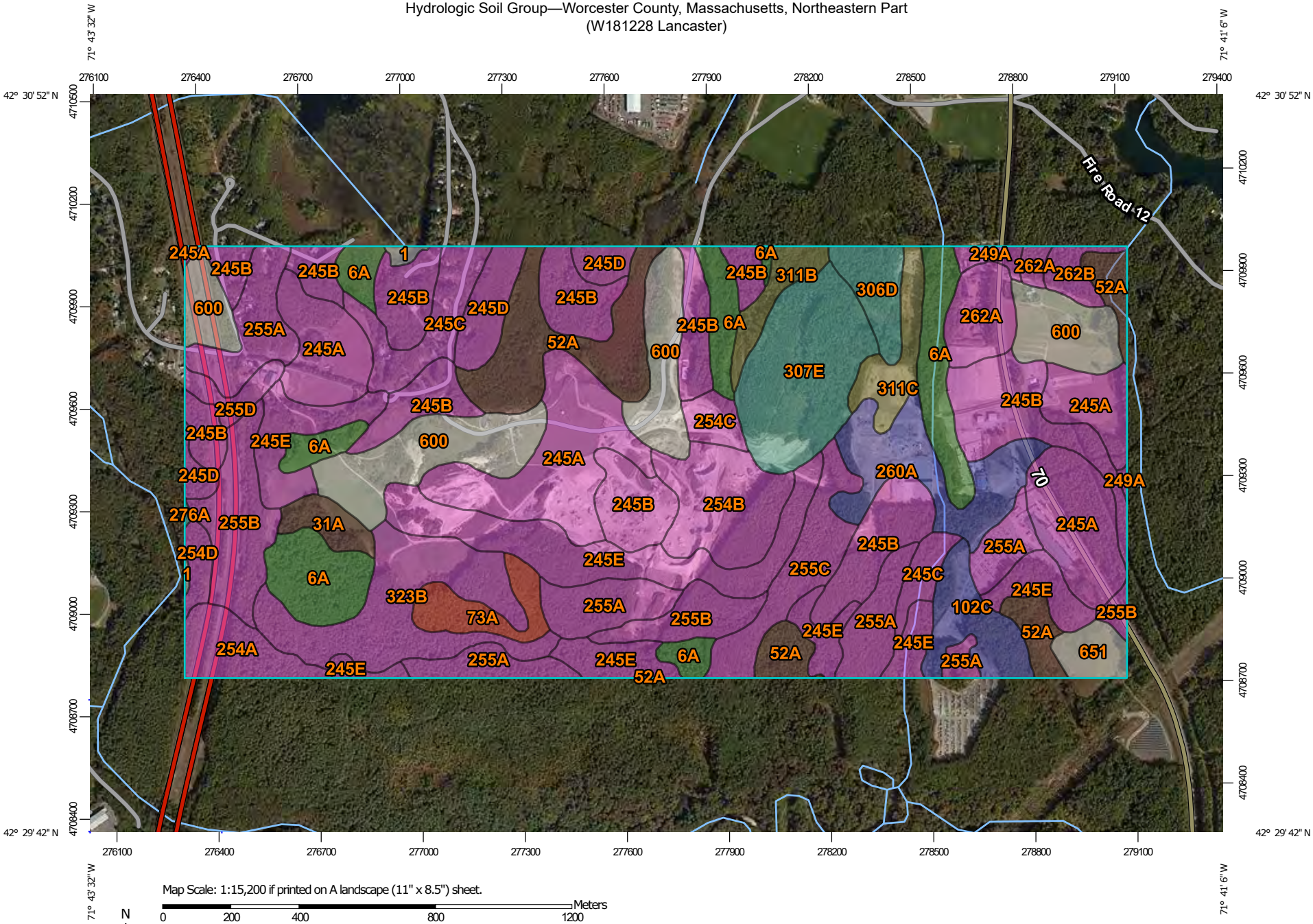
MAP NUMBER
25027C0452E

EFFECTIVE DATE
JULY 4, 2011

Federal Emergency Management Agency


OLIVER: MassGIS's Online Mapping Tool
OLIVER Updates
Search for a location
Zoom to a town
Available Data Layers
FEMA National Flood Hazard Layer
Tiled Layers
Structures
Tax Parcels for Display
Tax Parcels
Detailed Features
FEMA National Flood Hazard Layer
State Facilities
Census 1990
Census 2000
Base Layers
Environmental Justice Populations
Population/Age
Census 2000 Total Population
Census 2000 Male Population
Census 2000 Female Population
Active Data Layers
Check all
Uncheck all
Remove all
Tax Parcels for Display
FEMA National Flood Hazard Layer
Areas of Critical Environmental Concern ACECs
Tax Parcels for Query
Detailed Features
Structures
Legend
FEMA National Flood Hazard Layer
A: 1% Annual Chance of Flooding, no BFE
AE: 1% Annual Chance of Flooding, with BFE
AE: Regulatory Floodway
AH: 1% Annual Chance of 1-3ft Ponding, with BFE
AO: 1% Annual Chance of 1-3ft Sheet Flow Flooding with Depth
VE: High Risk Coastal Area
D: Possible But Undetermined Hazard
X: 0.2% Annual Chance of Flooding
X: 1% Drainage Area < 1 Sq. Mi.
X: Reduced Flood Risk due to Levee
Area Not Included
Area with no DFIRM - Paper FIRMs in Effect
Areas of Critical Environmental Concern ACECs
Route 2
Little Spectacle Pond
Spectacle Pond
Oak Hill Pond
White Pond
White Pond Brook
Johnny Appleseed State Park
Johnny Appleseed Lane
Interstate 190
LEOMINSTER
LANCASTER
Lunenburg Road
Lancaster State Forest
McGowan Brook
Spectacle Brook
Fall Brook
Lancaster Street
Chaffin-Goodale
Sandash Brook
200 m
1000 ft
Scale = 1:18,056
183,991.07m 916,529.13m
MassGIS Topographic Features Basemap
Basemaps
0 m

Hydrologic Soil Group—Worcester County, Massachusetts, Northeastern Part
(W181228 Lancaster)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

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

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

Soil Survey Area: Worcester County, Massachusetts, Northeastern Part
Survey Area Data: Version 13, Sep 11, 2018

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

Date(s) aerial images were photographed: Sep 12, 2014—Sep 28, 2014

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Water		1.5	0.2%
6A	Scarboro mucky fine sandy loam, 0 to 3 percent slopes	A/D	54.8	6.3%
31A	Walpole sandy loam, 0 to 3 percent slopes	B/D	7.0	0.8%
52A	Freetown muck, 0 to 1 percent slopes	B/D	47.4	5.5%
73A	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	D	11.7	1.3%
102C	Chatfield-Hollis-Rock outcrop complex, 0 to 15 percent slopes	B	16.4	1.9%
245A	Hinckley loamy sand, 0 to 3 percent slopes	A	91.1	10.5%
245B	Hinckley loamy sand, 3 to 8 percent slopes	A	109.8	12.6%
245C	Hinckley loamy sand, 8 to 15 percent slopes	A	21.7	2.5%
245D	Hinckley loamy sand, 15 to 25 percent slopes	A	17.1	2.0%
245E	Hinckley loamy sand, 25 to 35 percent slopes	A	80.2	9.2%
249A	Deerfield loamy fine sand, 0 to 3 percent slopes	A	3.5	0.4%
254A	Merrimac fine sandy loam, 0 to 3 percent slopes	A	13.8	1.6%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	26.1	3.0%
254C	Merrimac fine sandy loam, 8 to 15 percent slopes	A	5.7	0.7%
254D	Merrimac fine sandy loam, 15 to 25 percent slopes	A	4.3	0.5%
255A	Windsor loamy sand, 0 to 3 percent slopes	A	58.1	6.7%
255B	Windsor loamy sand, 3 to 8 percent slopes	A	34.9	4.0%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
255C	Windsor loamy sand, 8 to 15 percent slopes	A	19.7	2.3%
255D	Windsor loamy sand, 15 to 25 percent slopes	A	5.6	0.6%
260A	Sudbury fine sandy loam, 0 to 3 percent slopes	B	28.3	3.3%
262A	Quonset loamy sand, 0 to 3 percent slopes	A	14.9	1.7%
262B	Quonset loamy sand, 3 to 8 percent slopes	A	5.4	0.6%
276A	Ninigret fine sandy loam, 0 to 3 percent slopes	C	0.3	0.0%
306D	Paxton fine sandy loam, 15 to 25 percent slopes, very stony	C	10.9	1.3%
307E	Paxton fine sandy loam, 25 to 35 percent slopes, extremely stony	C	40.7	4.7%
311B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	C/D	8.3	1.0%
311C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	C/D	11.9	1.4%
323B	Poquonock loamy sand, 3 to 8 percent slopes, very stony	A	41.2	4.7%
600	Pits, gravel		68.8	7.9%
651	Udorthents, smoothed		7.3	0.8%
Totals for Area of Interest			**868.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

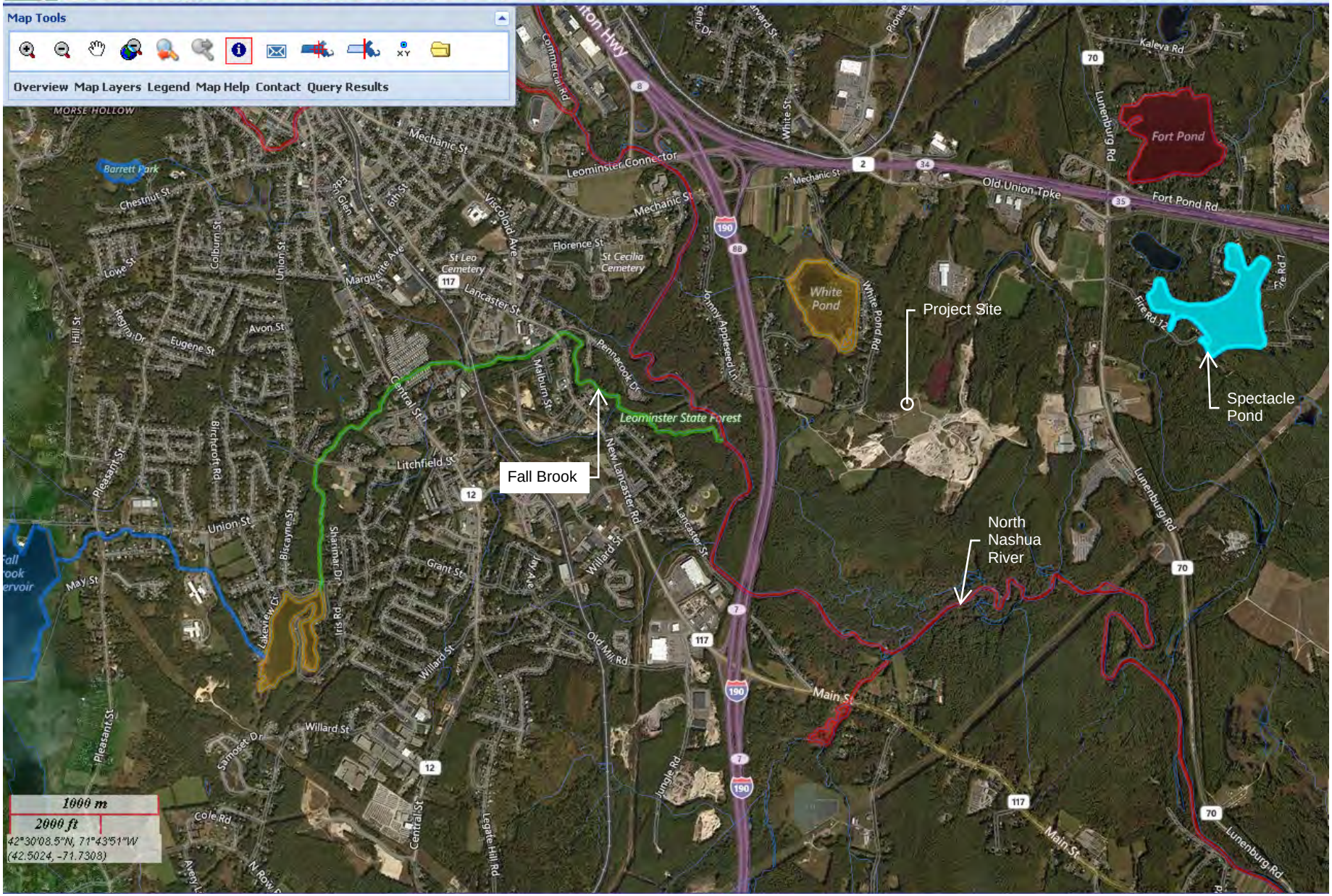
Tie-break Rule: Higher

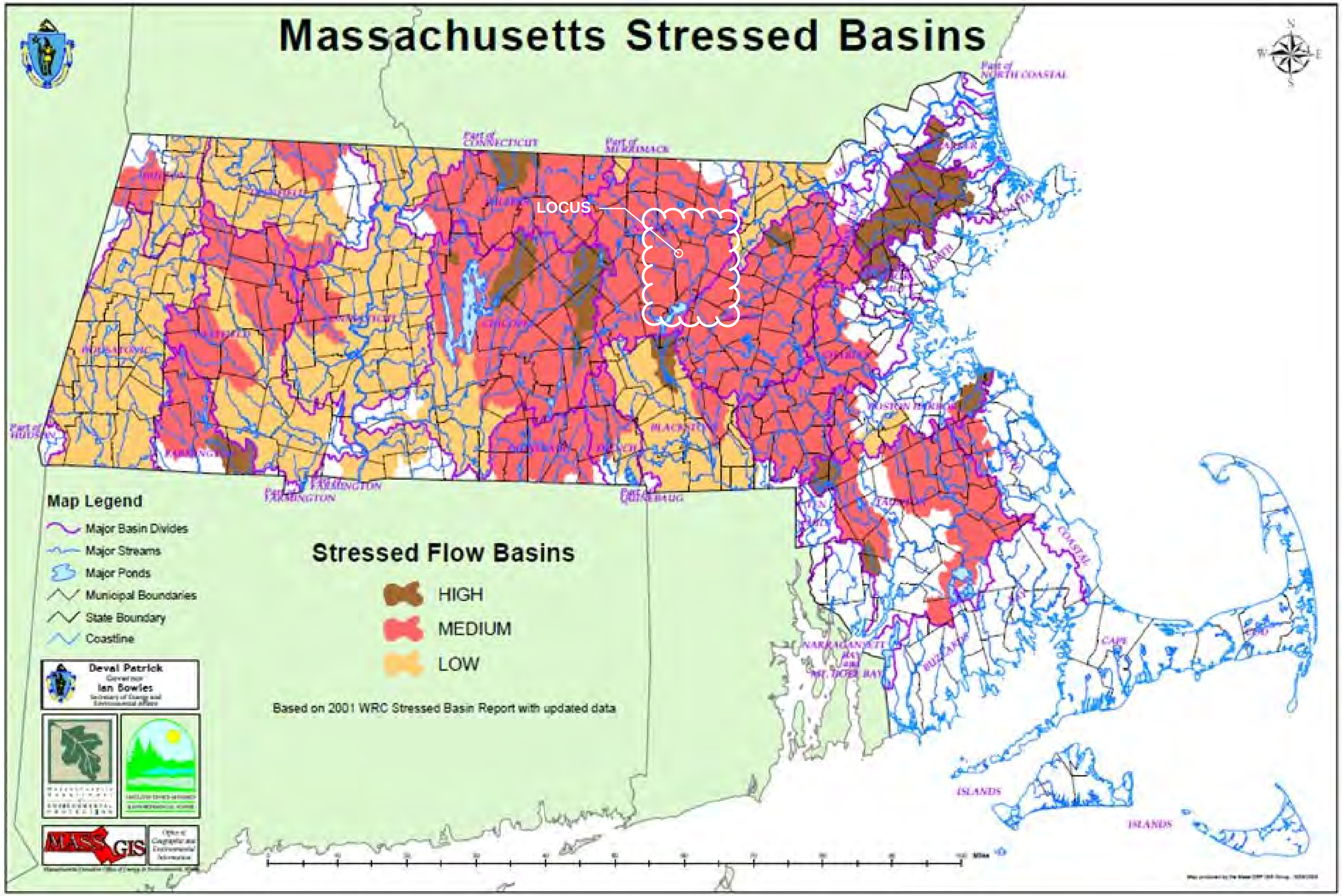
MassDEP Online Map Viewer

2014 Integrated List of Waters Map

Helpful Links:

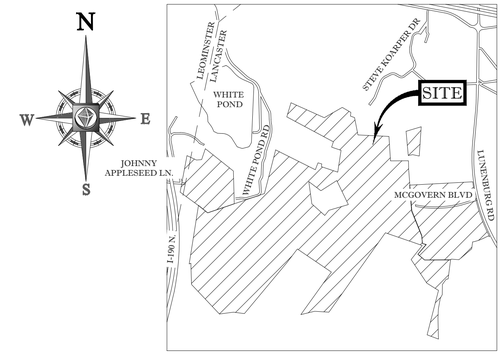
- The Clean Water Act
- MassDEP Total Maximum Daily Loads




Massachusetts Stressed Basins
LOCUS
Map Legend
Major Basin Divides
Major Streams
Major Ponds
Municipal Boundaries
State Boundary
Coastline
Stressed Flow Basins
HIGH
MEDIUM
LOW
Based on 2001 WRC Stressed Basin Report with updated data
Deval Patrick
Ian Bowles
MASS GIS

APPENDIX B: EXISTING AND PROPOSED CONDITIONS PLANS

- *Existing Conditions Plan*
- *Existing Conditions Aerial Plan*
- *Proposed Conditions Plan / Preferred Master Plan*



LOCUS MAP
(NOT TO SCALE)

400 200 100 0 400
1"= 400'

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING PROGRAM MANAGEMENT LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN TRANSPORTATION FACILITY DESIGN

- UPSTATE NEW YORK
- NEW ENGLAND
- BOSTON, MA
- NEW YORK, NY
- NEW YORK METRO
- NORTHERN NEW JERSEY
- SOUTHERN NEW JERSEY
- PHILADELPHIA, PA
- PITTSBURGH, PA
- CENTRAL PENNSYLVANIA
- SOUTHEASTERN, PA
- REHOBOTH BEACH, DE
- BALTIMORE, MD
- SOUTHERN MARYLAND
- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
- RALEIGH, NC
- WASHINGTON, DC
- CHARLOTTE, NC
- ATLANTA, GA
- TAMPA, FL
- ORLANDO, FLORIDA
- DALLAS, TX

THE INFORMATION, DESIGN, DRAWINGS, AND SPECIFICATIONS CONTAINED HEREIN ARE THE PROPERTY OF BOHLER ENGINEERING, AND ARE TO BE USED FOR CONSTRUCTION PURPOSES PROVIDED BY BOHLER ENGINEERING.

REVISIONS

REV	DATE	COMMENT	BY
1			
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PRELIMINARY

PROJECT No.:	W181228
DRAWN BY:	CMC
CHECKED BY:	MJD/JAK
DATE:	05/15/19
SCALE:	AS NOTED
CAD I.D.:	W181228-ENF

PROJECT:
SITE DEVELOPMENT PLANS
FOR

CAPITAL GROUP PROPERTIES

LOCATION OF SITE
MCGOVERN BOULEVARD
TOWN OF LANCASTER
WORCESTER COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
www.BohlerEngineering.com

SHEET TITLE:
EXISTING CONDITIONS PLAN

SHEET NUMBER:
1
OF 2

EX 0 - 05/15/2019

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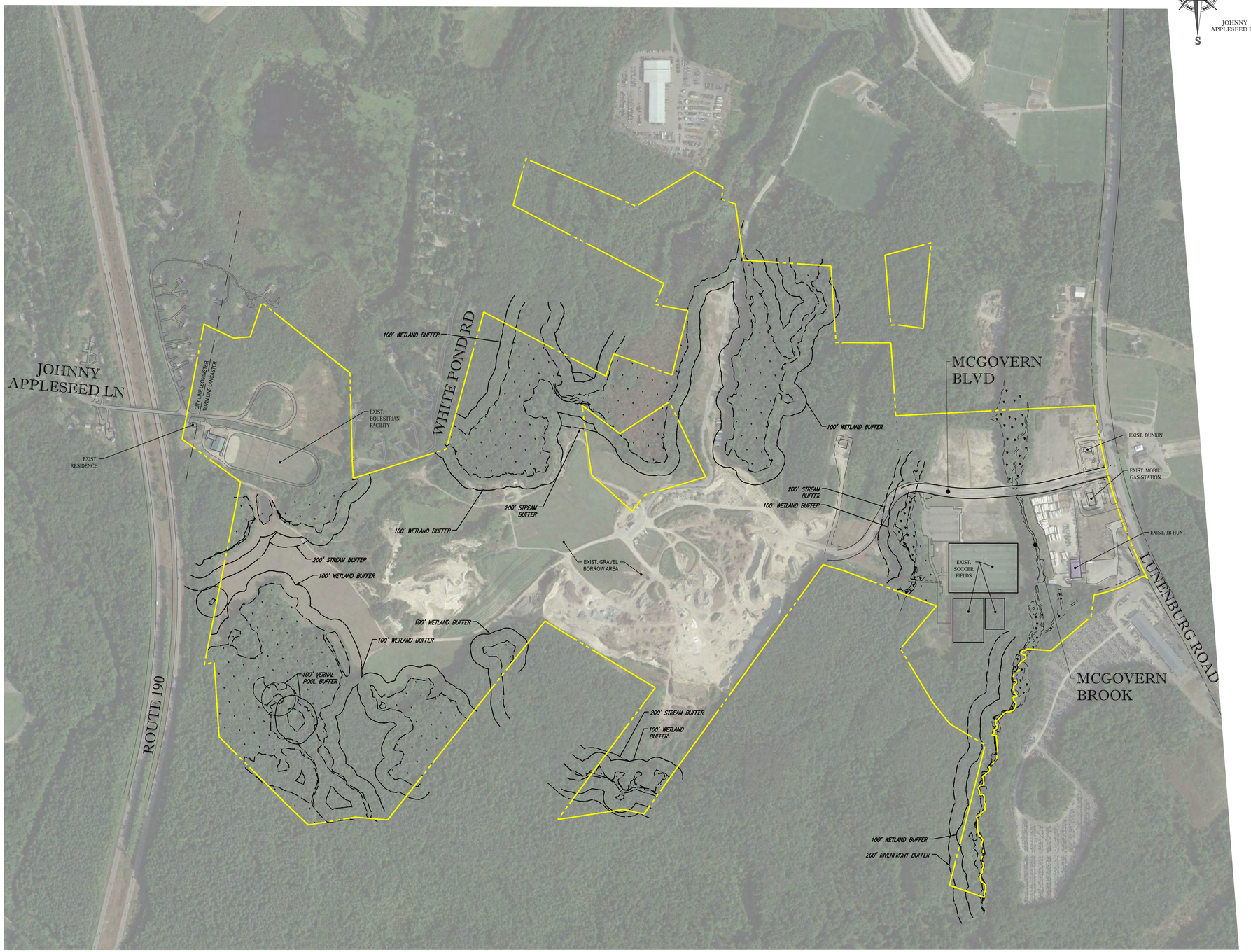

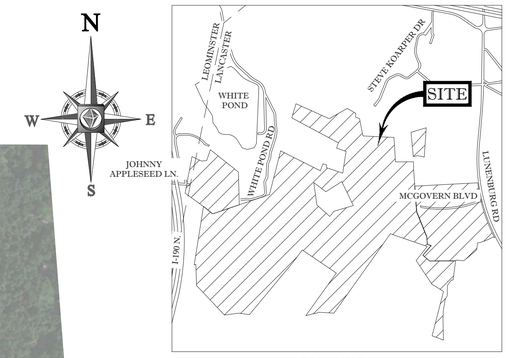

LOCUS MAP
(NOT TO SCALE)

400 200 100 0 400
1" = 400'

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN PROGRAM MANAGEMENT TRANSPORTATION
CONSTRUCTION SERVICES UTILITIES

- UPSTATE NEW YORK
- NEW ENGLAND
- BOSTON, MA
- BUFFALO, NY
- NEW YORK METRO
- NORTHERN NEW JERSEY
- SOUTHERN NEW JERSEY
- PHILADELPHIA, PA
- PITTSBURGH, PA
- HARRISBURG, PA
- SOUTHEASTERN, PA
- REHOBOTH BEACH, DE
- BALTIMORE, MD
- SOUTHERN MARYLAND
- NORTHERN VIRGINIA
- RICHMOND, VA
- RALEIGH, NC
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- CHARLOTTE, NC
- ATLANTA, GA
- TAMPA, FL
- ORLANDO, FLORIDA
- DALLAS, TX

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REVISIONS

REV	DATE	COMMENT	BY
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PRELIMINARY

PROJECT No.:	W181228
DRAWN BY:	CMC
CHECKED BY:	MJD/JAK
DATE:	05/15/19
SCALE:	AS NOTED
CAD I.D.:	W181228-ENF

PROJECT:
SITE DEVELOPMENT PLANS
FOR
CAPITAL GROUP PROPERTIES

LOCATION OF SITE
MCGOVERN BOULEVARD
TOWN OF LANCASTER
WORCESTER COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
www.BohlerEngineering.com

SHEET TITLE:
EXISTING CONDITIONS AERIAL PLAN

SHEET NUMBER:
2
OF 2

EX 0 - 05/15/2019

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DEVELOPMENT SUMMARY

LAND USE	BUILDING/ STRUCTURE	DESCRIPTION	UNITS	FLOORPLATE (SQ. FT).	STORIES	G.S.F.	SURFACE PARKING	TRAILER PARKING	LOADING DOCKS
INDUSTRIAL	A			1,020,000	1	1,020,000	587	316	214
	B			150,000	1	150,000	146		32
	C			42,000	1	42,000	24		5
	D			145,000	1	145,000	83		13
	E			37,500	1	37,500	84		15
	F			42,000	1	42,000	92		5
	G			37,500	1	37,500	95		15
	H			42,000	1	42,000	42		5
	I			37,500	1	37,500	84		15
	J	AUTO SALES & SERVICE FACILITY		14,000	1	14,000	80		
RESIDENTIAL	K	SINGLE FAMILY, DUPLEX & TRIPLEX UNITS	117	128,700	2	257,400			
	L	MULTI-FAMILY APARTMENTS	140	44,650	4	178,600	260		
	M	MULTI-FAMILY APARTMENTS	160	50,000	4	200,000	270		
	N	MULTI-FAMILY APARTMENTS	200	64,500	4	258,000	210		
HOTEL	O		120	16,000	4	64,000	120		
RECREATIONAL	P	EXISTING SOCCER FIELDS		5000	1	5000	276		
	Q	INDOOR SPORTS FACILITY		86,500	1	86,500	216		
RETAIL	R	PROPOSED RETAIL		65,700	1	65,700	418		
		EXISTING RETAIL		7300	1	7300	59		
TOTAL:			737	2,035,850		2,690,000	3146	316	319

CAPITAL GROUP PROPERTIES

CAPITAL COMMERCE CENTER

LANCASTER, MA

PREFERRED MASTER PLAN

SCALE: 1" = 250'
DATE: 05/29/2019
PROJECT #: W181016

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA
Phone: (508) 480-9900

APPENDIX C: SUPPLEMENTAL INFORMATION

- *Alternative Master Plan A*
- *Alternative Master Plan B*
- *Alternative Master Plan C*
- *Water Line Extension Exhibit*
- *Abbreviated Notice of Resource Area Delineation (ANRAD) Plans (Prepared by Control Point Associates, Inc.)*
- *Wetland Resource Evaluation (Prepared by EcoTec, Inc.)*
- *Traffic Impact, Access, and Parking Study (Prepared by TEC, Inc.)*
- *Preliminary Engineering Report on Proposed Wastewater Treatment Facilities (Prepared by Mount Hope Engineering, Inc.)*

CAPITAL GROUP PROPERTIES

CAPITAL COMMERCE CENTER

LANCASTER, MA

ALTERNATIVE MASTER PLAN A

SCALE: 1" = 250'
DATE: 05/29/2019
PROJECT #: W181016

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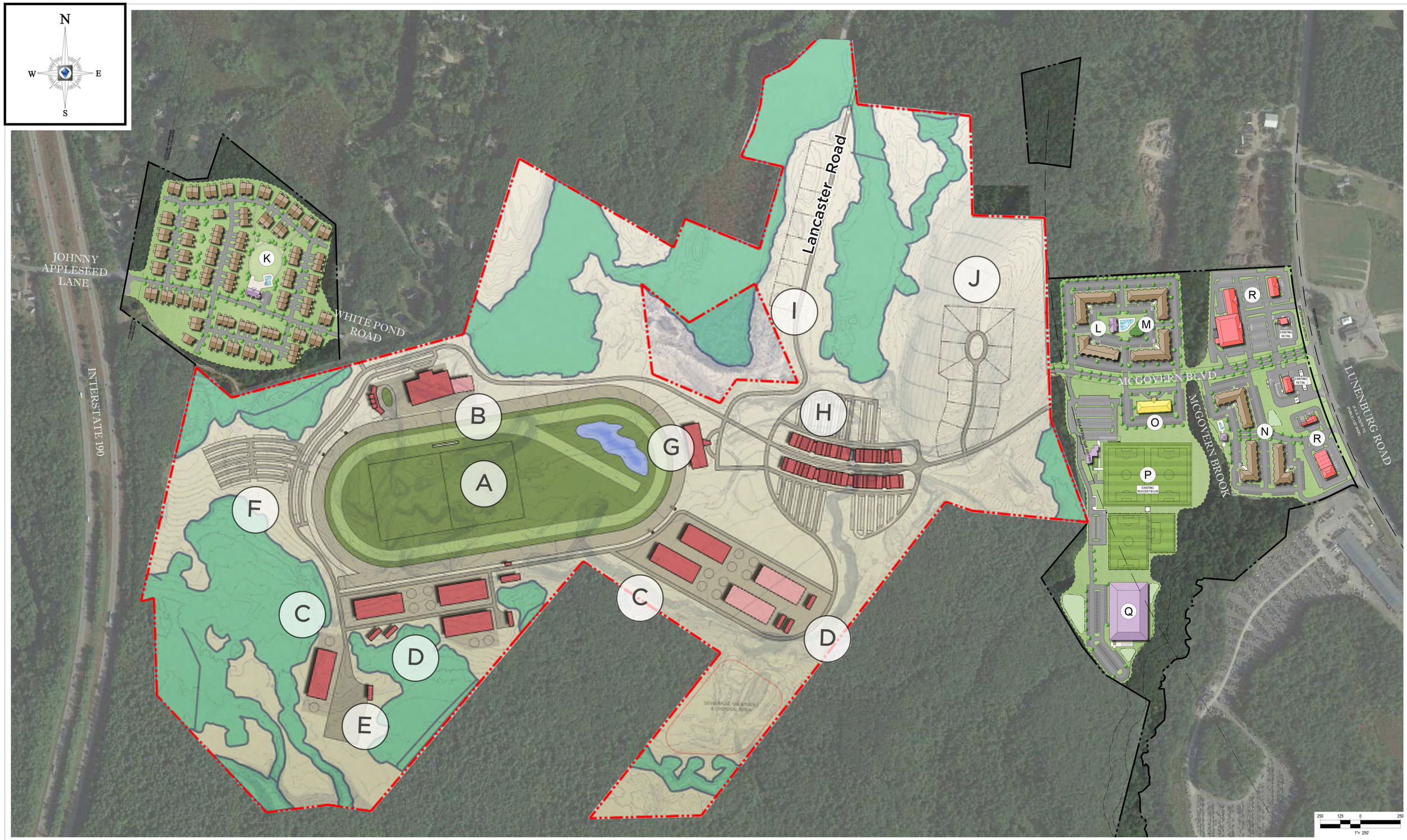
352 TURNPIKE ROAD
SOUTHBOROUGH, MA
Phone: (508) 480-9900



CAPITAL GROUP PROPERTIES

CAPITAL COMMERCE CENTER

LANCASTER, MA

ALTERNATIVE MASTER PLAN B

SCALE: 1" = 250'
DATE: 05/29/2019
PROJECT #: W181016

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA
Phone: (508) 480-9900

CAPITAL GROUP PROPERTIES

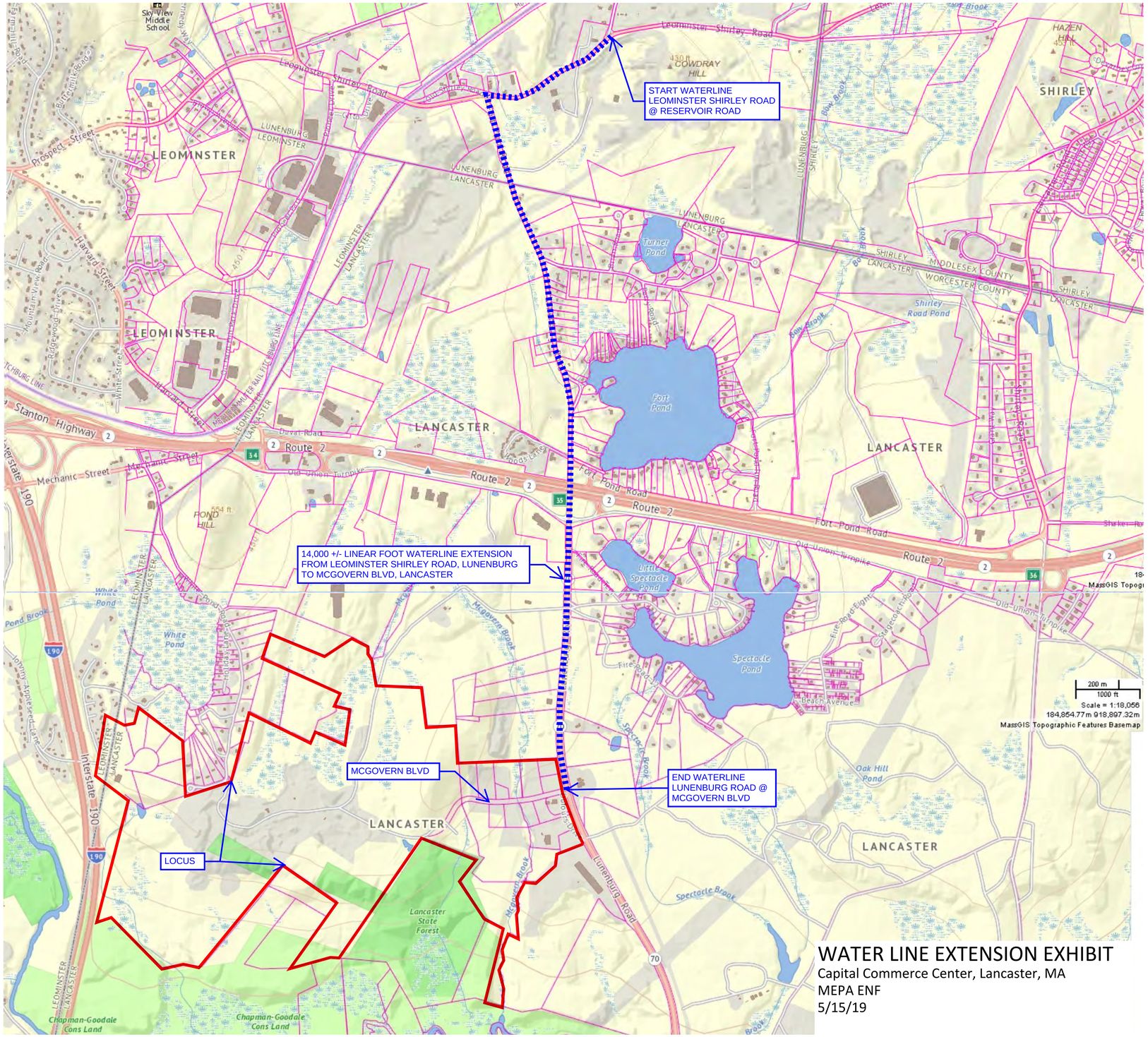
CAPITAL COMMERCE CENTER

LANCASTER, MA

ALTERNATIVE MASTER PLAN C

SCALE: 1" = 250'
DATE: 05/29/2019
PROJECT #: W181016

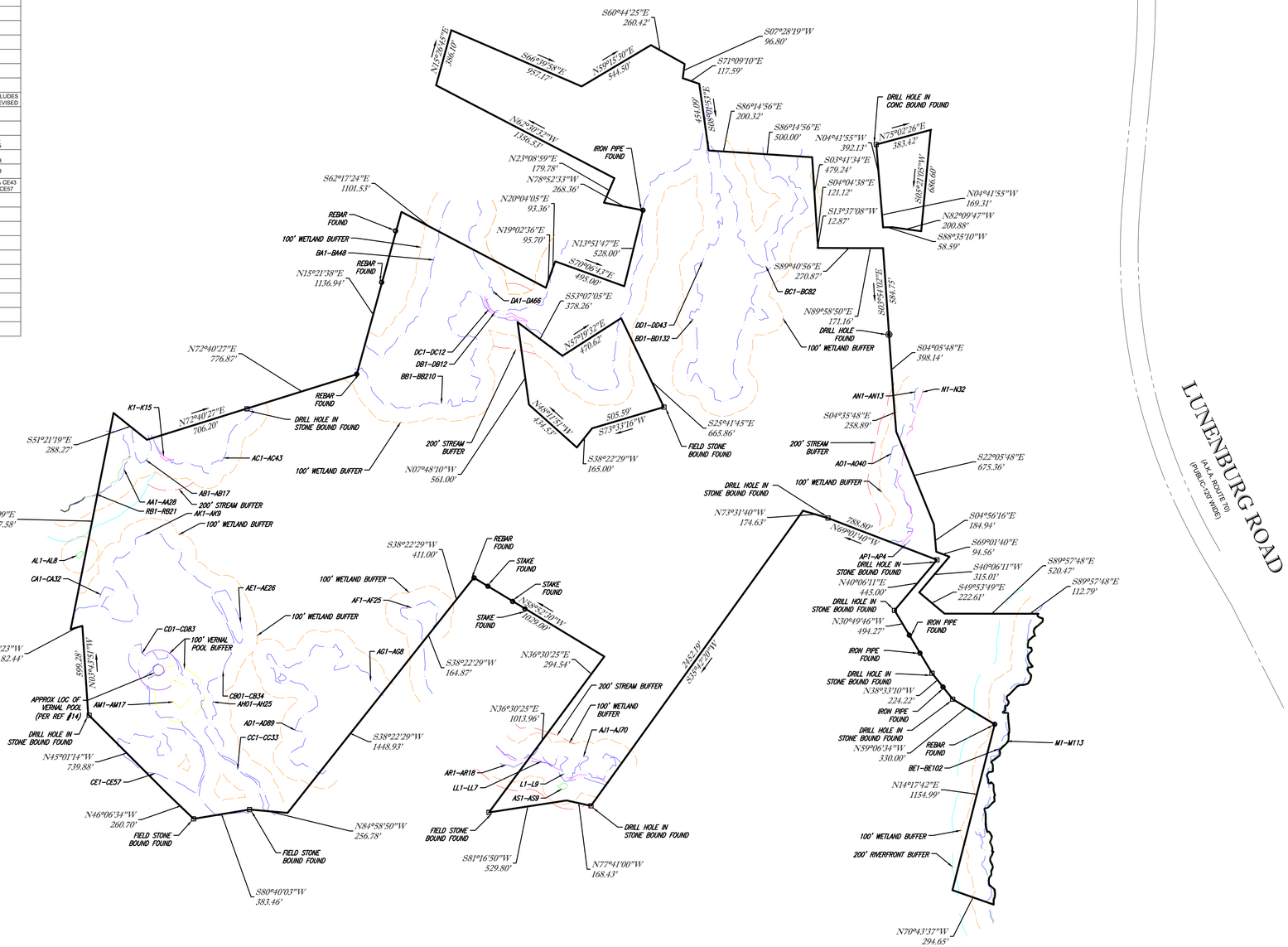
BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA
Phone: (508) 480-9900

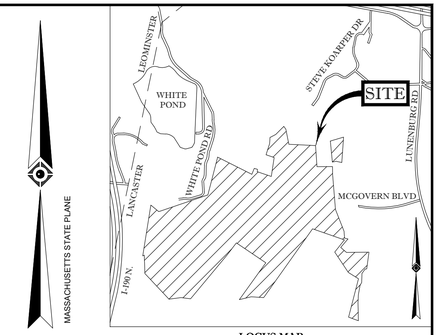


WATER LINE EXTENSION EXHIBIT

Capital Commerce Center, Lancaster, MA
MEPA ENF
5/15/19

SERIES	WETLAND TYPE	COLOR	NOTES
WLF #AA1-AA28	BORDERING VEGETATED WETLANDS	BLUE	AA24 REMOVED; AA23 & 25 REVISED
WLF #AB1-AB17	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #AC1-AC43	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #AD1-AD89	BORDERING VEGETATED WETLANDS	BLUE	AD45A ADDED; AD45A CONNECTS TO AD54; AD46 CONNECTS TO AD53
WLF #AE1-AE26	BORDERING VEGETATED WETLANDS	BLUE	AE1 CONNECTS TO AE26
WLF #AF1-AF25	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES AF1A-AF1C
WLF #AG1-AG8	BORDERING VEGETATED WETLANDS	BLUE	AG8 CONNECTS TO AD1
WLF #AH1-AH25	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES AH1A & AH1B; AH25 CONNECTS TO CB34
WLF #AJ1-AJ70	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #AK1-AK9	BORDERING VEGETATED WETLANDS	BLUE	AK1 CONNECTS TO CA30 & AK 9 CONNECTS TO CB1
WLF #AL1-AL8	ISOLATED VEGETATED WETLANDS	LIME GREEN	AL1 CONNECTS TO AL8
WLF #AM1-AM17	CERTIFIED VERNAL POOL	YELLOW	AM1 CONNECTS TO AM17
WLF #AN1-AN13	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #AO1-AO40	BORDERING VEGETATED WETLANDS	BLUE	AO8-AO10 & AO17 REVISED; AO11 & AO12 REMOVED
WLF #AP1-AP4	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #AR1-AR18	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #AS1-AS9	ISOLATED VEGETATED WETLANDS	LIME GREEN	AS1 CONNECTS TO AS9
WLF #BA1-BA48	BORDERING VEGETATED WETLANDS	BLUE	BA47 REMOVED
WLF #BB1-BB214	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #BC1-BC85	BORDERING VEGETATED WETLANDS	BLUE	BC8 & BC9 REMOVED; BC7 REVISED
WLF #BD1-BD132	BORDERING VEGETATED WETLANDS	BLUE	BD132 CONNECTS TO DD43; INCLUDES BD1A & BD2A; BD117 & BD118 REVISED
WLF #BE1-BE102	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES BE1A-BE1C & BE76A-BE76G
WLF #CA1-CA30	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES CA1A; CA30 CONNECTS TO AK1
WLF #CB1-CB34	BORDERING VEGETATED WETLANDS	BLUE	CB1 CONECTS TO AK9 & CB34 CONNECTS TO AH25
WLF #CC1-CC33	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES CC1A-CC1C; CC33 CONNECTS TO CD83
WLF #CD1-CD83	BORDERING VEGETATED WETLANDS	BLUE	CD83 CONNECTS TO CC33
WLF #CE1-CE57	BORDERING VEGETATED WETLANDS	BLUE	CE36 & CE44 REMOVED; CE42 & CE43 REVISED; CE1 CONNECTS TO CE57
WLF #DA1-DA66	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #DB1-DB12	INTERMITTENT STREAM BANK	PINK	-
WLF #DC1-DC12	INTERMITTENT STREAM BANK	PINK	-
WLF #DD1-DD43	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES DD1A-DD3A; DD13-DD19 REMOVED
WLF #K1-K15	INTERMITTENT STREAM BANK	PINK	K1 CONNECTS TO K15
WLF #L1-L9	INTERMITTENT STREAM BANK	PINK	L1 CONNECTS TO LL8
WLF #LL1-LL8	INTERMITTENT STREAM BANK	PINK	LL8 CONNECTS TO L1
WLF #M1-M113	MEAN ANNUAL HIGH WATER LINE	DARK GREEN	-
WLF #N1-N32	INTERMITTENT STREAM BANK	PINK	-
WLF #RB1-RB21	MEAN ANNUAL HIGH WATER LINE	DARK GREEN	-





LOCUS MAP
©2013 ESRI WORLD STREET MAPS

NOTES:

1. PROPERTY KNOWN AS LOTS 39C, 45, 2, 4, 5, 8A, 2, 3, 4, 7, 8, 1, 2, 3, 3A, 3B, 8B, 9D, 11A, 12, 13, PARCEL B-2, & PARCEL B-4 AS SHOWN ON THE TOWN OF LANCASTER, WORCESTER COUNTY, COMMONWEALTH OF MASSACHUSETTS; ASSESSOR'S MAPS NO. 8, 9, 13, & 14, RESPECTIVELY.
2. AREA: WETLANDS = 6,996,081 SQUARE FEET OR 160.607 ACRES
   UPLANDS = 9,075,451 SQUARE FEET OR 208.344 ACRES
   TOTAL = 16,071,532 SQUARE FEET OR 368.951 ACRES
3. THIS PLAN IS BASED ON INFORMATION PROVIDED BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
4. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN.
5. PROPERTY IS LOCATED IN FLOOD HAZARD ZONE A-SHADED (AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD; NO BASE FLOOD ELEVATIONS DETERMINED) AND PARTIALLY LOCATED IN FLOOD HAZARD ZONE X-UNSHADED (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER REFERENCE #2. FLOOD ZONES NOT SHOWN HEREON.
6. THE DELINEATION LINE WAS PLACED IN THE FIELD BY ECOTEC, INC. ON MAY 4, 2018, AND FIELD LOCATED BY CONTROL POINT ASSOCIATES, INC., ON MAY 29, 2018.
7. ALL TOPOGRAPHY AND CONTOURS SHOWN HEREON ARE PER REFERENCE #13.
8. THE PURPOSE OF THIS PLAN IS TO SHOW THE WETLAND RESOURCE AREAS WITHIN THE PROPERTY.

REFERENCES:

1. THE TAX ASSESSOR'S MAP OF LANCASTER, WORCESTER COUNTY, SHEETS #8, 9, 13 & 14.
2. MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, WORCESTER COUNTY, MASSACHUSETTS (ALL JURISDICTIONS) PANEL 289 OF 1075," MAP NUMBER 25027C0289E, MAP EFFECTIVE DATE: JULY 4, 2011.
3. MAP ENTITLED "PLAN OF LAND IN LANCASTER, MASSACHUSETTS, PREPARED FOR: NORTH LANCASTER, LLC," PREPARED BY HANNIGAN ENGINEERING, INC., DATED AUGUST 6, 2015. RECORDED WITH THE WORCESTER COUNTY REGISTRY OF DEEDS AS PLAN BOOK 915, PLAN 30.
4. MAP ENTITLED "PLAN OF LAND IN LANCASTER, MASSACHUSETTS, PREPARED FOR: NORTH LANCASTER, LLC," PREPARED BY HANNIGAN ENGINEERING, INC., DATED JULY 30, 2013. RECORDED WITH THE WORCESTER COUNTY REGISTRY OF DEEDS AS PLAN BOOK 902, PLAN 36.
5. MAP ENTITLED "PLAN OF LAND IN LANCASTER & LEOMINSTER, MASS., PREPARED FOR MARCEL E. BOISSE," PREPARED BY DAVID E. ROSS ASSOCIATES, INC., DATED OCTOBER, 2003. RECORDED WITH THE WORCESTER COUNTY REGISTRY OF DEEDS AS PLAN BOOK 809, PLAN 90.
6. MAP ENTITLED "APPROVAL NOT REQUIRED PLAN FOR ASSESSORS MAP 9, LOT 2," PREPARED BY ATLANTIC DESIGN ENGINEERS, LLC., DATED OCTOBER 10, 2000. RECORDED WITH THE WORCESTER COUNTY REGISTRY OF DEEDS AS PLAN BOOK 762, PLAN 69.
7. MAP ENTITLED "WHITE'S POND ROAD EXTENSION DEFINITIVE PLAN IN LANCASTER, MA., PREPARED FOR BENJAMIN BUILDERS," PREPARED BY WHITMAN & BINGHAM ASSOCIATES, INC., DATED JULY 1, 1996. RECORDED WITH THE WORCESTER COUNTY REGISTRY OF DEEDS AS PLAN BOOK 754, PLAN 75.
8. MAP ENTITLED "PLAN OF LAND IN LANCASTER, MASS., PREPARED FOR BRIAN CARLSON CUSTOM HOMES," PREPARED BY WHITMAN & BINGHAM ASSOCIATES, INC., DATED JUNE 19, 1995. RECORDED WITH THE WORCESTER COUNTY REGISTRY OF DEEDS AS PLAN BOOK 695, PLAN 44.
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COLOR KEY

LINETYPE	COLOR
BORDERING VEGETATED WETLAND	BLUE
100' WETLAND BUFFER	ORANGE
MEAN ANNUAL HIGH WATER LINE	DARK GREEN
200' RIVERFRONT BUFFER	CYAN
INTERMITTENT STREAM BANK	PINK
200' STREAM BUFFER	RED
ISOLATED VEGETATED WETLANDS	LIME GREEN
ISOLATED LAND SUBJECT TO FLOODING	YELLOW
CERTIFIED VERNAL POOL	PURPLE

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GRAPHIC SCALE
400 0 200 400 800 1600
(IN FEET)
1 inch = 400 ft.

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN.	APPROVED	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
2	UPDATED PER CONSERVATION COMMISSION COMMENTS	-	R.J.K.	G.L.H.	12-7-18
1	UPDATED PER CONSERVATION COMMISSION COMMENTS	J.O.	R.J.K.	G.L.H.	11-14-18

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COMMONWEALTH OF MASSACHUSETTS — GERRY L. HOLDRIGHT — NO. 49211 — REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE: 5-6-18
FIELD BOOK NO.: 18-02 MA
FIELD BOOK PG.: 110-148
FIELD CREW: T.M./T.O.
DRAWN: R.J.K.

ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION
CAPITAL GROUP PROPERTIES
MCGOVERN BOULEVARD
MAP 8, LOTS 39C, 42 & 45, MAP 9, LOTS 2, 5 & 8A,
MAP 13, LOTS 2, 3, 4, 7 & 8, MAP 14, LOTS 1, 2, 3, 3A, 3B, 8B, 9D, 11A, 12 &13, PARCEL B-2 & PARCEL B-4
TOWN OF LANCASTER, WORCESTER COUNTY
COMMONWEALTH OF MASSACHUSETTS

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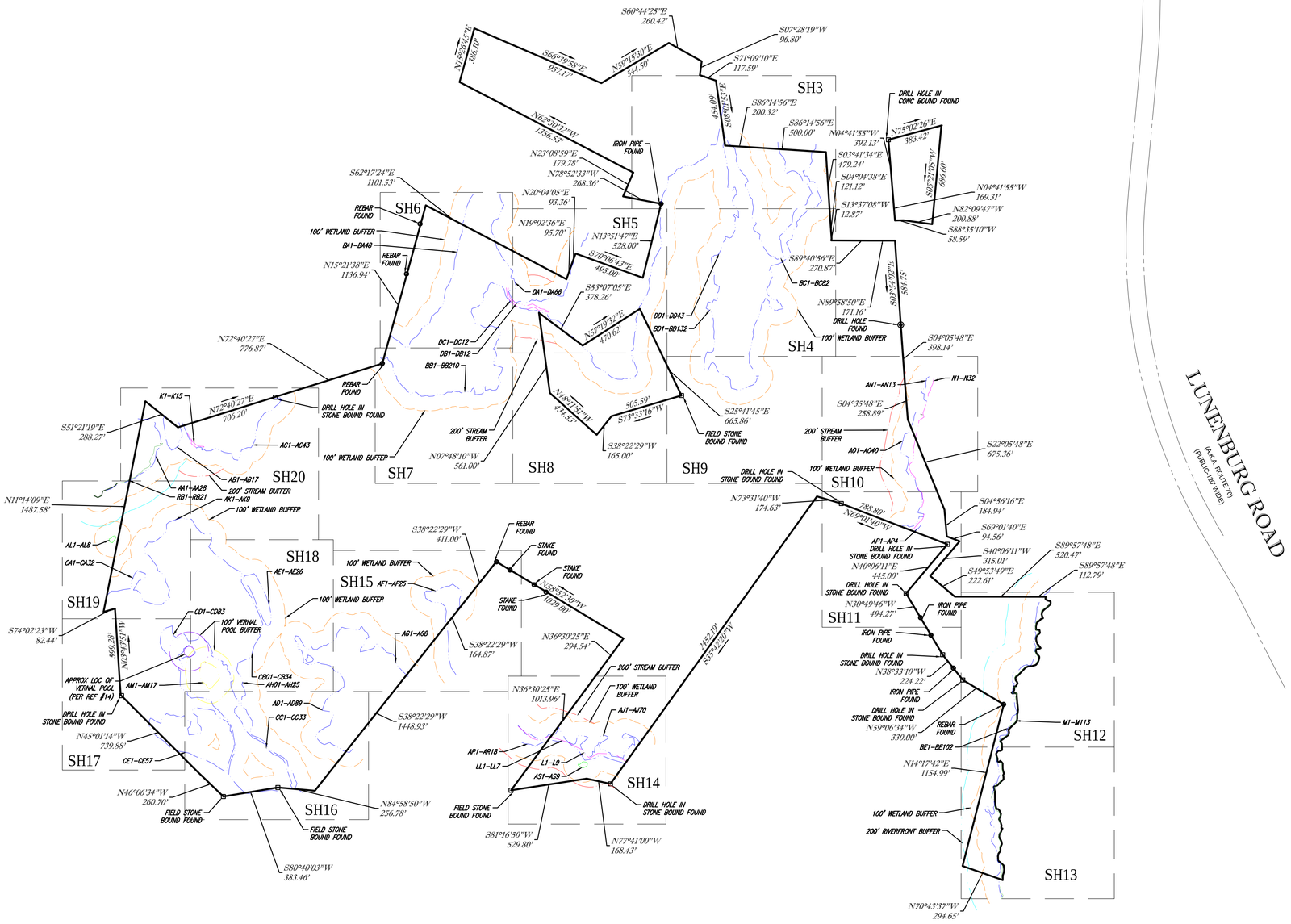
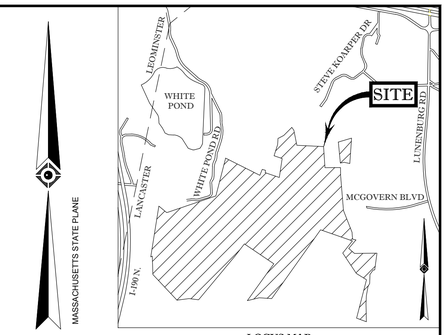
G.L.H.	G.L.H.	8-29-18	1"=400'	03-180132	1 OF 20





LOCUS MAP
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GERRY L. HOLDRIGHT
NO. 49211
REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE	5-6-18
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G.L.H.	G.L.H.	8-29-18	1"=400'	03-180132	2 OF 20

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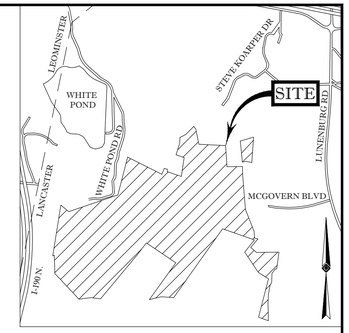
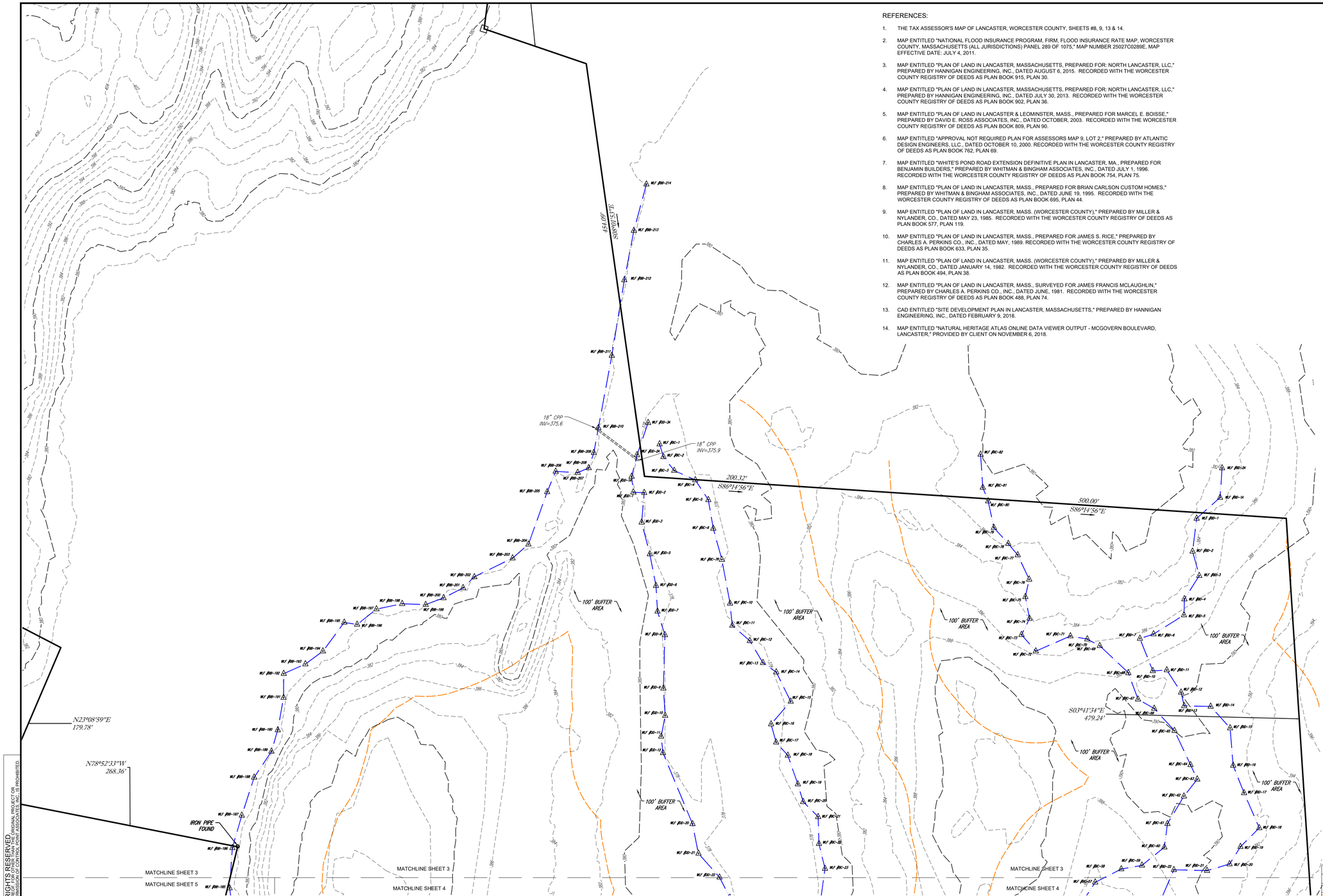


SERIES	WETLAND TYPE	COLOR	NOTES
WLF #BB1-BB214	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #BC1-BC85	BORDERING VEGETATED WETLANDS	BLUE	BC8 & BC9 REMOVED; BC7 REVISED
WLF #BD1-BD132	BORDERING VEGETATED WETLANDS	BLUE	BD132 CONNECTS TO DD43; INCLUDES BD1A & BD2A; BD117 & BD118 REVISED
WLF #DD1-DD43	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES DD1A-DD3A; DD13-DD19 REMOVED



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SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
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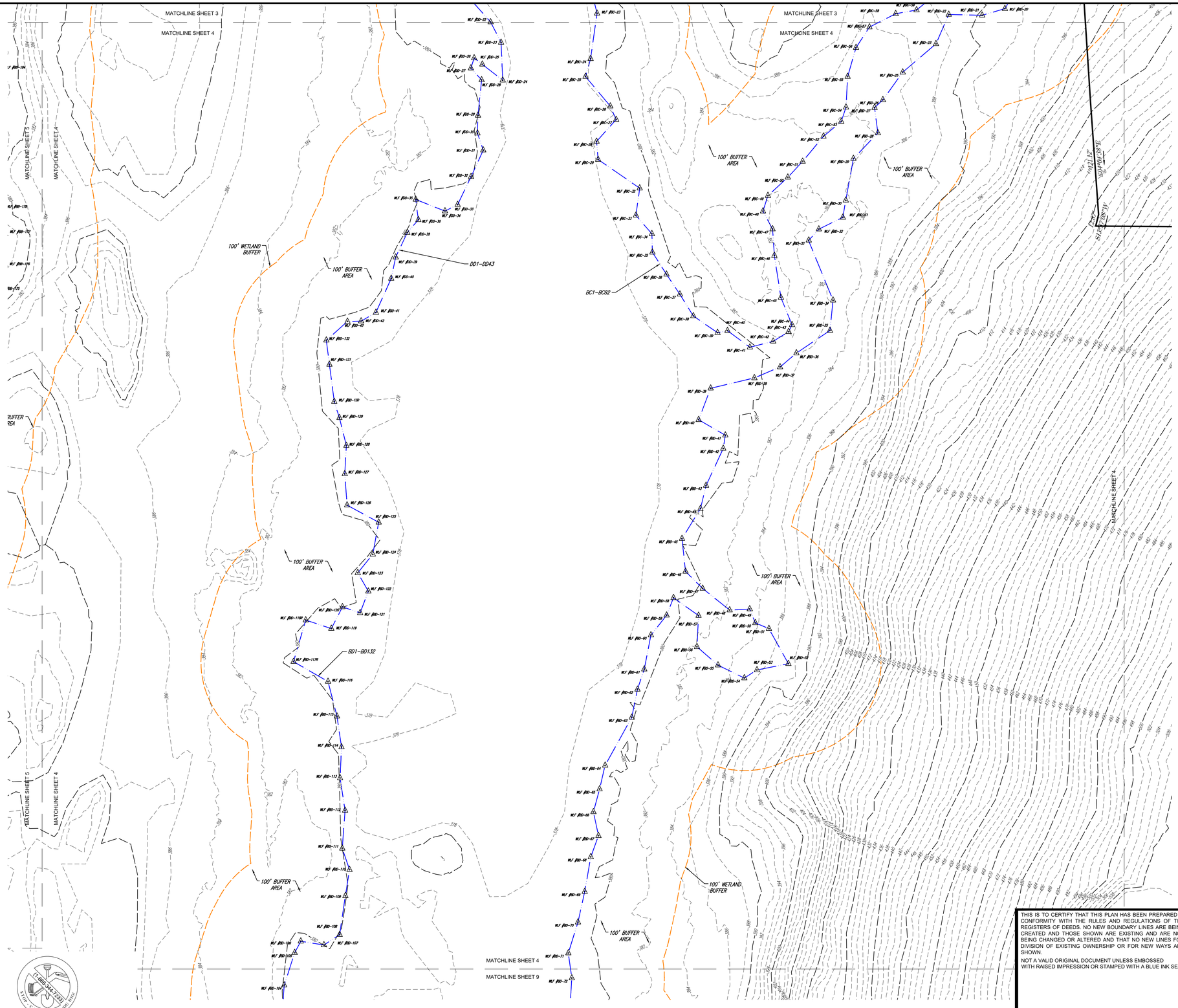

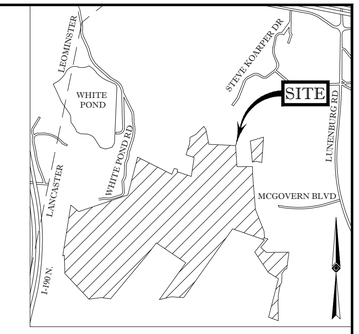

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #BB1-BB214	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #BC1-BC85	BORDERING VEGETATED WETLANDS	BLUE	BC8 & BC9 REMOVED; BC7 REVISED
WLF #DD1-DD43	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES DD1A-DD3A; DD13-DD19 REMOVED

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN:	APPROVED:	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
2	UPDATED PER CONSERVATION COMMISSION COMMENTS	-	R.J.K.	G.L.H.	12-7-18
1	UPDATED PER CONSERVATION COMMISSION COMMENTS	J.O.	R.J.K.	G.L.H.	11-14-18

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COMMONWEALTH OF MASSACHUSETTS
GERRY L. HOLDRIGHT
NO. 49211
REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION

CAPITAL GROUP PROPERTIES

MCGOVERN BOULEVARD
MAP 8, LOTS 39C, 42 & 45, MAP 9, LOTS 2, 5 & 8A,
MAP 13, LOTS 2, 3, 4, 7 & 8, MAP 14, LOTS 1, 2, 3, 3A, 3B, 8B, 9D, 11A, 12 &13, PARCEL B-2 & PARCEL B-4
TOWN OF LANCASTER, WORCESTER COUNTY
COMMONWEALTH OF MASSACHUSETTS

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MT. LAUREL, NJ 609.857.2099
CHALFONT, PA 215.712.9800
WARREN, NJ 908.668.0099

FIELD DATE	FIELD BOOK NO.	FIELD BOOK PG.	FIELD CREW	DRAWN:
5-6-18	18-02 MA	110-148	T.M./T.O.	R.J.K.

REVIEWED:	APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	G.L.H.	8-29-18	1"=50'	03-180132	4 OF 20

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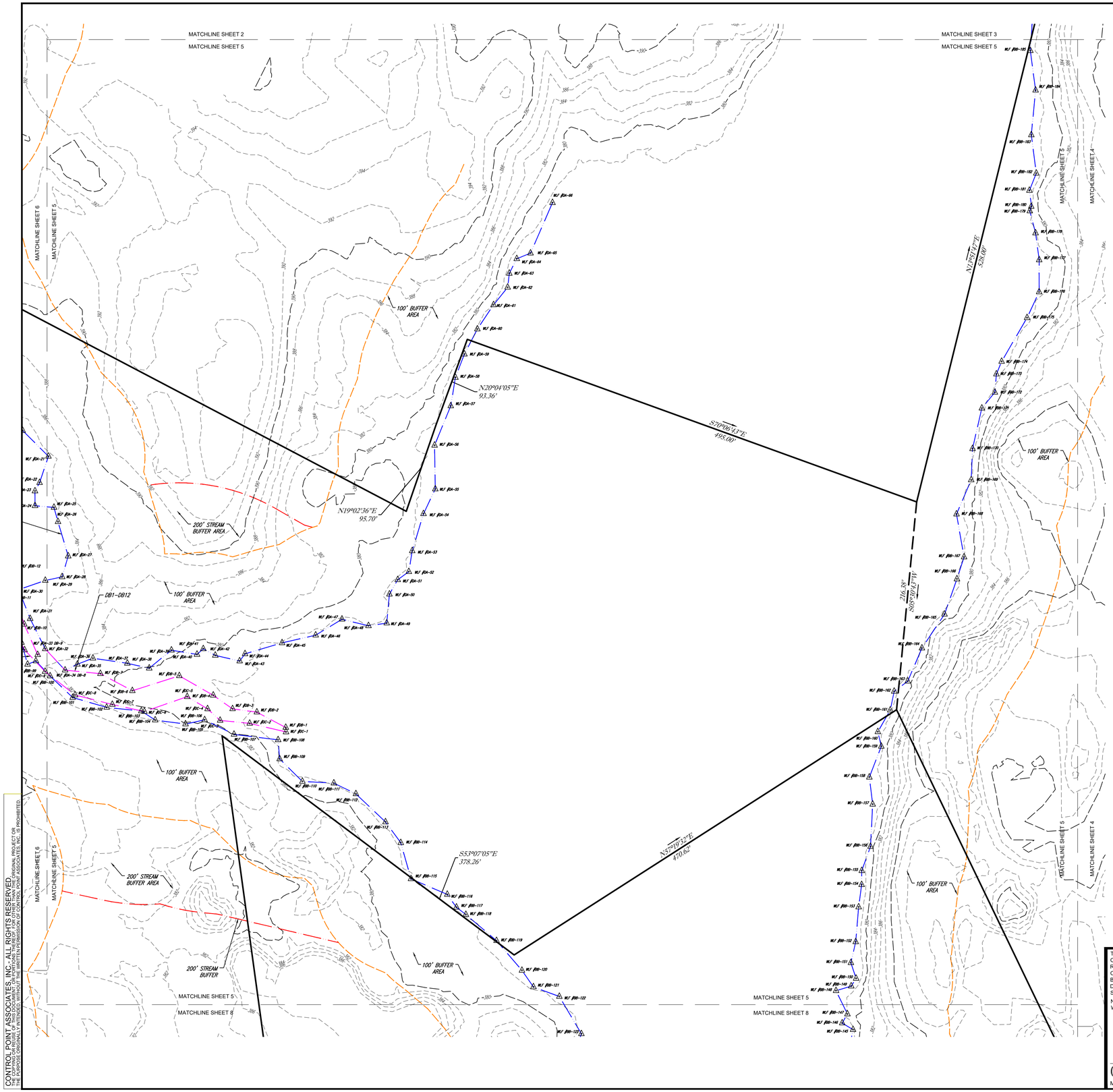

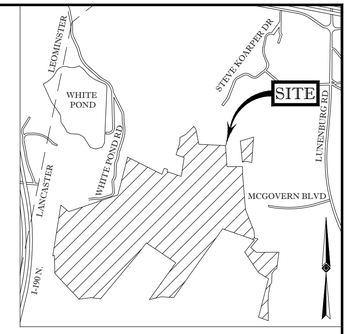

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WLF #DB1-DB12	INTERMITTENT STREAM BANK	PINK	-
WLF #DC1-DC12	INTERMITTENT STREAM BANK	PINK	-
WLF #DD1-DD43	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES DD1A-DD3A; DD13-DD19 REMOVED

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

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1 inch = 50 ft.

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1-2-19
DATE

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FIELD DATE: 5-6-18
FIELD BOOK NO.: 18-02 MA
FIELD BOOK PG.: 110-148
FIELD CREW: T.M./T.O.
DRAWN: R.J.K.

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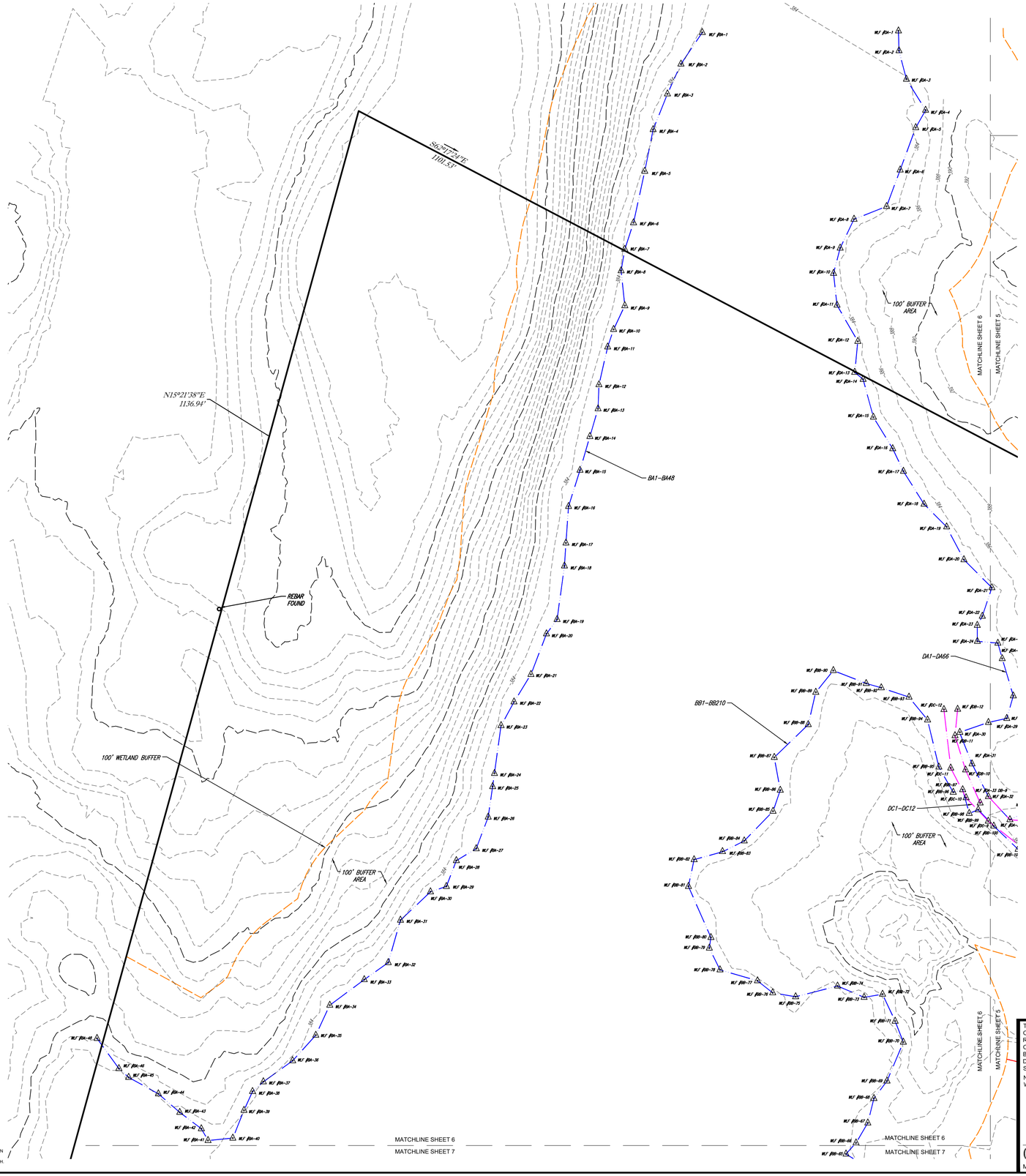

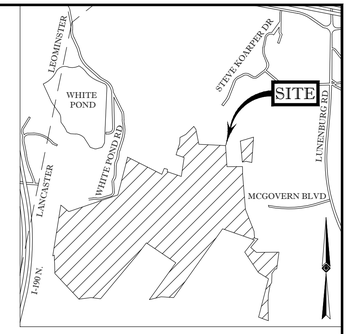

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #BA1-BA48	BORDERING VEGETATED WETLANDS	BLUE	BA47 REMOVED
WLF #BB1-BB214	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #DA1-DA66	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #DB1-DB12	INTERMITTENT STREAM BANK	PINK	-
WLF #DC1-DC12	INTERMITTENT STREAM BANK	PINK	-

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

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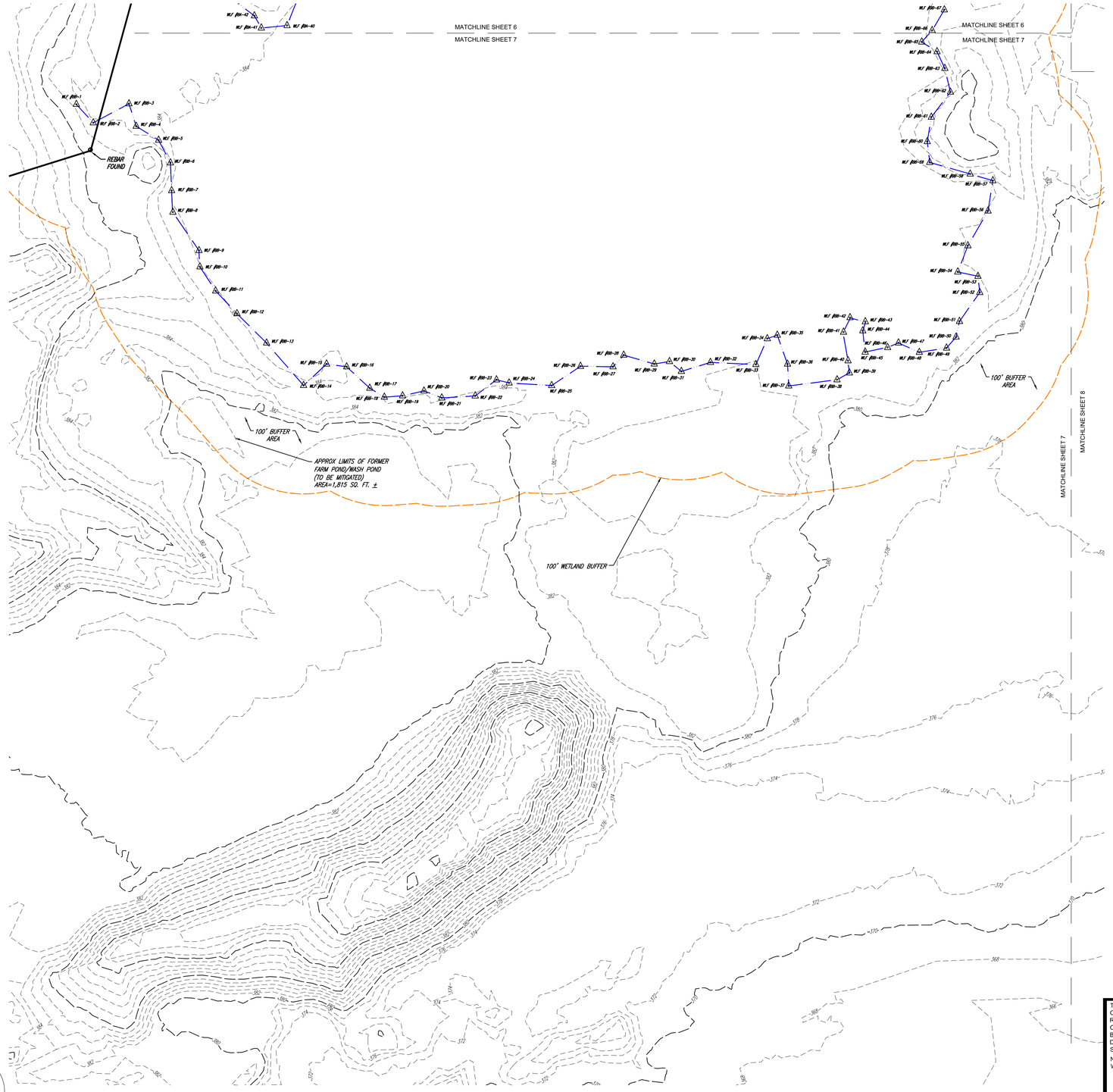

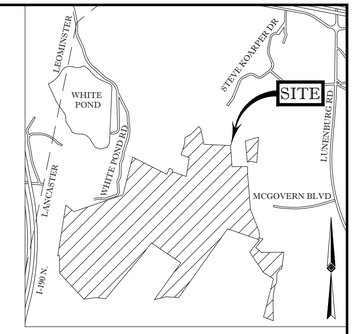

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COMMONWEALTH OF MASSACHUSETTS

CONTROL POINT
ASSOCIATES, INC.
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
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MANHATTAN, NY 646.780.0411
MT. LAUREL, NJ 609.857.2099
CHALFONT, PA 215.712.9800
WARREN, NJ 908.668.0099

FIELD DATE	FIELD BOOK NO.	FIELD BOOK PG.	FIELD CREW	DRAWN:
5-6-18	18-02 MA	110-148	T.M./T.O.	R.J.K.

REVIEWED:	APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	G.L.H.	8-29-18	1"=50'	03-180132	7 OF 20

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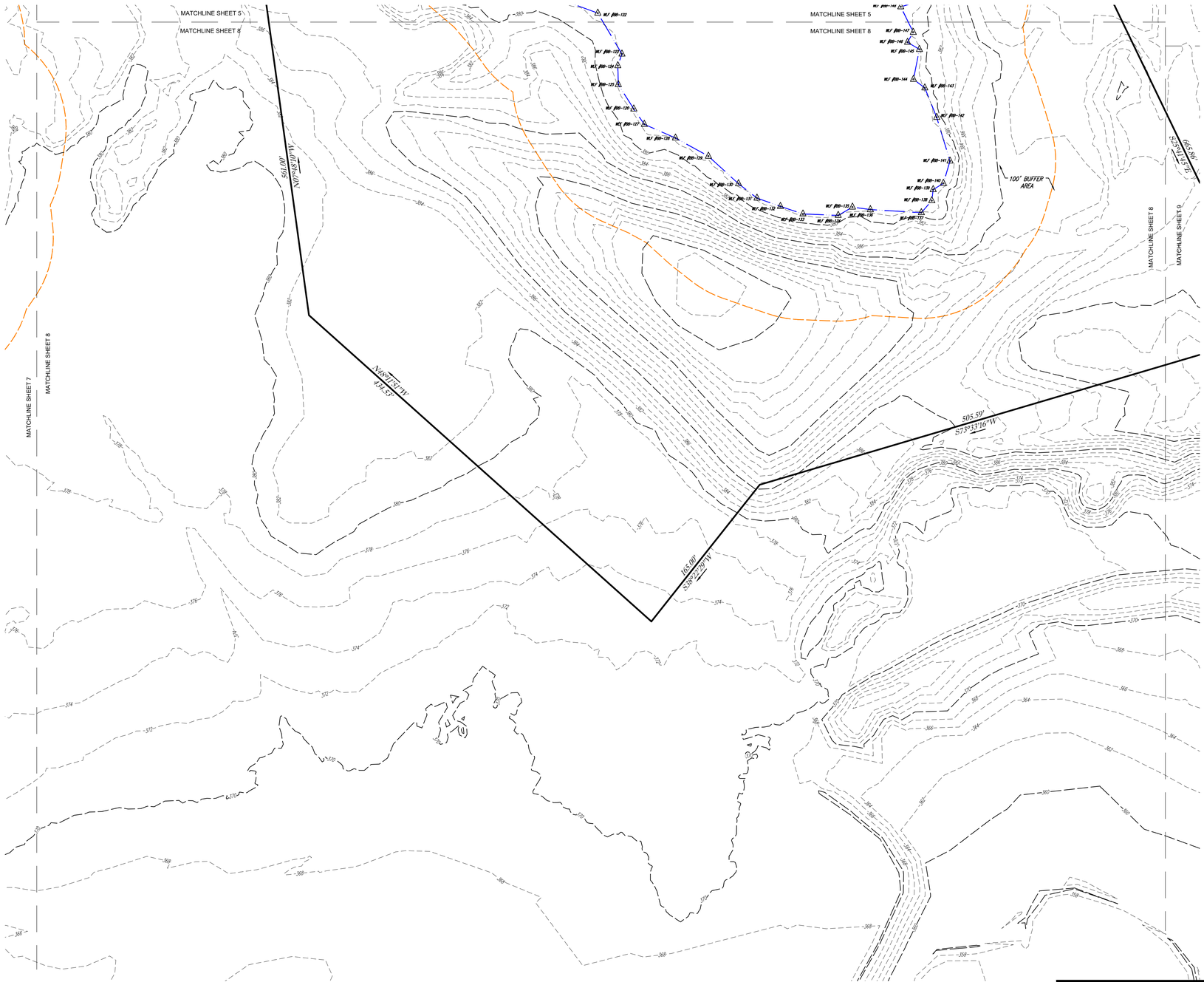

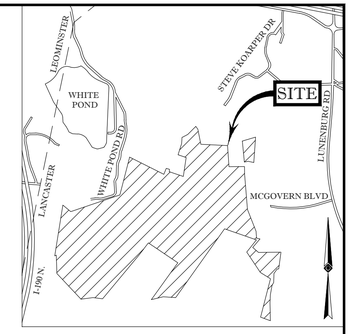

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #BB1-BB214	BORDERING VEGETATED WETLANDS	BLUE	-

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN:	APPROVED:	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
2	UPDATED PER CONSERVATION COMMISSION COMMENTS	-	R.J.K.	G.L.H.	12-7-18
1	UPDATED PER CONSERVATION COMMISSION COMMENTS	J.O.	R.J.K.	G.L.H.	11-14-18

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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COMMONWEALTH OF MASSACHUSETTS
GERRY L. HOLDRIGHT
NO. 49211
REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE	5-6-18
FIELD BOOK NO.	18-02 MA
FIELD BOOK PG.	110-148
FIELD CREW	T.M./T.O.
DRAWN:	R.J.K.

ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION
CAPITAL GROUP PROPERTIES
MCGOVERN BOULEVARD
MAP 8, LOTS 39C, 42 & 45, MAP 9, LOTS 2, 5 & 8A,
MAP 13, LOTS 2, 3, 4, 7 & 8, MAP 14, LOTS 1, 2, 3, 3A, 3B, 8B, 9D, 11A, 12 &13, PARCEL B-2 & PARCEL B-4
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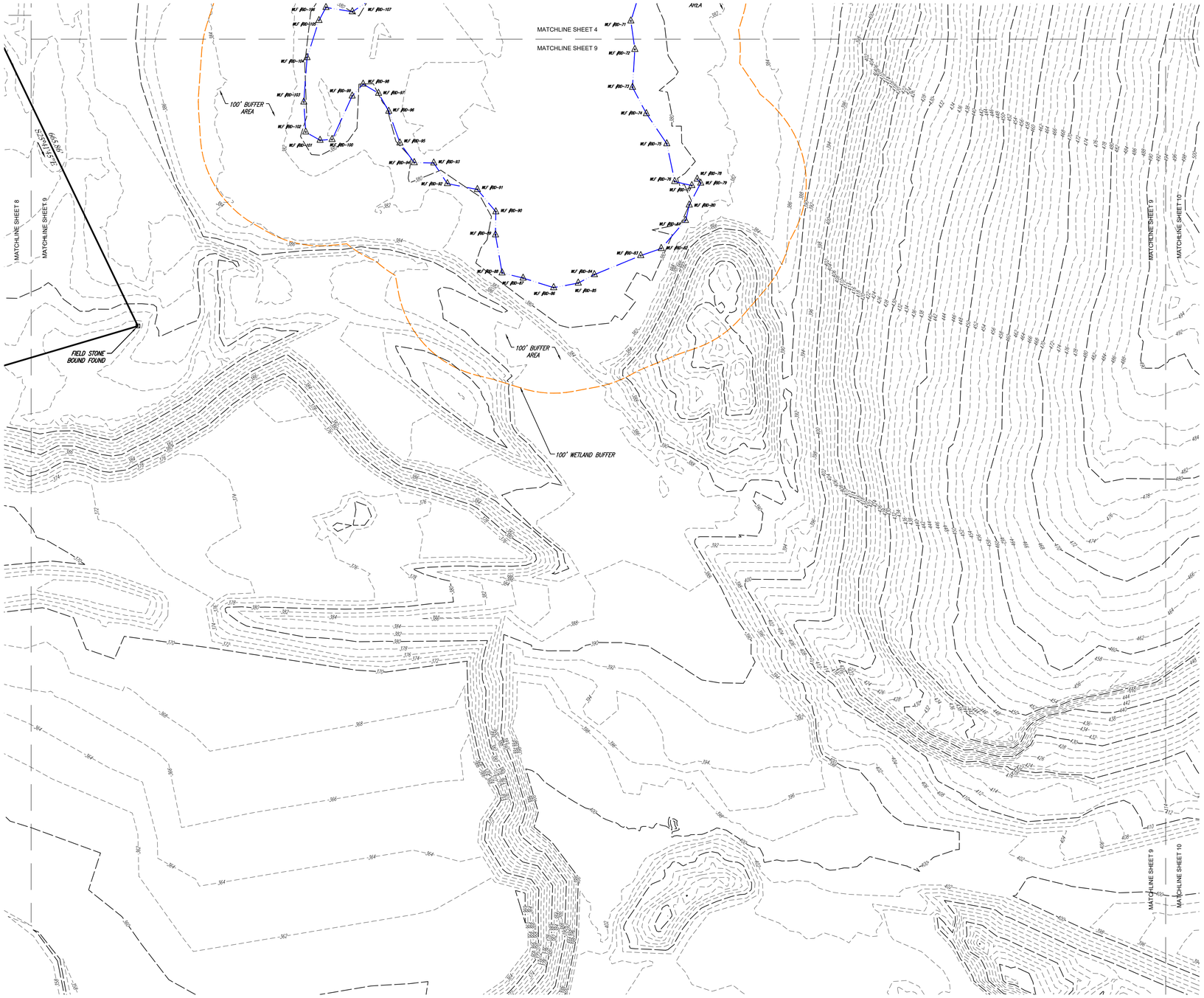

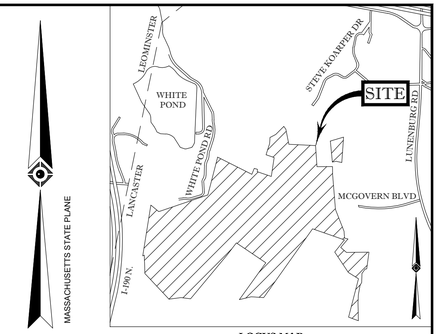

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #BD1-BD132	BORDERING VEGETATED WETLANDS	BLUE	BD132 CONNECTS TO DD43; INCLUDES BD1A & BD2A; BD117 & BD118 REVISED

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN.	APPROVED.	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
2	UPDATED PER CONSERVATION COMMISSION COMMENTS	-	R.J.K.	G.L.H.	12-7-18
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COMMONWEALTH OF MASSACHUSETTS
GERRY L. HOLDRIGHT
NO. 49211
REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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FIELD BOOK PG.	110-148
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REVIEWED:	G.L.H.
APPROVED:	G.L.H.
DATE	8-29-18
SCALE	1"=50'
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DWG. NO.	9 OF 20

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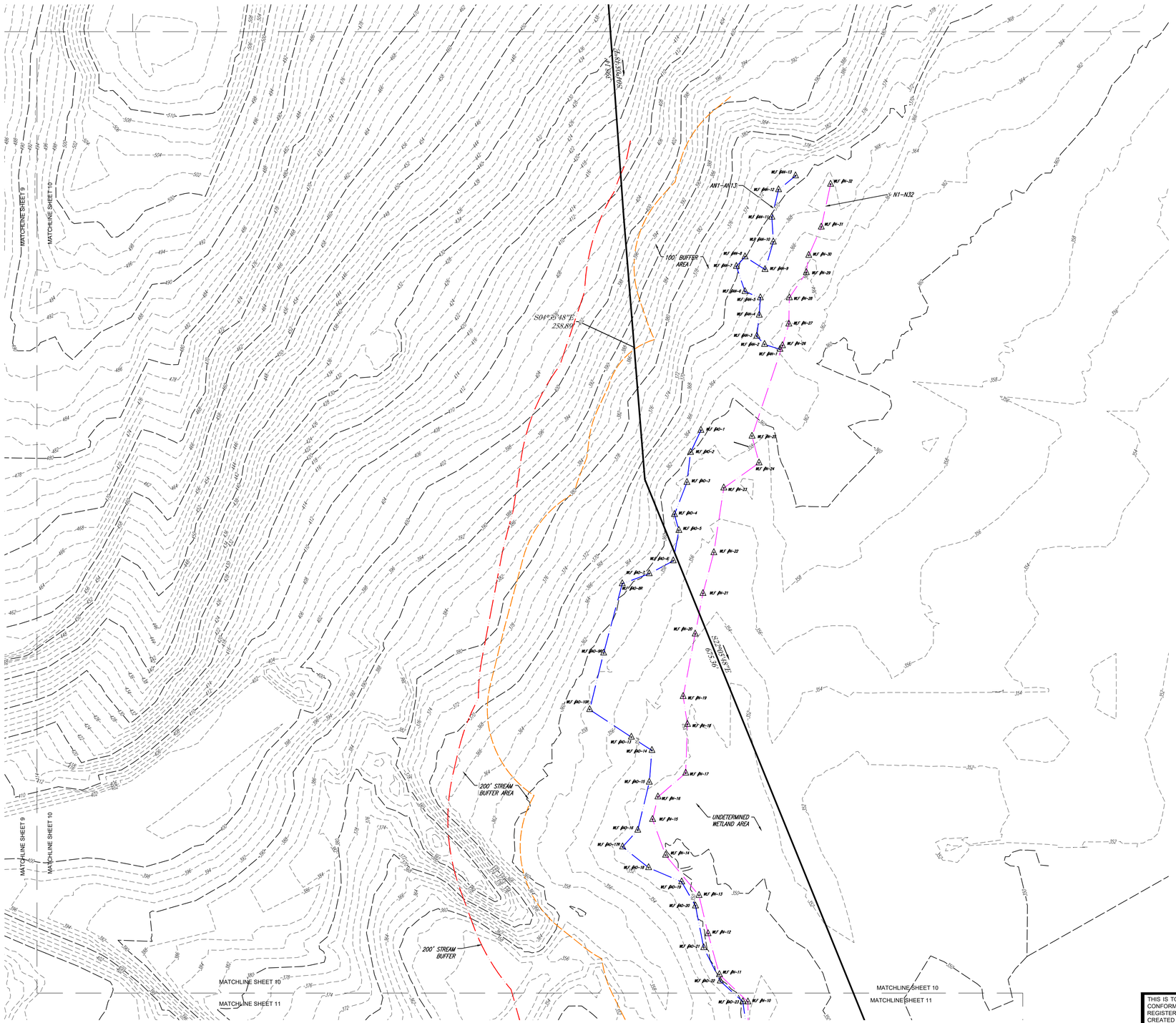

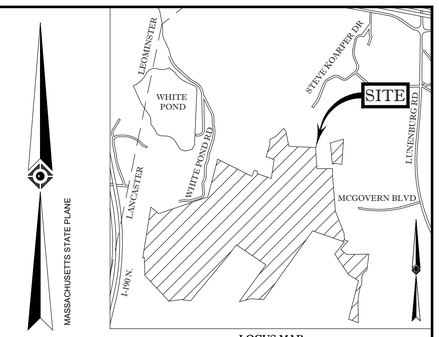

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #AN1-AN13	BORDERING VEGETATED WETLANDS	BLUE	
WLF #AO1-AO40	BORDERING VEGETATED WETLANDS	BLUE	AO8-AO10 & AO17 REVISED; AO11 & AO12 REMOVED
WLF #N1-N32	INTERMITTENT STREAM BANK	PINK	-

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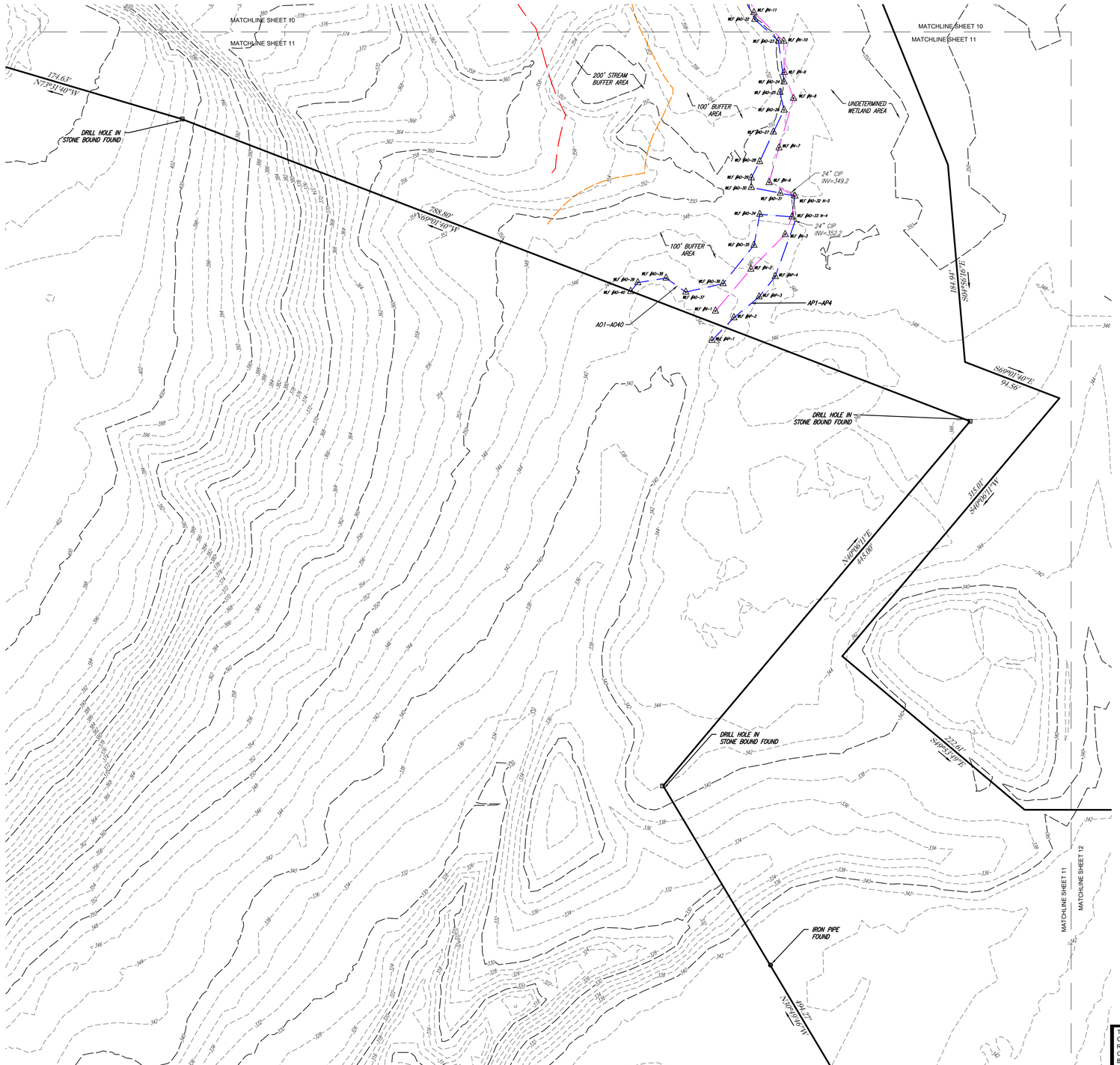

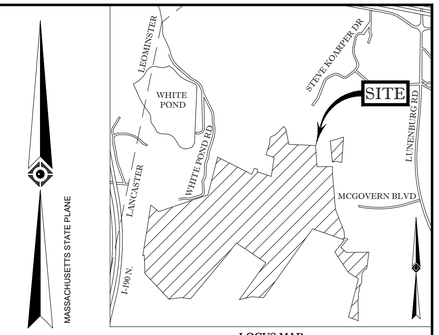

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #A01-AO40	BORDERING VEGETATED WETLANDS	BLUE	AO8-AO10 & AO17 REVISED; AO11 & AO12 REMOVED
WLF #AP1-AP4	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #N1-N32	INTERMITTENT STREAM BANK	PINK	-

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN:	APPROVED:	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
2	UPDATED PER CONSERVATION COMMISSION COMMENTS	-	R.J.K.	G.L.H.	12-7-18
1	UPDATED PER CONSERVATION COMMISSION COMMENTS	J.O.	R.J.K.	G.L.H.	11-14-18

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COMMONWEALTH OF MASSACHUSETTS
GERRY L. HOLDRIGHT
NO. 49211
REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE: 5-6-18
FIELD BOOK NO.: 18-02 MA
FIELD BOOK PG.: 110-148
FIELD CREW: T.M./T.O.
DRAWN: R.J.K.

ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION
CAPITAL GROUP PROPERTIES
MCGOVERN BOULEVARD
MAP 8, LOTS 39C, 42 & 45, MAP 9, LOTS 2, 5 & 8A,
MAP 13, LOTS 2, 3, 4, 7 & 8, MAP 14, LOTS 1, 2, 3, 3A, 3B, 8B, 9D, 11A,
12 &13, PARCEL B-2 & PARCEL B-4
TOWN OF LANCASTER, WORCESTER COUNTY
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REVIEWED:	APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	G.L.H.	8-29-18	1"=50'	03-180132	11 OF 20

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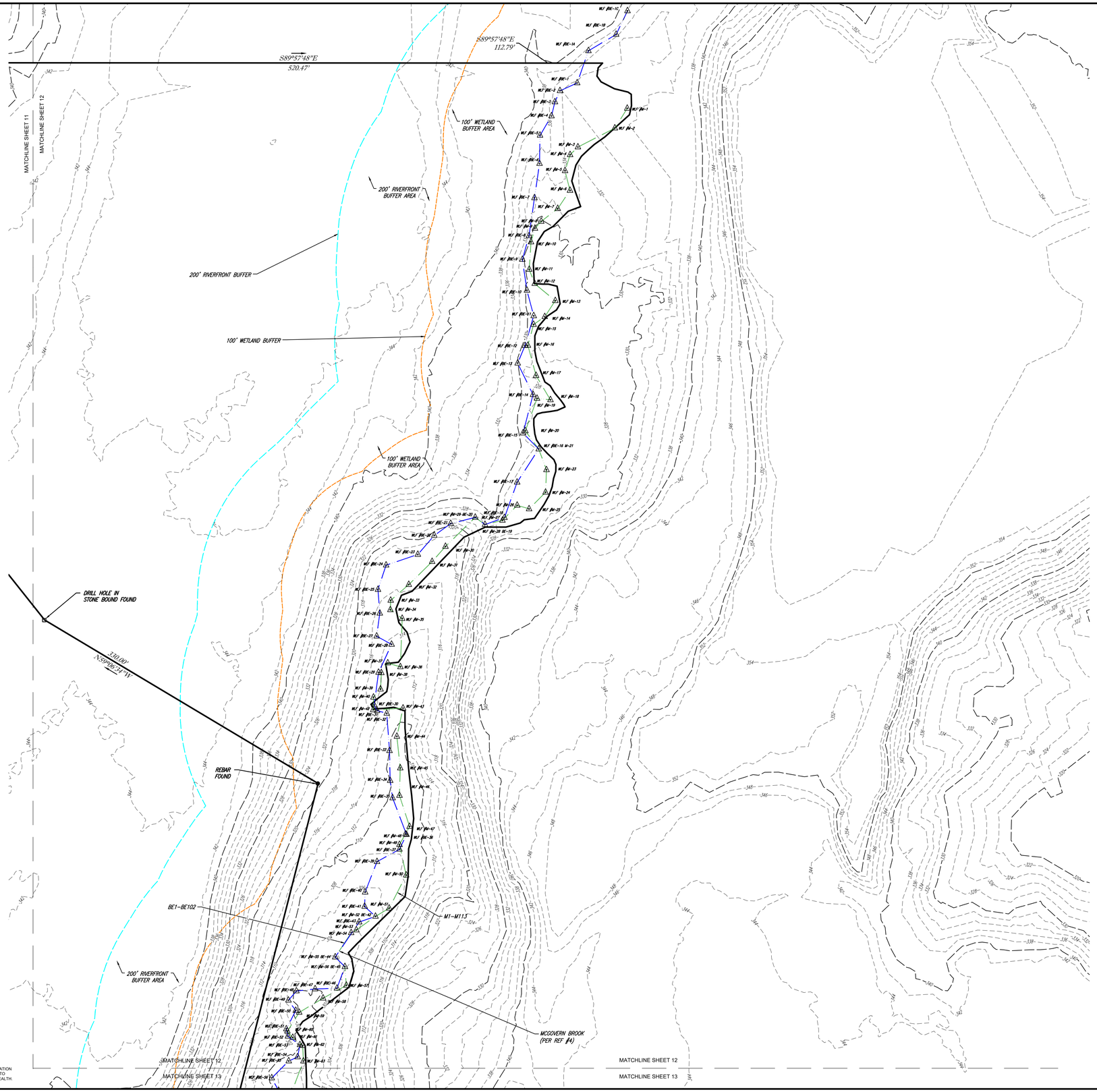

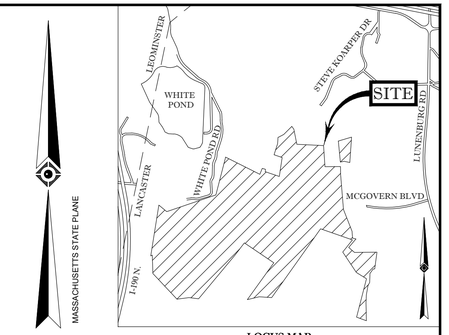

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SERIES	WETLAND TYPE	COLOR	NOTES
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WLF #M1-M113	MEAN ANNUAL HIGH WATER LINE	DARK GREEN	-

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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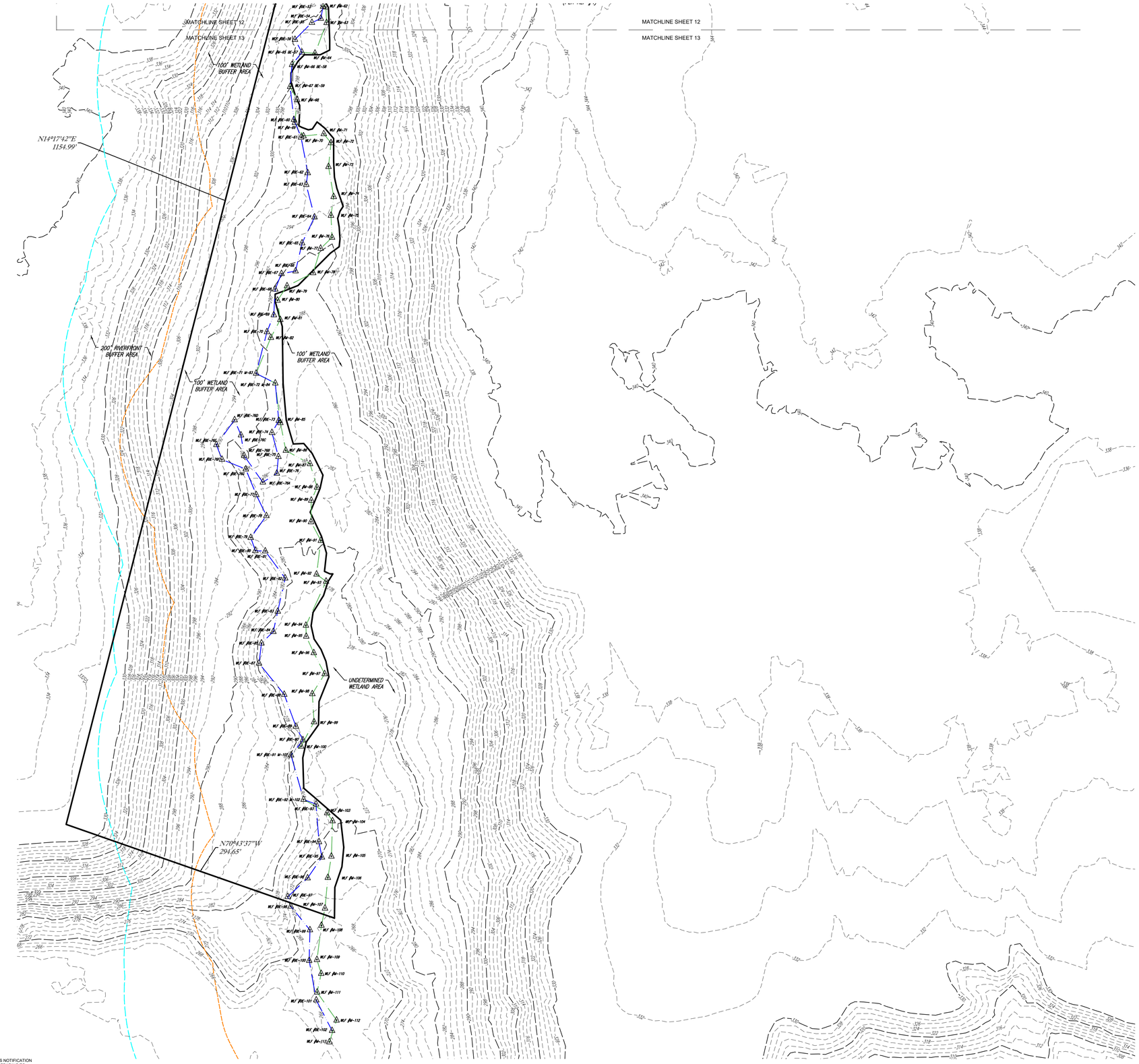

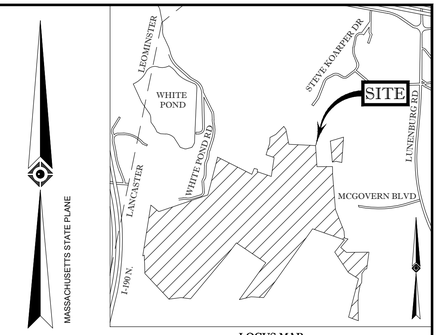

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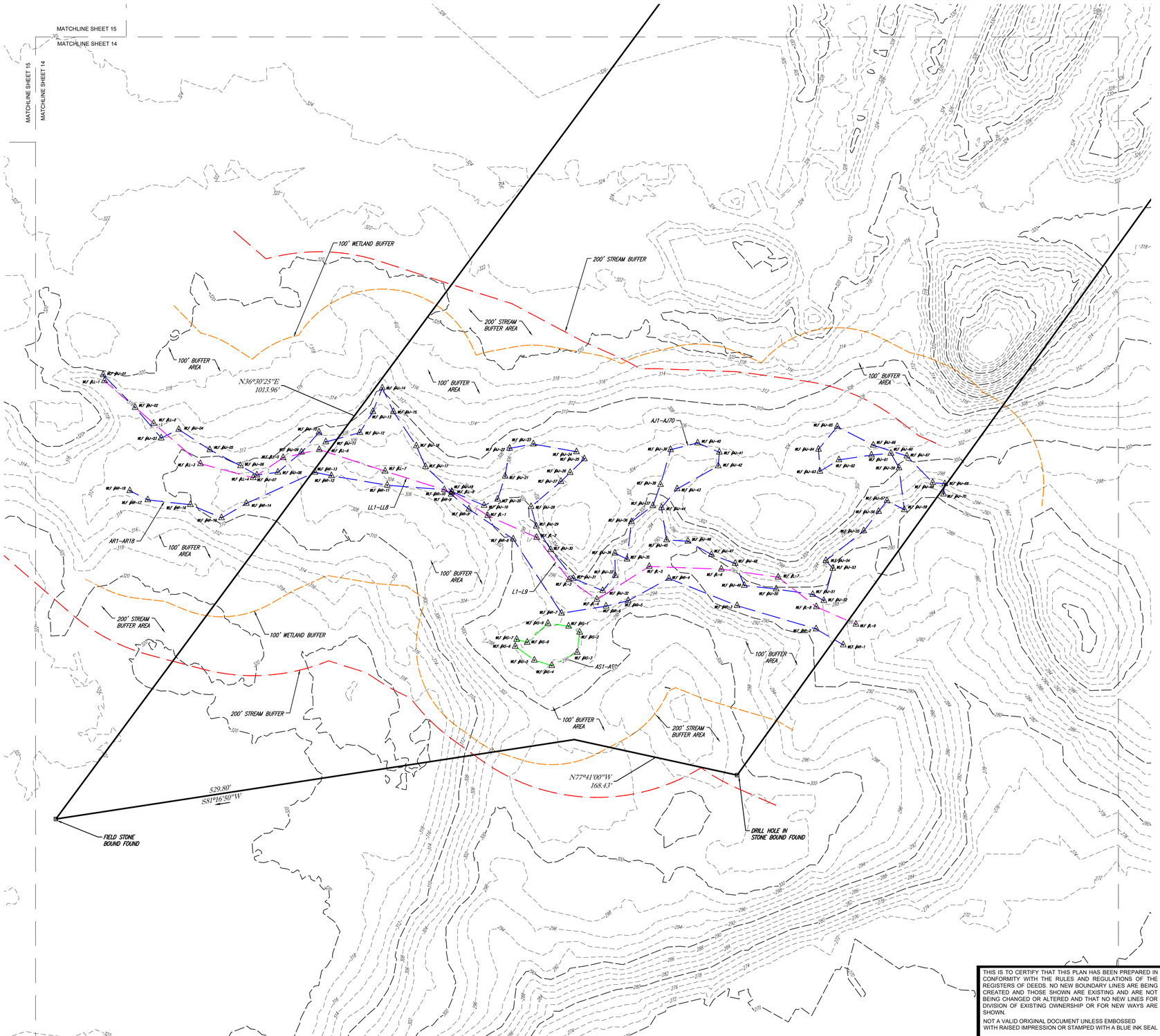

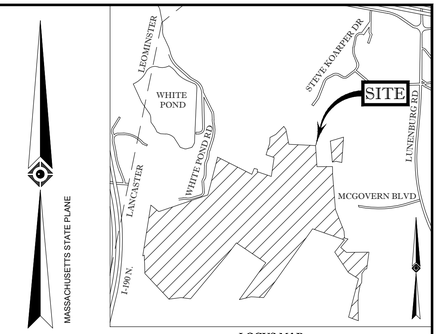

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #AJ1-AJ70	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #AR1-AR18	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #AS1-AS9	ISOLATED VEGETATED WETLANDS	LIME GREEN	AS1 CONNECTS TO AS9
WLF #L1-L9	INTERMITTENT STREAM BANK	PINK	L1 CONNECTS TO LL8
WLF #LL1-LL8	INTERMITTENT STREAM BANK	PINK	LL8 CONNECTS TO L1

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN.	APPROVED.	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
2	UPDATED PER CONSERVATION COMMISSION COMMENTS	-	R.J.K.	G.L.H.	12-7-18
1	UPDATED PER CONSERVATION COMMISSION COMMENTS	J.O.	R.J.K.	G.L.H.	11-14-18

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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COMMONWEALTH OF MASSACHUSETTS
GERRY L. HOLDRIGHT
NO. 49211
REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE: 5-6-18
FIELD BOOK NO.: 18-02 MA
FIELD BOOK PG.: 110-148
FIELD CREW: T.M./T.O.
DRAWN: R.J.K.
REVIEWED: G.L.H.

ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION
CAPITAL GROUP PROPERTIES
MCGOVERN BOULEVARD
MAP 8, LOTS 39C, 42 & 45, MAP 9, LOTS 2, 5 & 8A,
MAP 13, LOTS 2, 3, 4, 7 & 8, MAP 14, LOTS 1, 2, 3, 3A, 3B, 8B, 9D, 11A, 12 &13, PARCEL B-2 & PARCEL B-4
TOWN OF LANCASTER, WORCESTER COUNTY
COMMONWEALTH OF MASSACHUSETTS

CONTROL POINT ASSOCIATES, INC.
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
508.948.3000 - 508.948.3003 FAX
MANHATTAN, NY 646.780.0411
MT. LAUREL, NJ 609.857.2099
CHALFONT, PA 215.712.9800
WARREN, NJ 908.668.0099

APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	8-29-18	1"=50'	03-180132	14 OF 20

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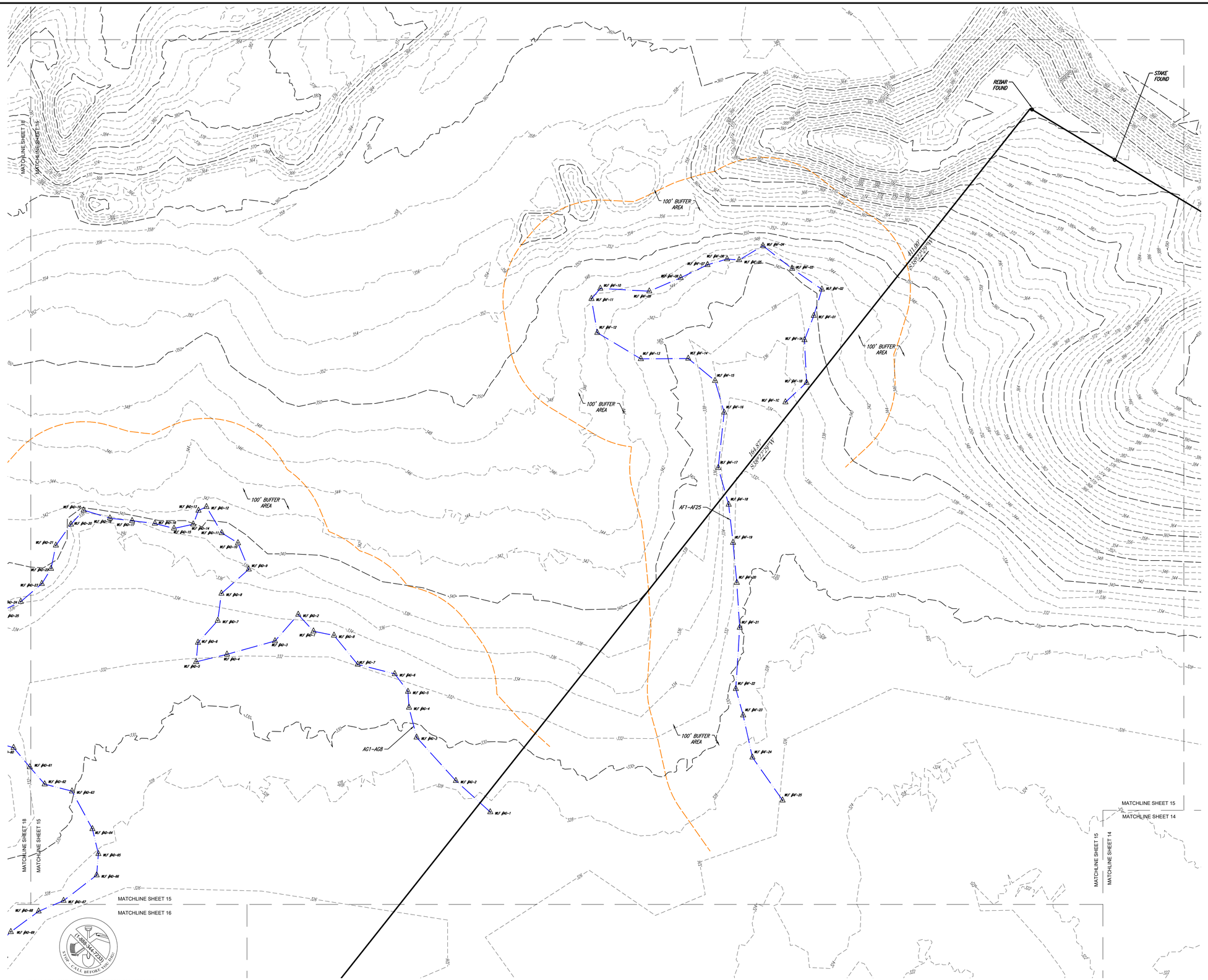

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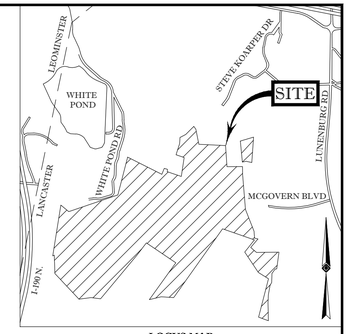
MASSACHUSETTS STATE PLANE



LOCUS MAP
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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #AD1-AD89	BORDERING VEGETATED WETLANDS	BLUE	AD45A ADDED; AD45A CONNECTS TO AD54; AD46 CONNECTS TO AD53
WLF #AF1-AF25	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES AF1A-AF1C
WLF #AG1-AG8	BORDERING VEGETATED WETLANDS	BLUE	AG8 CONNECTS TO AD1

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN:	APPROVED:	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
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GERRY L. HOLDRIGHT
NO. 49211
REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

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FIELD BOOK NO.: 18-02 MA
FIELD BOOK PG.: 110-148
FIELD CREW: T.M./T.O.
DRAWN: R.J.K.

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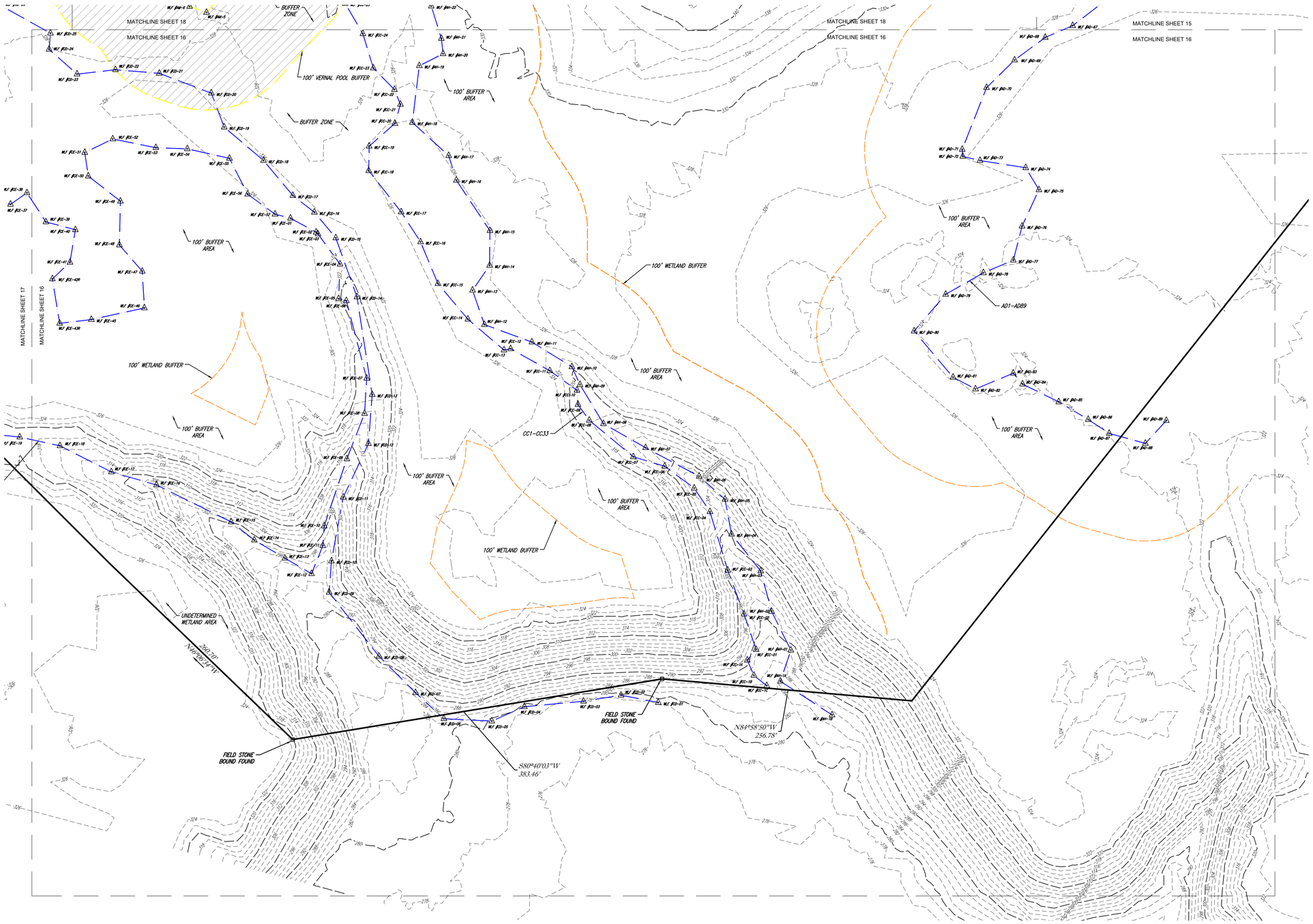

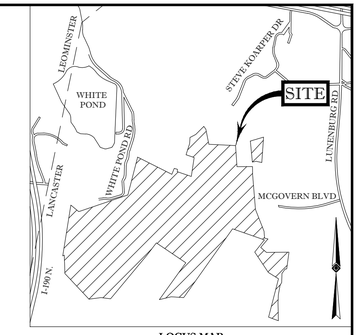

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WLF #CC1-CC33	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES CC1A-CC1C; CC33 CONNECTS TO CD83
WLF #CD1-CD83	BORDERING VEGETATED WETLANDS	BLUE	CD83 CONNECTS TO CC33
WLF #CE1-CE57	BORDERING VEGETATED WETLANDS	BLUE	CE36 & CE44 REMOVED; CE42 & CE43 REVISED; CE1 CONNECTS TO CE57

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN:	APPROVED:	DATE
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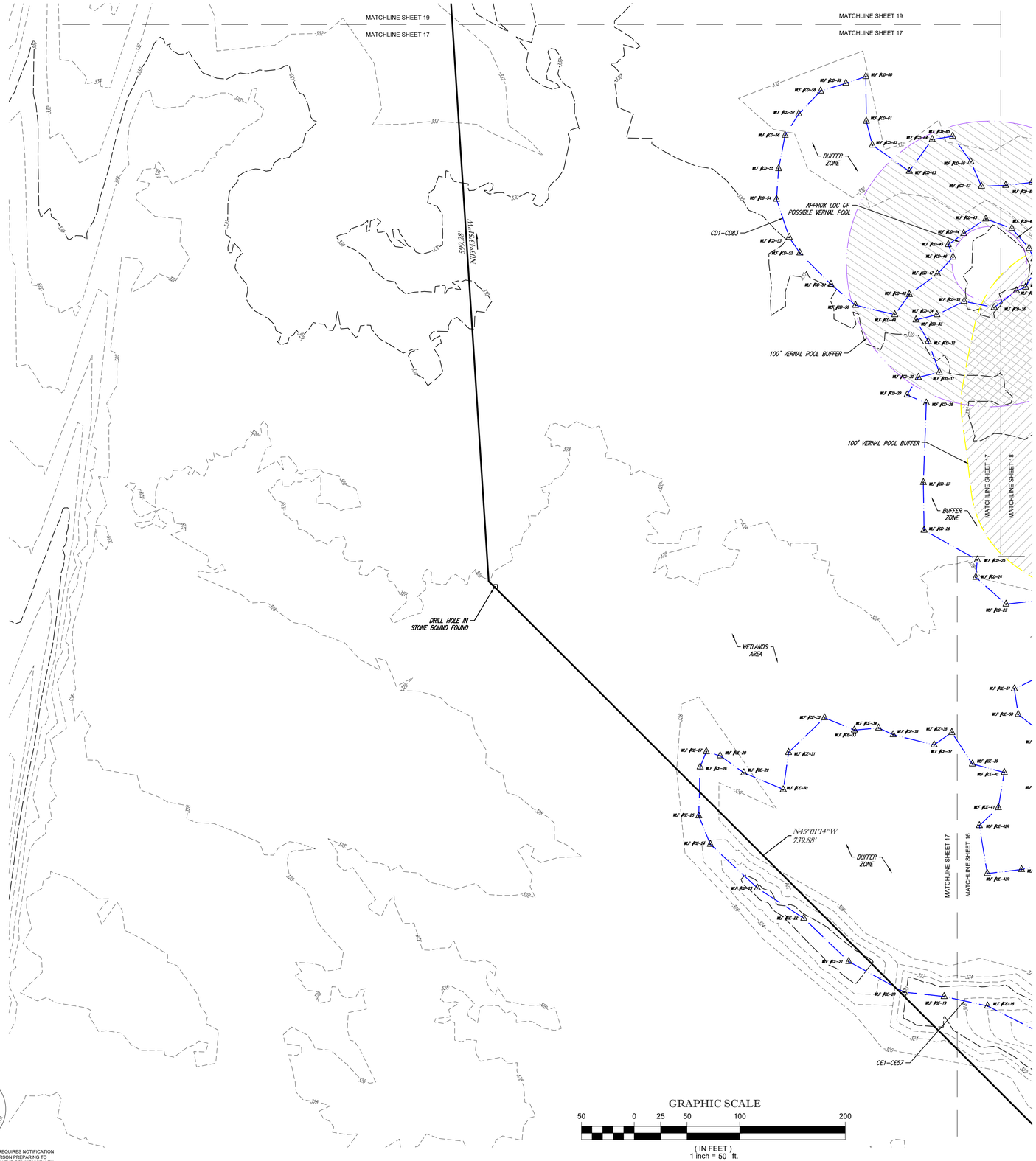

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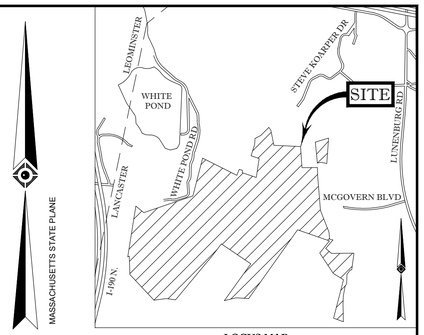

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #CD1-CD83	BORDERING VEGETATED WETLANDS	BLUE	CD83 CONNECTS TO CC33
WLF #CE1-CE57	BORDERING VEGETATED WETLANDS	BLUE	CE36 & CE44 REMOVED; CE42 & CE43 REVISED; CE1 CONNECTS TO CE57

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN	APPROVED	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
2	UPDATED PER CONSERVATION COMMISSION COMMENTS	-	R.J.K.	G.L.H.	12-7-18
1	UPDATED PER CONSERVATION COMMISSION COMMENTS	J.O.	R.J.K.	G.L.H.	11-14-18

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COMMONWEALTH OF MASSACHUSETTS
GERRY L. HOLDRIGHT
NO. 49211
REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE: 5-6-18
FIELD BOOK NO.: 18-02 MA
FIELD BOOK PG.: 110-148
FIELD CREW: T.M./T.O.
DRAWN: R.J.K.

ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION
CAPITAL GROUP PROPERTIES
MCGOVERN BOULEVARD
MAP 8, LOTS 39C, 42 & 45, MAP 9, LOTS 2, 5 & 8A,
MAP 13, LOTS 2, 3, 4, 7 & 8, MAP 14, LOTS 1, 2, 3, 3A, 3B, 8B, 9D, 11A, 12 &13, PARCEL B-2 & PARCEL B-4
TOWN OF LANCASTER, WORCESTER COUNTY
COMMONWEALTH OF MASSACHUSETTS

CONTROL POINT ASSOCIATES, INC.
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SOUTHBOROUGH, MA 01772
508.948.3000 - 508.948.3003 FAX
MANHATTAN, NY 646.780.0411
MT. LAUREL, NJ 609.857.2099
CHALFONT, PA 215.712.9800
WARREN, NJ 908.668.0099

REVIEWED:	APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	G.L.H.	8-29-18	1"=50'	03-180132	17 OF 20

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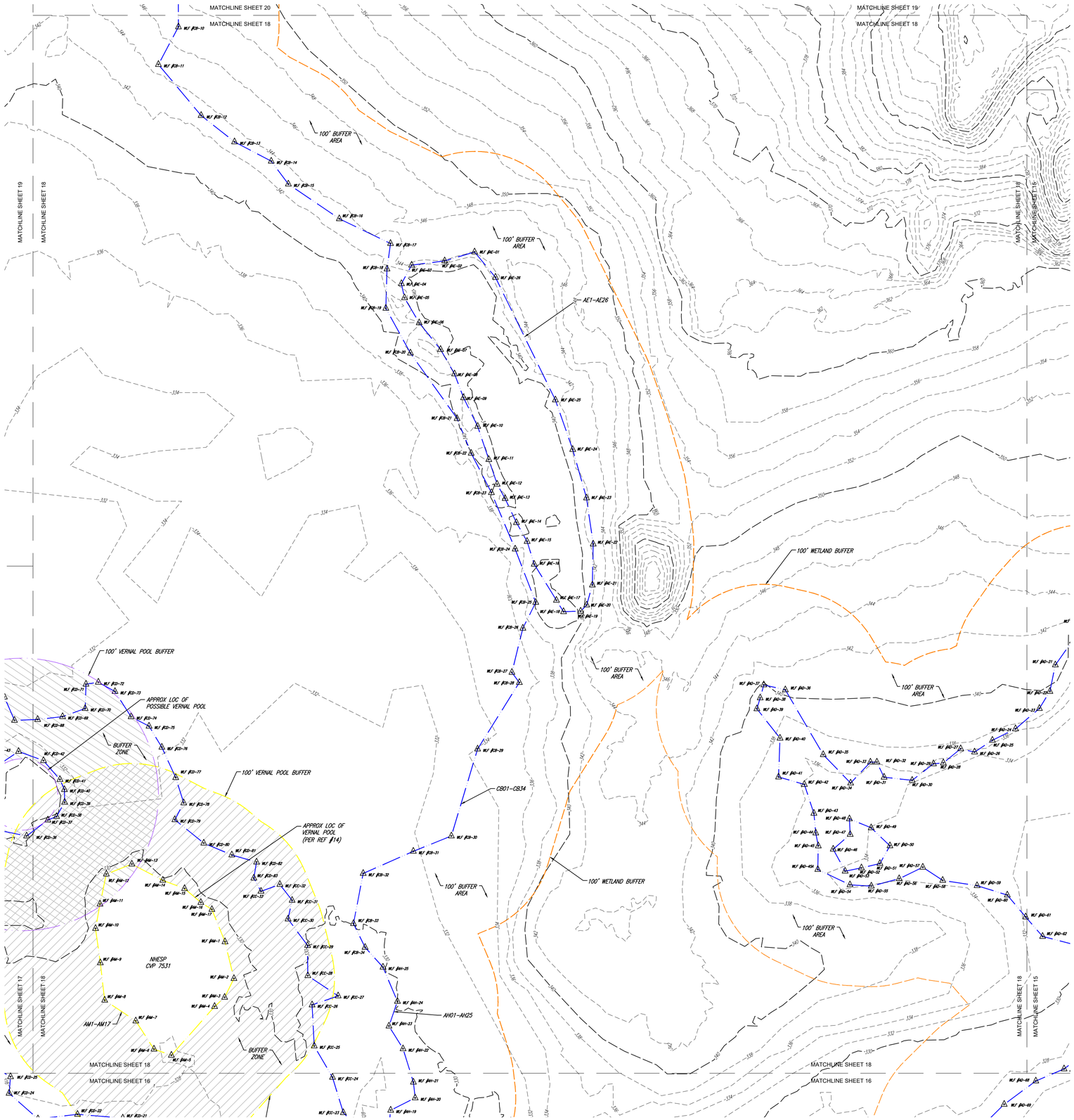

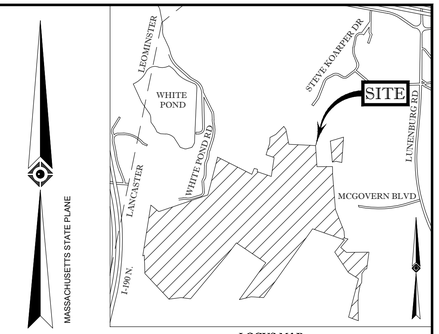

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #AD1-AD89	BORDERING VEGETATED WETLANDS	BLUE	AD45A ADDED; AD45A CONNECTS TO AD54, AD46 CONNECTS TO AD53
WLF #AE1-AE26	BORDERING VEGETATED WETLANDS	BLUE	AE1 CONNECTS TO AE26
WLF #AH1-AH25	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES AH1A & AH1B; AH25 CONNECTS TO CB34
WLF #AM1-AM17	CERTIFIED VERNAL POOL	YELLOW	AM1 CONNECTS TO AM17
WLF #CB1-CB34	BORDERING VEGETATED WETLANDS	BLUE	CB1 CONNECTS TO AK9 & CB34 CONNECTS TO AH25
WLF #CC1-CC33	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES CC1A-CC1C; CC33 CONNECTS TO CD83
WLF #CD1-CD83	BORDERING VEGETATED WETLANDS	BLUE	CD83 CONNECTS TO CC33

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN.	APPROVED:	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
2	UPDATED PER CONSERVATION COMMISSION COMMENTS	-	R.J.K.	G.L.H.	12-7-18
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GERRY L. HOLDRIGHT
NO. 49211
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1-2-19
DATE

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FIELD DATE	5-6-18
FIELD BOOK NO.	18-02 MA
FIELD BOOK PG.	110-148
FIELD CREW	T.M./T.O.
DRAWN:	R.J.K.
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APPROVED:	G.L.H.
DATE	8-29-18
SCALE	1"=50'
FILE NO.	03-180132
DWG. NO.	18 OF 20

ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION
CAPITAL GROUP PROPERTIES
MCGOVERN BOULEVARD
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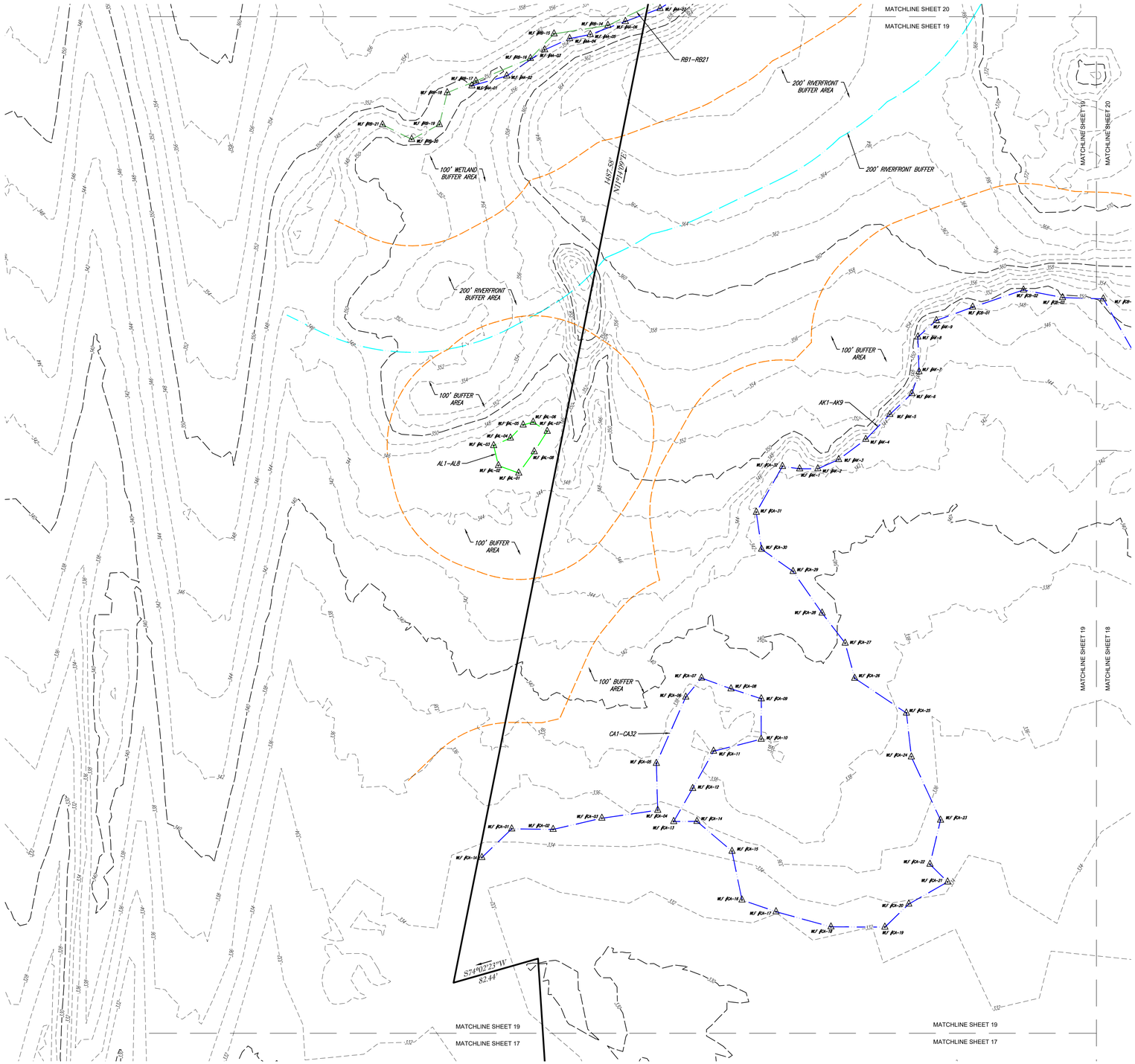

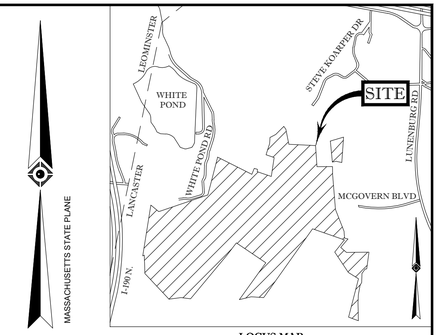

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SERIES	WETLAND TYPE	COLOR	NOTES
WLF #AA1-AA28	BORDERING VEGETATED WETLANDS	BLUE	AA24 REMOVED: AA23 & 25 REVISED
WLF #AK1-AK9	BORDERING VEGETATED WETLANDS	BLUE	AK1 CONNECTS TO CA30 & AK 9 CONNECTS TO CB1
WLF #AL1-AL8	ISOLATED VEGETATED WETLANDS	LIME GREEN	AL1 CONNECTS TO AL8
WLF #CA1-CA30	BORDERING VEGETATED WETLANDS	BLUE	INCLUDES CA1A; CA30 CONNECTS TO AK1
WLF #CB1-CB34	BORDERING VEGETATED WETLANDS	BLUE	CB1 CONNECTS TO AK9 & CB34 CONNECTS TO AH25
WLF #RB1-RB21	MEAN ANNUAL HIGH WATER LINE	DARK GREEN	-

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN.	APPROVED.	DATE
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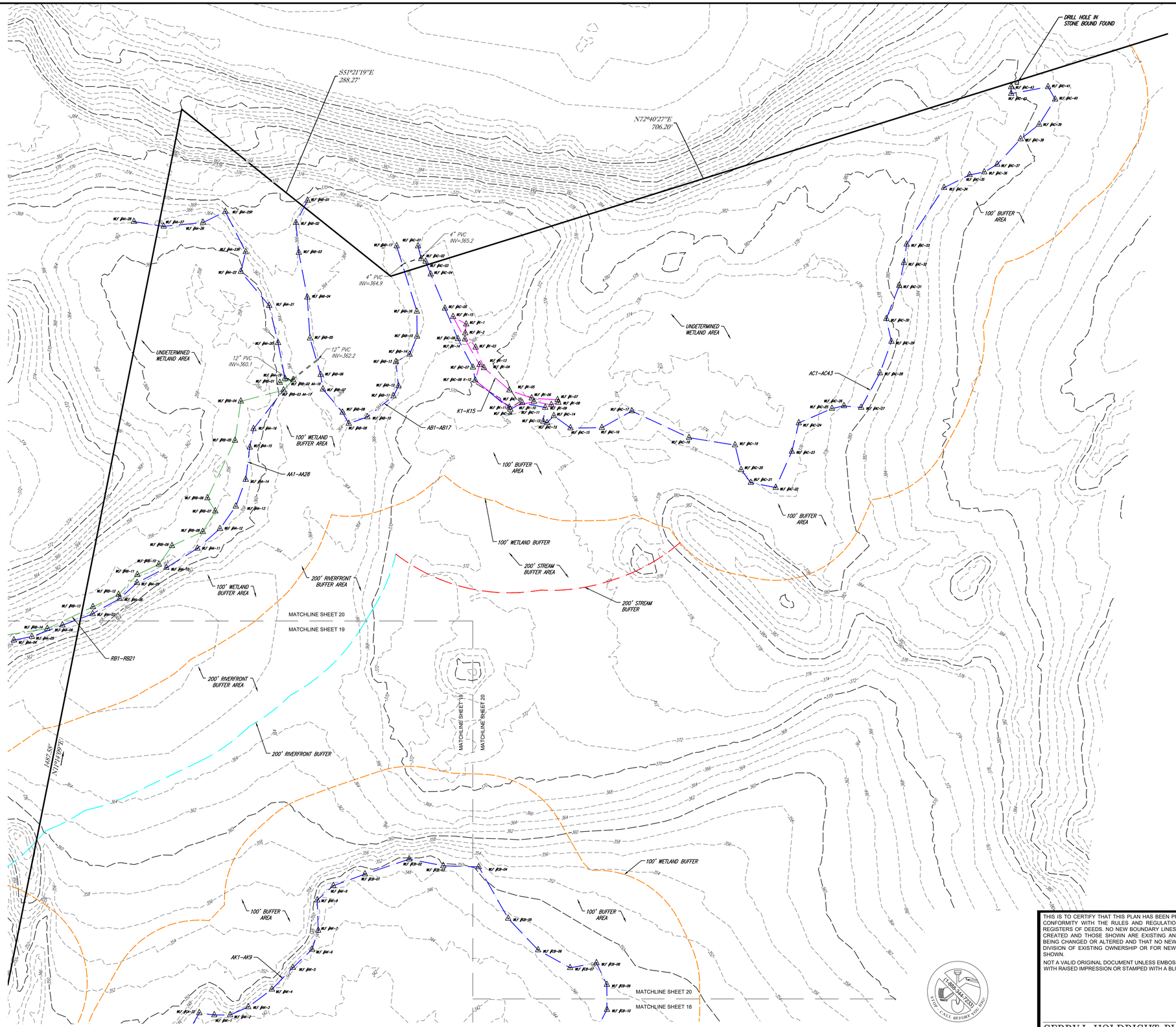

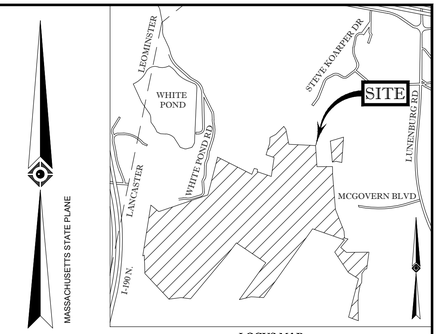

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WLF #AB1-AB17	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #AC1-AC43	BORDERING VEGETATED WETLANDS	BLUE	-
WLF #CB1-CB34	BORDERING VEGETATED WETLANDS	BLUE	CB1 CONNECTS TO AK9 & CB34 CONNECTS TO AH25
WLF #K1-K15	INTERMITTENT STREAM BANK	PINK	K1 CONNECTS TO K15
WLF #RB1-RB21	MEAN ANNUAL HIGH WATER LINE	DARK GREEN	-

SEE SHEET 1 OF 20 FOR OVERALL BOUNDARY & NOTES

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN:	APPROVED:	DATE
3	UPDATED PER CLIENT'S COMMENTS	-	D.L.M.	G.L.H.	1-2-19
2	UPDATED PER CONSERVATION COMMISSION COMMENTS	-	R.J.K.	G.L.H.	12-7-18
1	UPDATED PER CONSERVATION COMMISSION COMMENTS	J.O.	R.J.K.	G.L.H.	11-14-18

THIS IS TO CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS. NO NEW BOUNDARY LINES ARE BEING CREATED AND THOSE SHOWN ARE EXISTING AND ARE NOT BEING CHANGED OR ALTERED AND THAT NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

NOT A VALID ORIGINAL DOCUMENT UNLESS EMBOSSED WITH RAISED IMPRESSION OR STAMPED WITH A BLUE INK SEAL

COMMONWEALTH OF MASSACHUSETTS — GERRY L. HOLDRIGHT — NO. 49211 — REGISTERED PROFESSIONAL LAND SURVEYOR

1-2-19
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

1-888-344-7233 STOP, CALL BEFORE YOU DIG!

THE COMMONWEALTH OF MASSACHUSETTS REQUIRES NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE COMMONWEALTH.

ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION

CAPITAL GROUP PROPERTIES

MCGOVERN BOULEVARD
MAP 8, LOTS 39C, 42 & 45, MAP 9, LOTS 2, 5 & 8A,
MAP 13, LOTS 2, 3, 4, 7 & 8, MAP 14, LOTS 1, 2, 3, 3A, 3B, 8B, 9D, 11A, 12 &13, PARCEL B-2 & PARCEL B-4
TOWN OF LANCASTER, WORCESTER COUNTY
COMMONWEALTH OF MASSACHUSETTS

FIELD DATE	FIELD BOOK NO.	FIELD BOOK PG.	FIELD CREW	DRAWN:
5-6-18	18-02 MA	110-148	T.M./T.O.	R.J.K.

CONTROL POINT ASSOCIATES, INC.
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
508.948.3000 - 508.948.3003 FAX
MANHATTAN, NY 646.780.0411
MT. LAUREL, NJ 609.857.2099
CHALFONT, PA 215.712.9800
WARREN, NJ 908.668.0099

REVIEWED:	APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	G.L.H.	8-29-18	1"=50'	03-180132	20 OF 20

CONTROL POINT ASSOCIATES, INC. ALL RIGHTS RESERVED
THE OCCUPANT OF THIS DOCUMENT IS PROVISIONALLY GRANTED A LICENSE TO USE THE ORIGINAL PROJECT OR THE PURPOSE ORIGINALLY INTENDED, WITHOUT THE WRITTEN PERMISSION OF CONTROL POINT ASSOCIATES, INC. IS PROHIBITED

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

September 6, 2018

Daniel Ruiz
Capital Group Properties
259 Turnpike Road, Suite 100
Southborough, MA 01772

RE: Wetland Resource Evaluation, McGovern Boulevard, Lancaster, MA

Dear Danny:

Between April 1 and May 2, 2018, EcoTec, Inc. inspected the above-referenced property for the presence of wetland resources as defined by: (1) the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131, § 40; the "Act") and its implementing regulations (310 CMR 10.00 *et seq.*; the "Regulations"); and (2) the U.S. Clean Water Act (i.e., Section 404 and 401 wetlands). Paul McManus, PWS; Scott Morrison, PWS and Arthur Allen, CPSS, CWS conducted the inspections.

The subject site consists of a 347-acre parcel located between the west end of McGovern Boulevard and Route I-190. The upland portions of the site are a combination of active and reclaimed gravel mine and wooded areas. The wetland resources observed on the site are described below.

Methodology

The site was inspected, and areas suspected to qualify as wetland resources were identified. The boundary of Bordering Vegetated Wetlands or, in the absence of Bordering Vegetated Wetlands, Bank was delineated in the field in accordance with the definitions set forth in the regulations at 310 CMR 10.55(2)(c) and 310 CMR 10.54(2). Section 10.55(2)(c) states that "The boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist." Section 10.54(2)(c) states that "The upper boundary of Bank is the first observable break in the slope or the mean annual flood level, whichever is lower." The methodology used to delineate Bordering Vegetated Wetlands is further described in: (1) the BVW Policy "*BVW: Bordering Vegetated Wetlands Delineation Criteria and Methodology*," issued March 1, 1995; and (2) "*Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A Handbook*," produced by the Massachusetts Department of Environmental Protection, dated March 1995. The plant taxonomy used in this report is based on the *National List of Plant Species that Occur in Wetlands: Massachusetts* (Fish and Wildlife Service, U.S. Department of the Interior, 1988). Federal wetlands were

presumed to have boundaries conterminous with the delineated Bordering Vegetated Wetlands and Bank. Four sets of DEP Bordering Vegetated Wetland Delineation Field Data Forms completed for observation plots located in the wetlands and uplands near flags AA-12, AD-71, AO-7 and BB-14 are attached. The table below provides the Flag Numbers, Flag Type, and Wetland Types and Locations for the delineated wetland resources.

Flag Numbers	Flag Type	Wetland Types and Locations
AA-1 to AA-26	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the westerly portion of the site that is associated with mapped perennial stream "RB".
AB-1 to AB-17	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the westerly portion of the site that is associated with a pond. Drains to wetland AA via a PVC culvert.
AC-1 to AC-43	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the westerly portion of the site that is associated with groundwater seepage and a pond. Drains to wetland AB via an undetermined connection.
AD-1 to AD-87	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the southwesterly portion of the site that is associated with groundwater seepage and seasonal ponding areas.
AE-1 to AE-26 (Connect AE-1 to AE-26)	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the westerly portion of the site that is associated with a pond.
AF-1 to AF-25	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the southerly portion of the site that is associated with groundwater seepage and an unmapped, intermittent stream.
AG-1 to AG-8 (AG-8 connects to AD-1)	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the southerly portion of the site that is associated with an unmapped, intermittent stream.
AH-1 to AH-25 (Flag AH-25 connects to CB-34)	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the southwesterly portion of the site that is associated with an unmapped, intermittent stream.
AJ-1 to AJ-70	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the southerly portion of the site that is associated with an unmapped, intermittent stream.
AK-1 to AK-9 (Flag AK-1 connects to CA-30 and AK-9 connects to CB-1)	Orange Flags	Edge of Wetland at toe of fill slope in mapped DEP "Wetland Change" area (westerly portion of site).
AL-1 to AL-8 (Connect AL-1 to AL-8)	Blue Flags	Boundary of Isolated Vegetated Wetland under the Bylaw and/or US Clean Water Act located in the westerly portion of the site and associated with a seasonal ponding area.
AM-1 to AM-17 (Connect to AM-1 to AM-17)	Blue Flags	Boundary of Isolated Vegetated Wetland/Isolated Land Subject to Flooding and Certified Vernal Pool

		located in the southwesterly portion of the site.
AN-1 to AN-13	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the easterly portion of the site that is associated with an unmapped, intermittent stream draining to a culvert under a gravel roadway.
AO-1 to AO-40	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the easterly portion of the site that is associated with an unmapped, intermittent stream draining from a culvert under a gravel roadway. Culvert between flags AO-32 and AO-33.
AP-1 to AP-4	Blue Flags	Intermittent stream Bank (no Bordering Wetland) located in the easterly portion of the site that is associated with an unmapped, intermittent stream at narrow property "neck".
AR-1 to AR-18	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the southerly portion of the site that is associated with unmapped, intermittent stream "L".
AS-1 to AS-9 (Connect AS-1 to AS-9)	Blue Flags	Boundary of Isolated Vegetated Wetland under the Bylaw and/or US Clean Water Act located in the southerly portion of the site and associated with a seasonal ponding area.
BA-1 to BA-48	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the northerly portion of the site that is associated with an unmapped, intermittent stream.
BB-1 to BB-210	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the northerly portion of the site that is associated with an unmapped, intermittent stream.
BC-1 to BC-85	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the northerly portion of the site that is associated with an unmapped, intermittent stream.
BD-1 to BD-132 (BD-132 connects to DD-43)	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the northerly portion of the site that is associated with an unmapped, intermittent stream.
BE-1 to BE-102	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the easterly portion of the site that is associated with McGovern Brook, a mapped perennial stream.
CA-1 to CA-30 (Connect CA-30 to AK-1)	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the westerly portion of the site that is associated with groundwater seepage and an unmapped, intermittent stream.
CB-1 to CB-34 (Connect CB-1 to AK-9 and connect CB-34 to AH-25)	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the westerly portion of the site that is associated with groundwater seepage and an unmapped, intermittent stream.
CC-1 to CC-33 (Connect CC-33 to CD-83)	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the westerly portion of the site that is associated with high groundwater and an unmapped,

		intermittent stream.
CD-1 to CD-83 (Connect CD-83 to CC-33)	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the westerly portion of the site that is associated with high groundwater and an unmapped, intermittent stream.
CE-1 to CE-57 (Connect CE-1 to CE-57)	Blue Flags	Boundary of Bordering Vegetated Wetlands surrounding an upland "island" located in the westerly portion of the site that is associated with high groundwater and unmapped, intermittent streams.
DA-1 to DA-66	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the northerly portion of the site that is associated with an unmapped, intermittent stream.
DB-1 to DB-12	Red Flags	Intermittent stream Bank on north side of stream in northerly portion of site. Stream within wetland BB/DA.
DC-1 to DC-12	Red Flags	Intermittent stream Bank on south side of stream in northerly portion of site. Stream within wetland BB/DA.
DD-1 to DD-43 (DD-43 connects to BD-132)	Blue Flags	Boundary of Bordering Vegetated Wetlands located in the northerly portion of the site that is associated with an unmapped, intermittent stream.
K-1 to K-15 (K-1 connects to K-15)	Red Flags	Intermittent stream Bank in westerly portion of site. Stream within wetland AC.
L-1 to L-9 (L-1 connects to LL-8)	Red Flags	Intermittent stream Bank on north side of stream in southerly portion of site. Stream within wetland AJ.
LL-1 to LL-8 (LL-8 connecst to L-1)	Red Flags	Intermittent stream Bank on north side of stream in southerly portion of site. Stream within wetland AJ
M-1 to M-113	Red Flags	Mean Annual High-water Line (MAHWL) of McGovern Brook (a mapped perennial stream) located in the easterly portion of the site (within wetland AA). Brook within wetland BE.
RB-1 to RB-21	Red Flags	Mean Annual High-water Line (MAHWL) of mapped perennial stream located in the westerly portion of the site. Stream within wetland AA.

Findings

The above-referenced Bordering Vegetated Wetlands are associated with intermittent and perennial streams and a pond. Plant species observed include Plant species observed include red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), gray birch (*Betula populifolia*), swamp tupelo (*Nyssa sylvatica*), and American elm (*Ulmus americana*) trees and/or saplings; poison ivy (*Toxicodendron radicans*) and common greenbrier (*Smilax rotundifolia*) climbing woody vines; highbush blueberry (*Vaccinium corymbosum*), common winterberry (*Ilex verticillata*), arrow-wood (*Viburnum dentatum*), withe-rod (*Viburnum cassinoides*), northern spicebush (*Lindera benzoin*), swamp rose (*Rosa palustris*), speckled alder (*Alnus rugosa*), silky dogwood (*Cornus amomum*), maleberry (*Lyonia ligustrina*), fetter-bush (*Leucothoe racemosa*),

glossy buckthorn (*Rhamnus frangula*), sweet pepper-bush (*Clethra alnifolia*), swamp azalea (*Rhododendron viscosum*), and American elderberry (*Sambucus canadensis*) shrubs; and sheep-laurel (*Kalmia angustifolia*), bristly blackberry (*Rubus hispidus*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), sensitive fern (*Onoclea sensibilis*), subarctic lady fern (*Athyrium filix-femina*), marsh fern (*Thelypteris thelypteroides*), Massachusetts fern (*Thelypteris simulata*), spinulose woodfern (*Dryopteris spinulosa*), skunk-cabbage (*Symplocarpus foetidus*), swamp Jack-in-the-pulpit (*Arisaema triphyllum*), Alaska goldthread (*Coptis trifolia*), spotted touch-me-not (*Impatiens capensis*), shining clubmoss (*Lycopodium lucidulum*), and sphagnum moss (*Sphagnum sp*.) ground cover. Evidence of wetland hydrology, including hydric soils, high groundwater, saturated soils, pore linings, evidence of flooding, and drainage patterns, was observed within the delineated wetland. The Bordering Vegetated wetlands border intermittent and perennial streams; accordingly, these vegetated wetlands would be regulated as Bordering Vegetated Wetlands, the intermittent streams would be regulated as Bank and the perennial streams would be regulated as Bank and Land Under Water under the Act. A 100-foot Buffer Zone extends horizontally outward from the edge of Bordering Vegetated Wetlands and Bank under the Act.

The isolated vegetated wetlands are associated with seasonal ponding areas. Plant species observed are similar to those noted above. Hydric soils and other evidence of wetland hydrology, including seasonal ponding, high groundwater, saturated soils, pore linings, and evidence of flooding, were observed within the delineated wetlands. These wetlands do not border a creek, stream, river, pond, or lake; accordingly, they would not be regulated as Bordering Vegetated Wetlands under the Act. Section 10.57(2)(b)1. states that "Isolated Land Subject to Flooding is an isolated depression or closed basin without an inlet or an outlet. It is an area that at least once per year confines standing water to a volume of at least ¼ acre-feet and to an average depth of at least six inches." Engineering calculations should be performed in accordance with 310 CMR 10.57(2)(b) and the ILSF Definition Policy issued January 25, 1985 and revised March 1, 1995 to determine if any of these areas meet the definition of Isolated Land Subject to Flooding under the Act. If the calculations demonstrate that these areas qualify, they would be regulated as Isolated Land Subject to Flooding under the Act. Section 10.57(2)(b)3. states that "The boundary of Isolated Land Subject to Flooding is the perimeter of the largest observed or recorded volume of water confined in said area. In the event of a conflict of opinion regarding the extent of water confined in an Isolated Land Subject to Flooding, the applicant may submit an opinion by a registered professional engineer, supported by engineering calculations, as to the probable extent of said water." If these areas do not qualify as Isolated Land Subject to Flooding, they would not be subject to jurisdiction under the Act. Isolated Land Subject to Flooding does not have a 100-foot Buffer Zone under the Act. Depending upon the proximity of these areas to a Bordering Vegetated Wetlands, these areas may be subject to jurisdiction as federal wetlands. Federal wetlands do not have a Buffer Zone.

Bordering Land Subject to Flooding is an area that floods due to a rise in floodwaters from a bordering waterway or water body. Where flood studies have been completed, the boundary of Bordering Land Subject to Flooding is based upon flood profile data prepared by the National

Flood Insurance Program. Section 10.57(2)(a)3. states that "The boundary of Bordering Land Subject to Flooding is the estimated maximum lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm." The project engineer should evaluate the most recent National Flood Insurance Program flood profile data to determine the extent of Bordering Land Subject to Flooding on the site. Bordering Land Subject to Flooding would occur in areas where the 100-year flood elevation is located outside of or upgradient of the delineated Bordering Vegetated Wetlands or Bank boundary. Bordering Land Subject to Flooding does not have a Buffer Zone under the Act.

The Massachusetts Rivers Protection Act amended the Act to establish an additional wetland resource area: Riverfront Area. Based upon a review of the current USGS Map (attached), McGovern Brook and an unnamed stream on the site are shown as perennial. Streams that are shown as perennial on the current USGS map are designated perennial under the Massachusetts Wetlands Protection Act regulations. Unless this perennial designation is overcome, Riverfront Area is presumed to extend 200 feet horizontally upgradient from the mean annual high-water line of the stream. Section 10.58(2)(a)2. states that the "Mean annual high-water line of a river is the line that is apparent from visible markings or changes in the character of soils or vegetation due to prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope, changes in vegetation, stain lines, top of pointbars, changes in bank materials, or bank undercuts." Section 10.58(2)(a)2.a. states that "In most rivers, the first observable break in slope is coincident with bankfull conditions and the mean annual high-water line." The mean annual high-water line of the streams were delineated in the field as noted above, based upon the above-referenced regulation. Furthermore, based upon a review of the current USGS Map and observations made during the site inspection, there are no other mapped perennial streams located on or within 200 feet of the site. Accordingly, except as noted above, Riverfront Area would not occur on the site. Riverfront Area does not have a Buffer Zone under the Act, but may overlap other wetland resources and their Buffer Zones.

The Regulations require that no project may be permitted that will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures set forth at 310 CMR 10.59. Based upon a review of the *Massachusetts Natural Heritage Atlas*, 14th edition, Priority Habitats and Estimated Habitats from the NHESP Interactive Viewer, valid from August 1, 2017, and Certified Vernal Pools from MassGIS, the site is not located within an Estimated Habitat [for use with the Act and Regulations (310 CMR 10.00 *et seq*.)] or a Priority Habitat [for use with Massachusetts Endangered Species Act (M.G.L. Ch. 131A; "MESA") and regulations (321 CMR 10.00 *et seq*.; the "MESA Regulations")]. However, one Certified Vernal Pool is located on the site. A copy of this map is attached.

The reader should be aware that the regulatory authority for determining wetland jurisdiction rests with local, state, and federal authorities. A brief description of my experience and qualifications is attached. If you have any questions, please feel free to contact me at any time.

Cordially,
ECOTEC, INC.

Arthur Allen, CWS, CPSS
Vice President

Attachments (5, 23 pages)

AA/Wetland/LancasterMcGovern Wetland Report

EcoTec, Inc.

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Arthur Allen, CPSS, CWS, CESSWI
Vice President
Soil & Wetland Scientist

Arthur Allen is the Vice President of EcoTec, Inc. and has been a senior environmental scientist there since 1995. His work with EcoTec has involved wetland delineation, wildlife habitat evaluation, environmental permitting (federal, state and local), environmental monitoring, expert testimony, peer reviews, contaminated site assessment and the description, mapping and interpretation of soils. His clients have included private landowners, developers, major corporations and regulatory agencies. Prior to joining EcoTec, Mr. Allen mapped and interpreted soils in Franklin County, MA for the U.S.D.A. Natural Resources Conservation Service (formerly Soil Conservation Service) and was a research soil scientist at Harvard University's Harvard Forest. Since 1994, Mr. Allen has assisted the Massachusetts Department of Environmental Protection and the Massachusetts Association of Conservation Commissions as an instructor in the interpretation of soils for wetland delineation and for the Title V Soil Evaluator program.

Mr. Allen has a civil service rating as a soil scientist, an undergraduate degree in Natural Resource Studies and a graduate certificate in Soil Studies. His work on the Franklin County soil survey involved interpretation of landscape-soil-water relationships, classifying soils and drainage, and determining use and limitation of the soil units that he delineated. As a soil scientist at the Harvard Forest, Mr. Allen was involved in identifying the legacies of historical land-use in modern soil and vegetation at a number of study sites across southern New England. He has a working knowledge of the chemical and physical properties of soil and water and how these properties interact with the plants that grow on a given site. While at Harvard Forest he authored and presented several papers describing his research results which were later published. In addition to his aforementioned experience, Mr. Allen was previously employed by the Trustees of Reservations as a land manager and by the Town of North Andover, MA as a conservation commission intern.

Education:
1993-Graduate Certificate in Soil Studies, University of New Hampshire
1982-Bachelor of Science in Natural Resource Studies, University of Massachusetts

Professional Affiliations:
Certified Professional Soil Scientist (ARCPACS CPSS #22529)
New Hampshire Certified Wetland Scientist (#19)
Registered Professional Soil Scientist – Society of Soil Scientists of SNE [Board Member (2000-2006)]
Certified Erosion, Sediment & Stormwater Inspector (#965)
Massachusetts Approved Soil Evaluator (#13764)
Massachusetts Arborists Association-Certified Arborist (1982 – 1998)
New England Hydric Soils Technical Committee member
Massachusetts Association of Conservation Commissions member
Society of Wetland Scientists member

Refereed Publications:
Soil Science and Survey at Harvard Forest. A.Allen. *In*: Soil Survey Horizons. Vol. 36, No. 4, 1995, pp. 133-142.
Controlling Site to Evaluate History: Vegetation Patterns of a New England Sand Plain. G.Motzkin, D.Foster, A.Allen, J.Harrod, & R.Boone. *In*: Ecological Monographs 66(3), 1996, pp. 345-365.
Vegetation Patterns in Heterogeneous Landscapes: The Importance of History and Environment. G.Motzkin, P.Wilson, D.R.Foster & A.Allen. In: Journal of Vegetation Science 10, 1999, pp. 903-920.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant | Prepared by: EcoTec, Inc | Project Location: McGovern Blvd., Lancaster | DEP File #

Section I. Vegetation | Number: TP-U | Transect # AA-12 | Date of Delin: 4/18/2018

A. Sample layer and plant species (Enter largest to smallest % cover by layer)			Percent Cover (or basal area)	Percent Dominance	Dominant Plant?	Wetland Indicator Category	
Tree							
Sapling	black cherry	Prunus serotina	20	40.0	YES	FACU	
	willow	salix sp.	20	40.0	YES	FACW	*
	white birch	Betula papyrifera	10	20.0	YES	FACU	
Shrub	witch hazel	Hamamelis virginiana	20	66.7	YES	FAC-	
	red maple	Acer rubrum	5	16.7	NO	FAC	*
	glossy buckthorn	Rhamnus frangula	5	16.7	NO	FAC	*
Ground	black raspberry	Rubus occidentalis	30	100.0	YES	NL	
Vine							

Vegetation Conclusions

Number of dominant wetland indicator plants **1** | Number of dominant non-wetland indicator plants **4**

Is the number of dominant wetland plants equal or greater than the number of dominant non-wetland plants? NO

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant	Prepared by: EcoTec, Inc	Project Location: McGovern Blvd., Lancaster	DEP File #
Section II. Indicators of Hydrology	Number: TP-U	Transect # AA-12	Date of Delin: 4/18/2018

1. Soil Survey

Is there a published soil survey for this site?

title/date

map number

soil type mapped

hydric soil inclusions

Are field observarions consistent with soil survey?

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottle Color
A/Bw	0-10	10YR 3/3 & 10 YR 5/6	
Ab	10-16	10YR 3/3	

Remarks Litter 2"
sand

3. Other

Conclusion: Is the soil hydric? No

Other Indicators of hydrology (check all that apply):

- ☐ Site Inundated
- ☐ Depth to free water in observation hole
- ☐ Depth to soil saturation in observation hole
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in BVWs
- ☐ Oxidized rhizospheres
- ☐ Water stained leaves
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☐	☑
Wetland hydrology present:		
Hydric soil present	☐	☑
Other indicators of hydrology present	☐	☑
Sample Location is in a BVW	☐	☑

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant | Prepared by: EcoTec, Inc | Project Location: McGovern Blvd., Lancaster | DEP File #

Section I. Vegetation | Number: TP-W | Transect # AA-12 | Date of Delin: 4/18/2018

A. Sample layer and plant species (Enter largest to smallest % cover by layer)			Percent Cover (or basal area)	Percent Dominance	Dominant Plant?	Wetland Indicator Category	
Tree							
Sapling	gray birch	Betula populifolia	20	40.0	YES	FAC	*
	black cherry	Prunus serotina	20	40.0	YES	FACU	
	red maple	Acer rubrum	10	20.0	YES	FAC	*
Shrub	American elderberry	Sambucus canadensis	20	66.7	YES	FACW-	*
	chokeberry	Aronia prunifolia	10	33.3	YES	FACW	*
Ground							
Vine	fox grape	Vitis labrusca	10	100.0	YES	FACU	

Vegetation Conclusions

Number of dominant wetland indicator plants **4** | Number of dominant non-wetland indicator plants **2**

Is the number of dominant wetland plants equal or greater than the number of dominant non-wetland plants? YES

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant	Prepared by: EcoTec, Inc	Project Location: McGovern Blvd., Lancaster	DEP File #
Section II. Indicators of Hydrology	Number: TP-W	Transect # AA-12	Date of Delin: 4/18/2018

1. Soil Survey

Is there a published soil survey for this site?

title/date

map number

soil type mapped

hydric soil inclusions

Are field observarions consistent with soil survey?

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottle Color
Oa	3-0		
A	0-4	10YR 2/1	
Eg	4-8	7.5YR 4/2	20% 10YR 2/2
Bs	8-14	7.5YR 4/4	

Remarks Litter 2"
A - mucky sand
Eg & Bs - sand

3. Other

Conclusion: Is the soil hydric? Yes

Other Indicators of hydrology (check all that apply):

- ☐ Site Inundated
- ☐ Depth to free water in observation hole
- ☑ Depth to soil saturation in observation hole
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in BVWs
- ☐ Oxidized rhizospheres
- ☐ Water stained leaves
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☑	☐
Wetland hydrology present:		
Hydric soil present	☑	☐
Other indicators of hydrology present	☑	☐
Sample Location is in a BVW	☑	☐

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant | Prepared by: EcoTec, Inc | Project Location: McGovern Blvd., Lancaster | DEP File #

Section I. Vegetation | Number: TP-U | Transect # AD-71 | Date of Delin: 4/25/2018

A. Sample layer and plant species (Enter largest to smallest % cover by layer)			Percent Cover (or basal area)	Percent Dominance	Dominant Plant?	Wetland Indicator Category	
Tree	white pine	Pinus strobus	70	70.0	YES	FACU	
	red maple	Acer rubrum	30	30.0	YES	FAC	*
Sapling	red maple	Acer rubrum	10	33.3	YES	FAC	*
	white oak	Quercus alba	10	33.3	YES	FACU-	
	white pine	Pinus strobus	10	33.3	YES	FACU	
Shrub	white oak	Quercus alba	10	50.0	YES	FACU-	
	white pine	Pinus strobus	5	25.0	YES	FACU	
	beaked hazelnut	Corylus cornuta	5	25.0	YES	FACU-	
Ground	wintergreen/teaberry	Gaultheria procumbens	15	75.0	YES	FACU	
	tree clubmoss	Lycopodium obscurum	5	25.0	YES	FACU	
Vine							

Vegetation Conclusions

Number of dominant wetland indicator plants **2** | Number of dominant non-wetland indicator plants **8**

Is the number of dominant wetland plants equal or greater than the number of dominant non-wetland plants? NO

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant	Prepared by: EcoTec, Inc	Project Location: McGovern Blvd., Lancaster	DEP File #
Section II. Indicators of Hydrology	Number: TP-U	Transect # AD-71	Date of Delin: 4/25/2018

1. Soil Survey

Is there a published soil survey for this site?

title/date

map number

soil type mapped

hydric soil inclusions

Are field observarions consistent with soil survey?

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottle Color
O	2-0		
A	0-10	10YR 3/2	
Bw	10-18	10YR 5/6	

Remarks Litter 2"
loamy fine sand

3. Other

Conclusion: Is the soil hydric? No

Other Indicators of hydrology (check all that apply):

- ☐ Site Inundated
- ☐ Depth to free water in observation hole
- ☐ Depth to soil saturation in observation hole
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in BVWs
- ☐ Oxidized rhizospheres
- ☐ Water stained leaves
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☐	☑
Wetland hydrology present:		
Hydric soil present	☐	☑
Other indicators of hydrology present	☐	☑
Sample Location is in a BVW	☐	☑

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant | Prepared by: EcoTec, Inc | Project Location: McGovern Blvd., Lancaster | DEP File #

Section I. Vegetation | Number: TP-W | Transect # AD-71 | Date of Delin: 4/25/2018

A. Sample layer and plant species (Enter largest to smallest % cover by layer)			Percent Cover (or basal area)	Percent Dominance	Dominant Plant?	Wetland Indicator Category	
Tree	red maple	Acer rubrum	80	80.0	YES	FAC	*
	white oak	Quercus alba	10	10.0	NO	FACU-	
	white pine	Pinus strobus	10	10.0	NO	FACU	
Sapling	red maple	Acer rubrum	10	100.0	YES	FAC	*
Shrub	highbush blueberry	Vaccinium corymbosum	20	50.0	YES	FACW-	*
	maleberry	Lyonia ligustrina	10	25.0	YES	FACW	*
	chokeberry	Aronia prunifolia	10	25.0	YES	FACW	*
Ground							
Vine							

Vegetation Conclusions

Number of dominant wetland indicator plants **5** | Number of dominant non-wetland indicator plants **0**

Is the number of dominant wetland plants equal or greater than the number of dominant non-wetland plants? YES

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant	Prepared by: EcoTec, Inc	Project Location: McGovern Blvd., Lancaster	DEP File #
Section II. Indicators of Hydrology	Number: TP-W	Transect # AD-71	Date of Delin: 4/25/2018

1. Soil Survey

Is there a published soil survey for this site?

title/date

map number

soil type mapped

hydric soil inclusions

Are field observarions consistent with soil survey?

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottle Color
Oa	3-0		
A	0-6	10YR 2/1	
Bg	6-15	10YR 6/2	10% 7.5YR 4/4

Remarks Litter 2"
A - mucky loamy sand
Bg - loamy sand

3. Other

Conclusion: Is the soil hydric? Yes

Other Indicators of hydrology (check all that apply):

- ☐ Site Inundated
- ☐ Depth to free water in observation hole
- ☑ Depth to soil saturation in observation hole
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in BVWs
- ☐ Oxidized rhizospheres
- ☑ Water stained leaves
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☑	☐
Wetland hydrology present:		
Hydric soil present	☑	☐
Other indicators of hydrology present	☑	☐
Sample Location is in a BVW	☑	☐

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant | Prepared by: EcoTec, Inc | Project Location: McGovern Blvd., Lancaster | DEP File #

Section I. Vegetation | Number: TP-U | Transect # AO-7 | Date of Delin: 5/2/2018

A. Sample layer and plant species (Enter largest to smallest % cover by layer)			Percent Cover (or basal area)	Percent Dominance	Dominant Plant?	Wetland Indicator Category	
Tree	red oak	Quercus rubra	50	50.0	YES	FACU-	
	red maple	Acer rubrum	20	20.0	YES	FAC	*
	white oak	Quercus alba	20	20.0	YES	FACU-	
	white pine	Pinus strobus	10	10.0	NO	FACU	
Sapling	shagbark hickory	Carya ovata	10	50.0	YES	FACU-	
	white pine	Pinus strobus	10	50.0	YES	FACU	
Shrub	witch hazel	Hamamelis virginiana	40	100.0	YES	FAC-	
Ground							
Vine							

Vegetation Conclusions

Number of dominant wetland indicator plants **1** | Number of dominant non-wetland indicator plants **5**

Is the number of dominant wetland plants equal or greater than the number of dominant non-wetland plants? NO

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant	Prepared by: EcoTec, Inc	Project Location: McGovern Blvd., Lancaster	DEP File #
Section II. Indicators of Hydrology	Number: TP-U	Transect # AO-7	Date of Delin: 5/2/2018

1. Soil Survey

Is there a published soil survey for this site?

title/date

map number

soil type mapped

hydric soil inclusions

Are field observarions consistent with soil survey?

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottle Color
O	2-0		
A	0-6	10YR 2/2	
Bw	6-15	10YR 4/6	

Remarks Litter 1"
loamy sands

3. Other

Conclusion: Is the soil hydric? No

Other Indicators of hydrology (check all that apply):

- ☐ Site Inundated
- ☐ Depth to free water in observation hole
- ☐ Depth to soil saturation in observation hole
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in BVWs
- ☐ Oxidized rhizospheres
- ☐ Water stained leaves
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☐	☑
Wetland hydrology present:		
Hydric soil present	☐	☑
Other indicators of hydrology present	☐	☑
Sample Location is in a BVW	☐	☑

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant | Prepared by: EcoTec, Inc | Project Location: McGovern Blvd., Lancaster | DEP File #

Section I. Vegetation | Number: TP-W | Transect # AO-7 | Date of Delin: 5/2/2018

A. Sample layer and plant species (Enter largest to smallest % cover by layer)			Percent Cover (or basal area)	Percent Dominance	Dominant Plant?	Wetland Indicator Category	
Tree	red maple	Acer rubrum	20	40.0	YES	FAC	*
	red oak	Quercus rubra	20	40.0	YES	FACU-	
	white pine	Pinus strobus	10	20.0	YES	FACU	
Sapling	red maple	Acer rubrum	10	50.0	YES	FAC	*
	sassafras	Sassafras albidum	10	50.0	YES	FACU-	
Shrub	witch hazel	Hamamelis virginiana	10	66.7	YES	FAC-	
	white pine	Pinus strobus	5	33.3	YES	FACU	
Ground	cinnamon fern	Osmunda cinnamomea	30	60.0	YES	FACW	*
	goldthread	Coptis trifolia	10	20.0	YES	FACW	*
	sphagnum moss	Sphagnum sp.	10	20.0	YES	FACW	*
Vine							

Vegetation Conclusions

Number of dominant wetland indicator plants **5** | Number of dominant non-wetland indicator plants **5**

Is the number of dominant wetland plants equal or greater than the number of dominant non-wetland plants? YES

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant	Prepared by: EcoTec, Inc	Project Location: McGovern Blvd., Lancaster	DEP File #
Section II. Indicators of Hydrology	Number: TP-W	Transect # AO-7	Date of Delin: 5/2/2018

1. Soil Survey

Is there a published soil survey for this site?

title/date

map number

soil type mapped

hydric soil inclusions

Are field observarions consistent with soil survey?

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottle Color
O	2-0		
A	0-8	10YR 2/1	
Bg	8-16	10YR 5/2	5% 10YR 4/6

Remarks Litter 2"
A - mucky sand
Bg - sand

3. Other

Conclusion: Is the soil hydric? Yes

Other Indicators of hydrology (check all that apply):

- ☐ Site Inundated
- ☐ Depth to free water in observation hole
- ☑ Depth to soil saturation in observation hole
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in BVWs
- ☐ Oxidized rhizospheres
- ☐ Water stained leaves
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☑	☐
Wetland hydrology present:		
Hydric soil present	☑	☐
Other indicators of hydrology present	☑	☐
Sample Location is in a BVW	☑	☐

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant | Prepared by: EcoTec, Inc | Project Location: McGovern Blvd., Lancaster | DEP File #

Section I. Vegetation | Number: TP-U | Transect # BB-14 | Date of Delin: 5/2/2018

A. Sample layer and plant species (Enter largest to smallest % cover by layer)			Percent Cover (or basal area)	Percent Dominance	Dominant Plant?	Wetland Indicator Category	
Tree	white oak	Quercus alba	40	40.0	YES	FACU-	
	red maple	Acer rubrum	40	40.0	YES	FAC	*
	white birch	Betula papyrifera	20	20.0	YES	FACU	
Sapling	black cherry	Prunus serotina	10	50.0	YES	FACU	
	white pine	Pinus strobus	10	50.0	YES	FACU	
Shrub	highbush blueberry	Vaccinium corymbosum	20	66.7	YES	FACW-	*
	white pine	Pinus strobus	10	33.3	YES	FACU	
Ground	wintergreen/teaberry	Gaultheria procumbens	10	66.7	YES	FACU	
	Canada mayflower	Maianthemum canadense	5	33.3	YES	FAC-	
Vine							

Vegetation Conclusions

Number of dominant wetland indicator plants **2** | Number of dominant non-wetland indicator plants **7**

Is the number of dominant wetland plants equal or greater than the number of dominant non-wetland plants? NO

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant	Prepared by: EcoTec, Inc	Project Location: McGovern Blvd., Lancaster	DEP File #
Section II. Indicators of Hydrology	Number: TP-U	Transect # BB-14	Date of Delin: 5/2/2018

1. Soil Survey

Is there a published soil survey for this site?

title/date

map number

soil type mapped

hydric soil inclusions

Are field observarions consistent with soil survey?

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottle Color
O	1-0		
A	0-4	10YR 2/2	
Bw	4-15	7.5YR 4/6	

Remarks Litter 2"
loamy sands

3. Other

Conclusion: Is the soil hydric? No

Other Indicators of hydrology (check all that apply):

- ☐ Site Inundated
- ☐ Depth to free water in observation hole
- ☐ Depth to soil saturation in observation hole
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in BVWs
- ☐ Oxidized rhizospheres
- ☐ Water stained leaves
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☐	☑
Wetland hydrology present:		
Hydric soil present	☐	☑
Other indicators of hydrology present	☐	☑
Sample Location is in a BVW	☐	☑

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant | Prepared by: EcoTec, Inc | Project Location: McGovern Blvd., Lancaster | DEP File #

Section I. Vegetation | Number: TP-W | Transect # BB-14 | Date of Delin: 5/2/2018

A. Sample layer and plant species (Enter largest to smallest % cover by layer)			Percent Cover (or basal area)	Percent Dominance	Dominant Plant?	Wetland Indicator Category	
Tree	red maple	Acer rubrum	100	100.0	YES	FAC	*
Sapling							
Shrub	highbush blueberry	Vaccinium corymbosum	40	100.0	YES	FACW-	*
Ground	cinnamon fern	Osmunda cinnamomea	20	50.0	YES	FACW	*
	sheep laurel	Kalmia angustifolia	10	25.0	YES	FAC	*
	goldthread	Coptis trifolia	5	12.5	NO	FACW	*
	starflower	Trientalis borealis	5	12.5	NO	FAC	*
Vine							

Vegetation Conclusions

Number of dominant wetland indicator plants **4** | Number of dominant non-wetland indicator plants **0**

Is the number of dominant wetland plants equal or greater than the number of dominant non-wetland plants? YES

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Form

Applicant	Prepared by: EcoTec, Inc	Project Location: McGovern Blvd., Lancaster	DEP File #
Section II. Indicators of Hydrology	Number: TP-W	Transect # BB-14	Date of Delin: 5/2/2018

1. Soil Survey

Is there a published soil survey for this site?

title/date

map number

soil type mapped

hydric soil inclusions

Are field observarions consistent with soil survey?

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottle Color
Oa	3-0		
A	0-12	10YR 2/1	
Bg	12-16	10YR 4/2	10% 10YR 4/6

Remarks Litter 2"
A - mucky sand
Bg - sand

3. Other

Conclusion: Is the soil hydric? Yes

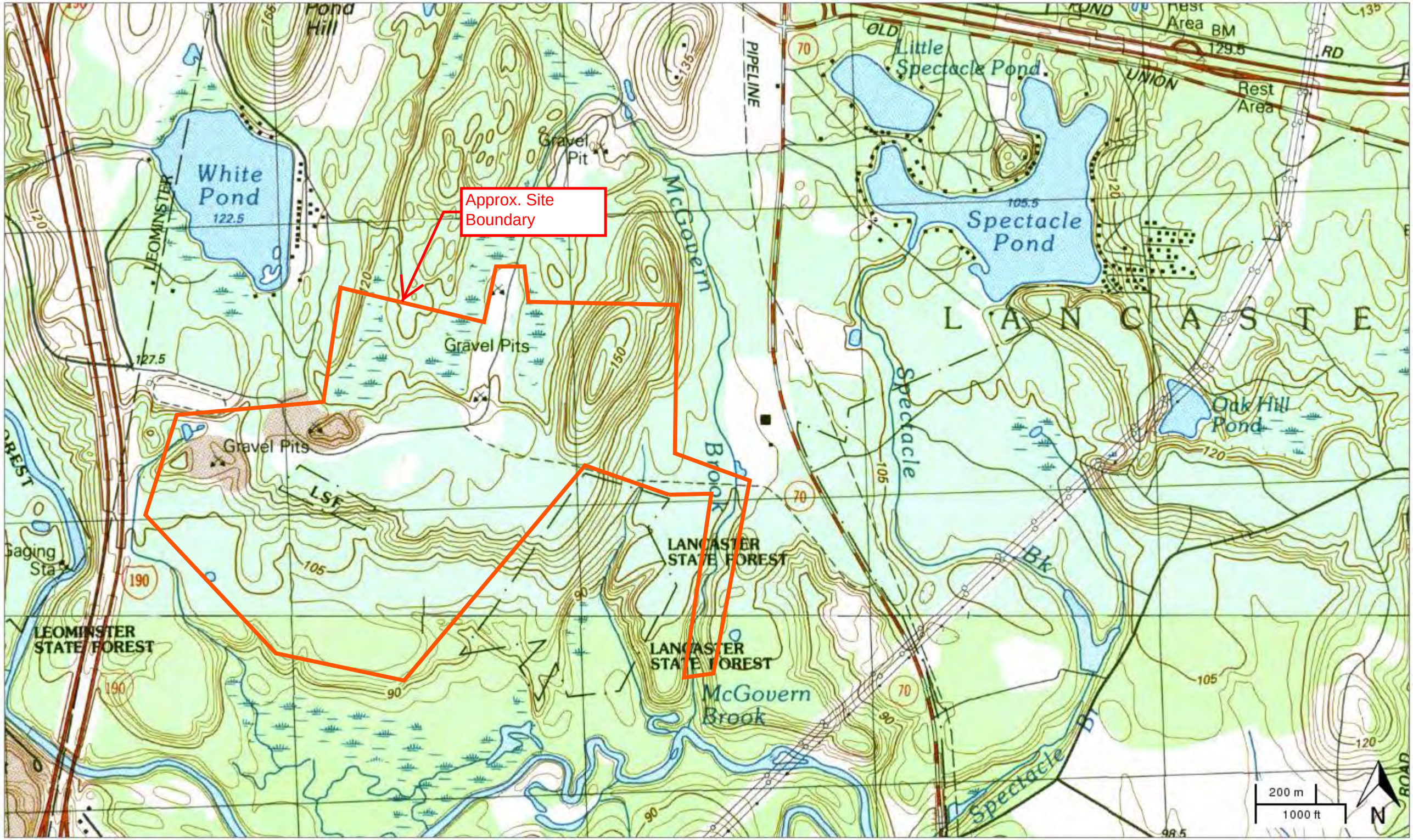
Other Indicators of hydrology (check all that apply):

- ☐ Site Inundated
- ☑ Depth to free water in observation hole 6"
- ☑ Depth to soil saturation in observation hole
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment Deposits
- ☐ Drainage patterns in BVWs
- ☐ Oxidized rhizospheres
- ☐ Water stained leaves
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☑	☐
Wetland hydrology present:		
Hydric soil present	☑	☐
Other indicators of hydrology present	☑	☐
Sample Location is in a BVW	☑	☐

USGS


Pond Hill
White Pond
122.5
LEOMINSTER
Gravel Pit
PIPELINE
McGovern
Approx. Site Boundary
Gravel Pits
Gravel Pits
LSF
LANCASTER STATE FOREST
LANCASTER STATE FOREST
LEOMINSTER STATE FOREST
McGovern Brook
Brook
Spectacle
Spectacle Pond
105.5
Little Spectacle Pond
OLD
UNION
RD
Rest Area
BM
129.5
Rest Area
L A N C A S T E
Oak Hill Pond
Spectacle Bk
Gaging Sta
127.5
200 m
1000 ft
N

National Flood Hazard Layer FIRMette

FEMA

42°30'39.90"N

71°42'49.69"W

71°42'12.23"W

42°30'13.37"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth
- Regulatory Floodway *Zone AE, AO, AH, VE, AR*

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- B 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

N

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/16/2018 at 12:41:19 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

42°30'28.45"N

71°42'35.82"W

71°41'58.36"W

42°30'1.92"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth
- Regulatory Floodway *Zone AE, AO, AH, VE, AR*

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

N

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/16/2018 at 12:37:08 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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National Flood Hazard Layer FIRMette

FEMA

42°30'28.05"N

71°43'3.82"W

71°42'26.37"W

42°30'1.53"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth
- Regulatory Floodway *Zone AE, AO, AH, VE, AR*

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

N

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/16/2018 at 12:39:59 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

42°30'36.94"N

71°42'24.97"W

71°41'47.52"W

42°30'10.41"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth
- Regulatory Floodway *Zone AE, AO, AH, VE, AR*

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

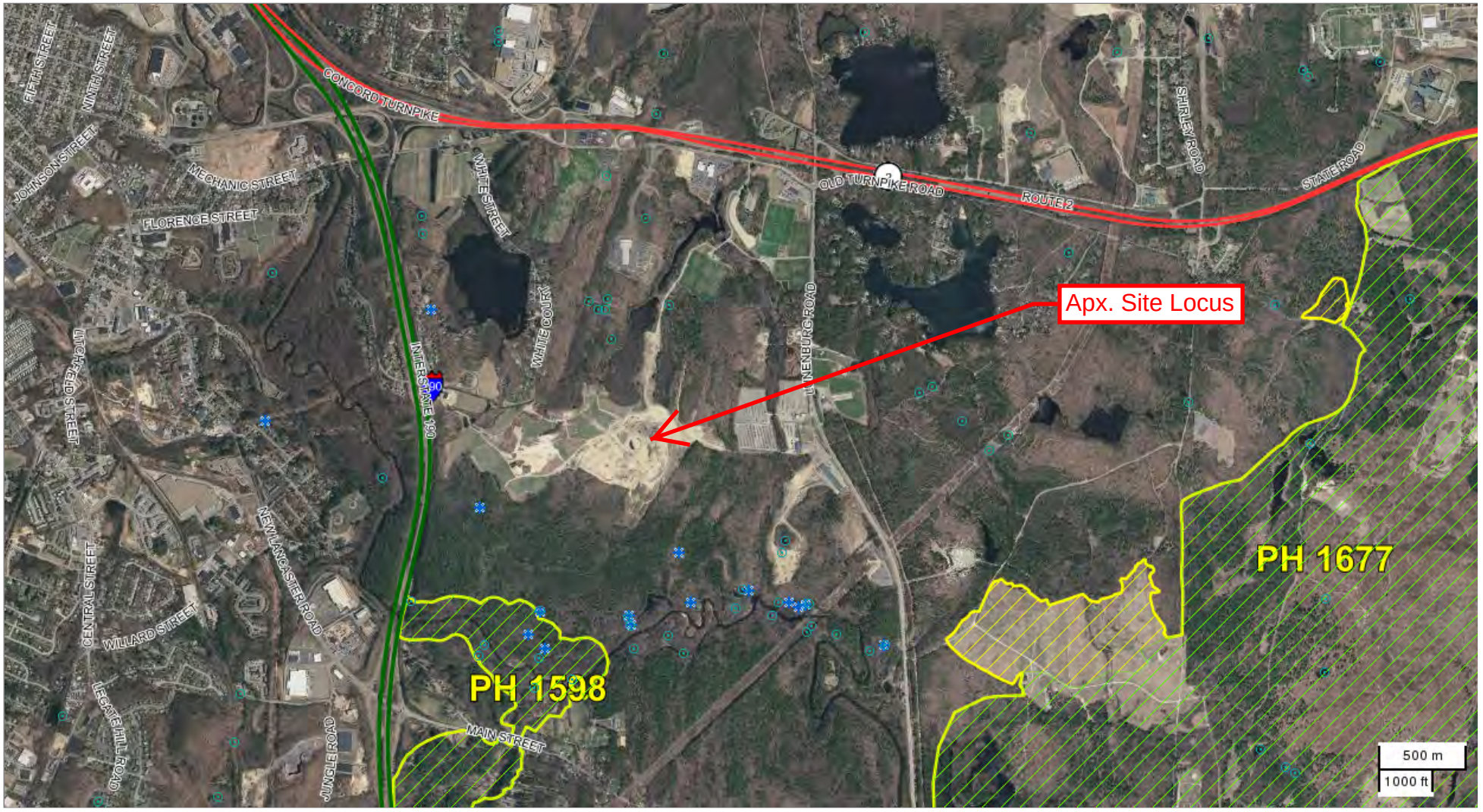
N

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/16/2018 at 12:43:14 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Natural Heritage Atlas Online Data Viewer Output 4.16.18 - McGovern Blvd, Lancaster



Traffic Impact, Access, and Parking Study

Capital Commerce Center

Lancaster, Massachusetts

Prepared for: **Town of Lancaster, Massachusetts**
701 Main Street
Lancaster, Massachusetts 01523

On Behalf of: **Capital Group Properties**
259 Turnpike Road, Suite 100
Southborough, Massachusetts 01772

Prepared by: **TEC, Inc.**
311 Main Street
Worcester, Massachusetts 01608

This document has been prepared under my direct supervision and responsible charge. I have reviewed this document as it relates to the traffic impact analysis and have determined that the conceptual transportation mitigation to be safe for public health and welfare in conformity with accepted engineering standards.

COMMONWEALTH OF MASSACHUSETTS
SAMUEL W. GREGORIO
CIVIL
No. 51109
REGISTERED PROFESSIONAL ENGINEER

Samuel W. Gregorio, P.E., PTOE
Senior Traffic Engineer

May 31, 2019

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I. INTRODUCTION

TEC, Inc. (TEC) has been retained by the Capital Group Properties (the "Applicant") to prepare a Traffic Impact, Access, and Parking Study (TIAPS) for the proposed Capital Commerce Center Project (the "Project"). The Project is separated into two distinct development zones; including one zone located along White Pond Road and Johnny Appleseed Lane [City of Leominster], and the more prominent zone located along the McGovern Boulevard in Lancaster, Massachusetts. The Project site is located within the Integrated Planning Overlay District (IPOD) 1 and the Residential Zoning District (RD). Within this IPOD, the Project is divided within the EZ-A Retail Sub-District and the Enterprise Zoning District as amended by the Town of Lancaster in 2010. This TIAPS has been prepared to assess the traffic impacts of the proposed mixed-use development project and the transportation improvements to be located adjacent to the site along Lunenburg Road (Route 70).

PROJECT OVERVIEW

Building Program and Access

The existing site includes several minor uses over the two distinct development zones. Within the development zone connected to McGovern Boulevard, the site includes the FC Stars outdoor soccer complex comprised of three (3) soccer fields, a 11,800 square foot (SF) J.B. Hunt Transport Services facility, a 2,300 SF Dunkin Donuts, 5,000 SF Mobil gas station with convenience market, and the soil / gravel yard for the New England Specialty Soils. Within the development zone connected to White Pond Road and Johnny Appleseed Lane, the site includes one single-family dwelling and an equestrian field with stable operations. The aforementioned J.B. Hunt Transport Services is accessed via a separate full-access/egress driveway along Lunenburg Road, south of the adjacent Mobil Gas Station.

The Project consists of clearing much of the existing site; but retaining the existing FC Stars soccer complex, Dunkin Donuts, and Mobil Gas Station. The proposed mixed-use development program includes constructing of a 1,567,500 square foot (SF) industrial park (319 loading docks), 117 single-family residential units, 500 multi-family residential units, a 120-room hotel; 65,700 SF of additional retail space (73,000 SF total with existing Dunkin Donuts and Mobil), and an 86,500 SF indoor soccer facility comprised of one soccer field. The Project proposes to retain the access/egress to the site via McGovern Boulevard. The 117 single-family residential units will be disconnected from the rest of the proposed land uses and be accessed/egressed via new roadway connections to/from White Pond Road and Johnny Appleseed Lane [City of Leominster].

Parking

The existing site currently includes 353 off-street surface parking spaces to service the existing uses. Eighteen (18) of these spaces will be removed from the site. The Project looks to significantly increase the parking at the site and will provide 1,317 parking spaces to service the industrial park, 740 parking spaces to service the multi-family residential units, 120 parking spaces to service the hotel, 418 additional parking spaces to service the retail adjacent to Lunenburg Road, and an additional 216 parking spaces to service the indoor soccer facility. In total, the project will add 3,109 parking spaces to the site including 316 tractor-trailer parking spaces will be provided within the industrial park.

Proposed Transportation Mitigation

The Applicant is committed to implement and construct transportation mitigation measures to improve traffic operations and safety based for both existing and future deficiencies for all users. This includes off-site roadway improvements along Main Street, McGovern Boulevard, and Lunenburg Road. The proposed improvements will include, but is not limited to, construction of a fully-actuated traffic signal at the intersection of Lunenburg Road / McGovern Boulevard; reconstructing / widening Lunenburg Road to provide turn lanes onto McGovern Boulevard; and construction of multimodal roadway accommodations that will enhance healthy transportation alternatives such as walking and bicycling. In addition, the Applicant will provide traffic signal timing optimization post-occupancy to new traffic signals along Main Street being constructed as part of an upcoming Massachusetts Department of Transportation (MassDOT) project. The Proponent has also committed to several Transportation Demand Management (TDM) measures aimed to reduce single-occupancy vehicle (SOV) trips and overall vehicular traffic to/from the redevelopment site and better manage traffic generated by the proposed project. Finally, the Applicant has committed to implementing a Traffic Monitoring Plan (TMP), which is intended to monitor traffic operations and parking occupancy throughout the construction and for a period following completion of the Project. A detailed review of these mitigation measures is further defined in this TIAPS.

METHODOLOGY

TEC has evaluated the traffic operations for the study area under existing and future conditions consistent with the *Transportation Impact Assessment (TIA) Guidelines* issued by MassDOT[1] and the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports. The future planning horizon examines traffic operations under existing conditions (2019), as well as a 7-year planning horizon (2026) for traffic-volume projections; which includes an evaluation of the No-Build conditions (without the proposed project), Build conditions (with the proposed project), and Build with Mitigation conditions (with the proposed project and any proposed mitigation).

[1] *Transportation Impact Assessment (TIA) Guidelines*; Massachusetts Department of Transportation; March 13, 2014.

II. EXISTING CONDITIONS

TRAFFIC STUDY AREA

A comprehensive field inventory of existing traffic conditions on the study area corridors and intersections was conducted during various site visits by TEC staff December 2018. The field investigations consisted of existing roadway geometrics, operating characteristics, study area safety concerns, and multi-modal accommodations. The study area was selected to contain the major roadways providing local access/egress to/from the project site.

Study Area Intersections

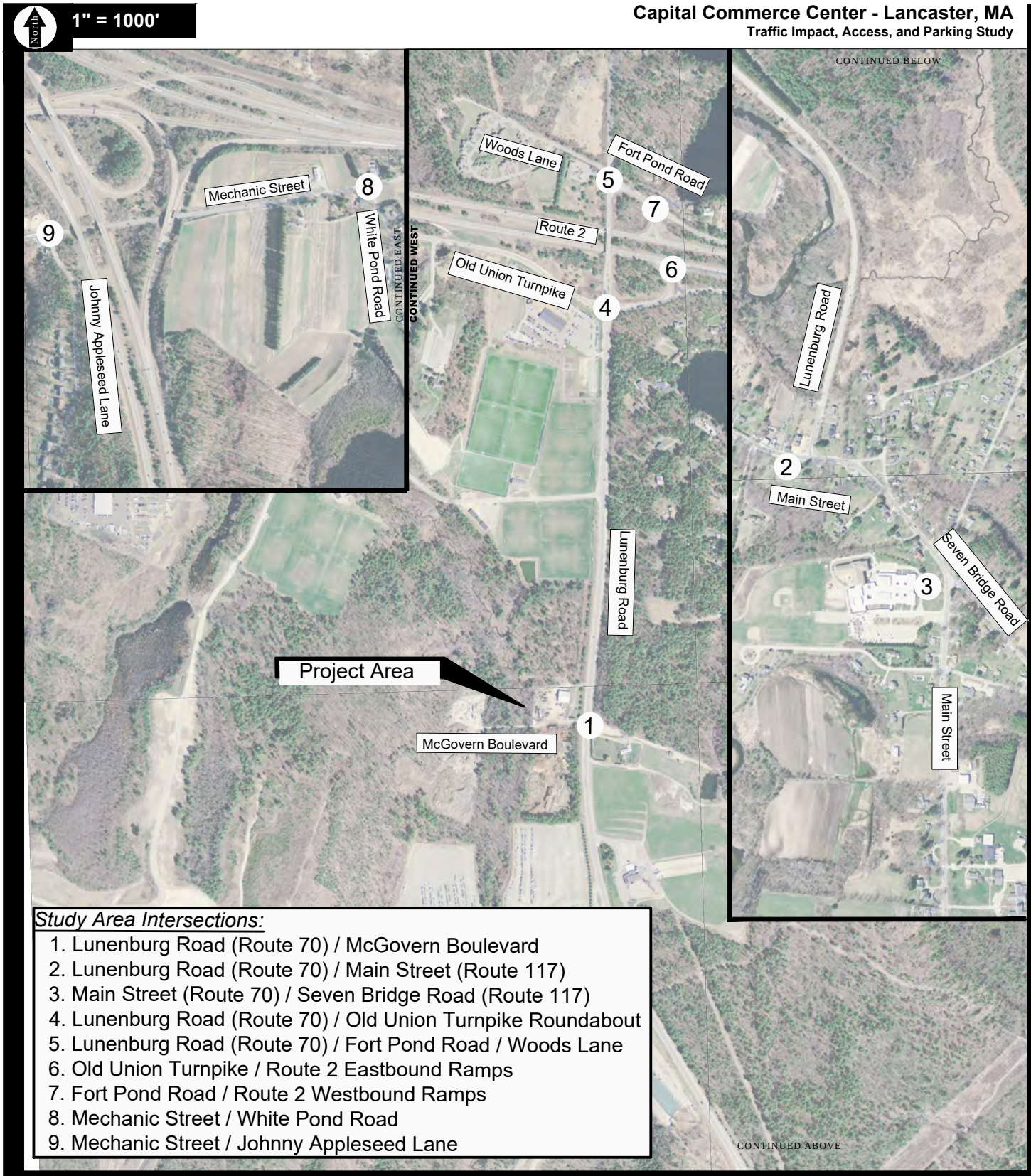
The study area was selected to contain the major roadways providing local access/egress to/from the project site. This includes an evaluation of intersection in which the site-generated trips increase the peak hour traffic volume by more than 5 percent and/or by more than 100 vehicles per hour per MassDOT's *TIA Guidelines* (Section 3.I.C). These thresholds are met to the north at the intersection of Lunenburg Road / Woods Lane / Fort Pond Road and to the south at the intersection of Main Street / Sevens Bridge Road. The following intersections were therefore evaluated as part of the study area:

1. Main Street (Route 70/117) / Seven Bridge Road (Route 117) / Shirley Road
2. Main Street (Route 70/117) / Lunenburg Road (Route 70)
3. Lunenburg Road (Route 70) / McGovern Boulevard
4. Lunenburg Road (Route 70) / Old Union Turnpike Road
5. Lunenburg Road (Route 70) / Woods Lane / Fort Pond Road
6. Old Union Turnpike / Route 2 Eastbound Ramps
7. Fort Pond Road / Route 2 Westbound Ramps
8. Mechanic Street / Johnny Appleseed Lane [City of Leominster]
9. Mechanic Street / White Pond Road [City of Leominster]

The study area intersections and project limits are shown graphically in Figure 1.

GEOMETRY

The field inventory included collection of existing roadway geometrics, pedestrian and bicycle accommodations, traffic volumes, sight distances, and safety data for the existing study area. A description of the existing roadway and intersection inventory is provided below.



Study Area Intersections:

1. Lunenburg Road (Route 70) / McGovern Boulevard
2. Lunenburg Road (Route 70) / Main Street (Route 117)
3. Main Street (Route 70) / Seven Bridge Road (Route 117)
4. Lunenburg Road (Route 70) / Old Union Turnpike Roundabout
5. Lunenburg Road (Route 70) / Fort Pond Road / Woods Lane
6. Old Union Turnpike / Route 2 Eastbound Ramps
7. Fort Pond Road / Route 2 Westbound Ramps
8. Mechanic Street / White Pond Road
9. Mechanic Street / Johnny Appleseed Lane

Figure 1

Project Location Map & Study Area Intersections

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Roadways

Lunenburg Road (Route 70)

Lunenburg Road, signed as MA State Route 70, is a north-south urban principal arterial roadway maintained by the Town of Lancaster. The roadway provides regional connection between the Town of Shirley to the north and Main Street (Route 70/117) to the south. In the vicinity of the project site, Lunenburg Road is approximately 44-feet wide with 10-foot shoulders. Directional flow along Lunenburg Road is separated by a double-yellow centerline. A posted/regulated speed along the corridor is 50 miles per hour (mph)[2] in the vicinity of McGovern Boulevard. Land uses along Lunenburg Road generally include light industrial and light commercial uses. There are no sidewalks or bicycle accommodations provided along Lunenburg Road.

Intersections

Main Street (Route 70/117) / Seven Bridge Road (Route 117)

Main Street intersects Seven Bridge Road to form a three-legged, stop-controlled intersection. The Main Street eastbound approach operates under free-flow conditions and consists of a general-purpose travel lane with a gentle channelized right-turn onto Main Street heading south which operates under free-flow conditions. The Main Street northbound approach operates under stop-control and consists of a single general-purpose travel lane. Directional flow along the Main Street northbound approach is separated by a raised asphalt median at the intersection and a painted double-yellow centerline. The Seven Bridge Road westbound approach operates under free-flow conditions and consists of a single general-purpose travel lane with directional flow separated by a double-yellow centerline. A continuous sidewalk, separated by a grass buffer, is provided along the southerly side of Main Street from the west and the westerly side of Main Street from the south. There are no crosswalks or bicycle accommodations provided at the intersection.

As part of the upcoming Main Street Improvement Project (MassDOT Project File No. 608779), a new fully-actuated traffic signal is proposed at this location. The Main Street eastbound approach will be widened to include a through lane and an exclusive right-turn lane. The Seven Bridge Road westbound approach will be widened to include an exclusive left-turn lane and a through lane. Bicycle lanes will be installed along Main Street northbound and a new shared-use path will be constructed along the southerly side of Main Street between Lunenburg Road and a point 275-feet south of Seven Bridge Road.

Main Street (Route 70/117) / Lunenburg Road (Route 70)

Lunenburg Road intersects Main Street to form a three-legged, stop-controlled intersection. The Lunenburg Road southbound approach operates under stop-control and consists of an exclusive left-turn lane and an exclusive right-turn lane with directional flow separated by a marked double-yellow centerline and a short divisional island on the approach. The Main Street eastbound and westbound approaches operate under free-flow conditions and consist of a single general-purpose travel lane with directional flow separated by a double-yellow centerline. A sidewalk, separated by a grass buffer, is provided along the southerly side of Main Street. There are no crosswalks or bicycle accommodations provided at the intersection.

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[2] MassDOT Speed Regulation 619-A dated March 2, 1977

As part of the upcoming Main Street Improvement Project (MassDOT Project File No. 608779), a new fully-actuated traffic signal is proposed at this location. The Main Street eastbound approach will be widened to include an exclusive left-turn lane and a through lane. The Main Street westbound approach will be widened to include a through lane and an exclusive right-turn lane and a through lane. The Lunenburg Road southbound approach will be widened to include exclusive left-turn and right-turn lanes. Bicycle lanes will be installed along Lunenburg Road southbound a new shared-use path will be constructed along the southerly side of Main Street between Lunenburg Road and a point 275-feet south of Seven Bridge Road.

Lunenburg Road (Route 70) / McGovern Boulevard

McGovern Boulevard intersections Lunenburg Road to form a three-legged, stop-controlled intersection. The McGovern Boulevard eastbound approach operates under stop-control and consists of a single general-purpose travel lane with directional flow separated by a raised landscaped median. The Lunenburg Road northbound and southbound approaches operate under free-flow conditions and consist of a single general-purpose travel lane with directional flow separated by a marked centerline. No pedestrian or bicycle accommodations are provided at this intersection. Although Lunenburg Road is a high-speed roadway, advanced warning signage with flashers noting: “Business District Ahead – Vehicles Entering & Exiting” is posted along both sides of Lunenburg Road approximately 2,000-feet from the intersection.

Lunenburg Road (Route 70) / Old Union Turnpike

Old Union Turnpike intersects Lunenburg Road to form a four-legged roundabout intersection. The intersection was reconstructed as a roundabout in 2013 as part of MassDOT Project File No. 605216 which created a significant amount of reserve capacity at the intersection. All four intersection approaches consist of a single general-purpose travel lane with directional flow separated by a splitter island. In addition, each approach enters the roundabout under yield-control. The roundabout’s inscribed circle is approximately 130-feet in diameter and is comprised of a 17.5-foot travel lane and a 10-foot truck brick truck-apron. Crosswalks are provided across the eastbound and northbound approaches to the roundabout; however, sidewalks do not carry out past the immediately roundabout limits. There are no formal bicycle accommodations through the roundabout.

Lunenburg Road (Route 70) / Woods Lane / Fort Pond Road

Fort Pond Road and Wood Lanes intersect Lunenburg Road to form a four-legged stop-controlled intersection. In addition to the standard roadway connections, the driveway to the Heart of New England Council Boy Scouts of America Service Center enters Lunenburg Road directly opposing Fort Pond Road. Woods Lane is offset to the north by approximately 100-feet. The Woods Lane eastbound approach is under stop-control and consists of a general-purpose travel lane with directional flow unmarked. The Fort Pond Road westbound approach is under stop-control and consists of an exclusive left-turn lane and a channelized through/right-turn lane with directional flow separated by a raised asphalt median. The Lunenburg northbound approach is free-flowing and consists of shared left-turn/through lane and a channelized right-turn lane with directional flow separated by a marked centerline. The Lunenburg Road southbound approach is free-flowing and consists of a single general-purpose travel lane with directional flow separated by a marked centerline. No pedestrian or bicycle accommodations are provided at this intersection.

Old Union Turnpike / Route 2 Eastbound Ramps

The Route 2 Eastbound (EB) Ramps intersect Old Union Turnpike to form a three-legged unsignalized intersection. The Route 2 EB Ramps southbound approach consists of an exclusive left-turn lane under stop-control and a channelized right-turn lane under yield-control. Directional flow along the ramps is separated by a raised landscaped median. The Old Union Turnpike eastbound approach is free-flowing and consists of a single general-purpose travel lane with directional flow separated by a marked centerline. The Old Union Turnpike westbound approach is free-flowing and consists of a through lane and a channelized right-turn lane under yield-control with directional flow separated by a marked centerline. There are no formal bicycle accommodations through the roundabout. MassDOT recently installed new 'Do Not Enter', 'One-Way', and 'Wrong Way' signage along the Route 2 EB Ramps as part of their recent Wrong Way Crash initiative.

Fort Pond Road / Route 2 Westbound Ramps

The Route 2 Westbound (WB) Ramps intersect Fort Pond Road to form a three-legged unsignalized intersection. The Route 2 WB Ramps northbound approach consists of an exclusive left-turn lane under stop-control and a channelized right-turn lane under yield-control. Directional flow along the ramps is separated by a raised landscaped median. The Fort Pond Road eastbound approach is free-flowing and consists of a through lane and a channelized right-turn lane under yield-control with directional flow separated by a marked centerline. The Fort Pond Road westbound approach is free-flowing and consists of a single general-purpose travel lane with directional flow separated by a marked centerline. There are no formal bicycle accommodations through the roundabout. MassDOT recently installed new 'Do Not Enter', 'One-Way', and 'Wrong Way' signage along the Route 2 WB Ramps as part of their recent Wrong Way Crash initiative.

Mechanic Street / Johnny Appleseed Lane [City of Leominster]

Johnny Appleseed Lane intersects Mechanic Street to form a three-legged stop-controlled intersection. The Johnny Appleseed Lane northbound approach operates under stop-control and consists of a single general-purpose travel lane with directional flow unmarked. The Mechanic Street eastbound and westbound approaches are free-flowing and consists of single general-purpose travel lanes with directional flow separated by a marked centerline. Sight distance exiting Johnny Appleseed Lane is limited by the vegetation along the southerly side of Mechanic Street both east and west of the intersection. A sidewalk is present along both sides of mechanic Street west of the intersection. There are currently no formal bicycle accommodations provided at this intersection.

Mechanic Street / White Pond Road [City of Leominster]

White Pond Road intersects Mechanic Street to form a three-legged stop-controlled intersection. The White Pond Road northbound approach operates under stop-control and consists of a single general-purpose travel lane with directional flow unmarked. The Mechanic Street eastbound and westbound approaches are free-flowing and consists of single general-purpose travel lanes with directional flow separated by a marked centerline. No pedestrian or bicycle accommodations are provided at this intersection.

PUBLIC TRANSPORTATION ACCESS

The Project is situated in the region for the Montachusett Regional Transit Authority (MART); however currently no service is provided in the vicinity of the site.

EXISTING TRAFFIC VOLUMES

Traffic volume data for this report was obtained from Manual Turning Movement Counts (TMCs) and supplemented with Automatic Traffic Recorder (ATR) counts conducted at the study area intersections. The details of the data collection effort for this project are described below.

Turning Movement Counts

In order to establish existing traffic-volume conditions, manual TMCs were conducted on Wednesday, December 19, 2018 during the weekday morning (7:00 AM – 9:00 AM) and weekday evening (4:00 PM – 6:00 PM) peak periods. Additional TMCs were conducted at the intersections along Mechanic Street in Leominster on Thursday April 25, 2019 during the weekday morning (7:00 AM – 9:00 AM) and weekday evening (4:00 PM – 6:00 PM) peak periods. Area schools were in regular session during the time of the traffic counts. A detailed summary of the TMCs, partitioned into 15-minute intervals, is provided within Appendix A.

Automatic Traffic Recorder Counts

Automatic Traffic Recorder (ATR) counts were conducted concurrently with the TMCs from Tuesday, December 18, 2018 to Wednesday, December 19, 2018 to gather daily traffic-volume, vehicle classification, and speed data for the study area roadways during a continuous 48-hour time period. The ATR provided volume, speed, and classification data for Lunenburg Road, north of the Kimball Farms Driveway. A summary of the weekday ATR traffic data is presented in Table 1. A detailed summary of the ATR counts, partitioned into 15-minute intervals, are provided in Appendix B.

Table 1 – Existing Weekday Traffic Volume Summary

Location	Weekday Traffic Volume[a]	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		Traffic Volume[b]	K Factor[c]	Directional Distribution[d]	Traffic Volume	K Factor	Directional Distribution
Lunenburg Road, north of Kimball Farms Dwy	10,977	712	6.5	51.3% SB	1,022	9.3	62.7% NB

[a] Daily traffic expressed in vehicles per day
[b] Hourly traffic expressed in vehicles per hour
[c] Percent of daily traffic volumes which occurs during the peak hour
[d] Percent of peak-hour volume in the predominant direction of travel
NB = Northbound; SB = Southbound

Lunenburg Road, in the vicinity of McGovern Boulevard, carries between 11,000 vehicles per day (vpd) on an average weekday. Directional distribution along the roadway was roughly split 50-50 during the weekday morning peak hour and heavily weighted northbound in the weekday evening peak hour. Speed data indicates that the average speed and 85th percentile speed along Lunenburg Road northbound are 47 and 52 mph, respectively. The average speed and 85th percentile speed along Lunenburg Road southbound are 50 and 55 mph, respectively. This indicates that traffic along the corridor is generally travel at or in the immediately vicinity of the posted and regulated speed limit.

Seasonal Adjustment

In accordance with MassDOT standards, traffic volumes are typically adjusted to reflect average-month conditions for preparation of a traffic impact assessment. A review of historic traffic-volume counts collected by MassDOT at a permanent count station along Route 2 in Lancaster[3] indicated that traffic volumes in April and December are approximately 1.0 percent and 5.6 percent lower than average-month conditions, respectively. Although these counts are along a freeway roadway, Lunenburg Road through the study area generally operate consistent with commuter and tourist seasonal patterns. Therefore, the April 2019 and December 2018 traffic volumes were upwardly adjusted by 1.0 percent and 5.6 percent to reflect a conservative analysis scenario, respectively. The compiled seasonal adjustment data is provided in Appendix C. The resulting 2018 Existing Condition weekday morning and weekday evening peak hour traffic volumes are shown graphically in Figure 2.

SAFETY ANALYSIS AND REVIEW

A comprehensive traffic safety analysis was conducted for the study area intersections. The traffic safety analysis included the compilation and examination of study intersection crash data, a general safety review with consideration given to items on the MassDOT Safety Review Prompt List, and sight distance measurements. Details of each step in the traffic safety analysis are described in the following section.

Crash History and Data

Crash data for the study area intersections were compiled and analyzed for the most recent consecutive three-year period (2013-2015) of complete data on file from MassDOT. For the intersections along Main Street, historical crash information was acquired from the Main Street (Route 70/117) Improvements *Functional Design Report* (FDR)[4]. For the Route 2 freeway off-ramp intersections and interchange with Old Union Turnpike and Fort Pond Road, individual crash reports are in the process of being acquired from the MassDOT Traffic and Safety Engineering Section for 2014 through 2018. Therefore, the Route 2 freeway crash history as provided is for the interchange as a whole. The motor vehicle crash data was reviewed to determine if any crash trends exist within the study area. Summaries of the vehicle crash data and intersection crash rates are provided in Table 2.

---

[3] MassDOT Permanent Count Station 34 – Lancaster – Route 2 – west of Route 70

[4] *Functional Design Report – Main Street (Route 70/117) Improvements – Lancaster, MA*; prepared by TEC, Inc.; Revised April 1, 2019

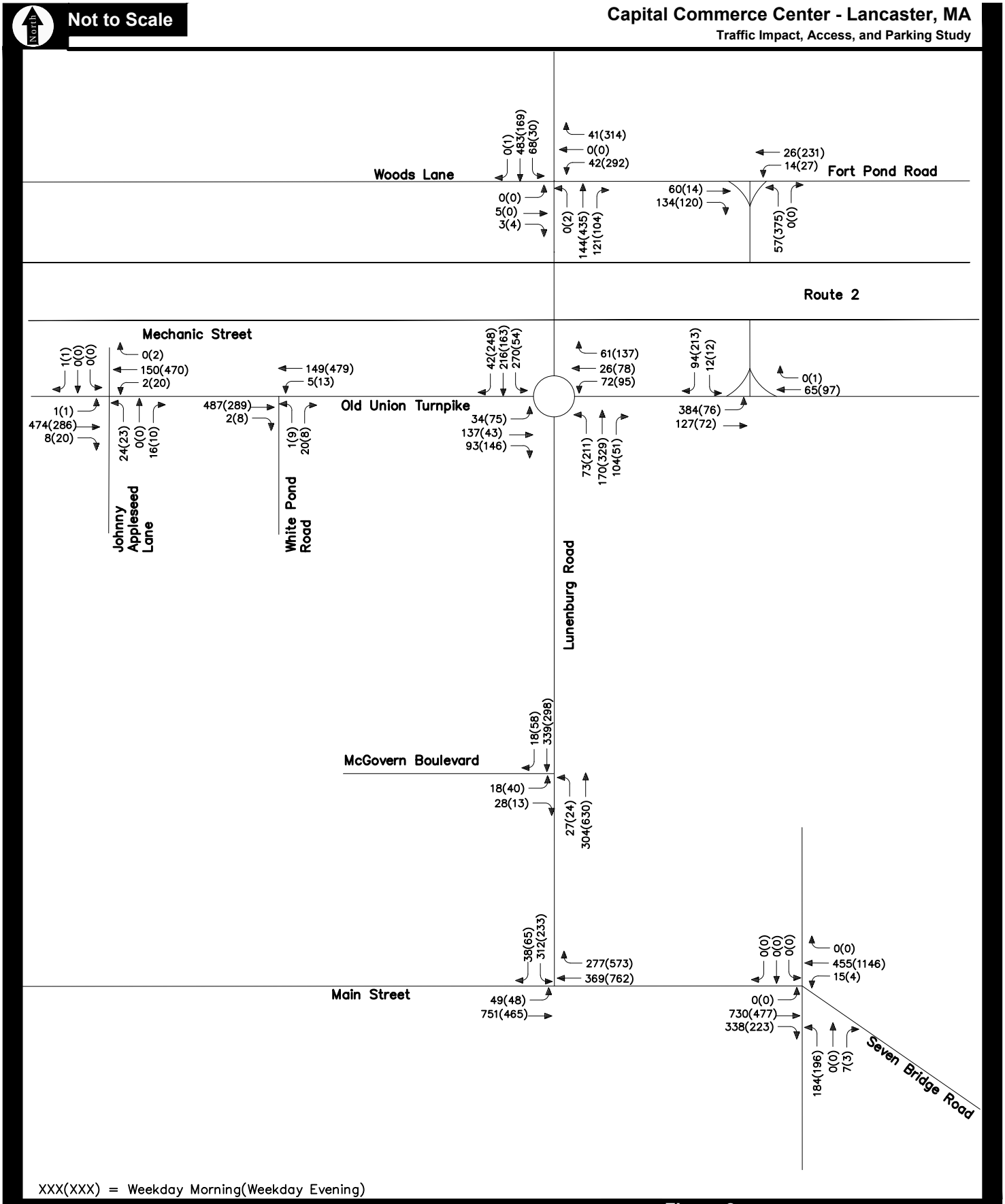

Figure 2

2019 Existing Conditions
Weekday Morning and Weekday Evening
Peak Hour Traffic Volumes

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Table 2 - Crash Data Summary

		Main Street / Seven Bridge Road / Shirley Road	Main Street / Lunenburg Road	Lunenburg Road / McGovern Boulevard	Lunenburg Road / Old Union Turnpike	Lunenburg Road / Woods Lane / Fort Pond Road	Old Union Turnpike & Route 2 EB	Fort Pond Road & Route 2 W	Mechanic Street / White Pond Road	Mechanic Street / Johnny Appleseed Lane
Crash Year:	2012	4	5	-	-	-	-	-	-	-
	2013	4	11	0	4	2	14	7	0	0
	2014	0	2	0	2	1	4	5	1	1
	2015	2	8	0	3	2	6	6	1	3
	2016	2	13	0	0	2	10	9	0	1
	TOTAL	**12**	**39**	**0**	**9**	**7**	**34**	**27**	**2**	**5**
Annual Average		***2.40***	***7.80***	***0.00***	***2.25***	***1.75***	***8.5***	***6.75***	***0.5***	***1.25***
Crash Rate (MEV):		***0.30***	***0.94***	***0.00***	***0.35***	***0.33***	***-***	***-***	***0.16***	***0.38***
Significant:		**No**	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**No**
Type:	Angle	10	15	0	5	3	4	1	1	0
	Rear-end	0	12	0	1	3	20	15	1	4
	Sideswipe	1	0	0	0	0	1	3	0	1
	Single	0	10	0	2	1	9	8	0	0
	Head-On	1	1	0	0	0	0	0	0	0
	Ped / Bike	0	0	0	0	0	0	0	0	0
	Not Reported	0	1	0	1	0	0	0	0	0
	TOTAL	**12**	**39**	**0**	**9**	**7**	**34**	**27**	**2**	**5**
Surface Conditions:	Dry	7	26	0	8	7	32	24	1	4
	Wet	3	9	0	1	0	1	0	1	0
	Snow/Slush/Ice	0	4	0	0	0	1	3	0	1
	Other / Unknown	2	0	0	0	0	0	0	0	0
	TOTAL	**12**	**39**	**0**	**9**	**7**	**34**	**27**	**2**	**5**
Severity:	PDO	10	31	0	9	5	27	24	1	4
	Non-Fatal Injury	2	8	0	0	2	7	3	1	1
	Not Reported	0	0	0	0	0	0	0	0	0
	TOTAL	**12**	**39**	**0**	**9**	**7**	**34**	**27**	**2**	**5**
Day of Week:	Monday-Friday	11	28	0	6	3	26	20	2	5
	Saturday-Sunday	1	11	0	3	4	8	7	0	0
	TOTAL	**12**	**39**	**0**	**9**	**7**	**34**	**27**	**2**	**5**
Time of Day:	6:00AM-9:00AM	3	6	0	1	1	18	4	0	0
	9:00AM-3:00PM	2	13	0	2	1	6	14	1	0
	3:00PM-6:00PM	1	8	0	5	4	5	6	0	1
	6:00PM-6:00AM	5	12	0	1	1	5	3	1	4
	TOTAL	**12**	**39**	**0**	**9**	**7**	**34**	**27**	**2**	**5**

Highway Safety Improvement Plan Eligible

In August 2005, the transportation act entitled the "Safe, Accountable, Flexible, Efficient Transportation Act - A Legacy for Users" (SAFETEA-LU) was passed. This act provides guidance and funding for the implementation of a State Highway Safety Improvement Program (HSIP). As part of this program, all states are required to develop a Strategic Highway Safety Plan (SHSP). The MassDOT guidelines require a Road Safety Audit (RSA) to be conducted where HSIP-eligible crash clusters are present within the study area of a private development sphere of influence, prior to finalizing the Massachusetts Environmental Policy Act (MEPA) process. An intersection is defined as HSIP-eligible if the intersection is within the top 5% of clusters in its respective Regional Planning Commission (RPC) boundaries based on Equivalent Property Damage Only (EPDO). EPDO rates crashes based on the collision severity.

Based on the MassDOT online crash cluster database, the Main Street / Lunenburg Road intersection and Route 2 Interchange 35 are considered 2016 Highway Safety Improvement Plan (HSIP) eligible (current crash years of HSIP-eligibility). Many freeway interchanges across the Commonwealth are noted as HSIP-eligible locations; however, this is generally the result of crashes being geocoded on the center of the interchange, as opposed to the specific crash location along a freeway segment, along the ramps, or other location of the interchange. Although the interchange does experience a large number of crashes, the MassDOT Crash Portal does not denote a high crash total at the surface intersection of Fort Pond Road and Old Union Turnpike with the Route 2 ramps. As previously noted, individual crash reports are in the process of being acquired from the MassDOT Traffic and Safety Engineering Section for 2014 through 2018 in order to determine the crash history of the two surface intersections as part of the study area.

Prior to this TIAPS, TEC and the City of Lancaster facilitated an RSA for the intersection of Main Street / Lunenburg Road in coordination with the MassDOT Traffic and Safety Engineering Section. An RSA, as defined by the FHWA, is the *formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team*. The RSA report for this location was published on May 27, 2017[5]. A copy of the RSA, as approved by MassDOT, is provided in Appendix D.

Crash Rate Worksheets

In addition to examining the number of crashes at the study area intersections, a crash rate was calculated to compare the occurrence of crashes to the volume of traffic passing through the intersection. The crash rate per million entering vehicles (MEV) was calculated using the evening peak hour volumes from the TMCs and a calculated K-factor obtained from the ATR counts to establish a daily intersection traffic volume. The crash rates at each of the study area intersections were compared to the statewide and district-wide averages published by MassDOT in June 2018 to determine the significance of the crash occurrence. The statewide average for unsignalized intersections is 0.57, and the District 3 average for unsignalized intersections is 0.61. A compilation of the MEV rate calculation worksheets and detailed crash data are provided in Appendix E.

[5] *Main Street (Route 117) / Lunenburg Road (Route 70) – Lancaster, Massachusetts - Road Safety Audit*; TEC, Inc.; Lawrence, Massachusetts; July 18, 2017

Crash Data Summary

Main Street / Seven Bridge Road / Shirley Road

The Main Street (Route 70/117) / Seven Bridge Road (Route 117) intersection experienced less than three (2.4) crashes per year over the five-year study period, yielding a crash rate of 0.30 crashes per MEV. The crash rate for this intersection is significantly lower than the statewide and district-wide averages for unsignalized intersections. Approximately, 83 percent (10 of 12) of the crashes were angled crashes, and the remaining 17 percent (2 of 10) of the crashes were equally distributed amongst sideswipe and head-on crashes. The reported crashes were heavily skewed toward the first half of the week, with 75 percent (9 of 12) of the crashes occurring Monday through Wednesday. Of the reported crashes, 42 percent (5 of 12) were attributed to "failure to yield right-of-way", 33 percent (4 of 12) were "inattention / distracted", 17 percent (2 of 12) were "visibility obstructed / glare" and the remaining 8 percent (1 of 12) were "erratic / aggressive / reckless driving".

Main Street / Lunenburg Road

The intersection of Main Street / Lunenburg Road experience a total of 39 reported crashes (7.8 per year) at the intersection during the five-year study period. The crash rate for this intersection is significantly higher than the statewide and district-wide averages for unsignalized intersections, with 0.94 crashes per MEV. Approximately 40 percent of the crashes (15 of 39) were angled crashes, 30 percent (12 of 39) were rear-end crashes, 25 percent (10 of 39) were single vehicle crashes, and the remaining 5 percent (2 of 39) were equally distributed amongst head-on and other/not reported crashes at the intersection over the five-year study period. Of the reported crashes, 44 percent (17 of 39) were attributed to "inattention/distracted", 21 percent (8 of 39) were "failure to yield right-of-way" or "other /not reported". Further details related to crash history is provided in the RSA report.

Main Street / Old Union Turnpike

The intersection of Main Street / Old Union Turnpike experiences a total of nine (9) reported crashes (2.25 per year) at the intersection during the four-year study period. The crash rate for this intersection is significantly lower than the statewide and district-wide averages for unsignalized intersections, with 0.35 crashes per MEV. Five (5) of the crashes were angled crashes which is to be expected at a roundabout intersection. Additionally, all crashes were non-injury crashes as the impact of crashes at roundabouts is traditionally low impact. More than half of the crashes (5 of 9) occurred during the weekday evening peak hour.

Route 2 Interchange 35

The Route 2 Interchange 35 and associated ramp network experienced 61 reported crashes (15.25 per year) during the four-year study period. It is more than likely that the overwhelming majority of these crashes occurred on the freeway in the vicinity of the interchange with no effect or cause related to the surface intersection with Old Union Turnpike and Fort Pond Road. Individual crash reports are in the process of being acquired from the MassDOT Traffic and Safety Engineering Section for 2014 through 2018 in order to determine the crash history of the two surface intersections as part of the study area. Further evaluation of this ramp location will be conducted prior to the Project's EIR filing.

All other study area intersections experienced less than two crashes per year on average and therefore it was deemed that no notable crash trend exists for the four-year study period.

Sight Distance Measurements

TEC measured the available sight distances at the various stop-controlled approaches of the study area intersections. The available sight lines were compared to minimum requirements established by the American Association of State Highway and Transportation Officials (AASHTO).

Sight distance represents the length of roadway that is visible to a driver traveling within the roadway. Two types of sight distance are typically evaluated for driveways and intersections: stopping sight distance (SSD) and intersection sight distance (ISD). SSD is the minimum distance required for a driver traveling along a roadway to perceive an object in the roadway and stop safely in advance of the object when traveling on a wet pavement surface. SSD is measured from an eye height of 3.5-feet to an object height of 2-feet above the ground, which is equivalent to a driver viewing the taillight of a vehicle ahead. SSD is measured along the centerline of the travel lane approaching the driveway or intersection.

ISD represents the length of the roadway visible to a driver waiting to exit a driveway or minor street. Minimum ISD requirements are based on the distance required for a driver to exit a minor street onto a major street without requiring an approaching vehicle to reduce its speed from the design speed to less than 70 percent of the design speed. ISD is measured from an eye height of 3.5-feet to an object height of 3.5-feet and is measured from a distance 14.5-feet beyond the edge of the travel-way of the major roadway to represent a driver waiting to exit a driveway or minor roadway.

SSD is typically considered the critical sight distance, as it represents the minimum distance required for safe stopping, while ISD represents an acceptable speed reduction for approaching vehicles. The ISD, however, must be at least equal to the minimum required SSD in order to prevent a driver from entering the roadway when an approaching vehicle is too close to safely stop. The guidance provided by AASHTO states:

> *"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."*

Tables 3 and 4 provide a summary of the available SSD and ISD at the intersection of Lunenburg Road / McGovern Boulevard, respectively.

Table 3 – Existing Stopping Sight Distance Measurements

Approach / Direction	Operating Speed [a]	AASHTO Recommended Minimum	Measured Stopping Sight Distance
Lunenburg Road at McGovern Boulevard:			
Lunenburg Road northbound	52 MPH	455 FT	> 700 FT
Lunenburg Road southbound	55 MPH	495 FT	> 700 FT

[a] Operating speeds calculated as 85th percentile speed from ATR counts on December 18 through December 19, 2018

Table 4 – Existing Intersection Sight Distance Measurements

Approach / Direction	Operating Speed [a]	AASHTO Desired Minimum [b]	AASHTO Recommended Minimum	Measured Intersection Sight Distance
Lunenburg Road at McGovern Boulevard:				
North of McGovern Boulevard	55 MPH	610 FT	495 FT	> 700 FT
South of McGovern Boulevard	52 MPH	575 FT	455 FT	> 700 FT

[a] Operating speeds calculated as 85th percentile speed from ATR counts on December 18 through December 19, 2018
[b] ISD calculated using time gap (t_g) at design speed of 6.5 seconds for passenger car left-turn

As shown in Table 3, the ISD and SSD at the intersection of Lunenburg Road / McGovern Boulevard are well in excess of AASHTO minimum recommendations.

III. FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2026, which reflects an 8-year planning horizon from the planned date of submission for permitting. The traffic conditions for the year 2026, under No-Build conditions, were developed to document the operating conditions independent of the proposed project; including all existing traffic and new traffic resulting from background growth. Anticipated site-generated traffic volumes for the proposed redevelopment were superimposed upon the No-Build traffic networks to reflect the Build conditions with the proposed project.

BACKGROUND TRAFFIC GROWTH

Traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. Traffic engineers frequently employ an annual percentage increase in traffic growth, which is applied to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a greater or a lesser rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, the potential growth in population and development external to the study area are not accounted for in the traffic projections.

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

General Background Growth

Traffic-volume data compiled from the adjacent MassDOT temporary count stations[6,7,8] were reviewed to determine traffic growth trends. Based on the traffic-volume data, traffic-volumes in the area have been increasing at a rate of 0.6 percent per year since 2015. To provide a conservative analysis scenario, a 1.0 percent per year compounded annual background traffic growth rate was used to account for potential future traffic growth external to the study area and any presently unforeseen or unpermitted development. MassDOT historic count station data have been included in Appendix F.

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[6] Temporary Count Station 3081 – Lancaster – Main Street – East of Otis Street
[7] Temporary Count Station 253426 – Lancaster – Main Street – South of Route 117
[8] Temporary Count Station 253425 – Lancaster – Lunenburg Road – North of Route 117

Specific Developments by Others

TEC coordinated with the Town of Lancaster Community Development and Planning Department to identify nearby private and public development projects in the vicinity of the study area that are either in the planning process or were recently approved by the municipal Planning Board. After discussions with Town officials and a review of recently approved projects, there are no specific projects have been identified that are anticipated to contribute significant additional traffic volumes to the study area.

FC Soccer Complex

At the time of the TMCs in December 2018, no outdoor activities were being hosted at the FC Stars outdoor soccer complex. To provide a conservative analysis, site-generated trips were estimated for the three (3) outdoor soccer fields and superimposed on the seasonally adjusted 2026 No-Build traffic volumes to simulate a condition in which the soccer fields were in active season. To estimate the potential traffic volumes generated by the additional retail uses, TEC utilized standard trip rates published in the Institute of Transportation Engineers' (ITE) industry standard publication *Trip Generation, 10th Edition* for Land Use Code (LUC) 488 – Soccer Complex. The new traffic volumes were distributed along the roadway network based on a gravity model that incorporated population within a 7.5-mile radius. The resulting FC Soccer weekday morning and weekday evening peak-hour traffic-volume networks is illustrated in Figure 3.

ROUTE 2 INTERCHANGE IMPROVEMENTS

In February 2016, MassDOT, in coordination with TranSystems, prepared an alternatives analysis for improvements along several Route 2 interchanges east of Interstate 190[9] in Harvard and Lancaster, MA. The study was a first step for the future MassDOT Project File No. 605393. The study identified five (5) Interchange 35 alternatives that would directly affect the study area of the Capital Commerce Center TIAPS. A brief description of each alternative is provided below:

- Alternative #1 – Relocates the Route 2 EB off-ramp west of the Route 70 overpass. This relocation places the ramp exit approximately 1,100-feet from the proposed Exit 34 on-ramp, which does not provide adequate distance for the Exit 34 acceleration lane. Accordingly, an auxiliary lane is provided between the two ramps. The ramp terminal is located on Old Union Turnpike approximately 400-feet west of the Route 70 roundabout. The Route 2 WB on-ramp is retained. The Route 2 WB on-ramp would be relocated west of the Route 70 Bridge with a terminal on Route 70 approximately opposite Fort Pond Road. This ramp relocation results in a 750-foot auxiliary lane between the ramp and the Johnny Appleseed Visitor Center exit. The Route 2 WB off-ramp is retained. The four-way intersection this ramp forms with Route 70 and Fort Pond Road includes installation of a traffic signal.
- Alternative #2 – Identical to Alternative #1 on the Route 2 EB side. On the westbound side. The alternative relocates the Route 2 WB off-ramp connecting directly to Route 70 in a half-diamond configuration. To enable Fort Pond Road to remain on its current alignment, this ramp is located tight to the Route 70 Bridge over Route 2. The Route 2 WB on-ramp terminal is located opposite the

[9] *Route 2 Interchange Improvements Alternatives Analysis; Harvard / Lancaster, MA*; prepared by TranSystems; February 2016.

westbound off-ramp. The intersection of the relocated Route 2 WB ramps with Route 70 includes addition of a traffic signal. Locating this intersection near the bridge over Route 2 also improves vertical sight distance as it is placed closer to the apex of the crest vertical curve. The existing intersection of Fort Pond Road with Route 70 remains unsignalized and the intersection with Woods Lane remains in its existing configuration.

- Alternative #3 - This alternative maintains ramp and intersection configuration on the Route 2 WB side identical to Alternative #2. The Route 2 EB off-ramp is relocated to connect directly to Route 70. The ramp diverges from Route 2 in a similar fashion as under Alternatives #1 and #2 and forms an unsignalized T-intersection with Route 70 south of the bridge over Route 2.
- Alternative #4 – Similar to Alternative #1 except it replaces a signalized intersection of Route 70 and Fort Pond Road with a roundabout. Woods Lane is relocated to the north to provide separation from the roundabout. Due to space requirements, the roundabout further impacts the Boy Scouts of America property and Woods Lane relocation requires minor right-of-way acquisition from the parcel located just to the north.
- Alternative #5 – This alternative eliminates the Route 2 EB off-ramp and combines it with the Exit 34 eastbound off-ramp. On the Route 2 WB side, this alternative could be identical to any of the alternatives described above.

At this time, each alternative presents a significantly superior condition in terms of traffic safety and/or traffic operations over the existing condition. As no alternative has been selected as part of MassDOT Project File No. 605393, the TIAPS doe not assume that the improvements will be in place by the 2026 horizon year. Further discussion of traffic operations in relation to the project is summarized in the capacity and queue analysis section.

2026 NO-BUILD TRAFFIC VOLUMES

The 2026 No-Build weekday morning, weekday evening, and Saturday midday peak-hour traffic-volume networks were developed by applying the 1.0 percent per year compounded annual background traffic growth rate on the 2018 Existing Condition peak-hour traffic volumes over the 8-year design horizon and adding the projected traffic generated by the FC Soccer facility. The resulting 2026 No-Build weekday morning, weekday evening, and Saturday midday peak-hour traffic-volume networks are illustrated in Figure 4.

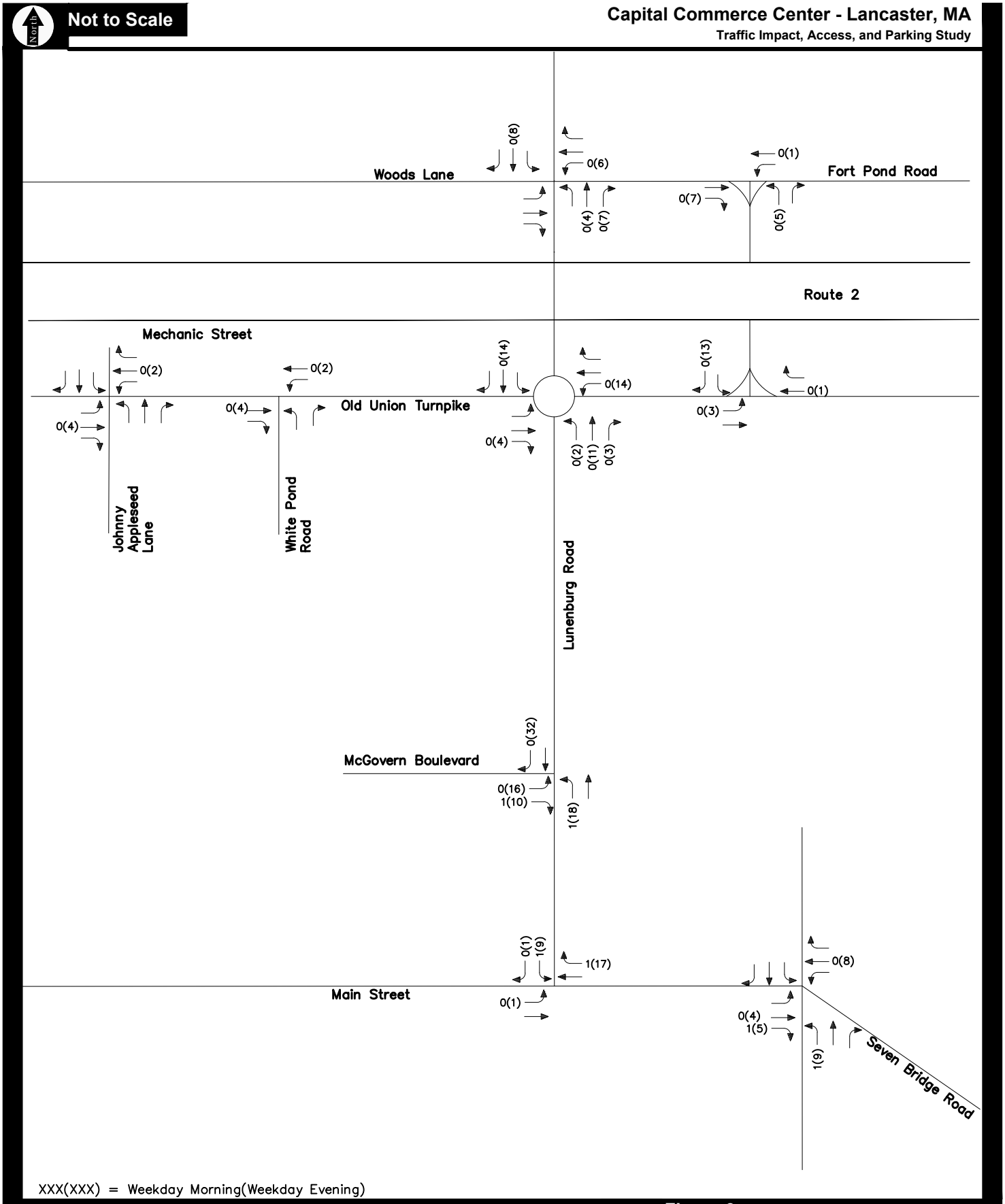

Figure 3

FC Soccer Project (Existing) Trips Weekday Morning and Weekday Evening Peak Hour Traffic Volumes

TEC The Engineering Corp

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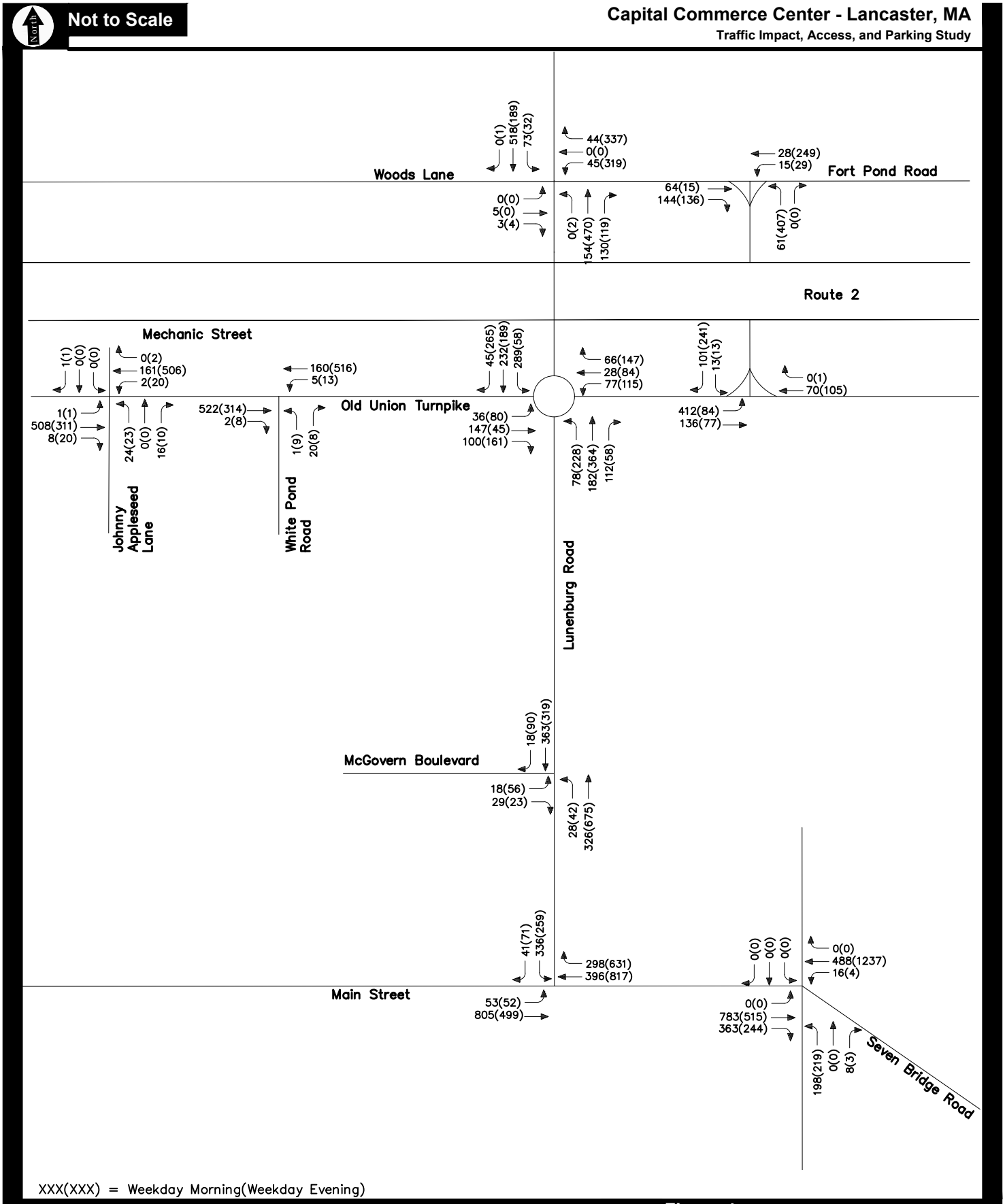

Figure 4

2026 No-Build Conditions
Weekday Morning and Weekday Evening
Peak Hour Traffic Volumes

TEC
The Engineering Corp

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SITE GENERATED TRAFFIC

The Capital Commerce Center Project consists of clearing much of the existing site; but retaining the existing FC Stars soccer complex, Dunkin Donuts, and Mobil Gas Station. The proposed mixed-use development program includes constructing of a 1,567,500 SF industrial park (319 loading docks), 117 single-family residential units, 500 multi-family residential units, a 120-room hotel; 65,700 SF of additional retail space, and an 86,500 SF indoor soccer facility comprised of one soccer field. The Project proposes to retain the access/egress to the site via McGovern Boulevard. The 117 single-family residential units will be disconnected from the rest of the proposed land uses and be accessed/egressed via new roadway connections to/from White Pond Road and Johnny Appleseed Lane [City of Leominster].

TEC estimated the site-generated traffic based on industry standard trip rates published in the ITE publication, *Trip Generation, 10th Edition* for LUC 130 – Industrial Park, LUC 210 – Single-Family Housing (Detached), LUC 221 – Multifamily Housing (Mid-Rise) 310 – Hotel, LUC 488 – Soccer Complex, LUC 820 – Shopping Center.

Trip Generation Credits and Adjustments

Existing Land Uses

The existing site includes several minor uses over the two distinct development zones. Within the development zone connected to McGovern Boulevard, the site includes the FC Stars outdoor soccer complex comprised of three (3) soccer fields, a 11,800 SF J.B. Hunt Transport Services facility, a 2,300 SF Dunkin Donuts, a 5,000 SF Mobil gas station with convenience market, and the soil / gravel yard for the New England Specialty Soils. Within the development zone connected to White Pond Road and Johnny Appleseed Lane, the site includes one single-family dwelling and an equestrian field with stable operations.

TEC previously noted that site generated traffic related to the FC Stars outdoor soccer complex was assessed as part of the No-Build scenario as the December 2018 traffic counts would not generate for traffic volumes at this facility as it is generally a seasonal operation. Traffic generated by the other existing land uses would be present in the December 2018 and April 2019 traffic counts.

The existing land uses to be removed from the site do not generate a substantial amount of traffic volumes throughout the course of typical weekday. For the 11,800 SF J.B. Hunt Transport Services facility, it is expected that approximately 58 vehicle trips were access/egress the industrial facility on a typical weekday and from a driveway separated and unconnected to McGovern Boulevard and other site related traffic volumes. The single-family dwelling and an equestrian field with stable operations would generate approximately ten (10) vehicle trips on a typical weekday. The soil / gravel yard for the New England Specialty Soils also generates a substantially low number of vehicle trips to/from the Project location. Trip generation credit has been taken for the 11,800 SF J.B. Hunt Transport Services facility. As the number of vehicles generated by the equestrian field with stable operations, and the soil / gravel yard for the New England Specialty Soils are considerably low, no credit was taken for these uses as part of the peak hour traffic operations assessment.

LUC 130 – Industrial Park Data Extraction

The ITE publication, *Trip Generation, 10th Edition* provides standard trip rates and equations for more dozens of land uses. The data as provides typically denotes the number of trips versus a specific independent variable. It is not uncommon that the data as presented in the publication is modified to closely mimic the specific land use and type. For instance, if a development is in a rural area, removing urbanized-related data. Or if data is provided for a land use on a large scale of building footprints, specific parts of the data can be extracted to provide a more accurate depiction of a specific development plan within a size range. In 2018, ITE released its online application version of the *Trip Generation, 10th Edition* publication. One of the several goals of the online application was to simplifies the specific querying of data for engineers and planners to provide a more pointed and precise selection of land use data to individual development proposals. If specific data is extracted, it is important to provide justification for the extraction.

TEC has provided extracted site trip generation data under LUC 130 – Industrial Park for the weekday morning and weekday evening peak hours. *Trip Generation, 10th Edition* provides only an 'average rate' equation for these two time periods under this land use; however as typical industrial parks get larger, the data advocates that the 'average rate' equations significantly over estimates site traffic. For example, in the weekday morning and weekday evening peak hour, all industrial parks with more than 1,500,000 SF represented in the data have trip ends <u>well</u> less than the 'average rate' line. To moderate this significant overestimation, TEC queried only the data for industrial parks with more than 1,000,000 SF of gross floor area. This allows the trip generation for the weekday morning and weekday evening peak hours to be considerably more realistic in nature, while still being conservative to the ITE data points. This methodology was only conducted for the weekday morning and weekday evening peak hours as the weekday daily calculation is based upon a fitted curve and the Saturday daily and Saturday midday calculations provide too small of sample sizes to justify extracted data points. The methodology utilized for this land use was approved by MassDOT. Worksheets directly from the ITE online application are included in Appendix H.

Internal Capture

It is reasonable to expect that some site-generated trips to the site will be shared amongst multiple land uses. For example, someone traveling to the industrial park may choose to stay at the hotel within the Project site. More precisely, some site-generated trips to the site will be shared amongst the existing and separated proposed land uses. For example, someone travelling to the industrial park may decide to purchase gas at the Mobil Station or a coffee at Dunkin Donuts adjacent to the Project site. This internal capture can occur as the proposed mixed retail uses, the existing Mobil gas station, and the proposed Dunkin Donuts provide direct access/egress to/from the proposed Project along McGovern Boulevard without exiting onto Lunenburg Road. As a result, a reduction in the overall external trips experienced at the site driveways can be anticipated as a result of multi-use, or shared, trips that include stops at more than one use on the site.

Although a large amount of sharing can occur it is likely that much of this internal capture will still be with new trips to the site as the trips that are currently, or potential will travel to/from the retail areas and uses would be established once the Project is constructed. Based on information contained in the industry standard ITE publication *Trip Generation Handbook, 3rd Edition*, multi-use trips were assigned for trip sharing amongst the hotel, industrial park, and the multi-family resident land uses only. Credit was not taken for internal capture between the proposed uses /

existing land uses and the soccer complex. In addition, no credit was taken for internal capture between any on-site use and the single-family residences as these residential units are separated from the development and cannot be traversed internally. This overall provides a conservative analysis of site trip generation. The multi-use trip generation worksheets are included in Appendix H.

Pass-by Trips

Not all of the trips generated by the proposed mixed-use redevelopment will be new to the roadway network. Many of the trips generated by the proposed redevelopment are already present in the existing traffic flow passing by the site and may decide to visit the site on their way to another destination. For example, a driver travelling along Lunenburg Road on the way home from work in Fitchburg may stop at the on-site neighborhood retail and then continue his/her trip home. These vehicle trips are known as “pass-by” trips and are subtracted from the total trips to calculate the total primary (or “new”) trips that affect the volume of traffic within the study area away from the site. Based on information contained in the industry standard ITE publication *Trip Generation Handbook, 3rd Edition*, approximately 26 to 34 percent of the general retail / shopping center site-generated traffic is expected to be pass-by traffic.

Table 5 provides a summary of the resulting trip generation estimate separated by LUC and the total trip generation separated by multi-use, transit, pass-by, and primary trips. The detailed trip generation calculation worksheets are provided in Appendix H.

As shown in Table 5, the proposed mixed-use development is anticipated to generate approximately 9,790 new vehicle trips during the average weekday, with 752 new vehicle trips (460 entering and 292 exiting) during the weekday morning peak hour and 838 new vehicle trips (344 entering and 494 exiting) during the weekday evening peak hour. Approximately 9,602 new vehicle trips are anticipated during the average Saturday, with 1,299 new vehicle trips (538 entering and 761 exiting) during the Saturday midday peak hour. Because of the rural nature of the site, the mode split is anticipated to be very near 100-percent automobile.

As this project is anticipated to generate more than 3,000 new vpd along the adjacent roadway network, will include the construction of more than 1,000 new parking spaces, and directly abuts state-owned property, the project will require review by the MEPA office in the form of an ENF and mandatory EIR.

Table 5 - Trip Generation Summary by Land Use Code

Time Period	Industrial Park (LUC 130)	Single Family Resident (LUC 210)	Multi-Family Resident (LUC 221)	Hotel (LUC 310)	NEW Soccer Complex (LUC 488)	General Retail (LUC 820)	Total Trips	Multi-Use Trip Credit	Existing Trip Credit	Pass-by Trips	External Primary Trips
Weekday Daily											
IN	1,963	601	1,362	464	36	1,240	**5,666**	469	29	**273**	**4,895**
OUT	1,963	601	1,362	464	36	1,240	**5,666**	469	29	**273**	**4,895**
TOTAL	3,926	1,202	2,724	928	72	2,480	**11,332**	938	58	**546**	**9,790**
Weekday Morning											
IN	371	22	43	32	1	40	**509**	37	7	**5**	**460**
OUT	99	66	123	22	1	24	**335**	37	1	**5**	**292**
TOTAL	470	88	166	54	2	64	**844**	74	8	**10**	**752**
Weekday Evening											
IN	90	74	127	33	9	120	**453**	77	1	**31**	**344**
OUT	318	44	81	31	5	130	**609**	77	7	**31**	**494**
TOTAL	408	118	208	64	14	250	**1,062**	154	8	**62**	**838**
Saturday Daily											
IN	1,990	569	969	430	203	1,515	**5,676**	529	12	**334**	**4,801**
OUT	1,990	569	969	430	203	1,515	**5,676**	529	12	**334**	**4,801**
TOTAL	3,980	1,138	1,938	860	406	3,030	**11,352**	1,058	24	**668**	**9,602**
Saturday Midday											
IN	221	63	106	49	18	154	**611**	37	2	**34**	**538**
OUT	469	53	111	39	20	142	**834**	37	2	**34**	**761**
TOTAL	690	116	217	88	38	296	**1,445**	74	4	**68**	**1,299**

TRIP DISTRIBUTION

Site Access and Egress

The Project proposes to retain the access/egress to the site via McGovern Boulevard. The 117 single-family residential units will be disconnected from the rest of the proposed land uses and be accessed/egressed via new roadway connections to/from White Pond Road and Johnny Appleseed Lane [City of Leominster].

Study Area Trip Distribution Models

Industrial Park Land Use

The distribution of industrial park site-generated traffic volumes was based on gravity models using 2009-2013 U.S. Census Bureau Journey-to-Work/Home data for the Town of Lancaster. The industrial park distribution models the commutes of workers to Lancaster from the top 25 residential cities and towns, which represent approximately 87 percent of total Lancaster workforce. The top 87 percent of resident communities generally allow for an approximation of overall distribution of traffic. Additional communities at this level each contribute less than 0.70% of the Lancaster workforce each which is deemed to not change the distribution of traffic calculations significantly.

Residential Land Uses

The distribution of both the single-family and multi-family residential site-generated traffic volumes was based on gravity models using 2009-2013 U.S. Census Bureau Journey-to-Work/Home data for the Town of Lancaster. The residential distribution models the commutes of residents from Lancaster to the top 33 workforce cities and towns, which represent approximately 90 percent of total Lancaster residents. The top 90 percent of workforce communities generally allow for an approximation of overall distribution of traffic. Additional communities at this level each contribute less than 0.75% of the Lancaster residents each which is deemed to not change the distribution of traffic calculations significantly.

Note that the distribution for the single-family and multi-family residential areas within the site are different. This is due to the location of the access/egress to each of these residential areas. The single-family residential area is accessed via Mechanical Street within the City of Leominster while the multi-family residential area is accessed via McGovern Boulevard and Lunenburg Road. Although the roadway distribution is different, the overall community-by-community distribution percentages are equivalent and based upon the 2009-2013 U.S. Census Bureau Journey-to-Work/Home data for the Town of Lancaster.

Retail Land Use

The distribution of retail site-generated traffic volumes was based on a gravity model using 2017 U.S. Census Bureau estimated population data, location of competing opportunities, and travel time for the surrounding communities within a 7.5-mile radius of the Project site. The retail distribution models the commutes of residents from the Town of Lancaster and eleven (11) adjacent communities to/from the Project site after weighting each community based on total population.

Hotel Land Use

The site-generated traffic for the hotel land use was anticipated to generate trips an overwhelming majority of its trip generation to/from Route 2. This is based on the low level of nearby commercial land uses to generate hotel-type traffic in the immediate project vicinity as tourists and business travelers will primarily utilize Route 2 and I-190 to access the hotel. It is anticipated that 80 percent of hotel traffic will be generated to/from the north along Route 2, with the remaining 20 percent to/from the secondary roadways leading towards the site such as Lunenburg Road, Mechanic Street, and Seven Pond Road (to/from Interstate 495).

Soccer Complex Land Uses

The distribution of soccer complex site-generated traffic volumes was based on a gravity model using 2017 U.S. Census Bureau estimated population data for the surrounding communities within a 7.5-mile radius of the Project site. The soccer complex distribution models the commutes of residents from the Town of Lancaster and eleven (11) adjacent communities to/from the Project site after weighting each community based on total population.

Trip Distribution Summary

The resulting primary trip distributions for the hotel, industrial park, residential units, and soccer complex are shown in Table 6. Trip distribution gravity models are included in Appendix I. The weekday morning and weekday evening site-generated traffic-volume networks are presented in Figure 5.

Table 6 – Trip Distribution Summary

Direction	Industrial Park	Single Family	Multi Family	Hotel	Soccer Complex	Retail
Route 2 to/from east	6%	23%	12%	40%	11%	18%
Route 2 to/from west	42%	30%	23%	40%	25%	7%
Mechanic Street to/from west	8%	9%	2%	5%	10%	2%
Fort Pond Road to/from east	1%	1%	1%	0%	1%	1%
Old Union Tnpk to/from east	1%	1%	1%	0%	1%	1%
Route 117 to/from east	7%	21%	28%	5%	17%	23%
Route 117 to/from west	4%	0%	3%	0%	2%	5%
Route 70 to/from north	6%	2%	3%	5%	15%	28%
Route 70 to/from south	25%	13%	27%	5%	18%	15%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

2026 BUILD TRAFFIC VOLUMES

The 2026 Build Condition traffic-volume networks consist of the 2026 No-Build traffic volumes with the addition of the site-generated traffic for the proposed redevelopment. The resulting 2026 Build weekday morning, weekday evening, and Saturday midday peak-hour traffic-volume networks are presented in Figure 6.

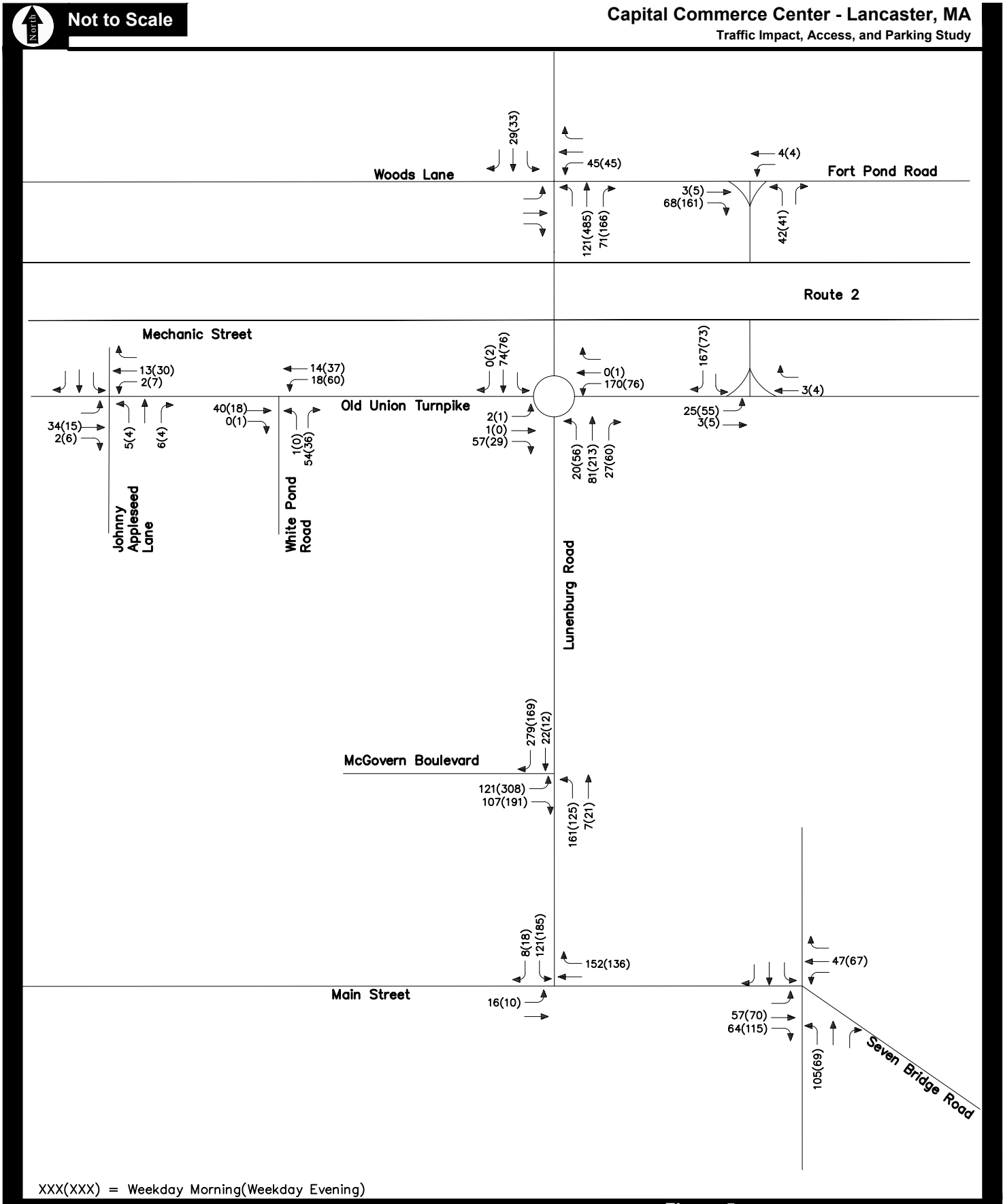

Figure 5

Site-Generated Traffic
Weekday Morning and Weekday Evening
Peak Hour Traffic Volumes

TEC
The Engineering Corp

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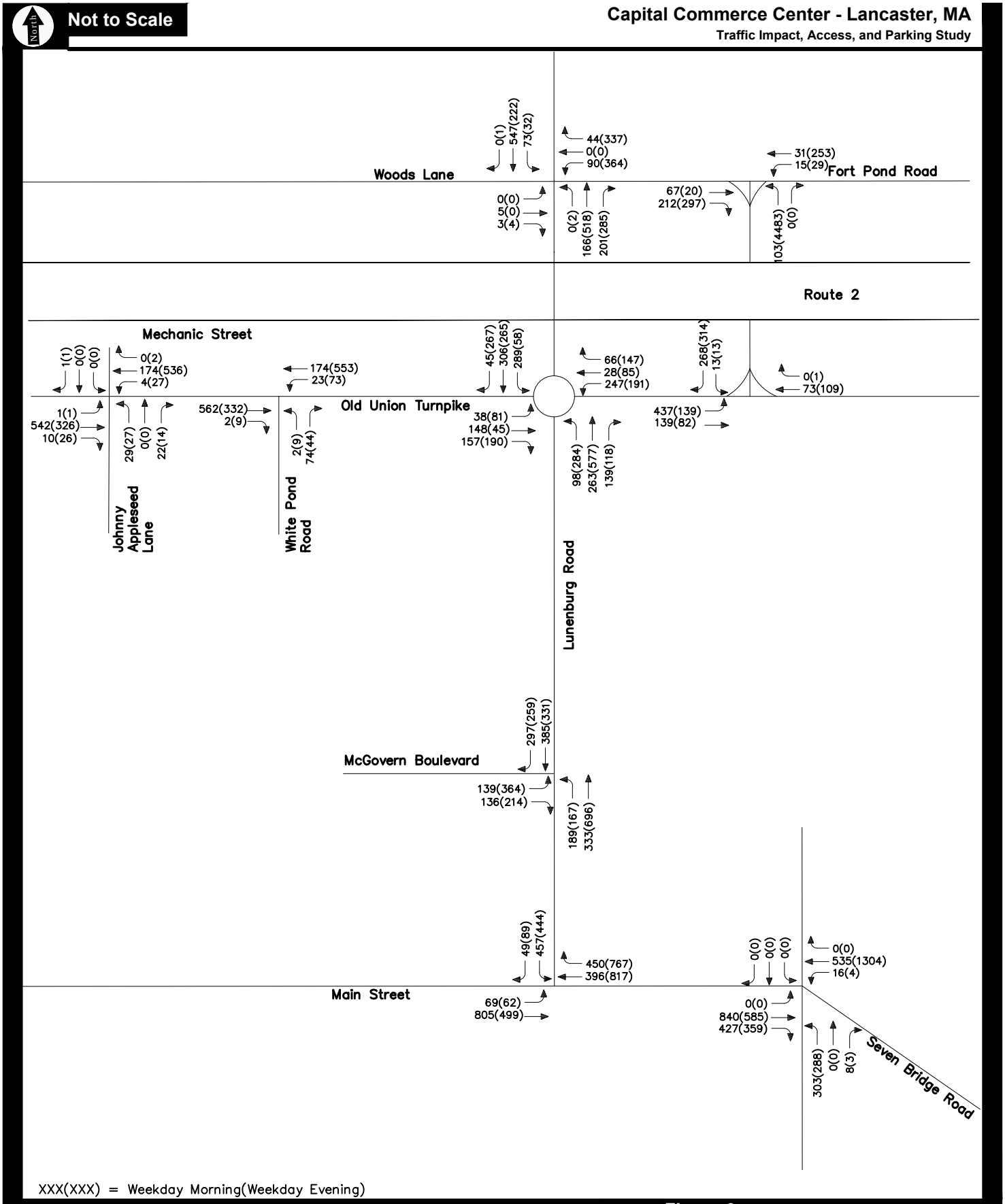

Figure 6

2026 Build Conditions
Weekday Morning and Weekday Evening
Peak Hour Traffic Volumes

TEC
The Engineering Corp

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IV. TRAFFIC WARRANTS

LEFT-TURN LANE WARRANTS

A left-turn lane warrant analysis was conducted for the intersection of Lunenburg Road / McGovern Boulevard using hourly traffic volumes based on TMCs conducted in December 2018. The potential left-turn lane along Lunenburg Road northbound was analyzed under both unsignalized and signalized intersection conditions.

The *MassHighway Project Development and Design Guide*[10] define left-turn lane volume warrants at unsignalized and signalized intersections based on the Transportation Research Board's (TRB) publication, the *Highway Capacity Manual (HCM) 2010*[11]. The criteria are based on the operating speed of the roadway (50 mph posted), the opposing volume, and the percent of left-turning vehicles for the advancing vehicle volume. Based on both the signalized and unsignalized operating conditions on Lunenburg Road, the traffic volumes do warrant the construction of a left-turn lane on the Lunenburg Road northbound approach.

An excerpt from the *MassHighway Project Development and Design Guide* noting the criteria for the introduction of a left-turn lane by traffic volume is provided in Appendix J.

TRAFFIC SIGNAL WARRANTS

A traffic signal warrant analyses was conducted for the intersection of Lunenburg Road at McGovern Boulevard to document the warranting condition should a traffic signal be recommended as mitigation for the project. TEC performed the traffic signal warrant analyses based on criteria contained within the *Manual on Uniform Traffic Control Devices* (*MUTCD*)[12]. The *MUTCD* contains eight warrants for evaluating the need for installation of a traffic signal. The two multi-hour volume-related warrants were evaluated to determine whether a traffic signal is warranted at the four intersections described above. These warrants include:

- Warrant 1: Eight-Hour Vehicular Volume
- Warrant 2: Four-Hour Vehicular Volume
- Warrant 3: Peak-Hour Vehicular Volume

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[10] *MassHighway Project Development and Design Guide*, MassHighway (now Massachusetts Department of Transportation (MassDOT) – Highway Division); Boston, Massachusetts, 2006
[11] *Highway Capacity Manual 6th Edition*; Transportation Research Board; Washington, DC; 2016
[12] *Manual on Uniform Traffic Control Devices (MUTCD)* – Federal Highway Administration / U.S. DOT – 2009 Edition.

For the purposes of this analysis, TEC utilized 12-hour ATRs conducted at the subject intersection to assess the warranting condition over a typical weekday. Existing traffic exiting McGovern Boulevard was only programmed for the weekday morning and weekday evening peak hours as no ATR was available along this side-street.

Site-generated traffic volumes to be utilized in the traffic signal warrant analyses were assessed based on trip generation rates obtained in the ITE publication, *Trip Generation, 10th Edition*. As many hours during the day are not represented based on the ITE trip generation data, TEC projected site generated traffic onto the non-peak hours based on engineering judgement for each land use. For example, the residential land uses were projected to generate a small amount of traffic outside the commuter peak and lunch time periods.

Warrant Adjustments

85th Percentile Speed greater than 40 MPH

As noted in the ATR counts collected in December 2018, vehicle speeds along Lunenburg Road northbound and southbound entering the intersection were measured with an 85th percentile speed at or greater than 40 MPH during free-flow conditions. Therefore, the *MUTCD* notes that traffic volumes reductions in the 70% and 56% columns of Table 4C.1 of the MUTCD shall govern for use in the traffic signal warrant.

Right-Turn Side-Street Traffic Volumes

The McGovern Boulevard eastbound approach is proposed to consist of an exclusive left-turn lane and an exclusion right-turn lane. For this approach geometry, the *MUTCD* states:

> *"…engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered." (MUTCD - Sect 4C.01 ¶10)*

Right-turns exiting the minor-street can generally be discounted at a traffic signal due to the lesser conflict seen between right-turns on minor-streets and major-street traffic. At the intersection of Lunenburg Road / McGovern Boulevard, a 100 percent reduction for right-turns was applied to the McGovern Boulevard eastbound approach based on the potential for a lesser vehicle conflict for right-turning vehicles and the presence of an exclusive right-turn lane.

Number of Lanes

As part of this traffic signal warrant analysis, the Lunenburg Road "major street" approach and the McGovern Boulevard "minor street" approach to the intersection were designated as one-lane approaches. The MUTCD provides guidance that states:

> *"Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. The site-specific traffic characteristics should dictate whether an*

> *approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left-turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles." (MUTCD Section 4C.01 ¶9)*

This paragraph generally states that engineering judgement shall be utilized in determination of number of travel lanes on the major and minor street. The Lunenburg Road northbound approach consists of "one" lane as the level of left-turning volume within an exclusive left-turn lane represents only 22 percent of the approach volume. In addition, as right-turns will not be evaluated along McGovern Boulevard, the McGovern Boulevard approach will be considered a one-lane approach within the traffic signal warrant calculations.

Warrant Results

Based on the existing traffic volumes and the addition of the projected site-generated trips for each proposed land use, the intersection of Lunenburg Road / McGovern Boulevard meets the criteria for Warrant 1, Warrant 2, and Warrant 3. As a traffic signal is warranted and due to the operating and safety conditions of the intersection without a traffic signal in place, installation of a traffic signal at this intersection is recommended as part of the off-site corridor improvements along Lunenburg Road. The signal warrant analysis worksheets are included in Appendix K.

V. TRAFFIC OPERATIONS ANALYSIS

Measuring existing and future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, roadway capacity and vehicle queue analyses were conducted under Existing, No-Build, Build, and Build with Mitigation traffic-volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

METHODOLOGY

Levels of Service

A primary result of capacity analyses is the assignment of level-of-service to traffic facilities under various traffic-flow conditions.[13] The concept of level-of-service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with level-of-service (LOS) A representing the best operating conditions and LOS F representing the worst. Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

Queue Length Analysis

Vehicle queue analyses are a direct measurement of an intersection's ability to process vehicles under various traffic control and volume scenarios and lane use arrangements. The vehicle queue analysis was performed using the Synchro 9.0™ intersection capacity analysis software which is also based upon the methodology and procedures presented in the *HCM 2010*. Synchro reports the 95th percentile queues for unsignalized intersections and both the 50th (average) and 95th percentile vehicle queues for signalized intersections, which are based on the number of vehicles that experience a delay of six (6) seconds or more at an intersection and is a function of the traffic signal timing; vehicle arrival patterns during the analysis period; and the saturation flow

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

rate. The 50th percentile or average vehicle queue is the average number of vehicles that are projected to be delayed by six seconds or more at the intersection under study during the analysis period. The 95th percentile vehicle queue is the vehicle queue length that will be exceeded only five (5) percent of the time; or approximately three (3) minutes out of 60 minutes during the peak one hour of the day. During the remaining 57 minutes, the vehicle queue length will be less than the 95th percentile queue length.

PARAMETERS FOR TRAFFIC IMPACT ANALYSIS

Unsignalized Intersections

The levels of service of two-way stop-controlled unsignalized intersections are determined by application of a procedure described in the *HCM 2010*. Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and stop signs. Control delay includes the effects of initial deceleration delay approaching a stop sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the *HCM 2010*. Table 7 summarizes the relationship between level of service and average control delay.

Table 7 – Level-of-Service Criteria for Unsignalized Intersections [(a)]

Level of Service (v/c ≤ 1.0)	Level of Service (v/c > 1.0)	Average Control Delay (seconds per vehicle)	Description
A	F	≤10.0	LOS A represents a condition with little or no control delay to minor street traffic.
B	F	10.1 to 15.0	LOS B represents a condition with short control delays to minor street traffic.
C	F	15.1 to 25.0	LOS C represents a condition with average control delays to minor street traffic.
D	F	25.1 to 35.0	LOS D represents a condition with long control delays to minor street traffic.
E	F	35.1 to 50.0	LOS E represents operating conditions at or near capacity level, with very long control delays to minor street traffic.
F	F	>50.0	LOS F represents a condition where minor street demand volume exceeds capacity of an approach lane, with excessive control delays resulting.

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

Signalized Intersections

LOS for signalized intersections is calculated using the operational analysis methodology of the *HCM 2010*. This method assesses the effects of signal type, timing, phasing, progression; vehicle mix; and geometrics on delay. LOS designations are based on the criterion of control or signal delay per vehicle. Control or signal delay can be related to driver discomfort, frustration, and fuel consumption, and includes initial deceleration delay approaching the traffic signal, queue move-up time, stopped delay and final acceleration delay.

Table 8 summarizes the relationship between LOS and control delay. The tabulated control delay criterion may be applied in assigning LOS designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table 8 – Level-of-Service Criteria for Signalized Intersections[(a)]

Level of Service (v/c ≤ 1.0)	Level of Service (v/c > 1.0)	Average Control Delay (seconds per vehicle)	Description
A	F	≤10.0	LOS A describes operations with very low control delay; most vehicles do not stop at all.
B	F	10.1 to 20.0	LOS B describes operations with relatively low control delay. However, more vehicles stop than LOS A.
C	F	20.1 to 35.0	LOS C describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	F	35.1 to 55.0	LOS D describes operations with control delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable, whereby motorists are not able to get through the signal on one cycle.
E	F	55.1 to 80.0	LOS E describes operations with high control delay values. Individual cycle failures are frequent occurrences.
F	F	>80.0	LOS F describes operations with high control delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

[a] Source: *Highway Capacity Manual 2010*; Transportation Research Board; Washington D.C.; 2010

Roundabout Intersections

The capacity and queue analysis for the roundabout location was performed using the Sidra v7™ traffic capacity analysis software which is also based upon the methodology and procedures presented in the *HCM 6th Edition*. The levels-of-service of roundabouts are equivalent to the levels-of-service of unsignalized intersections are determined by application of a procedure described in the *HCM 6th Edition*. Level-of-service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and stop-signs. Control delay includes the effects of initial deceleration delay approaching a stop-sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level-of-service at roundabout intersections are also given in the *HCM 6th Edition*. Table 9 summarizes the relationship between level-of-service and average control delay.

Table 9 – Level-of-Service Criteria for Roundabouts[a,b]

Level-of-Service (v/c < 1.0)	Level-of-Service (v/c ≥ 1.0)	Average Control Delay (seconds per vehicle)	Description
A	F	≤10.0	LOS A represents a condition with little or no control delay to minor street traffic.
B	F	10.1 to 15.0	LOS B represents a condition with short control delays to minor street traffic.
C	F	15.1 to 25.0	LOS C represents a condition with average control delays to minor street traffic.
D	F	25.1 to 35.0	LOS D represents a condition with long control delays to minor street traffic.
E	F	35.1 to 50.0	LOS E represents operating conditions at or near capacity level, with very long control delays to minor street traffic.
F	F	>50.0	LOS F represents a condition where minor street demand volume exceeds capacity of an approach lane, with excessive control delays resulting.

[a] Source: *Highway Capacity Manual 6th Edition*; Transportation Research Board; Washington D.C.; 2016
[b] Based on unsignalized intersection LOS

TRAFFIC IMPACT ANALYSIS RESULTS

Level-of-service analyses were conducted for the 2018 Existing, 2026 No-Build, 2026 Build, and 2026 Build with Mitigation Conditions for the study area intersections. The results of the intersection capacity analysis are summarized in Table 10. The capacity analysis worksheets are provided in Appendix L.

Main Street / Seven Bridge Road

The intersection of Main Street / Seven Bridge Road / Shirley Road is to be reconstruction with a fully-actuated traffic signal as part of a separate project. The Main Street northbound movement at the intersection is anticipated to operate at LOS F during both the weekday morning and weekday evening peak period with the projection of site generated traffic volumes. Improvements are recommended and proposed at this intersection as part of Capital Commerce Center project's off-site mitigation, which includes re-timing the signal timings at the newly constructed traffic signals to accommodate the site-generated trips. With these improvements, all movements during the weekday morning peak hour are expected to operate at acceptable levels of service (LOS D or better). During the weekday evening peak hour, the northbound approach will continue to operate at LOS F with a delay slightly above the LOS F threshold. In comparison, the approach will operate significantly better than existing conditions without the traffic signal in place. All other movements at this intersection during the weekday evening peak hour are expected to operate at acceptable levels of service (LOS D or better).

Main Street / Lunenburg Road

The intersection of Main Street / Lunenburg Road is to be reconstruction with a fully-actuated traffic signal as part of a separate project. The Lunenburg Road southbound movement at the intersection is anticipated to operate at LOS F during both the weekday morning and weekday evening peak period with the projection of site generated traffic volumes. Improvements are recommended and proposed at this intersection as part of Capital Commerce Center project's off-site mitigation, which includes re-timing the signal timings at the newly constructed traffic signals to accommodate the site-generated trips. With these improvements, all movements during the

weekday morning and evening peak hours are expected to operate at acceptable levels of service (LOS D or better).

Lunenburg Road / McGovern Boulevard

With the additional site generated traffic and the existing geometric conditions in place, the intersection of Lunenburg Road / McGovern Boulevard would operate at degraded levels-of-service, specifically the McGovern Boulevard eastbound approach. Project mitigation for this intersection is anticipated to include the construction of a fully-actuated traffic signal and the minor widening to accommodate axillary turn-lanes. With these improvements, all movements during the weekday morning and evening peak hours are expected to operate at acceptable levels of service (LOS C or better) with volume-to-capacity (V/C) ratios well below 1.00 which indicates that the intersection can accommodate the additional demand created by the site.

Lunenburg Road / Old Union Turnpike

Specific traffic operational improvements are not proposed at the intersection of Lunenburg Road / Old Union Turnpike. The intersection of Lunenburg Road / Old Union Turnpike was recently reconstructed as a roundabout in 2013 to provide a substantial amount of new reserve capacity. Under 2026 Build Conditions, the Old Union Turnpike westbound approach is anticipated to operate at LOS E during the weekday evening peak period. This level of delay is only expected during this short time period of a typical weekday and is specifically dependent on the conservative level of site generated traffic allocated to the location. There are no feasible or practical means to mitigate project related impacts on this approach. All other movements at this intersection are anticipated to operate at acceptable levels of service (LOS D or better) with V/C ratios well below 1.00 which indicates that the intersection can accommodate the additional demand created by the site.

Lunenburg Road / Fort Pond Road / Woods Lane

Specific traffic operational project mitigation is not proposed at the intersection of Lunenburg Road / Fort Pond Road / Woods Lane; however, interchange improvements along Route 2 are expected to change the characteristics of the intersection as part of MassDOT Project File No. 605393. For the purposes of these TIAPS, no alternative for improvement has been identified and therefore the No-Build and Build scenarios assume the existing geometry and intersection control. Under both 2026 No-Build and Build Conditions, the Fort Pond Road westbound approach is anticipated to operate at degraded levels-of-service (LOS F) during the weekday evening peak period. This level of delay is only expected during this short time period of a typical weekday and is specifically dependent on the conservative level of site generated traffic allocated to the location. All other movements at this intersection are anticipated to operate at acceptable levels of service (LOS D or better) with V/C ratios well below 1.00 which indicates that the intersection can accommodate the additional demand created by the site. With the construction of any of the five improvement alternatives under MassDOT Project File No. 605393, traffic operations and safety at the intersection are anticipated to improve.

Old Union Turnpike / Route 2 EB Ramps

Specific traffic operational improvements are not proposed at the intersection of Old Union Turnpike / Route 2 EB Ramps; however, interchange improvements along Route 2 are expected to change the characteristics of the intersection as part of MassDOT Project File No. 605393. All

five interchange alternatives remove the Route 2 EB off-ramp movements and shift them to the west along either Old Union Turnpike or Route 70. These improvements are not anticipated to be completed prior to the 2026 horizon year; therefore, for the purposes of these TIAPS the No-Build and Build scenarios assume the existing geometry and intersection control. Under 2026 Build Conditions, all movements at the intersection are expected to operate at acceptable levels of service (LOS D or better) during all peak hour analysis scenarios with queues not extending in any significant length along the ramps.

Fort Pond Road / Route 2 WB Ramps

Specific traffic operational improvements are not proposed at the intersection of Fort Pond Road / Route 2 WB Ramps; however, interchange improvements along Route 2 are expected to change the characteristics of the intersection as part of MassDOT Project File No. 605393. All five interchange alternatives modify the Route 2 WB ramps. Two (2) of the alternatives retain the Route 2 WB off-ramp condition along Fort Pond Road while moving the on-ramp condition to the west side of Route 70. These conditions would generally retain traffic operation conditions exiting the off-ramp. The other three (3) alternatives shift the on- and off-ramps into a diamond interchange pattern along Route 70; separating out the Fort Pond Road traffic volumes. These improvements are not anticipated to be completed prior to the 2026 horizon year; therefore, for the purposes of these TIAPS the No-Build and Build scenarios assume the existing geometry and intersection control.

Under 2026 Build Conditions, all movements at the intersection are expected to operate at acceptable levels of service (LOS D or better) during all peak hour analysis scenarios with exception of the Route 2 off-ramp left-turn movement with will operate at an elevated level-of-service (LOS E) during the weekday evening peak hour. Although the ramp will operate at an elevate level-of-service, the ramp approach will generally operate in a consistent manner as existing conditions as the additional traffic will also result in a more consistent flow of traffic. Over 2019 Existing Conditions, delay per vehicle is anticipated to only increase by no more than one (1) second per vehicle and the 95th percentile queue is anticipated to only result in one (1) additional vehicle during the worst traffic hour of the typical day. The operations on this ramp approach generally are unchanged as the traffic volumes along the Fort Pond Road mainline are considerably minor. This queue condition, regardless of the project, is anticipated to improve with the Route 2 interchange improvements which at a minimum extends the deceleration lane under all five alternatives.

Mechanic Street / White Pond Road [City of Leominster]

Specific traffic operational improvements are not proposed at the intersection of Mechanic Street / White Pond Road. Under 2026 Build Conditions, all movements at the intersection are expected to operate at acceptable levels of service (LOS B or better) during all peak hour analysis scenarios with V/C ratios well below 1.00 which indicates that the intersection can accommodate the additional demand created by the site.

Mechanic Street / Johnny Appleseed Lane / Memorial Park [City of Leominster]

Specific traffic operational improvements are not proposed at the intersection of Mechanic Street / Johnny Appleseed Lane / Memorial Park. Under 2026 Build Conditions, all movements at the intersection are expected to operate at acceptable levels of service (LOS D or better) during all

peak hour analysis scenarios with V/C ratios well below 1.00 which indicates that the intersection can accommodate the additional demand created by the site.

Table 10 – Intersection Capacity and Queue Analysis Summary

	2019 Existing				2026 No-Build				2026 Build				2026 Build w/ Mitigation			
Intersection / Lane Group	V/C[a]	Delay[b]	LOS[c]	Queue[d]	V/C	Delay	LOS	Queue	V/C	Delay	LOS	Queue	V/C	Delay	LOS	Queue
Main Street / Seven Bridge Road / Shirley Road																
Weekday Morning Peak Period																
Main Street EB	0.00	0.0	A	<25	-	-	-	-	-	-	-	-	-	-	-	-
Main Street EBL/T	-	-	-	-	0.77	7.7	B	167/283	0.76	8.3	A	190/320	0.80	12.1	B	269/440
Main Street EBR	-	-	-	-	0.33	1.4	A	<25/<25	0.35	1.4	A	<25/<25	0.35	1.3	A	<25/<25
Seven Bridge Road WB	0.02	9.4	A	<25	-	-	-	-	-	-	-	-	-	-	-	-
Seven Bridge Road WBL	-	-	-	-	0.07	13.5	B	<25/<25	0.07	14.6	B	<25/<25	0.08	20.0	B	<25/<25
Seven Bridge Road WBT/R	-	-	-	-	0.48	5.4	A	77//126	0.48	5.3	A	87/137	0.51	7.2	A	123/190
Main Street NB	2.03	567.6	F	438	0.86	31.3	D	34/142	1.17	134.0	F	74/283	0.89	45.7	D	93/240
Shirley Road SB	0.00	0.0	A	<25	0.00	0.0	A	<25/<25	0.00	0.0	A	<25/<25	0.00	0.0	A	<25/<25
Overall Intersection	**-**	**-**	**-**	**-**	**0.48**	**8.6**	**A**	**-**	**0.54**	**24.6**	**C**	**-**	**0.54**	**13.7**	**B**	
Weekday Evening Peak Period																
Main Street EB	0.00	0.0	A	<25	-	-	-	-	-	-	-	-	-	-	-	-
Main Street EBL/T	-	-	-	-	0.42	4.9	A	100/165	0.46	5.4	A	128/188	0.45	5.7	A	147/209
Main Street EBR	-	-	-	-	0.19	0.8	A	<25/<25	0.27	0.9	A	<25/<25	0.26	0.7	A	<25/<25
Seven Bridge Road WB	0.01	8.4	A	<25	-	-	-	-	-	-	-	-	-	-	-	-
Seven Bridge Road WBL	-	-	-	-	0.01	6.8	A	<25/<25	0.01	7.7	A	<25/<25	0.01	8.3	A	<25/<25
Seven Bridge Road WBT/R	-	-	-	-	0.96	27.4	C	600/1092	1.01	38.5	F	907/1160	0.99	36.1	D	1046/1306
Main Street NB	3.49	1264.6	F	555	0.88	61.6	E	96/178	1.06	108.9	F	136/275	1.02	104.8	F	167/309
Shirley Road SB	0.00	0.0	A	<25	0.00	0.0	A	<25/<25	0.00	0.0	A	<25/<25	0.00	0.00	A	<25/<25
Overall Intersection	**-**	**-**	**-**	**-**	**0.49**	**22.6**	**C**		**0.55**	**33.5**	**C**	**-**	**0.54**	**31.9**	**C**	**-**
Main Street / Lunenburg Road																
Weekday Morning Peak Period																
Main Street EB	0.06	9.2	A	<25	-	-	-	-	-	-	-	-	-	-	-	-
Main Street EBL	-	-	-	-	0.14	8.2	A	<25/<25	0.20	9.6	A	<25/27	0.21	11.2	B	<25/33
Main Street EBT	-	-	-	-	0.80	11.8	B	284/446	0.81	14.8	B	284/446	0.85	19.7	B	343/571
Main Street WB	0.00	0.0	A	<25	-	-	-	-	-	-	-	-	-	-	-	-
Main Street WBT	-	-	-	-	0.52	12.9	B	137/218	0.53	14.9	B	137/221	0.55	17.1	B	157//254
Main Street WBR	-	-	-	-	0.31	3.7	A	<25/<25	0.45	4.2	A	<25/<25	0.43	4.0	A	<25/<25
Lunenburg Road SBL	2.73	855.4	F	768	0.89	35.5	D	145/367	1.07	82.7	F	237/523	0.94	48.8	D	246/470
Lunenburg Road SBR	0.08	12.3	B	<25	0.09	15.7	B	<25/37	0.10	16.1	B	<25/42	0.00	15.6	B	<25/37
Overall Intersection	**-**	**-**	**-**	**-**	**0.49**	**14.9**	**B**	**-**	**0.55**	**26.4**	**C**	**-**	**0.55**	**21.7**	**C**	**-**
Weekday Evening Peak Period																
Main Street EB	0.10	13.2	B	<25	-	-	-	-	-	-	-	-	-	-	-	-
Main Street EBL	-	-	-	-	0.24	13.6	B	<25/,25	0.29	16.3	B	<25/<25	0.33	20.5	C	<25/32
Main Street EBT	-	-	-	-	0.42	6.1	A	124/182	0.43	7.3	A	124/182	0.47	10.1	B	170/250
Main Street WB	0.00	0.0	A	<25	-	-	-	-	-	-	-	-	-	-	-	-
Main Street WBT	-	-	-	-	0.82	18.4	B	417/718	0.84	22.1	C	421/724	0.93	37.2	D	541/825
Main Street WBR	-	-	-	-	0.57	4.5	A	<25/<25	0.65	5.4	A	<25/42	0.65	5.5	A	<25/46
Lunenburg Road SBL	2.79	909.5	F	590	0.88	47.0	D	178/349	1.17	135.7	F	358/588	0.93	51.8	D	277/482
Lunenburg Road SBR	0.26	23.8	C	25	0.20	24.4	C	32/68	0.21	24.7	C	39/79	0.17	21.4	C	35/67
Overall Intersection	**-**	**-**	**-**	**-**	**0.56**	**15.6**	**B**	**-**	**0.62**	**33.3**	**C**	**-**	**0.62**	**254.6**	**C**	**-**

[a] Volume-to-capacity ratio,
[b] Delay expressed in seconds per vehicle (average)
[c] Level of service,
[d] 50th/95th Percentile Queue [95th Percentile Queue only for unsignalized intersections]

Table 10 (Continued) – Intersection Capacity and Queue Analysis Summary

	2019 Existing				2026 No-Build				2026 Build				2026 Build w/ Mitigation			
Intersection / Lane Group	V/C[a]	Delay[b]	LOS[c]	Queue[d]	V/C	Delay	LOS	Queue	V/C	Delay	LOS	Queue	V/C	Delay	LOS	Queue
Lunenburg Road / McGovern Boulevard																
Weekday Morning Peak Period																
Main Street EB	0.11	13.7	B	<25	0.17	15.8	C	<25	1.76	412.4	F	530	-	-	-	-
Main Street EBL	-	-	-	-	-	-	-	-	-	-	-	-	0.71	18.2	B	39/97
Main Street EBR	-	-	-	-	-	-	-	-	-	-	-	-	0.69	18.0	B	<25/38
Lunenburg Road NB	0.03	8.2	A	<25	0.04	8.4	A	<25	0.26	10.8	B	25	-	-	-	-
Lunenburg Road NBL	-	-	-	-	-	-	-	-	-	-	-	-	0.40	7.1	A	<25/55
Lunenburg Road NBT	-	-	-	-	-	-	-	-	-	-	-	-	0.34	4.3	A	44/100
Lunenburg Road SB	0.00	0.0	A	<25	0.00	0.0	A	<25	0.00	0.0	A	<25	-	-	-	-
Lunenburg Road SBT	-	-	-	-	-	-	-	-	-	-	-	-	0.66	12.5	B	102/201
Lunenburg Road SBR	-	-	-	-	-	-	-	-	-	-	-	-	0.46	7.0	A	<25/<25
Overall Intersection	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.48**	**9.9**	**A**	**-**
Weekday Evening Peak Period																
Main Street EB	0.19	20.1	C	<25	0.83	68.7	F	158	4.71	1734.8	F	1573	-	-	-	-
Main Street EBL	-	-	-	-	-	-	-	-	-	-	-	-	0.83	20.0	C	104/235
Main Street EBR	-	-	-	-	-	-	-	-	-	-	-	-	0.54	15.8	B	<25/41
Lunenburg Road NB	0.02	8.1	A	<25	0.08	8.6	A	<25	0.18	9.5	A	<25	-	-	-	-
Lunenburg Road NBL	-	-	-	-	-	-	-	-	-	-	-	-	0.36	8.7	A	27/57
Lunenburg Road NBT	-	-	-	-	-	-	-	-	-	-	-	-	0.73	10.0	A	169/316
Lunenburg Road SB	0.00	0.0	A	<25	0.00	0.0	A	<25	0.00	0.0	A	<25	-	-	-	-
Lunenburg Road SBT	-	-	-	-	-	-	-	-	-	-	-	-	0.60	14.7	B	93/172
Lunenburg Road SBR	-	-	-	-	-	-	-	-	-	-	-	-	0.29	5.4	A	<25/<25
Overall Intersection	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.55**	**12.5**	**B**	**-**
Lunenburg Road / Old Union Turnpike																
Weekday Morning Peak Period																
Old Union Turnpike EB	0.38	9.8	A	49	0.43	11.3	B	62	0.67	23.0	C	128				
Old Union Turnpike WB	0.18	5.7	A	<25	0.20	6.0	A	<25	0.44	10.1	B	64				
Lunenburg Road NB	0.47	11.0	B	75	0.53	12.8	B	99	0.69	18.5	C	201				
Lunenburg Road SB	0.50	9.0	A	84	0.56	10.3	B	100	0.76	19.9	C	313				
Weekday Evening Peak Period													No Mitigation Proposed			
Old Union Turnpike EB	0.28	6.4	A	34	0.33	7.7	A	41	0.40	9.6	A	57				
Old Union Turnpike WB	0.45	11.4	B	67	0.56	15.2	C	99	0.85	39.9	E	239				
Lunenburg Road NB	0.53	9.2	A	94	0.63	11.6	B	137	0.88	25.2	D	871				
Lunenburg Road SB	0.53	11.1	B	106	0.66	15.5	C	190	0.81	26.3	D	311				
Lunenburg Road / Fort Pond Road / Woods Lane																
Weekday Morning Peak Period																
Woods Lane EB	0.02	15.1	C	<25	0.03	16.1	C	<25	0.03	16.5	C	<25				
Fort Pond Road WBL	0.16	20.7	C	<25	0.22	24.0	C	<25	0.40	30.7	D	45				
Fort Pond Road WBT/R	0.05	9.3	A	<25	0.05	9.4	A	<25	0.05	9.5	A	<25				
Lunenburg Road NB	0.00	0.0	A	<25	0.00	0.00	A	<25	0.00	0.0	A	<25				
Lunenburg Road SB	0.05	7.6	A	<25	0.05	7.7	A	<25	0.05	7.7	A	<25				
Weekday Evening Peak Period													No Mitigation Proposed			
Woods Lane EB	0.01	9.2	A	<25	0.01	9.5	A	<25	0.01	9.6	A	<25				
Fort Pond Road WBL	1.08	112.6	F	320	1.50	281.0	F	555	1.74	384.7	F	690				
Fort Pond Road WBT/R	0.62	20.8	C	105	0.73	27.8	D	150	0.75	30.4	D	160				
Lunenburg Road NB	0.01	7.6	A	<25	0.01	7.7	A	<25	0.01	7.7	A	<25				
Lunenburg Road SB	0.03	8.7	A	<25	0.04	8.9	A	<25	0.04	9.0	A	<25				

[a] Volume-to-capacity ratio,
[b] Delay expressed in seconds per vehicle (average)
[c] Level of service,
[d] 50th/95th Percentile Queue [95th Percentile Queue only for unsignalized intersections]

Table 10 (Continued) – Intersection Capacity and Queue Analysis Summary

	2019 Existing				2026 No-Build				2026 Build				2026 Build w/ Mitigation			
Intersection / Lane Group	V/C[a]	Delay[b]	LOS[c]	Queue[d]	V/C	Delay	LOS	Queue	V/C	Delay	LOS	Queue	V/C	Delay	LOS	Queue
Old Union Turnpike / Route 2 EB Ramps																
Weekday Morning Peak Period																
Old Union Turnpike EB	0.27	8.3	A	28	0.30	8.4	A	33	0.32	8.5	A	35				
Old Union Turnpike WB	0.00	0.0	A	<25	0.00	0.0	A	<25	0.0	0.0	A	<25				
Route 2 Ramp SBL	0.07	25.8	D	<25	0.09	29.5	D	<25	0.10	32.6	D	<25				
Route 2 Ramp SBR	0.10	9.2	A	<25	0.12	9.3	A	<25	0.30	10.5	B	33				
Weekday Evening Peak Period													No Mitigation Proposed			
Old Union Turnpike EB	0.06	7.6	A	<25	0.08	7.7	A	<25	0.12	7.8	A	<25				
Old Union Turnpike WB	0.00	0.0	A	<25	0.00	0.0	A	<25	0.00	0.0	A	<25				
Route 2 Ramp SBL	0.02	11.3	B	<25	0.03	12.2	B	<25	0.04	13.6	B	<25				
Route 2 Ramp SBR	0.27	10.3	B	28	0.32	10.7	B	35	0.41	11.6	B	50				
Fort Pond Road / Route 2 WB Ramps																
Weekday Morning Peak Period																
Fort Pond Road EB	0.00	0.0	A	<25	0.00	0.0	A	<25	0.00	0.0	A	<25				
Fort Pond Road WB	0.01	7.4	A	<25	0.01	7.4	A	<25	0.01	7.4	A	<25				
Route 2 Ramp NBL	0.08	9.6	A	<25	0.09	9.8	A	<25	0.15	10.1	B	<25				
Route 2 Ramp NBR	0.00	0.0	A	<25	0.00	0.0	A	<25	0.00	0.0	A	<25				
Weekday Evening Peak Period													No Mitigation Proposed			
Fort Pond Road EB	0.00	0.0	A	<25	0.00	0.0	A	<25	0.00	0.0	A	<25				
Fort Pond Road WB	0.02	7.4	A	<25	0.02	7.4	A	<25	0.02	7.4	A	<25				
Route 2 Ramp NBL	0.89	41.5	E	258	0.82	32.6	D	213	0.89	40.5	E	260				
Route 2 Ramp NBR	0.00	0.0	A	<25	0.00	0.0	A	<25	0.00	0.0	A	<25				
Mechanic Street / White Pond Road																
Weekday Morning Peak Period																
Mechanic Street EB	0.00	0.0	A	<25	0.00	0.0	A	<25	0.00	0.0	A	<25				
Mechanic Street WB	0.01	9.6	A	<25	0.01	9.7	A	<25	0.03	8.8	A	<25				
White Pond Road NB	0.04	12.2	B	<25	0.05	12.6	B	<25	0.17	13.8	B	<25				
Weekday Evening Peak Period													No Mitigation Proposed			
Mechanic Street EB	0.00	0.0	A	<25	0.00	0.0	A	<25	0.00	0.0	A	<25				
Mechanic Street WB	0.01	8.0	A	<25	0.01	8.1	A	<25	0.08	8.4	A	<25				
White Pond Road NB	0.05	14.9	B	<25	0.06	15.9	C	<25	0.15	14.8	B	<25				
Mechanic Street / Johnny Appleseed Lane / Memorial Park																
Weekday Morning Peak Period																
Mechanic Street EB	0.01	7.5	A	<25	0.01	7.5	A	<25	0.01	7.6	A	<25				
Mechanic Street WB	0.01	9.3	A	<25	0.01	9.4	A	<25	0.01	9.1	A	<25				
Johnny Appleseed n NB	0.10	14.6	B	<25	0.11	15.4	C	<25	0.15	16.5	C	<25				
Memorial Park SB	0.01	9.1	A	<25	0.01	9.1	A	<25	0.01	9.2	A	<25				
Weekday Evening Peak Period													No Mitigation Proposed			
Mechanic Street EB	0.01	8.6	A	<25	0.01	8.7	A	<25	0.01	8.8	A	<25				
Mechanic Street WB	0.02	8.1	A	<25	0.02	8.2	A	<25	0.03	8.3	A	<25				
Johnny Appleseed Ln NB	0.15	20.3	C	<25	0.17	23.0	C	<25	0.22	25.3	D	<25				
Memorial Park SB	0.01	11.9	B	<25	0.01	12.4	B	<25	0.01	12.7	B	<25				

[a] Volume-to-capacity ratio,
[b] Delay expressed in seconds per vehicle (average)
[c] Level of service,
[d] 50th/95th Percentile Queue [95th Percentile Queue only for unsignalized intersections]

VI. PARKING

The existing site currently includes 353 off-street surface parking spaces to service the existing uses. Of the existing uses that are to be retained, 335 spaces will be retained on-site. Eighteen (18) of these spaces will be removed from the site. The Project looks to significantly increase the parking at the site and will provide 1,317 parking spaces to service the industrial park, 740 parking spaces to service the multi-family residential units, 120 parking spaces to service the hotel, 418 additional parking spaces to service the retail adjacent to Lunenburg Road, and an additional 216 parking spaces to service the indoor soccer facility. In total, the project will add 3,109 parking spaces to the site including 316 tractor-trailer parking spaces will be provided within the industrial park.

TOWN OF LANCASTER ZONING BY-LAWS

The Town of Lancaster Zoning By-Laws contains minimal off-street parking supply requirements for various land uses within the Town of Lancaster. The By-Law does not provide specific requirements for industrial or residential land uses. As Planning Board has not acted on this application, off-street parking requirements for the industrial and residential land uses were assumed based on standard rates from surrounding communities. Based on zoning regulations for the IPOD-1 district, a total off-street parking space level in excess of 4,001 parking spaces are required to serve the Project (Per Section §220-22.1) as noted in Table 11. Note that this total does not include requirements for the soccer fields as there is generally no capacity to the several outdoor fields.

Table 11 – Town of Lancaster Zoning Parking Requirements

Land Use	Parking Requirements	Size	Required Spaces	Parking Provided
Existing Uses to be Retained				
Dunkin Donuts	Adequate spaces to accommodate patrons & employees	2.3 kSF	--	31
Mobil Gas Station	1 space per 250 SF	5 kSF	20	28
Soccer Complex	1 space / 3 PPL maximum occ.	N/A [Outdoor]	--	276
Existing Uses to be Retained				
Industrial Park	No requirement - assume 1 space per 600 SF [a]	1,567 kSF	2,611	1,633
Hotel	1 space / Room & 1 space / 1 space / Employee	120 Rooms + 20 Shift Employees	140	120
Multi-Family Residential [b]	No requirement - assume 1.5 spaces per unit	500 units	750	740
Retail	1 space per 250 SF	65.7 kSF	263	418
NEW Soccer Complex	1 space / 3 PPL maximum occupancy	N/A [Outdoor]	217	216
	Total Parking		**4,001 +**	**3,462**

[a] Zoning By-Law Section 220-22.1 notes that other permitted uses require adequate spaces to accommodate customer, patrons, and employees, as determined by the Planning Board – assume standard 1 space per 600 SF (standard for warehousing)
[b] Zoning By-Law Section 220-22.1 notes that other permitted uses require adequate spaces to accommodate customer, patrons, and employees, as determined by the Planning Board – assume standard 1.5 spaces per housing unit

Based on a parking supply of 3,462 spaces throughout the site, the proposed parking supply on-site will be less than general conformance with the Town of Lancaster Zoning By-Laws and Regulations.

INSTITUTE OF TRANSPORTATION ENGINEERS PARKING DEMAND ESTIMATE

The size and configuration of the Project site does not provide opportunity for shared parking between the several land uses. The peak parking demand generated by the proposed land uses was estimated based on the 'average' peak parking demand generation rates obtained from the ITE publication *Parking Generation, 5th Edition* for LUC 130 – Industrial Park, LUC 221 – Multifamily Housing (Mid-Rise), LUC 310 – Hotel, LUC 488 – Soccer Complex, and LUC 820 – Shopping Center. Detailed parking demand generation worksheets are included in Appendix M.

Industrial Park Parking

Based on the ITE publication *Parking Generation, 5th Edition*, the average peak parking demand for a 1,567,000 SF Industrial Park is 1,880 parked vehicles. The proposed project is proposed to include 1,317 vehicular parking spaces and 316 tractor-trailer parking spaces for a total of 1,633 parking spaces. Based on the empirical data, the site will provide approximately 13 percent less parking than the estimated demand. Similar to the Town of Lancaster Zoning By-Laws, the site will provide a significant amount less parking then generally warranted for an industrial park land use.

Single Family Housing Parking

There is no single-family housing peak parking demand data provided in the ITE publication *Parking Generation, 5th Edition*. This is directly related to the type of land use where single-family

homes generally include a driveway and covered garage. The Proponent has designed this residential portion of the site with standard driveways and one-vehicle garages. Therefore, it can be estimated that each use will include two (2) individual parking spaces. There are no feasible opportunities to reduce the number of parking spaces within the single-family housing portion of the site.

Multifamily Housing Parking

Based on the ITE publication *Parking Generation, 5th Edition*, the average peak parking demand for 500 dwelling units of multifamily housing is 655 parked vehicles. The proposed project is proposed to include 740 vehicular parking spaces. Based on the empirical data, the site will provide approximately 13 percent more parking than the estimated demand. Although slightly larger than the estimated demand, the proposed parking is less than the Town of Lancaster Zoning By-Laws and is meant to accommodate visitor parking and resident parking in a more rural area were less transportation alternatives are supplied.

Hotel Parking

Based on the ITE publication *Parking Generation, 5th Edition*, the average peak parking demand for a 120-room hotel is 138 parked vehicles. The proposed project is proposed to include 120 vehicular parking spaces. Based on the empirical data, the site will provide approximately 15 percent less parking than the estimated demand. There are no feasible opportunities to reduce the number of parking spaces within the hotel portion of the site.

Soccer Complex

Based on the ITE publication *Parking Generation, 5th Edition*, the average peak parking demand for a 4-field soccer complex is 248 parked vehicles. The proposed project is proposed to include 216 new vehicular parking spaces in addition to the 276 existing parking spaces for the three (3) existing outdoor soccer fields. Generally, the 276 existing parking spaces support the three (3) outdoor fields while the new 216 parking spaces are directly related to the indoor soccer field facility. The parking supply for the indoor soccer field facility is sought based on known parking demand from the existing soccer fields when in use.

General Retail

Based on the ITE publication *Parking Generation, 5th Edition*, the average peak parking demand for 65,700 SF of general retail is 246 parked vehicles. The proposed project is proposed to include 418 new vehicular parking spaces in addition to the 59 existing parking spaces constructed for the existing Dunkin Donuts and Mobil Gas Station. The Proponent has sought to provide an elevated number of parking spaces in this area to accommodate different types of retail land uses which to date have not been identified.

VII. MITIGATION MEASURES

After evaluating the operations and safety of the study area roadways and intersections, the next step is to identify measures to improve the roadways and intersections based on existing and future deficiencies. The Project has impacts in the area immediately adjacent to the site and requires mitigation. The following section provides a summary of measures that are recommended to improve the existing and future operations and safety of the study area intersections. These recommended measures where noted in the previous capacity and queue analysis.

The Applicant has proposed a comprehensive transportation mitigation program along the site frontage and along McGovern Boulevard to improve vehicular, bicycle, and pedestrian operations and safety. The primary improvements include the installation of a new traffic signal at the intersection of Lunenburg Road / McGovern Boulevard. In addition, the Applicant seeks to significantly improve multi-modal accommodations for bicycles and pedestrians along McGovern Boulevard to service not only the Capital Commerce Center Project; but other existing and future developments in the vicinity of the Lunenburg Road intersection with McGovern Boulevard.

OFF-SITE IMPROVEMENTS

Intersection Improvements

The Proponent has committed to the following intersection improvements at the intersection of Main Street (Route 70) / Seven Bridge Road (Route 117):

- Modify traffic signal timings and parameters (traffic signal to be constructed as part of MassDOT Project No. 608779) post-occupancy (or at project occupancy milestone intervals) to accommodate the additional traffic flow from the Project site.

The Proponent has committed to the following intersection improvements at the intersection of Lunenburg Road (Route 70) at Main Street (Route 117):

- Modify traffic signal timings and parameters (traffic signal to be constructed as part of MassDOT Project No. 608779) post-occupancy (or at project occupancy milestone intervals) to accommodate the additional traffic flow from the Project site.

The Proponent has committed to the following intersection improvements at the intersection of Lunenburg Road (Route 70) at McGovern Boulevard:

- Construct a fully-actuated traffic signal. Provide new demand-based vehicular and bicycle detection as part of the new traffic signal, as well as providing accommodations for emergency-vehicle pre-emption;
- Widen McGovern Boulevard to provide two eastbound travel lanes including an exclusive left-turn lane and an exclusive right turn-lane;
- Widen the Lunenburg Road northbound approach to introduce an exclusive left-turn lane operating under protected-permitted signal phasing;
- Widen Lunenburg Road southbound approach to introduce an exclusive right-turn lane operating under permissive-overlap signal phasing;
- Provide Americans with Disabilities Act (ADA) / Architectural Access Board (AAB) compliant pedestrian accommodations; including a crosswalk across McGovern Boulevard and Lunenburg Road, accessible ramps, and audio/vibratory pedestrian signal equipment; and
- Reconstruct private commercial driveways immediately north of McGovern Boulevard to accommodate the widened roadway.

Pedestrian Accommodations:

The Proponent will construct a five-foot sidewalk along each side of McGovern Boulevard to provide connectivity between land uses on the site and Lunenburg Road. This includes connectivity to the several retail parcels previously construction (Dunkin Donuts and Mobil Station), future retail as programmed for the parcels on the west side of Lunenburg Road, and the existing Kimball's Farms along the east side of Lunenburg Road. Additional pedestrian crossings will be provided across McGovern Boulevard within the site.

Bicycle Accommodations:

The Proponent is committed to constructed bicycle accommodations along McGovern Boulevard to provide connectivity between land uses on the site and Lunenburg Road. These bicycle accommodations will be in the form of shared-use lane markings (sharrows) and supplemented with MUTCD-compliant bicycle signage. In addition, bicycle racks will be provided on-site at various locations to promote the use of bicycle travel. Improvements along Lunenburg Road are generally short in nature and are along a high-speed arterial with wide-shoulders and therefore no formal bicycle improvements are proposed. As reconstructed, shoulders within the limits-of-work will be a minimum of 5-feet wide to support bicycle connectivity along the wide shoulders of the corridor.

TRANSPORTATION DEMAND MANAGEMENT MEASURES

The Applicant has commitment to research and provide a dynamic Transportation Demand Management (TDM) program in order to reduce single-occupancy vehicle (SOV) trips to/from the site. A full compilation of TDM measures have not been identified to-date; but will be further evaluated by the Applicant during the state's MEPA review. At this time, the Applicant is committed to provide the following TDM measures:

Individual Measures

Parking Measures

- Preferential Parking - Provide preferential parking for rideshare, carpool, and hybrid vehicles at locations throughout the site's parking areas in close proximity to major entranceways. The designated spaces will be monitored to ensure that the license plates of those employees parking in the spots each day match the registrations of participants. Employees will only be allowed to use these spaces on the days that they are carpooling;
- Electric Vehicle Stations – Provide electric vehicle charging stations at locations throughout the site's parking areas in close proximity to major entranceways;
- Provide Tractor-trailer Parking On-Site – The site will include parking spaces for tractor-trailers to be stored on-site. As an industrial park complex, this will minimize the need for tractor trailers, which create higher levels of emissions, to make additional site trips to/from a separate location to park when unneeded as part of the day-to-day commerce; and
- Reduced Parking Supply – The Proponent is committed to reducing the parking supply by providing minimal number of parking spaces below Town of Lancaster Zoning requirements to a level of the demand need only.

Bicycle and Pedestrian Measures

- Pedestrian Signal Equipment – Install new pedestrian signal equipment at the intersection of Lunenburg Road at McGovern Boulevard;
- Sidewalk Connectivity - Provide connectivity of sidewalk infrastructure along McGovern Boulevard to land uses within the site and Lunenburg Road;
- Bicycle Accommodations - Provide striping improvements for sharrows along McGovern Boulevard with complementary bike signs;
- ADA/AAB Compliance in Vicinity of Site - Provide ADA/AAB improvements at curb ramps near the site;
- Bicycle Racks - Provide secure, weather protected, long-term bicycle parking for employees at designated locations within the site. Provide bicycle racks for short-term users at several locations on-site; and
- Employee Shower Facilities - Coordinate with tenants to provide showers for employees who commute by walking or biking.

Other Measures

- Employee Transportation Coordinator (ETC) – An ETC will be provided on-site to oversee, implement, monitor, and evaluate TDM measures, employed or funded by the Proponent. The ETC will be responsible for managing rideshare and carpool programs, as well as distributing information to employees to encourage alternative means of transportation. The ETC will be responsible for posting and distributing announcements, holding promotional events to encourage rideshare, bicycling, and walking;

- NuRide – The ETC will actively register employees with NuRide, as requested, to encourage ride-sharing and "green" trips. The ETC, with NuRide, will develop an employee rideshare program to encourage employees to seek alternatives to driving to work alone;
- Vanpool and Carpool – The Proponent, and the ETC, will encourage vanpool and carpooling participation through marketing, events and vanpool formation meetings. The ETC will implement a ride-matching program to assist employees in finding appropriate carpool matches. The ETC will contact employees to determine if they receive their match-lists, review the lists with them and see if they have contacted anyone on the list or would like assistance in contacting people;
- Guaranteed Ride Home Program – The ETC will be responsible for providing all employees who carpool, bicycle, or walk to work with an emergency ride home. This program eliminates the fear of being stranded on days that the employees are ridesharing or having to walk or bicycle in inclement weather conditions;
- Flex Hours - Encourage tenants within the mixed-use development to provide flexible hours to employees;
- Direct Deposit for Employees - Encourage tenants within the mixed-use development to provide direct deposit to reduce employee trips to/from the site;
- Site Amenities – The site includes several on-site amenities; such as Dunkin Donuts, Mobil Gas Station, and other future retail space currently not constructed. This location will assist in reducing vehicular demand and increase multi-use trips, which include: parking capacity sized to meet minimum local requirements without providing excessive parking;
- Promotional Events and Activities – The ETC will be responsible for organizing promotional events and activities to encourage rideshare and alternative transportation means. In addition, the ETC will distribute brochures to all new employees and residents during, and post posters and bulletins on various subjects from carpooling to the Guaranteed Ride Home program throughout the site; and
- Traffic Monitoring Program – The Proponent is committed to implement a Traffic Monitoring Program (TMP), which is intended to monitor traffic operations and parking occupancy throughout the construction and for a period following completion of the Project. The scope of the EMP will be developed in coordination with MassDOT, and will include providing traffic counts, TDM compliance, and parking information to the MassDOT District 3 office and the Town of Lancaster.

Transportation Monitoring Program

The Proponent is committed to implementing a Transportation Monitoring Program (TMP), which is intended to monitor traffic operations, parking occupancy, public transportation utilization, and pedestrian / bicycle use for a period following completion of the Project. The TMP will include providing traffic count information to the MassDOT District 3 office and the Town of Lancaster for use of tracking site-generated trips. The intent of the monitoring program is to ensure that the Project impacts are consistent with those predicted in the Project's permitting process, evaluate the effectiveness of the TDM measures in meeting the mode share targets, and assess the need for additional off-site improvements or TDM measures.

The MassDOT / Town of Lancaster monitoring program will include evaluation of the following:

- Traffic operations at the intersections of:
    - Main Street / Lunenburg Road
    - Lunenburg Road / McGovern Boulevard
    - Lunenburg Road / Old Union Turnpike
- Adequacy of the constructed parking supply; and
- Effectiveness of TDM measures

As part of the monitoring program, the Proponent will complete the following tasks:

- Collect manual Turning Movement Counts (TMCs) during the weekday morning (7:00 AM to 9:00 AM) and weekday evening (4:00 to 6:00 PM) peak periods at the following intersections for a period of five years following occupancy of the proposed mixed-use development;
    - Main Street / Lunenburg Road
    - Lunenburg Road / McGovern Boulevard
    - Lunenburg Road / Old Union Turnpike
- Collect ATR data for a continuous 72-hour period along Lunenburg Road and McGovern Boulevard for a period of five years following occupancy of the proposed mixed-use development;
- Collect parking demand counts during the peak parking demand periods for the weekday evening (4:00 to 6:00 PM) peak periods;
- Compare the TMCs collected above with those projected within the future DEIR/FEIR prepared for the Project to determine whether the total vehicles entering each intersection exceeds the volumes projected;
- Perform a capacity and queuing analysis using Synchro analysis software to evaluate the traffic operations at each of the intersections listed above and compare to the operations projected in the future DEIR/FEIR prepared for the Project;
- Assess whether additional improvements are necessary at any of the study intersections and identify measures to improve operations and/or reduce vehicular traffic volumes. The need for mitigation will be conditioned upon exceeding the total projected traffic volume through an intersection by more than 10 percent or exceeding the projected overall intersection delay by more than 20 percent;
- Assess whether the constructed parking supply is adequate for the parking demand as observed; and
- Prepare a memorandum summarizing the results of the TMCs, ATRs, parking demand counts and the Synchro analysis for submission to MassDOT and the Town of Lancaster.

The monitoring program will occur on an annual basis beginning six months after issuance of the first occupancy permit and continuing for five years following full occupancy of the project. The monitoring program may be suspended at any time upon agreement with MassDOT and the Town of Lancaster that the Project has sufficiently provided evidence that the upper limits of vehicle delay and trip projection would not be feasibly satisfied. The monitoring program may also be suspended if five years have passed since the issuance of an occupancy permit for the project and will recommence should an additional occupancy permit be issued.

VIII. CONCLUSION

TEC has examined the potential traffic impacts associated with the proposed Capital Commerce Center, located along McGovern Boulevard in Lancaster, Massachusetts on the study area roadways and intersections. The following is a summary of the results and conclusions of this effort:

- The existing site includes several minor uses over the two distinct development zones. Within the development zone connected to McGovern Boulevard, the site includes the FC Stars outdoor soccer complex comprised of three (3) soccer fields, a 11,800 SF J.B. Hunt Transport Services facility, a 2,300 SF Dunkin Donuts, 5,000 SF Mobil gas station with convenience market, and the soil / gravel yard for the New England Specialty Soils. Within the development zone connected to White Pond Road and Johnny Appleseed Lane, the site includes one single-family dwelling and an equestrian field with stable operations;
- The Project consists of clearing much of the existing site; but retaining the existing FC Stars soccer complex, Dunkin Donuts, and Mobil Gas Station. The proposed mixed-use development program includes constructing of a 1,567,500 SF industrial park (319 loading docks), 117 single-family residential units, 500 multi-family residential units, a 120-room hotel; 65,700 SF of additional retail space (73,000 SF total with existing Dunkin Donuts and Mobil), and an 86,500 SF indoor soccer facility comprised of one soccer field;
- The Project proposes to retain the access/egress to the site via McGovern Boulevard. The 117 single-family residential units will be disconnected from the rest of the proposed land uses and be accessed/egressed via new roadway connections to/from White Pond Road and Johnny Appleseed Lane [City of Leominster];
- The Project looks to significantly increase the parking at the site to accommodate demand and will provide 1,317 parking spaces to service the industrial park, 740 parking spaces to service the multi-family residential units, 120 parking spaces to service the hotel, 418 additional parking spaces to service the retail adjacent to Lunenburg Road, and an additional 216 parking spaces to service the indoor soccer facility. In total, the project will add 3,109 parking spaces to the site including 316 tractor-trailer parking spaces will be provided within the industrial park;

- As the Project is anticipated to generate more than 3,000 new vehicle trips per day and abuts state highway, the project is subject to EIR review by the MEPA office. No improvements are proposed along SHLO and therefore the project is not subject to a Permit to Access State Highway;
- The Route 2 Interchange 35 and associated ramp network experienced 15.25 crashes per year during the four-year study period. It is more than likely that the overwhelming majority of these crashes occurred on the freeway in the vicinity of the interchange with no effect or cause related to the surface intersection with Old Union Turnpike and Fort Pond Road. Individual crash reports are in the process of being acquired from the MassDOT Traffic and Safety Engineering Section for 2014 through 2018 in order to determine the crash history of the two surface intersections as part of the study area. Further evaluation of this ramp location will be conducted prior to the Project's EIR filing;
- The intersection sight distance (ISD) and stopping sight distance (SSD) at the intersection of Lunenburg Road / McGovern Boulevard are well in excess of AASHTO minimum recommendations;
- Separate from the Project, MassDOT is currently evaluating alternatives for reconstruction of several Route 2 interchanges in Harvard and Lancaster, MA. The study was a first step for the future MassDOT Project File No. 605393. The study identified five (5) Interchange 35 alternatives that would directly affect the study area of the Capital Commerce Center TIAPS. These alternatives were not included in this TIAPS as it is not expected that the improvements will be in place for the 2026 horizon year;
- The proposed mixed-use development is anticipated to generate approximately 9,790 new vehicle trips during the average weekday, with 752 new vehicle trips (460 entering and 292 exiting) during the weekday morning peak hour and 838 new vehicle trips (344 entering and 494 exiting) during the weekday evening peak hour. Approximately 9,602 new vehicle trips are anticipated during the average Saturday, with 1,299 new vehicle trips (538 entering and 761 exiting) during the Saturday midday peak hour. Because of the rural nature of the site, the mode split is anticipated to be very near 100-percent automobile;
- Based on both the signalized and unsignalized operating conditions on Lunenburg Road, the traffic volumes warrant the construction of a left-turn lane on the Lunenburg Road northbound approach at its intersection with McGovern Boulevard;
- Based on the existing traffic volumes and the addition of the projected site-generated trips for each proposed land use, the intersection of Lunenburg Road / McGovern Boulevard meets the criteria for Traffic Signal Warrant 1, Warrant 2, and Warrant 3. As a traffic signal is warranted and due to the operating and safety conditions of the intersection without a traffic signal in place, installation of a traffic signal at this intersection is recommended as part of the off-site corridor improvements along Lunenburg Road;
- Operational improvements are recommended and proposed at this intersection of Main Street / Seven Bridge Road / Shirley Road including re-timing the new signal timings to accommodate the site-generated trips. With these improvements, all movements during the weekday morning peak hour are expected to operate at

acceptable levels of service (LOS D or better). During the weekday evening peak hour, the approach will continue to operate at LOS F with a delay slightly above the LOS F threshold;

- Operational improvements are recommended and proposed at this intersection of Main Street / Lunenburg Road including re-timing the new signal timings to accommodate the site-generated trips. With these improvements, all movements during the weekday morning and evening peak hours are expected to operate at acceptable levels of service (LOS D or better);
- Geometric and signalization improvements are recommended and proposed at this intersection of Lunenburg Road / McGovern Boulevard including slight widening to accommodate axillary turn-lanes and construction of a fully-actuated traffic signal. With these improvements, all movements during the weekday morning and evening peak hours are expected to operate at acceptable levels of service (LOS C or better);
- Specific traffic operational improvements are not proposed at the intersection of Lunenburg Road / Old Union Turnpike. The intersection of Lunenburg Road / Old Union Turnpike was recently reconstructed as a roundabout in 2013 to provide a substantial amount of new reserve capacity. Under 2026 Build Conditions, the Old Union Turnpike westbound approach is anticipated to operate at LOS E during the weekday evening peak period. This level of delay is only expected during this short time period of a typical weekday and is specifically dependent on the conservative level of site generated traffic allocated to the location. Improvements related to the future MassDOT Interchange alternatives along the several Route 2 interchanges are anticipated to improve operations and safety at this intersection with and without the site generated traffic;
- Specific traffic operational improvements are not proposed at the intersection of Lunenburg Road / Fort Pond Road / Woods Lane. Under both 2026 No-Build and Build Conditions, the Fort Pond Road westbound approach is anticipated to operate at degraded levels-of-service (LOS F) during the weekday evening peak period. This level of delay is only expected during this short time period of a typical weekday and is specifically dependent on the conservative level of site generated traffic allocated to the location. Improvements related to the future MassDOT Interchange alternatives along the several Route 2 interchanges are anticipated to improve operations and safety at this intersection with and without the site generated traffic;
- Specific traffic operational improvements are not proposed at the intersection of Fort Pond Road / Route 2 WB Ramps. Under 2026 Build Conditions, all movements at the intersection are expected to operate at acceptable levels of service (LOS D or better) during all peak hour analysis scenarios with exception of the Route 2 off-ramp left-turn movement with will operate at an elevated level-of-service (LOS E) during the weekday evening peak hour. Although the ramp will operate at an elevate level-of-service, the ramp approach will generally operate in a consistent manner as existing conditions as the additional traffic will also result in a more consistent flow of traffic. Improvements related to the future MassDOT Interchange alternatives along the several Route 2 interchanges are anticipated to improve operations and safety at this intersection with and without the site generated traffic;

- The Applicant has proposed an off-site transportation mitigation program along Lunenburg Road, McGovern Boulevard, and Main Street to improve vehicular, bicycle, and pedestrian operations and safety. The primary improvements include the installation of a new traffic signal at the intersection of Lunenburg Road / McGovern Boulevard. In addition, the Applicant seeks to significantly improve accommodations for bicycles and pedestrians along McGovern Boulevard to service not only the Capital Commence Center; but other existing developments in the vicinity; and
- The Applicant has commitment to research and provide a dynamic and extensive TDM program in order to reduce SOV trips to/from the site and promote multi-modal travel. A full compilation of TDM measures have been identified and include provisions to reduce on-site parking, increase pedestrian and bicycle travel, promote transit use to/from the site, and decrease the impacts of vehicle emissions.

In conclusion, with implementation of the proposed improvements, the anticipated traffic generated by the Capital Commence Center Project can be safely and efficiently accommodated within the study area corridors and intersections. The Applicant has committed to work hand-and-hand with the Town of Lancaster to implement the robust transportation mitigation program.

Appendix A

Turning Movement Counts (TMCs)

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	8	78	0	86	49	7	1	57	5	2	0	7	150
7:15 AM	3	78	0	81	68	8	0	76	5	4	0	9	166
7:30 AM	3	72	0	75	85	7	0	92	13	6	0	19	186
7:45 AM	7	74	0	81	67	7	0	74	8	4	0	12	167
Total	21	302	0	323	269	29	1	299	31	16	0	47	669
8:00 AM	5	94	0	99	65	5	0	70	2	4	0	6	175
8:15 AM	3	50	0	53	67	7	0	74	2	3	0	5	132
8:30 AM	6	61	0	67	77	13	0	90	3	7	0	10	167
8:45 AM	5	67	0	72	54	5	0	59	5	6	0	11	142
Total	19	272	0	291	263	30	0	293	12	20	0	32	616
Grand Total	40	574	0	614	532	59	1	592	43	36	0	79	1285
Approach %	6.5	93.5	0.0		89.9	10.0	0.2		54.4	45.6	0.0		
Total %	3.1	44.7	0.0	47.8	41.4	4.6	0.1	46.1	3.3	2.8	0.0	6.1	
Exiting Leg Total				568				618				99	1285
Cars	33	544	0	577	479	53	1	533	38	28	0	66	1176
% Cars	82.5	94.8	0.0	94.0	90.0	89.8	100.0	90.0	88.4	77.8	0.0	83.5	91.5
Exiting Leg Total				507				583				86	1176
Heavy Vehicles	7	30	0	37	53	6	0	59	5	8	0	13	109
% Heavy Vehicles	17.5	5.2	0.0	6.0	10.0	10.2	0.0	10.0	11.6	22.2	0.0	16.5	8.5
Exiting Leg Total				61				35				13	109

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	3	78	0	81	68	8	0	76	5	4	0	9	166
7:30 AM	3	72	0	75	85	7	0	92	13	6	0	19	186
7:45 AM	7	74	0	81	67	7	0	74	8	4	0	12	167
8:00 AM	5	94	0	99	65	5	0	70	2	4	0	6	175
Total Volume	18	318	0	336	285	27	0	312	28	18	0	46	694
% Approach Total	5.4	94.6	0.0		91.3	8.7	0.0		60.9	39.1	0.0		
PHF	0.643	0.846	0.000	0.848	0.838	0.844	0.000	0.848	0.538	0.750	0.000	0.605	0.933
Cars	15	300	0	315	256	25	0	281	23	12	0	35	631
Cars %	83.3	94.3	0.0	93.8	89.8	92.6	0.0	90.1	82.1	66.7	0.0	76.1	90.9
Heavy Vehicles	3	18	0	21	29	2	0	31	5	6	0	11	63
Heavy Vehicles %	16.7	5.7	0.0	6.3	10.2	7.4	0.0	9.9	17.9	33.3	0.0	23.9	9.1
Cars Enter Leg	15	300	0	315	256	25	0	281	23	12	0	35	631
Heavy Enter Leg	3	18	0	21	29	2	0	31	5	6	0	11	63
Total Entering Leg	18	318	0	336	285	27	0	312	28	18	0	46	694
Cars Exiting Leg				268				323				40	631
Heavy Exiting Leg				35				23				5	63
Total Exiting Leg				303				346				45	694

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	5	75	0	80	42	7	1	50	5	2	0	7	137
7:15 AM	2	75	0	77	59	6	0	65	4	3	0	7	149
7:30 AM	3	70	0	73	76	7	0	83	9	2	0	11	167
7:45 AM	6	70	0	76	64	7	0	71	8	4	0	12	159
Total	16	290	0	306	241	27	1	269	26	11	0	37	612
8:00 AM	4	85	0	89	57	5	0	62	2	3	0	5	156
8:15 AM	2	49	0	51	60	6	0	66	2	3	0	5	122
8:30 AM	6	56	0	62	72	13	0	85	3	6	0	9	156
8:45 AM	5	64	0	69	49	2	0	51	5	5	0	10	130
Total	17	254	0	271	238	26	0	264	12	17	0	29	564
Grand Total	33	544	0	577	479	53	1	533	38	28	0	66	1176
Approach %	5.7	94.3	0.0		89.9	9.9	0.2		57.6	42.4	0.0		
Total %	2.8	46.3	0.0	49.1	40.7	4.5	0.1	45.3	3.2	2.4	0.0	5.6	
Exiting Leg Total				507				583				86	1176

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	2	75	0	77	59	6	0	65	4	3	0	7	149
7:30 AM	3	70	0	73	76	7	0	83	9	2	0	11	167
7:45 AM	6	70	0	76	64	7	0	71	8	4	0	12	159
8:00 AM	4	85	0	89	57	5	0	62	2	3	0	5	156
Total Volume	15	300	0	315	256	25	0	281	23	12	0	35	631
% Approach Total	4.8	95.2	0.0		91.1	8.9	0.0		65.7	34.3	0.0		
PHF	0.625	0.882	0.000	0.885	0.842	0.893	0.000	0.846	0.639	0.750	0.000	0.729	0.945
Entering Leg	15	300	0	315	256	25	0	281	23	12	0	35	631
Exiting Leg				268				323				40	631
Total				583				604				75	1262

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	3	3	0	6	7	0	0	7	0	0	0	0	13
7:15 AM	1	3	0	4	9	2	0	11	1	1	0	2	17
7:30 AM	0	2	0	2	9	0	0	9	4	4	0	8	19
7:45 AM	1	4	0	5	3	0	0	3	0	0	0	0	8
Total	5	12	0	17	28	2	0	30	5	5	0	10	57
8:00 AM	1	9	0	10	8	0	0	8	0	1	0	1	19
8:15 AM	1	1	0	2	7	1	0	8	0	0	0	0	10
8:30 AM	0	5	0	5	5	0	0	5	0	1	0	1	11
8:45 AM	0	3	0	3	5	3	0	8	0	1	0	1	12
Total	2	18	0	20	25	4	0	29	0	3	0	3	52
Grand Total	7	30	0	37	53	6	0	59	5	8	0	13	109
Approach %	18.9	81.1	0.0		89.8	10.2	0.0		38.5	61.5	0.0		
Total %	6.4	27.5	0.0	33.9	48.6	5.5	0.0	54.1	4.6	7.3	0.0	11.9	
Exiting Leg Total				61				35				13	109
Buses	0	4	0	4	2	0	0	2	0	1	0	1	7
% Buses	0.0	13.3	0.0	10.8	3.8	0.0	0.0	3.4	0.0	12.5	0.0	7.7	6.4
Exiting Leg Total				3				4				0	7
Single-Unit Trucks	5	21	0	26	41	4	0	45	2	5	0	7	78
% Single-Unit	71.4	70.0	0.0	70.3	77.4	66.7	0.0	76.3	40.0	62.5	0.0	53.8	71.6
Exiting Leg Total				46				23				9	78
Articulated Trucks	2	5	0	7	10	2	0	12	3	2	0	5	24
% Articulated	28.6	16.7	0.0	18.9	18.9	33.3	0.0	20.3	60.0	25.0	0.0	38.5	22.0
Exiting Leg Total				12				8				4	24

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	1	3	0	4	9	2	0	11	1	1	0	2	17
7:30 AM	0	2	0	2	9	0	0	9	4	4	0	8	19
7:45 AM	1	4	0	5	3	0	0	3	0	0	0	0	8
8:00 AM	1	9	0	10	8	0	0	8	0	1	0	1	19
Total Volume	3	18	0	21	29	2	0	31	5	6	0	11	63
% Approach Total	14.3	85.7	0.0		93.5	6.5	0.0		45.5	54.5	0.0		
PHF	0.750	0.500	0.000	0.525	0.806	0.250	0.000	0.705	0.313	0.375	0.000	0.344	0.829
Buses	0	3	0	3	2	0	0	2	0	1	0	1	6
Buses %	0.0	16.7	0.0	14.3	6.9	0.0	0.0	6.5	0.0	16.7	0.0	9.1	9.5
Single-Unit Trucks	1	10	0	11	22	2	0	24	2	4	0	6	41
Single-Unit %	33.3	55.6	0.0	52.4	75.9	100.0	0.0	77.4	40.0	66.7	0.0	54.5	65.1
Articulated Trucks	2	5	0	7	5	0	0	5	3	1	0	4	16
Articulated %	66.7	27.8	0.0	33.3	17.2	0.0	0.0	16.1	60.0	16.7	0.0	36.4	25.4
Buses	0	3	0	3	2	0	0	2	0	1	0	1	6
Single-Unit Trucks	1	10	0	11	22	2	0	24	2	4	0	6	41
Articulated Trucks	2	5	0	7	5	0	0	5	3	1	0	4	16
Total Entering Leg	3	18	0	21	29	2	0	31	5	6	0	11	63
Buses				3				3				0	6
Single-Unit Trucks				26				12				3	41
Articulated Trucks				6				8				2	16
Total Exiting Leg				35				23				5	63

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
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Class:

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46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	5	65	0	70	41	6	1	48	3	2	0	5	123
7:15 AM	2	66	0	68	54	6	0	60	1	3	0	4	132
7:30 AM	3	55	0	58	70	5	0	75	8	2	0	10	143
7:45 AM	5	60	0	65	51	7	0	58	8	2	0	10	133
Total	15	246	0	261	216	24	1	241	20	9	0	29	531
8:00 AM	4	72	0	76	45	4	0	49	2	1	0	3	128
8:15 AM	2	43	0	45	56	5	0	61	2	3	0	5	111
8:30 AM	3	52	0	55	68	13	0	81	3	5	0	8	144
8:45 AM	4	62	0	66	46	2	0	48	5	5	0	10	124
Total	13	229	0	242	215	24	0	239	12	14	0	26	507
Grand Total	28	475	0	503	431	48	1	480	32	23	0	55	1038
Approach %	5.6	94.4	0.0		89.8	10.0	0.2		58.2	41.8	0.0		
Total %	2.7	45.8	0.0	48.5	41.5	4.6	0.1	46.2	3.1	2.2	0.0	5.3	
Exiting Leg Total				454				508				76	1038

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	2	66	0	68	54	6	0	60	1	3	0	4	132
7:30 AM	3	55	0	58	70	5	0	75	8	2	0	10	143
7:45 AM	5	60	0	65	51	7	0	58	8	2	0	10	133
8:00 AM	4	72	0	76	45	4	0	49	2	1	0	3	128
Total Volume	14	253	0	267	220	22	0	242	19	8	0	27	536
% Approach Total	5.2	94.8	0.0		90.9	9.1	0.0		70.4	29.6	0.0		
PHF	0.700	0.878	0.000	0.878	0.786	0.786	0.000	0.807	0.594	0.667	0.000	0.675	0.937
Entering Leg	14	253	0	267	220	22	0	242	19	8	0	27	536
Exiting Leg				228				272				36	536
Total				495				514				63	1072

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	10	0	10	1	1	0	2	2	0	0	2	14
7:15 AM	0	9	0	9	5	0	0	5	3	0	0	3	17
7:30 AM	0	15	0	15	6	2	0	8	1	0	0	1	24
7:45 AM	1	10	0	11	13	0	0	13	0	2	0	2	26
Total	1	44	0	45	25	3	0	28	6	2	0	8	81
8:00 AM	0	13	0	13	12	1	0	13	0	2	0	2	28
8:15 AM	0	6	0	6	4	1	0	5	0	0	0	0	11
8:30 AM	3	4	0	7	4	0	0	4	0	1	0	1	12
8:45 AM	1	2	0	3	3	0	0	3	0	0	0	0	6
Total	4	25	0	29	23	2	0	25	0	3	0	3	57
Grand Total	5	69	0	74	48	5	0	53	6	5	0	11	138
Approach %	6.8	93.2	0.0		90.6	9.4	0.0		54.5	45.5	0.0		
Total %	3.6	50.0	0.0	53.6	34.8	3.6	0.0	38.4	4.3	3.6	0.0	8.0	
Exiting Leg Total				53				75				10	138

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	0	9	0	9	5	0	0	5	3	0	0	3	17
7:30 AM	0	15	0	15	6	2	0	8	1	0	0	1	24
7:45 AM	1	10	0	11	13	0	0	13	0	2	0	2	26
8:00 AM	0	13	0	13	12	1	0	13	0	2	0	2	28
Total Volume	1	47	0	48	36	3	0	39	4	4	0	8	95
% Approach Total	2.1	97.9	0.0		92.3	7.7	0.0		50.0	50.0	0.0		
PHF	0.250	0.783	0.000	0.800	0.692	0.375	0.000	0.750	0.333	0.500	0.000	0.667	0.848
Entering Leg	1	47	0	48	36	3	0	39	4	4	0	8	95
Exiting Leg				40				51				4	95
Total				88				90				12	190

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	2	0	2	2	0	0	2	0	0	0	0	4
8:00 AM	0	2	0	2	0	0	0	0	0	1	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	2	0	0	0	0	0	1	0	1	3
Grand Total	0	4	0	4	2	0	0	2	0	1	0	1	7
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	100.0	0.0		
Total %	0.0	57.1	0.0	57.1	28.6	0.0	0.0	28.6	0.0	14.3	0.0	14.3	
Exiting Leg Total				3				4				0	7

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
8:00 AM	0	2	0	2	0	0	0	0	0	1	0	1	3
Total Volume	0	3	0	3	2	0	0	2	0	1	0	1	6
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.000	0.375	0.000	0.375	0.500	0.000	0.000	0.500	0.000	0.250	0.000	0.250	0.500
Entering Leg	0	3	0	3	2	0	0	2	0	1	0	1	6
Exiting Leg				3				3				0	6
Total				6				5				1	12

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	3	2	0	5	5	0	0	5	0	0	0	0	10
7:15 AM	1	1	0	2	8	2	0	10	0	1	0	1	13
7:30 AM	0	1	0	1	7	0	0	7	2	3	0	5	13
7:45 AM	0	3	0	3	1	0	0	1	0	0	0	0	4
Total	4	7	0	11	21	2	0	23	2	4	0	6	40
8:00 AM	0	5	0	5	6	0	0	6	0	0	0	0	11
8:15 AM	1	1	0	2	6	1	0	7	0	0	0	0	9
8:30 AM	0	5	0	5	4	0	0	4	0	0	0	0	9
8:45 AM	0	3	0	3	4	1	0	5	0	1	0	1	9
Total	1	14	0	15	20	2	0	22	0	1	0	1	38
Grand Total	5	21	0	26	41	4	0	45	2	5	0	7	78
Approach %	19.2	80.8	0.0		91.1	8.9	0.0		28.6	71.4	0.0		
Total %	6.4	26.9	0.0	33.3	52.6	5.1	0.0	57.7	2.6	6.4	0.0	9.0	
Exiting Leg Total				46				23				9	78

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	1	1	0	2	8	2	0	10	0	1	0	1	13
7:30 AM	0	1	0	1	7	0	0	7	2	3	0	5	13
7:45 AM	0	3	0	3	1	0	0	1	0	0	0	0	4
8:00 AM	0	5	0	5	6	0	0	6	0	0	0	0	11
Total Volume	1	10	0	11	22	2	0	24	2	4	0	6	41
% Approach Total	9.1	90.9	0.0		91.7	8.3	0.0		33.3	66.7	0.0		
PHF	0.250	0.500	0.000	0.550	0.688	0.250	0.000	0.600	0.250	0.333	0.000	0.300	0.788
Entering Leg	1	10	0	11	22	2	0	24	2	4	0	6	41
Exiting Leg				26				12				3	41
Total				37				36				9	82

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	2	0	0	2	0	0	0	0	2
7:15 AM	0	1	0	1	1	0	0	1	1	0	0	1	3
7:30 AM	0	1	0	1	1	0	0	1	2	1	0	3	5
7:45 AM	1	1	0	2	1	0	0	1	0	0	0	0	3
Total	1	3	0	4	5	0	0	5	3	1	0	4	13
8:00 AM	1	2	0	3	2	0	0	2	0	0	0	0	5
8:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	1	0	0	1	0	1	0	1	2
8:45 AM	0	0	0	0	1	2	0	3	0	0	0	0	3
Total	1	2	0	3	5	2	0	7	0	1	0	1	11
Grand Total	2	5	0	7	10	2	0	12	3	2	0	5	24
Approach %	28.6	71.4	0.0		83.3	16.7	0.0		60.0	40.0	0.0		
Total %	8.3	20.8	0.0	29.2	41.7	8.3	0.0	50.0	12.5	8.3	0.0	20.8	
Exiting Leg Total				12				8				4	24

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	0	1	0	1	1	0	0	1	1	0	0	1	3
7:30 AM	0	1	0	1	1	0	0	1	2	1	0	3	5
7:45 AM	1	1	0	2	1	0	0	1	0	0	0	0	3
8:00 AM	1	2	0	3	2	0	0	2	0	0	0	0	5
Total Volume	2	5	0	7	5	0	0	5	3	1	0	4	16
% Approach Total	28.6	71.4	0.0		100.0	0.0	0.0		75.0	25.0	0.0		
PHF	0.500	0.625	0.000	0.583	0.625	0.000	0.000	0.625	0.375	0.250	0.000	0.333	0.800
Entering Leg	2	5	0	7	5	0	0	5	3	1	0	4	16
Exiting Leg				6				8				2	16
Total				13				13				6	32

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Lunenburg Road (Route 70)						Lunenburg Road (Route 70)						McGovern Boulevard						
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70)						Lunenburg Road (Route 70)						McGovern Boulevard						
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 A**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Lunenburg Road (Route 70) from North						Lunenburg Road (Route 70) from South						McGovern Boulevard from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North						Lunenburg Road (Route 70) from South						McGovern Boulevard from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	19	84	0	103	114	5	0	119	1	6	0	7	229
4:15 PM	30	66	0	96	137	11	0	148	4	15	0	19	263
4:30 PM	15	66	0	81	157	3	0	160	5	17	0	22	263
4:45 PM	6	68	0	74	161	3	0	164	3	5	0	8	246
Total	70	284	0	354	569	22	0	591	13	43	0	56	1001
5:00 PM	7	79	0	86	136	7	0	143	1	3	0	4	233
5:15 PM	6	76	0	82	144	4	0	148	3	1	0	4	234
5:30 PM	16	73	0	89	117	3	0	120	1	4	0	5	214
5:45 PM	33	52	0	85	111	12	0	123	3	16	0	19	227
Total	62	280	0	342	508	26	0	534	8	24	0	32	908
Grand Total	132	564	0	696	1077	48	0	1125	21	67	0	88	1909
Approach %	19.0	81.0	0.0		95.7	4.3	0.0		23.9	76.1	0.0		
Total %	6.9	29.5	0.0	36.5	56.4	2.5	0.0	58.9	1.1	3.5	0.0	4.6	
Exiting Leg Total				1144				585				180	1909
Cars	131	530	0	661	1058	48	0	1106	21	67	0	88	1855
% Cars	99.2	94.0	0.0	95.0	98.2	100.0	0.0	98.3	100.0	100.0	0.0	100.0	97.2
Exiting Leg Total				1125				551				179	1855
Heavy Vehicles	1	34	0	35	19	0	0	19	0	0	0	0	54
% Heavy Vehicles	0.8	6.0	0.0	5.0	1.8	0.0	0.0	1.7	0.0	0.0	0.0	0.0	2.8
Exiting Leg Total				19				34				1	54

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:15 PM	30	66	0	96	137	11	0	148	4	15	0	19	263
4:30 PM	15	66	0	81	157	3	0	160	5	17	0	22	263
4:45 PM	6	68	0	74	161	3	0	164	3	5	0	8	246
5:00 PM	7	79	0	86	136	7	0	143	1	3	0	4	233
Total Volume	58	279	0	337	591	24	0	615	13	40	0	53	1005
% Approach Total	17.2	82.8	0.0		96.1	3.9	0.0		24.5	75.5	0.0		
PHF	0.483	0.883	0.000	0.878	0.918	0.545	0.000	0.938	0.650	0.588	0.000	0.602	0.955
Cars	58	261	0	319	577	24	0	601	13	40	0	53	973
Cars %	100.0	93.5	0.0	94.7	97.6	100.0	0.0	97.7	100.0	100.0	0.0	100.0	96.8
Heavy Vehicles	0	18	0	18	14	0	0	14	0	0	0	0	32
Heavy Vehicles %	0.0	6.5	0.0	5.3	2.4	0.0	0.0	2.3	0.0	0.0	0.0	0.0	3.2
Cars Enter Leg	58	261	0	319	577	24	0	601	13	40	0	53	973
Heavy Enter Leg	0	18	0	18	14	0	0	14	0	0	0	0	32
Total Entering Leg	58	279	0	337	591	24	0	615	13	40	0	53	1005
Cars Exiting Leg				617				274				82	973
Heavy Exiting Leg				14				18				0	32
Total Exiting Leg				631				292				82	1005

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	18	79	0	97	111	5	0	116	1	6	0	7	220
4:15 PM	30	62	0	92	133	11	0	144	4	15	0	19	255
4:30 PM	15	61	0	76	153	3	0	156	5	17	0	22	254
4:45 PM	6	64	0	70	160	3	0	163	3	5	0	8	241
Total	69	266	0	335	557	22	0	579	13	43	0	56	970
5:00 PM	7	74	0	81	131	7	0	138	1	3	0	4	223
5:15 PM	6	70	0	76	143	4	0	147	3	1	0	4	227
5:30 PM	16	70	0	86	117	3	0	120	1	4	0	5	211
5:45 PM	33	50	0	83	110	12	0	122	3	16	0	19	224
Total	62	264	0	326	501	26	0	527	8	24	0	32	885
Grand Total	131	530	0	661	1058	48	0	1106	21	67	0	88	1855
Approach %	19.8	80.2	0.0		95.7	4.3	0.0		23.9	76.1	0.0		
Total %	7.1	28.6	0.0	35.6	57.0	2.6	0.0	59.6	1.1	3.6	0.0	4.7	
Exiting Leg Total				1125				551				179	1855

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:15 PM	30	62	0	92	133	11	0	144	4	15	0	19	255
4:30 PM	15	61	0	76	153	3	0	156	5	17	0	22	254
4:45 PM	6	64	0	70	160	3	0	163	3	5	0	8	241
5:00 PM	7	74	0	81	131	7	0	138	1	3	0	4	223
Total Volume	58	261	0	319	577	24	0	601	13	40	0	53	973
% Approach Total	18.2	81.8	0.0		96.0	4.0	0.0		24.5	75.5	0.0		
PHF	0.483	0.882	0.000	0.867	0.902	0.545	0.000	0.922	0.650	0.588	0.000	0.602	0.954
Entering Leg	58	261	0	319	577	24	0	601	13	40	0	53	973
Exiting Leg				617				274				82	973
Total				936				875				135	1946

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	5	0	6	3	0	0	3	0	0	0	0	9
4:15 PM	0	4	0	4	4	0	0	4	0	0	0	0	8
4:30 PM	0	5	0	5	4	0	0	4	0	0	0	0	9
4:45 PM	0	4	0	4	1	0	0	1	0	0	0	0	5
Total	1	18	0	19	12	0	0	12	0	0	0	0	31
5:00 PM	0	5	0	5	5	0	0	5	0	0	0	0	10
5:15 PM	0	6	0	6	1	0	0	1	0	0	0	0	7
5:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
Total	0	16	0	16	7	0	0	7	0	0	0	0	23
Grand Total	1	34	0	35	19	0	0	19	0	0	0	0	54
Approach %	2.9	97.1	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	1.9	63.0	0.0	64.8	35.2	0.0	0.0	35.2	0.0	0.0	0.0	0.0	
Exiting Leg Total				19				34				1	54
Buses	0	2	0	2	3	0	0	3	0	0	0	0	5
% Buses	0.0	5.9	0.0	5.7	15.8	0.0	0.0	15.8	0.0	0.0	0.0	0.0	9.3
Exiting Leg Total				3				2				0	5
Single-Unit Trucks	1	26	0	27	10	0	0	10	0	0	0	0	37
% Single-Unit	100.0	76.5	0.0	77.1	52.6	0.0	0.0	52.6	0.0	0.0	0.0	0.0	68.5
Exiting Leg Total				10				26				1	37
Articulated Trucks	0	6	0	6	6	0	0	6	0	0	0	0	12
% Articulated	0.0	17.6	0.0	17.1	31.6	0.0	0.0	31.6	0.0	0.0	0.0	0.0	22.2
Exiting Leg Total				6				6				0	12

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:15 PM	0	4	0	4	4	0	0	4	0	0	0	0	8
4:30 PM	0	5	0	5	4	0	0	4	0	0	0	0	9
4:45 PM	0	4	0	4	1	0	0	1	0	0	0	0	5
5:00 PM	0	5	0	5	5	0	0	5	0	0	0	0	10
Total Volume	0	18	0	18	14	0	0	14	0	0	0	0	32
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.900	0.000	0.900	0.700	0.000	0.000	0.700	0.000	0.000	0.000	0.000	0.800
Buses	0	1	0	1	3	0	0	3	0	0	0	0	4
Buses %	0.0	5.6	0.0	5.6	21.4	0.0	0.0	21.4	0.0	0.0	0.0	0.0	12.5
Single-Unit Trucks	0	14	0	14	6	0	0	6	0	0	0	0	20
Single-Unit %	0.0	77.8	0.0	77.8	42.9	0.0	0.0	42.9	0.0	0.0	0.0	0.0	62.5
Articulated Trucks	0	3	0	3	5	0	0	5	0	0	0	0	8
Articulated %	0.0	16.7	0.0	16.7	35.7	0.0	0.0	35.7	0.0	0.0	0.0	0.0	25.0
Buses	0	1	0	1	3	0	0	3	0	0	0	0	4
Single-Unit Trucks	0	14	0	14	6	0	0	6	0	0	0	0	20
Articulated Trucks	0	3	0	3	5	0	0	5	0	0	0	0	8
Total Entering Leg	0	18	0	18	14	0	0	14	0	0	0	0	32
Buses				3				1				0	4
Single-Unit Trucks				6				14				0	20
Articulated Trucks				5				3				0	8
Total Exiting Leg				14				18				0	32

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	18	63	0	81	88	5	0	93	0	5	0	5	179
4:15 PM	25	52	0	77	117	7	0	124	4	13	0	17	218
4:30 PM	13	53	0	66	135	3	0	138	4	17	0	21	225
4:45 PM	4	55	0	59	141	1	0	142	2	4	0	6	207
Total	60	223	0	283	481	16	0	497	10	39	0	49	829
5:00 PM	6	68	0	74	115	7	0	122	1	2	0	3	199
5:15 PM	5	62	0	67	119	2	0	121	3	1	0	4	192
5:30 PM	15	59	0	74	103	2	0	105	0	3	0	3	182
5:45 PM	32	45	0	77	103	11	0	114	3	14	0	17	208
Total	58	234	0	292	440	22	0	462	7	20	0	27	781
Grand Total	118	457	0	575	921	38	0	959	17	59	0	76	1610
Approach %	20.5	79.5	0.0		96.0	4.0	0.0		22.4	77.6	0.0		
Total %	7.3	28.4	0.0	35.7	57.2	2.4	0.0	59.6	1.1	3.7	0.0	4.7	
Exiting Leg Total				980				474				156	1610

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:15 PM	25	52	0	77	117	7	0	124	4	13	0	17	218
4:30 PM	13	53	0	66	135	3	0	138	4	17	0	21	225
4:45 PM	4	55	0	59	141	1	0	142	2	4	0	6	207
5:00 PM	6	68	0	74	115	7	0	122	1	2	0	3	199
Total Volume	48	228	0	276	508	18	0	526	11	36	0	47	849
% Approach Total	17.4	82.6	0.0		96.6	3.4	0.0		23.4	76.6	0.0		
PHF	0.480	0.838	0.000	0.896	0.901	0.643	0.000	0.926	0.688	0.529	0.000	0.560	0.943
Entering Leg	48	228	0	276	508	18	0	526	11	36	0	47	849
Exiting Leg				544				239				66	849
Total				820				765				113	1698

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	16	0	16	23	0	0	23	1	1	0	2	41
4:15 PM	5	10	0	15	16	4	0	20	0	2	0	2	37
4:30 PM	2	8	0	10	18	0	0	18	1	0	0	1	29
4:45 PM	2	9	0	11	19	2	0	21	1	1	0	2	34
Total	9	43	0	52	76	6	0	82	3	4	0	7	141
5:00 PM	1	6	0	7	16	0	0	16	0	1	0	1	24
5:15 PM	1	8	0	9	24	2	0	26	0	0	0	0	35
5:30 PM	1	11	0	12	14	1	0	15	1	1	0	2	29
5:45 PM	1	5	0	6	7	1	0	8	0	2	0	2	16
Total	4	30	0	34	61	4	0	65	1	4	0	5	104
Grand Total	13	73	0	86	137	10	0	147	4	8	0	12	245
Approach %	15.1	84.9	0.0		93.2	6.8	0.0		33.3	66.7	0.0		
Total %	5.3	29.8	0.0	35.1	55.9	4.1	0.0	60.0	1.6	3.3	0.0	4.9	
Exiting Leg Total				145				77				23	245

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	16	0	16	23	0	0	23	1	1	0	2	41
4:15 PM	5	10	0	15	16	4	0	20	0	2	0	2	37
4:30 PM	2	8	0	10	18	0	0	18	1	0	0	1	29
4:45 PM	2	9	0	11	19	2	0	21	1	1	0	2	34
Total Volume	9	43	0	52	76	6	0	82	3	4	0	7	141
% Approach Total	17.3	82.7	0.0		92.7	7.3	0.0		42.9	57.1	0.0		
PHF	0.450	0.672	0.000	0.813	0.826	0.375	0.000	0.891	0.750	0.500	0.000	0.875	0.860
Entering Leg	9	43	0	52	76	6	0	82	3	4	0	7	141
Exiting Leg				80				46				15	141
Total				132				128				22	282

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	2
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	3	0	0	3	0	0	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	2	0	2	3	0	0	3	0	0	0	0	5
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	40.0	0.0	40.0	60.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				3				2				0	5

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	2
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	1	3	0	0	3	0	0	0	0	4
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	1	0	1	3	0	0	3	0	0	0	0	4
Exiting Leg				3				1				0	4
Total				4				4				0	8

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	5	0	6	3	0	0	3	0	0	0	0	9
4:15 PM	0	4	0	4	1	0	0	1	0	0	0	0	5
4:30 PM	0	4	0	4	1	0	0	1	0	0	0	0	5
4:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	1	15	0	16	5	0	0	5	0	0	0	0	21
5:00 PM	0	4	0	4	4	0	0	4	0	0	0	0	8
5:15 PM	0	3	0	3	0	0	0	0	0	0	0	0	3
5:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	11	0	11	5	0	0	5	0	0	0	0	16
Grand Total	1	26	0	27	10	0	0	10	0	0	0	0	37
Approach %	3.7	96.3	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	2.7	70.3	0.0	73.0	27.0	0.0	0.0	27.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				10				26				1	37

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	5	0	6	3	0	0	3	0	0	0	0	9
4:15 PM	0	4	0	4	1	0	0	1	0	0	0	0	5
4:30 PM	0	4	0	4	1	0	0	1	0	0	0	0	5
4:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total Volume	1	15	0	16	5	0	0	5	0	0	0	0	21
% Approach Total	6.3	93.8	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.250	0.750	0.000	0.667	0.417	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.583
Entering Leg	1	15	0	16	5	0	0	5	0	0	0	0	21
Exiting Leg				5				15				1	21
Total				21				20				1	42

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	2	0	0	2	0	0	0	0	2
4:30 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
4:45 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	2	0	2	4	0	0	4	0	0	0	0	6
5:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:15 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	4	0	4	2	0	0	2	0	0	0	0	6
Grand Total	0	6	0	6	6	0	0	6	0	0	0	0	12
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	50.0	0.0	50.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				6				6				0	12

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Lunenburg Road (Route 70) from North				Lunenburg Road (Route 70) from South				McGovern Boulevard from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:30 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
4:45 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:15 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
Total Volume	0	5	0	5	4	0	0	4	0	0	0	0	9
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.625	0.000	0.625	1.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.750
Entering Leg	0	5	0	5	4	0	0	4	0	0	0	0	9
Exiting Leg				4				5				0	9
Total				9				9				0	18

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Lunenburg Road (Route 70) from North						Lunenburg Road (Route 70) from South						McGovern Boulevard from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North						Lunenburg Road (Route 70) from South						McGovern Boulevard from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 AA**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **W: McGovern Boulevard**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Lunenburg Road (Route 70) from North						Lunenburg Road (Route 70) from South						McGovern Boulevard from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North						Lunenburg Road (Route 70) from South						McGovern Boulevard from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	0	71	0	76	46	50	0	0	96	0	0	0	0	0	0	206	7	0	213	385
7:15 AM	6	0	72	0	78	64	82	0	0	146	0	0	0	0	0	0	219	8	0	227	451
7:30 AM	8	0	71	0	79	81	98	0	0	179	0	0	0	0	0	0	166	15	0	181	439
7:45 AM	12	0	78	0	90	59	81	0	0	140	0	0	0	0	0	0	161	10	0	171	401
Total	31	0	292	0	323	250	311	0	0	561	0	0	0	0	0	0	752	40	0	792	1676
8:00 AM	10	0	72	0	82	55	85	0	0	140	0	0	0	0	0	0	158	13	0	171	393
8:15 AM	9	0	74	1	84	67	66	0	0	133	0	0	0	0	0	0	132	11	0	143	360
8:30 AM	2	0	60	0	62	73	92	0	0	165	0	0	0	0	0	0	112	6	0	118	345
8:45 AM	4	0	63	0	67	56	89	0	0	145	0	0	0	0	0	0	122	14	0	136	348
Total	25	0	269	1	295	251	332	0	0	583	0	0	0	0	0	0	524	44	0	568	1446
Grand Total	56	0	561	1	618	501	643	0	0	1144	0	0	0	0	0	0	1276	84	0	1360	3122
Approach %	9.1	0.0	90.8	0.2		43.8	56.2	0.0	0.0		0.0	0.0	0.0	0.0		0.0	93.8	6.2	0.0		
Total %	1.8	0.0	18.0	0.0	19.8	16.0	20.6	0.0	0.0	36.6	0.0	0.0	0.0	0.0	0.0	0.0	40.9	2.7	0.0	43.6	
Exiting Leg Total					586					1837					0					699	3122
Cars	53	0	527	1	581	469	579	0	0	1048	0	0	0	0	0	0	1228	83	0	1311	2940
% Cars	94.6	0.0	93.9	100.0	94.0	93.6	90.0	0.0	0.0	91.6	0.0	0.0	0.0	0.0	0.0	0.0	96.2	98.8	0.0	96.4	94.2
Exiting Leg Total					553					1755					0					632	2940
Heavy Vehicles	3	0	34	0	37	32	64	0	0	96	0	0	0	0	0	0	48	1	0	49	182
% Heavy Vehicles	5.4	0.0	6.1	0.0	6.0	6.4	10.0	0.0	0.0	8.4	0.0	0.0	0.0	0.0	0.0	0.0	3.8	1.2	0.0	3.6	5.8
Exiting Leg Total					33					82					0					67	182

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	6	0	72	0	78	64	82	0	0	146	0	0	0	0	0	0	219	8	0	227	451
7:30 AM	8	0	71	0	79	81	98	0	0	179	0	0	0	0	0	0	166	15	0	181	439
7:45 AM	12	0	78	0	90	59	81	0	0	140	0	0	0	0	0	0	161	10	0	171	401
8:00 AM	10	0	72	0	82	55	85	0	0	140	0	0	0	0	0	0	158	13	0	171	393
Total Volume	36	0	293	0	329	259	346	0	0	605	0	0	0	0	0	0	704	46	0	750	1684
% Approach Total	10.9	0.0	89.1	0.0		42.8	57.2	0.0	0.0		0.0	0.0	0.0	0.0		0.0	93.9	6.1	0.0		
PHF	0.750	0.000	0.939	0.000	0.914	0.799	0.883	0.000	0.000	0.845	0.000	0.000	0.000	0.000	0.000	0.000	0.804	0.767	0.000	0.826	0.933
Cars	35	0	270	0	305	243	324	0	0	567	0	0	0	0	0	0	677	45	0	722	1594
Cars %	97.2	0.0	92.2	0.0	92.7	93.8	93.6	0.0	0.0	93.7	0.0	0.0	0.0	0.0	0.0	0.0	96.2	97.8	0.0	96.3	94.7
Heavy Vehicles	1	0	23	0	24	16	22	0	0	38	0	0	0	0	0	0	27	1	0	28	90
Heavy Vehicles %	2.8	0.0	7.8	0.0	7.3	6.2	6.4	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	3.8	2.2	0.0	3.7	5.3
Cars Enter Leg	35	0	270	0	305	243	324	0	0	567	0	0	0	0	0	0	677	45	0	722	1594
Heavy Enter Leg	1	0	23	0	24	16	22	0	0	38	0	0	0	0	0	0	27	1	0	28	90
Total Entering Leg	36	0	293	0	329	259	346	0	0	605	0	0	0	0	0	0	704	46	0	750	1684
Cars Exiting Leg					288					947					0					359	1594
Heavy Exiting Leg					17					50					0					23	90
Total Exiting Leg					305					997					0					382	1684

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	0	70	0	75	44	45	0	0	89	0	0	0	0	0	0	203	7	0	210	374
7:15 AM	6	0	68	0	74	63	78	0	0	141	0	0	0	0	0	0	210	7	0	217	432
7:30 AM	8	0	64	0	72	73	88	0	0	161	0	0	0	0	0	0	161	15	0	176	409
7:45 AM	12	0	72	0	84	57	80	0	0	137	0	0	0	0	0	0	157	10	0	167	388
Total	31	0	274	0	305	237	291	0	0	528	0	0	0	0	0	0	731	39	0	770	1603
8:00 AM	9	0	66	0	75	50	78	0	0	128	0	0	0	0	0	0	149	13	0	162	365
8:15 AM	8	0	71	1	80	63	56	0	0	119	0	0	0	0	0	0	125	11	0	136	335
8:30 AM	1	0	55	0	56	71	79	0	0	150	0	0	0	0	0	0	106	6	0	112	318
8:45 AM	4	0	61	0	65	48	75	0	0	123	0	0	0	0	0	0	117	14	0	131	319
Total	22	0	253	1	276	232	288	0	0	520	0	0	0	0	0	0	497	44	0	541	1337
Grand Total	53	0	527	1	581	469	579	0	0	1048	0	0	0	0	0	0	1228	83	0	1311	2940
Approach %	9.1	0.0	90.7	0.2		44.8	55.2	0.0	0.0		0.0	0.0	0.0	0.0		0.0	93.7	6.3	0.0		
Total %	1.8	0.0	17.9	0.0	19.8	16.0	19.7	0.0	0.0	35.6	0.0	0.0	0.0	0.0	0.0	0.0	41.8	2.8	0.0	44.6	
Exiting Leg Total					553					1755					0					632	2940

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	0	70	0	75	44	45	0	0	89	0	0	0	0	0	0	203	7	0	210	374
7:15 AM	6	0	68	0	74	63	78	0	0	141	0	0	0	0	0	0	210	7	0	217	432
7:30 AM	8	0	64	0	72	73	88	0	0	161	0	0	0	0	0	0	161	15	0	176	409
7:45 AM	12	0	72	0	84	57	80	0	0	137	0	0	0	0	0	0	157	10	0	167	388
Total Volume	31	0	274	0	305	237	291	0	0	528	0	0	0	0	0	0	731	39	0	770	1603
% Approach Total	10.2	0.0	89.8	0.0		44.9	55.1	0.0	0.0		0.0	0.0	0.0	0.0		0.0	94.9	5.1	0.0		
PHF	0.646	0.000	0.951	0.000	0.908	0.812	0.827	0.000	0.000	0.820	0.000	0.000	0.000	0.000	0.000	0.000	0.870	0.650	0.000	0.887	0.928
Entering Leg	31	0	274	0	305	237	291	0	0	528	0	0	0	0	0	0	731	39	0	770	1603
Exiting Leg					276					1005					0					322	1603
Total					581					1533					0					1092	3206

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	1	0	1	2	5	0	0	7	0	0	0	0	0	0	3	0	0	3	11
7:15 AM	0	0	4	0	4	1	4	0	0	5	0	0	0	0	0	0	9	1	0	10	19
7:30 AM	0	0	7	0	7	8	10	0	0	18	0	0	0	0	0	0	5	0	0	5	30
7:45 AM	0	0	6	0	6	2	1	0	0	3	0	0	0	0	0	0	4	0	0	4	13
Total	0	0	18	0	18	13	20	0	0	33	0	0	0	0	0	0	21	1	0	22	73
8:00 AM	1	0	6	0	7	5	7	0	0	12	0	0	0	0	0	0	9	0	0	9	28
8:15 AM	1	0	3	0	4	4	10	0	0	14	0	0	0	0	0	0	7	0	0	7	25
8:30 AM	1	0	5	0	6	2	13	0	0	15	0	0	0	0	0	0	6	0	0	6	27
8:45 AM	0	0	2	0	2	8	14	0	0	22	0	0	0	0	0	0	5	0	0	5	29
Total	3	0	16	0	19	19	44	0	0	63	0	0	0	0	0	0	27	0	0	27	109
Grand Total	3	0	34	0	37	32	64	0	0	96	0	0	0	0	0	0	48	1	0	49	182
Approach %	8.1	0.0	91.9	0.0		33.3	66.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	98.0	2.0	0.0		
Total %	1.6	0.0	18.7	0.0	20.3	17.6	35.2	0.0	0.0	52.7	0.0	0.0	0.0	0.0	0.0	0.0	26.4	0.5	0.0	26.9	
Exiting Leg Total					33					82					0					67	182
Buses	1	0	3	0	4	2	22	0	0	24	0	0	0	0	0	0	6	0	0	6	34
% Buses	33.3	0.0	8.8	0.0	10.8	6.3	34.4	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	12.2	18.7
Exiting Leg Total					2					9					0					23	34
Single-Unit Trucks	2	0	22	0	24	21	25	0	0	46	0	0	0	0	0	0	35	1	0	36	106
% Single-Unit	66.7	0.0	64.7	0.0	64.9	65.6	39.1	0.0	0.0	47.9	0.0	0.0	0.0	0.0	0.0	0.0	72.9	100.0	0.0	73.5	58.2
Exiting Leg Total					22					57					0					27	106
Articulated Trucks	0	0	9	0	9	9	17	0	0	26	0	0	0	0	0	0	7	0	0	7	42
% Articulated	0.0	0.0	26.5	0.0	24.3	28.1	26.6	0.0	0.0	27.1	0.0	0.0	0.0	0.0	0.0	0.0	14.6	0.0	0.0	14.3	23.1
Exiting Leg Total					9					16					0					17	42

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	1	0	6	0	7	5	7	0	0	12	0	0	0	0	0	0	9	0	0	9	28
8:15 AM	1	0	3	0	4	4	10	0	0	14	0	0	0	0	0	0	7	0	0	7	25
8:30 AM	1	0	5	0	6	2	13	0	0	15	0	0	0	0	0	0	6	0	0	6	27
8:45 AM	0	0	2	0	2	8	14	0	0	22	0	0	0	0	0	0	5	0	0	5	29
Total Volume	3	0	16	0	19	19	44	0	0	63	0	0	0	0	0	0	27	0	0	27	109
% Approach Total	15.8	0.0	84.2	0.0		30.2	69.8	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.750	0.000	0.667	0.000	0.679	0.594	0.786	0.000	0.000	0.716	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.750	0.940
Buses	1	0	1	0	2	0	20	0	0	20	0	0	0	0	0	0	2	0	0	2	24
Buses %	33.3	0.0	6.3	0.0	10.5	0.0	45.5	0.0	0.0	31.7	0.0	0.0	0.0	0.0	0.0	0.0	7.4	0.0	0.0	7.4	22.0
Single-Unit Trucks	2	0	12	0	14	13	16	0	0	29	0	0	0	0	0	0	23	0	0	23	66
Single-Unit %	66.7	0.0	75.0	0.0	73.7	68.4	36.4	0.0	0.0	46.0	0.0	0.0	0.0	0.0	0.0	0.0	85.2	0.0	0.0	85.2	60.6
Articulated Trucks	0	0	3	0	3	6	8	0	0	14	0	0	0	0	0	0	2	0	0	2	19
Articulated %	0.0	0.0	18.8	0.0	15.8	31.6	18.2	0.0	0.0	22.2	0.0	0.0	0.0	0.0	0.0	0.0	7.4	0.0	0.0	7.4	17.4
Buses	1	0	1	0	2	0	20	0	0	20	0	0	0	0	0	0	2	0	0	2	24
Single-Unit Trucks	2	0	12	0	14	13	16	0	0	29	0	0	0	0	0	0	23	0	0	23	66
Articulated Trucks	0	0	3	0	3	6	8	0	0	14	0	0	0	0	0	0	2	0	0	2	19
Total Entering Leg	3	0	16	0	19	19	44	0	0	63	0	0	0	0	0	0	27	0	0	27	109
Buses					0					3					0					21	24
Single-Unit Trucks					13					35					0					18	66
Articulated Trucks					6					5					0					8	19
Total Exiting Leg					19					43					0					47	109

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	4	0	58	0	62	43	33	0	0	76	0	0	0	0	0	0	171	7	0	178	316
7:15 AM	6	0	59	0	65	55	68	0	0	123	0	0	0	0	0	0	193	6	0	199	387
7:30 AM	7	0	52	0	59	58	68	0	0	126	0	0	0	0	0	0	136	13	0	149	334
7:45 AM	10	0	61	0	71	43	72	0	0	115	0	0	0	0	0	0	137	8	0	145	331
Total	27	0	230	0	257	199	241	0	0	440	0	0	0	0	0	0	637	34	0	671	1368
8:00 AM	8	0	55	0	63	39	61	0	0	100	0	0	0	0	0	0	131	12	0	143	306
8:15 AM	6	0	62	1	69	57	46	0	0	103	0	0	0	0	0	0	111	10	0	121	293
8:30 AM	1	0	47	0	48	68	66	0	0	134	0	0	0	0	0	0	86	5	0	91	273
8:45 AM	4	0	53	0	57	42	64	0	0	106	0	0	0	0	0	0	98	13	0	111	274
Total	19	0	217	1	237	206	237	0	0	443	0	0	0	0	0	0	426	40	0	466	1146
Grand Total	46	0	447	1	494	405	478	0	0	883	0	0	0	0	0	0	1063	74	0	1137	2514
Approach %	9.3	0.0	90.5	0.2		45.9	54.1	0.0	0.0		0.0	0.0	0.0	0.0		0.0	93.5	6.5	0.0		
Total %	1.8	0.0	17.8	0.0	19.6	16.1	19.0	0.0	0.0	35.1	0.0	0.0	0.0	0.0	0.0	0.0	42.3	2.9	0.0	45.2	
Exiting Leg Total					480					1510					0					524	2514

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	4	0	58	0	62	43	33	0	0	76	0	0	0	0	0	0	171	7	0	178	316
7:15 AM	6	0	59	0	65	55	68	0	0	123	0	0	0	0	0	0	193	6	0	199	387
7:30 AM	7	0	52	0	59	58	68	0	0	126	0	0	0	0	0	0	136	13	0	149	334
7:45 AM	10	0	61	0	71	43	72	0	0	115	0	0	0	0	0	0	137	8	0	145	331
Total Volume	27	0	230	0	257	199	241	0	0	440	0	0	0	0	0	0	637	34	0	671	1368
% Approach Total	10.5	0.0	89.5	0.0		45.2	54.8	0.0	0.0		0.0	0.0	0.0	0.0		0.0	94.9	5.1	0.0		
PHF	0.675	0.000	0.943	0.000	0.905	0.858	0.837	0.000	0.000	0.873	0.000	0.000	0.000	0.000	0.000	0.000	0.825	0.654	0.000	0.843	0.884
Entering Leg	27	0	230	0	257	199	241	0	0	440	0	0	0	0	0	0	637	34	0	671	1368
Exiting Leg					233					867					0					268	1368
Total					490					1307					0					939	2736

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	0	12	0	13	1	12	0	0	13	0	0	0	0	0	0	32	0	0	32	58
7:15 AM	0	0	9	0	9	8	10	0	0	18	0	0	0	0	0	0	17	1	0	18	45
7:30 AM	1	0	12	0	13	15	20	0	0	35	0	0	0	0	0	0	25	2	0	27	75
7:45 AM	2	0	11	0	13	14	8	0	0	22	0	0	0	0	0	0	20	2	0	22	57
Total	4	0	44	0	48	38	50	0	0	88	0	0	0	0	0	0	94	5	0	99	235
8:00 AM	1	0	11	0	12	11	17	0	0	28	0	0	0	0	0	0	18	1	0	19	59
8:15 AM	2	0	9	0	11	6	10	0	0	16	0	0	0	0	0	0	14	1	0	15	42
8:30 AM	0	0	8	0	8	3	13	0	0	16	0	0	0	0	0	0	20	1	0	21	45
8:45 AM	0	0	8	0	8	6	11	0	0	17	0	0	0	0	0	0	19	1	0	20	45
Total	3	0	36	0	39	26	51	0	0	77	0	0	0	0	0	0	71	4	0	75	191
Grand Total	7	0	80	0	87	64	101	0	0	165	0	0	0	0	0	0	165	9	0	174	426
Approach %	8.0	0.0	92.0	0.0		38.8	61.2	0.0	0.0		0.0	0.0	0.0	0.0		0.0	94.8	5.2	0.0		
Total %	1.6	0.0	18.8	0.0	20.4	15.0	23.7	0.0	0.0	38.7	0.0	0.0	0.0	0.0	0.0	0.0	38.7	2.1	0.0	40.8	
Exiting Leg Total					73					245					0					108	426

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	0	9	0	9	8	10	0	0	18	0	0	0	0	0	0	17	1	0	18	45
7:30 AM	1	0	12	0	13	15	20	0	0	35	0	0	0	0	0	0	25	2	0	27	75
7:45 AM	2	0	11	0	13	14	8	0	0	22	0	0	0	0	0	0	20	2	0	22	57
8:00 AM	1	0	11	0	12	11	17	0	0	28	0	0	0	0	0	0	18	1	0	19	59
Total Volume	4	0	43	0	47	48	55	0	0	103	0	0	0	0	0	0	80	6	0	86	236
% Approach Total	8.5	0.0	91.5	0.0		46.6	53.4	0.0	0.0		0.0	0.0	0.0	0.0		0.0	93.0	7.0	0.0		
PHF	0.500	0.000	0.896	0.000	0.904	0.800	0.688	0.000	0.000	0.736	0.000	0.000	0.000	0.000	0.000	0.000	0.800	0.750	0.000	0.796	0.787
Entering Leg	4	0	43	0	47	48	55	0	0	103	0	0	0	0	0	0	80	6	0	86	236
Exiting Leg					54					123					0					59	236
Total					101					226					0					145	472

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	5
7:30 AM	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	0	1	0	0	1	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	2	0	2	2	2	0	0	4	0	0	0	0	0	0	4	0	0	4	10
8:00 AM	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
8:30 AM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	1	0	0	1	10
8:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	6
Total	1	0	1	0	2	0	20	0	0	20	0	0	0	0	0	0	2	0	0	2	24
Grand Total	1	0	3	0	4	2	22	0	0	24	0	0	0	0	0	0	6	0	0	6	34
Approach %	25.0	0.0	75.0	0.0		8.3	91.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	2.9	0.0	8.8	0.0	11.8	5.9	64.7	0.0	0.0	70.6	0.0	0.0	0.0	0.0	0.0	0.0	17.6	0.0	0.0	17.6	
Exiting Leg Total					2					9					0					23	34

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
8:30 AM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	1	0	0	1	10
8:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	6
Total Volume	1	0	1	0	2	0	20	0	0	20	0	0	0	0	0	0	2	0	0	2	24
% Approach Total	50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.250	0.000	0.250	0.000	0.250	0.000	0.556	0.000	0.000	0.556	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.600
Entering Leg	1	0	1	0	2	0	20	0	0	20	0	0	0	0	0	0	2	0	0	2	24
Exiting Leg					0					3					0					21	24
Total					2					23					0					23	48

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	1	0	1	2	2	0	0	4	0	0	0	0	0	0	2	0	0	2	7
7:15 AM	0	0	2	0	2	1	2	0	0	3	0	0	0	0	0	0	5	1	0	6	11
7:30 AM	0	0	3	0	3	5	5	0	0	10	0	0	0	0	0	0	2	0	0	2	15
7:45 AM	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	7
Total	0	0	10	0	10	8	9	0	0	17	0	0	0	0	0	0	12	1	0	13	40
8:00 AM	0	0	3	0	3	5	5	0	0	10	0	0	0	0	0	0	8	0	0	8	21
8:15 AM	1	0	2	0	3	3	4	0	0	7	0	0	0	0	0	0	6	0	0	6	16
8:30 AM	1	0	5	0	6	2	3	0	0	5	0	0	0	0	0	0	4	0	0	4	15
8:45 AM	0	0	2	0	2	3	4	0	0	7	0	0	0	0	0	0	5	0	0	5	14
Total	2	0	12	0	14	13	16	0	0	29	0	0	0	0	0	0	23	0	0	23	66
Grand Total	2	0	22	0	24	21	25	0	0	46	0	0	0	0	0	0	35	1	0	36	106
Approach %	8.3	0.0	91.7	0.0		45.7	54.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	97.2	2.8	0.0		
Total %	1.9	0.0	20.8	0.0	22.6	19.8	23.6	0.0	0.0	43.4	0.0	0.0	0.0	0.0	0.0	0.0	33.0	0.9	0.0	34.0	
Exiting Leg Total					22					57					0					27	106

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	3	0	3	5	5	0	0	10	0	0	0	0	0	0	8	0	0	8	21
8:15 AM	1	0	2	0	3	3	4	0	0	7	0	0	0	0	0	0	6	0	0	6	16
8:30 AM	1	0	5	0	6	2	3	0	0	5	0	0	0	0	0	0	4	0	0	4	15
8:45 AM	0	0	2	0	2	3	4	0	0	7	0	0	0	0	0	0	5	0	0	5	14
Total Volume	2	0	12	0	14	13	16	0	0	29	0	0	0	0	0	0	23	0	0	23	66
% Approach Total	14.3	0.0	85.7	0.0		44.8	55.2	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.500	0.000	0.600	0.000	0.583	0.650	0.800	0.000	0.000	0.725	0.000	0.000	0.000	0.000	0.000	0.000	0.719	0.000	0.000	0.719	0.786
Entering Leg	2	0	12	0	14	13	16	0	0	29	0	0	0	0	0	0	23	0	0	23	66
Exiting Leg					13					35					0					18	66
Total					27					64					0					41	132

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
7:30 AM	0	0	4	0	4	1	4	0	0	5	0	0	0	0	0	0	2	0	0	2	11
7:45 AM	0	0	2	0	2	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	6	0	6	3	9	0	0	12	0	0	0	0	0	0	5	0	0	5	23
8:00 AM	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	4
8:15 AM	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	4
8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
8:45 AM	0	0	0	0	0	5	4	0	0	9	0	0	0	0	0	0	0	0	0	0	9
Total	0	0	3	0	3	6	8	0	0	14	0	0	0	0	0	0	2	0	0	2	19
Grand Total	0	0	9	0	9	9	17	0	0	26	0	0	0	0	0	0	7	0	0	7	42
Approach %	0.0	0.0	100.0	0.0		34.6	65.4	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	21.4	0.0	21.4	21.4	40.5	0.0	0.0	61.9	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	16.7	
Exiting Leg Total					9					16					0					17	42

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	0	4	0	4	1	4	0	0	5	0	0	0	0	0	0	2	0	0	2	11
7:45 AM	0	0	2	0	2	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	5
8:00 AM	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	4
8:15 AM	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	4
Total Volume	0	0	9	0	9	4	8	0	0	12	0	0	0	0	0	0	3	0	0	3	24
% Approach Total	0.0	0.0	100.0	0.0		33.3	66.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.563	0.000	0.563	0.500	0.500	0.000	0.000	0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.545
Entering Leg	0	0	9	0	9	4	8	0	0	12	0	0	0	0	0	0	3	0	0	3	24
Exiting Leg					4					12					0					8	24
Total					13					24					0					11	48

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Lunenburg Road (Route 70)							Main Street (Route 70/117)							Driveway							Main Street (Route 117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70)							Main Street (Route 70/117)							Driveway							Main Street (Route 117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 B**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Lunenburg Road (Route 70)							Main Street (Route 70/117)							Driveway							Main Street (Route 117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	3
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	33.3	66.7		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33.3	66.7	100	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							3							0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70)							Main Street (Route 70/117)							Driveway							Main Street (Route 117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	2
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	2
Exiting Leg							0							0							2							0	2
Total							0							0							4							0	4

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	13	0	49	0	62	106	217	0	0	323	0	0	0	0	0	0	114	8	0	122	507
4:15 PM	18	0	54	0	72	150	187	0	0	337	0	0	0	0	0	0	111	11	0	122	531
4:30 PM	17	0	56	0	73	148	165	0	0	313	0	0	0	0	0	0	113	16	0	129	515
4:45 PM	13	0	60	0	73	133	145	0	0	278	0	0	0	0	0	0	98	10	0	108	459
Total	61	0	219	0	280	537	714	0	0	1251	0	0	0	0	0	0	436	45	0	481	2012
5:00 PM	21	0	56	0	77	123	156	0	0	279	0	0	0	0	0	0	105	9	0	114	470
5:15 PM	11	0	50	0	61	134	188	0	0	322	0	0	0	0	0	0	99	18	0	117	500
5:30 PM	22	0	69	0	91	111	173	0	0	284	0	0	0	0	0	0	96	3	0	99	474
5:45 PM	13	0	52	0	65	106	153	0	0	259	0	0	0	0	0	0	97	9	0	106	430
Total	67	0	227	0	294	474	670	0	0	1144	0	0	0	0	0	0	397	39	0	436	1874
Grand Total	128	0	446	0	574	1011	1384	0	0	2395	0	0	0	0	0	0	833	84	0	917	3886
Approach %	22.3	0.0	77.7	0.0		42.2	57.8	0.0	0.0		0.0	0.0	0.0	0.0		0.0	90.8	9.2	0.0		
Total %	3.3	0.0	11.5	0.0	14.8	26.0	35.6	0.0	0.0	61.6	0.0	0.0	0.0	0.0	0.0	0.0	21.4	2.2	0.0	23.6	
Exiting Leg Total					1095					1279					0					1512	3886
Cars	127	0	439	0	566	1003	1358	0	0	2361	0	0	0	0	0	0	806	84	0	890	3817
% Cars	99.2	0.0	98.4	0.0	98.6	99.2	98.1	0.0	0.0	98.6	0.0	0.0	0.0	0.0	0.0	0.0	96.8	100.0	0.0	97.1	98.2
Exiting Leg Total					1087					1245					0					1485	3817
Heavy Vehicles	1	0	7	0	8	8	26	0	0	34	0	0	0	0	0	0	27	0	0	27	69
% Heavy Vehicles	0.8	0.0	1.6	0.0	1.4	0.8	1.9	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	2.9	1.8
Exiting Leg Total					8					34					0					27	69

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	13	0	49	0	62	106	217	0	0	323	0	0	0	0	0	0	114	8	0	122	507
4:15 PM	18	0	54	0	72	150	187	0	0	337	0	0	0	0	0	0	111	11	0	122	531
4:30 PM	17	0	56	0	73	148	165	0	0	313	0	0	0	0	0	0	113	16	0	129	515
4:45 PM	13	0	60	0	73	133	145	0	0	278	0	0	0	0	0	0	98	10	0	108	459
Total Volume	61	0	219	0	280	537	714	0	0	1251	0	0	0	0	0	0	436	45	0	481	2012
% Approach Total	21.8	0.0	78.2	0.0		42.9	57.1	0.0	0.0		0.0	0.0	0.0	0.0		0.0	90.6	9.4	0.0		
PHF	0.847	0.000	0.913	0.000	0.959	0.895	0.823	0.000	0.000	0.928	0.000	0.000	0.000	0.000	0.000	0.000	0.956	0.703	0.000	0.932	0.947
Cars	61	0	214	0	275	531	696	0	0	1227	0	0	0	0	0	0	421	45	0	466	1968
Cars %	100.0	0.0	97.7	0.0	98.2	98.9	97.5	0.0	0.0	98.1	0.0	0.0	0.0	0.0	0.0	0.0	96.6	100.0	0.0	96.9	97.8
Heavy Vehicles	0	0	5	0	5	6	18	0	0	24	0	0	0	0	0	0	15	0	0	15	44
Heavy Vehicles %	0.0	0.0	2.3	0.0	1.8	1.1	2.5	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.1	2.2
Cars Enter Leg	61	0	214	0	275	531	696	0	0	1227	0	0	0	0	0	0	421	45	0	466	1968
Heavy Enter Leg	0	0	5	0	5	6	18	0	0	24	0	0	0	0	0	0	15	0	0	15	44
Total Entering Leg	61	0	219	0	280	537	714	0	0	1251	0	0	0	0	0	0	436	45	0	481	2012
Cars Exiting Leg					576					635					0					757	1968
Heavy Exiting Leg					6					20					0					18	44
Total Exiting Leg					582					655					0					775	2012

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	13	0	47	0	60	105	210	0	0	315	0	0	0	0	0	0	110	8	0	118	493
4:15 PM	18	0	54	0	72	150	183	0	0	333	0	0	0	0	0	0	109	11	0	120	525
4:30 PM	17	0	55	0	72	145	160	0	0	305	0	0	0	0	0	0	109	16	0	125	502
4:45 PM	13	0	58	0	71	131	143	0	0	274	0	0	0	0	0	0	93	10	0	103	448
Total	61	0	214	0	275	531	696	0	0	1227	0	0	0	0	0	0	421	45	0	466	1968
5:00 PM	21	0	55	0	76	122	154	0	0	276	0	0	0	0	0	0	101	9	0	110	462
5:15 PM	11	0	50	0	61	133	187	0	0	320	0	0	0	0	0	0	96	18	0	114	495
5:30 PM	21	0	69	0	90	111	171	0	0	282	0	0	0	0	0	0	93	3	0	96	468
5:45 PM	13	0	51	0	64	106	150	0	0	256	0	0	0	0	0	0	95	9	0	104	424
Total	66	0	225	0	291	472	662	0	0	1134	0	0	0	0	0	0	385	39	0	424	1849
Grand Total	127	0	439	0	566	1003	1358	0	0	2361	0	0	0	0	0	0	806	84	0	890	3817
Approach %	22.4	0.0	77.6	0.0		42.5	57.5	0.0	0.0		0.0	0.0	0.0	0.0		0.0	90.6	9.4	0.0		
Total %	3.3	0.0	11.5	0.0	14.8	26.3	35.6	0.0	0.0	61.9	0.0	0.0	0.0	0.0	0.0	0.0	21.1	2.2	0.0	23.3	
Exiting Leg Total					1087					1245					0					1485	3817

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	13	0	47	0	60	105	210	0	0	315	0	0	0	0	0	0	110	8	0	118	493
4:15 PM	18	0	54	0	72	150	183	0	0	333	0	0	0	0	0	0	109	11	0	120	525
4:30 PM	17	0	55	0	72	145	160	0	0	305	0	0	0	0	0	0	109	16	0	125	502
4:45 PM	13	0	58	0	71	131	143	0	0	274	0	0	0	0	0	0	93	10	0	103	448
Total Volume	61	0	214	0	275	531	696	0	0	1227	0	0	0	0	0	0	421	45	0	466	1968
% Approach Total	22.2	0.0	77.8	0.0		43.3	56.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	90.3	9.7	0.0		
PHF	0.847	0.000	0.922	0.000	0.955	0.885	0.829	0.000	0.000	0.921	0.000	0.000	0.000	0.000	0.000	0.000	0.957	0.703	0.000	0.932	0.937
Entering Leg	61	0	214	0	275	531	696	0	0	1227	0	0	0	0	0	0	421	45	0	466	1968
Exiting Leg					576					635					0					757	1968
Total					851					1862					0					1223	3936

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	2	0	2	1	7	0	0	8	0	0	0	0	0	0	4	0	0	4	14
4:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
4:30 PM	0	0	1	0	1	3	5	0	0	8	0	0	0	0	0	0	4	0	0	4	13
4:45 PM	0	0	2	0	2	2	2	0	0	4	0	0	0	0	0	0	5	0	0	5	11
Total	0	0	5	0	5	6	18	0	0	24	0	0	0	0	0	0	15	0	0	15	44
5:00 PM	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	0	4	0	0	4	8
5:15 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	3	0	0	3	5
5:30 PM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	6
5:45 PM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	6
Total	1	0	2	0	3	2	8	0	0	10	0	0	0	0	0	0	12	0	0	12	25
Grand Total	1	0	7	0	8	8	26	0	0	34	0	0	0	0	0	0	27	0	0	27	69
Approach %	12.5	0.0	87.5	0.0		23.5	76.5	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	1.4	0.0	10.1	0.0	11.6	11.6	37.7	0.0	0.0	49.3	0.0	0.0	0.0	0.0	0.0	0.0	39.1	0.0	0.0	39.1	
Exiting Leg Total					8					34					0					27	69
Buses	0	0	1	0	1	3	9	0	0	12	0	0	0	0	0	0	4	0	0	4	17
% Buses	0.0	0.0	14.3	0.0	12.5	37.5	34.6	0.0	0.0	35.3	0.0	0.0	0.0	0.0	0.0	0.0	14.8	0.0	0.0	14.8	24.6
Exiting Leg Total					3					5					0					9	17
Single-Unit Trucks	1	0	6	0	7	4	13	0	0	17	0	0	0	0	0	0	19	0	0	19	43
% Single-Unit	100.0	0.0	85.7	0.0	87.5	50.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	70.4	0.0	0.0	70.4	62.3
Exiting Leg Total					4					25					0					14	43
Articulated Trucks	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	4	0	0	4	9
% Articulated	0.0	0.0	0.0	0.0	0.0	12.5	15.4	0.0	0.0	14.7	0.0	0.0	0.0	0.0	0.0	0.0	14.8	0.0	0.0	14.8	13.0
Exiting Leg Total					1					4					0					4	9

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	2	0	2	1	7	0	0	8	0	0	0	0	0	0	4	0	0	4	14
4:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
4:30 PM	0	0	1	0	1	3	5	0	0	8	0	0	0	0	0	0	4	0	0	4	13
4:45 PM	0	0	2	0	2	2	2	0	0	4	0	0	0	0	0	0	5	0	0	5	11
Total Volume	0	0	5	0	5	6	18	0	0	24	0	0	0	0	0	0	15	0	0	15	44
% Approach Total	0.0	0.0	100.0	0.0		25.0	75.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.625	0.000	0.625	0.500	0.643	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.750	0.786
Buses	0	0	1	0	1	3	7	0	0	10	0	0	0	0	0	0	3	0	0	3	14
Buses %	0.0	0.0	20.0	0.0	20.0	50.0	38.9	0.0	0.0	41.7	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	20.0	31.8
Single-Unit Trucks	0	0	4	0	4	3	8	0	0	11	0	0	0	0	0	0	9	0	0	9	24
Single-Unit %	0.0	0.0	80.0	0.0	80.0	50.0	44.4	0.0	0.0	45.8	0.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	0.0	60.0	54.5
Articulated Trucks	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	20.0	13.6
Buses	0	0	1	0	1	3	7	0	0	10	0	0	0	0	0	0	3	0	0	3	14
Single-Unit Trucks	0	0	4	0	4	3	8	0	0	11	0	0	0	0	0	0	9	0	0	9	24
Articulated Trucks	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
Total Entering Leg	0	0	5	0	5	6	18	0	0	24	0	0	0	0	0	0	15	0	0	15	44
Buses					3					4					0					7	14
Single-Unit Trucks					3					13					0					8	24
Articulated Trucks					0					3					0					3	6
Total Exiting Leg					6					20					0					18	44

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	9	0	38	0	47	80	174	0	0	254	0	0	0	0	0	0	99	7	0	106	407
4:15 PM	16	0	45	0	61	128	149	0	0	277	0	0	0	0	0	0	88	10	0	98	436
4:30 PM	16	0	43	0	59	130	138	0	0	268	0	0	0	0	0	0	96	13	0	109	436
4:45 PM	10	0	47	0	57	122	116	0	0	238	0	0	0	0	0	0	84	8	0	92	387
Total	51	0	173	0	224	460	577	0	0	1037	0	0	0	0	0	0	367	38	0	405	1666
5:00 PM	20	0	47	0	67	119	144	0	0	263	0	0	0	0	0	0	88	7	0	95	425
5:15 PM	10	0	42	0	52	131	174	0	0	305	0	0	0	0	0	0	84	15	0	99	456
5:30 PM	17	0	57	0	74	107	155	0	0	262	0	0	0	0	0	0	86	3	0	89	425
5:45 PM	11	0	44	0	55	103	140	0	0	243	0	0	0	0	0	0	86	9	0	95	393
Total	58	0	190	0	248	460	613	0	0	1073	0	0	0	0	0	0	344	34	0	378	1699
Grand Total	109	0	363	0	472	920	1190	0	0	2110	0	0	0	0	0	0	711	72	0	783	3365
Approach %	23.1	0.0	76.9	0.0		43.6	56.4	0.0	0.0		0.0	0.0	0.0	0.0		0.0	90.8	9.2	0.0		
Total %	3.2	0.0	10.8	0.0	14.0	27.3	35.4	0.0	0.0	62.7	0.0	0.0	0.0	0.0	0.0	0.0	21.1	2.1	0.0	23.3	
Exiting Leg Total					992					1074					0					1299	3365

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	16	0	43	0	59	130	138	0	0	268	0	0	0	0	0	0	96	13	0	109	436
4:45 PM	10	0	47	0	57	122	116	0	0	238	0	0	0	0	0	0	84	8	0	92	387
5:00 PM	20	0	47	0	67	119	144	0	0	263	0	0	0	0	0	0	88	7	0	95	425
5:15 PM	10	0	42	0	52	131	174	0	0	305	0	0	0	0	0	0	84	15	0	99	456
Total Volume	56	0	179	0	235	502	572	0	0	1074	0	0	0	0	0	0	352	43	0	395	1704
% Approach Total	23.8	0.0	76.2	0.0		46.7	53.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	89.1	10.9	0.0		
PHF	0.700	0.000	0.952	0.000	0.877	0.958	0.822	0.000	0.000	0.880	0.000	0.000	0.000	0.000	0.000	0.000	0.917	0.717	0.000	0.906	0.934
Entering Leg	56	0	179	0	235	502	572	0	0	1074	0	0	0	0	0	0	352	43	0	395	1704
Exiting Leg					545					531					0					628	1704
Total					780					1605					0					1023	3408

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	4	0	9	0	13	25	36	0	0	61	0	0	0	0	0	0	11	1	0	12	86
4:15 PM	2	0	9	0	11	22	34	0	0	56	0	0	0	0	0	0	21	1	0	22	89
4:30 PM	1	0	12	0	13	15	22	0	0	37	0	0	0	0	0	0	13	3	0	16	66
4:45 PM	3	0	11	0	14	9	27	0	0	36	0	0	0	0	0	0	9	2	0	11	61
Total	10	0	41	0	51	71	119	0	0	190	0	0	0	0	0	0	54	7	0	61	302
5:00 PM	1	0	8	0	9	3	10	0	0	13	0	0	0	0	0	0	13	2	0	15	37
5:15 PM	1	0	8	0	9	2	13	0	0	15	0	0	0	0	0	0	12	3	0	15	39
5:30 PM	4	0	12	0	16	4	16	0	0	20	0	0	0	0	0	0	7	0	0	7	43
5:45 PM	2	0	7	0	9	3	10	0	0	13	0	0	0	0	0	0	9	0	0	9	31
Total	8	0	35	0	43	12	49	0	0	61	0	0	0	0	0	0	41	5	0	46	150
Grand Total	18	0	76	0	94	83	168	0	0	251	0	0	0	0	0	0	95	12	0	107	452
Approach %	19.1	0.0	80.9	0.0		33.1	66.9	0.0	0.0		0.0	0.0	0.0	0.0		0.0	88.8	11.2	0.0		
Total %	4.0	0.0	16.8	0.0	20.8	18.4	37.2	0.0	0.0	55.5	0.0	0.0	0.0	0.0	0.0	0.0	21.0	2.7	0.0	23.7	
Exiting Leg Total					95					171					0					186	452

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	4	0	9	0	13	25	36	0	0	61	0	0	0	0	0	0	11	1	0	12	86
4:15 PM	2	0	9	0	11	22	34	0	0	56	0	0	0	0	0	0	21	1	0	22	89
4:30 PM	1	0	12	0	13	15	22	0	0	37	0	0	0	0	0	0	13	3	0	16	66
4:45 PM	3	0	11	0	14	9	27	0	0	36	0	0	0	0	0	0	9	2	0	11	61
Total Volume	10	0	41	0	51	71	119	0	0	190	0	0	0	0	0	0	54	7	0	61	302
% Approach Total	19.6	0.0	80.4	0.0		37.4	62.6	0.0	0.0		0.0	0.0	0.0	0.0		0.0	88.5	11.5	0.0		
PHF	0.625	0.000	0.854	0.000	0.911	0.710	0.826	0.000	0.000	0.779	0.000	0.000	0.000	0.000	0.000	0.000	0.643	0.583	0.000	0.693	0.848
Entering Leg	10	0	41	0	51	71	119	0	0	190	0	0	0	0	0	0	54	7	0	61	302
Exiting Leg					78					95					0					129	302
Total					129					285					0					190	604

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	2	0	0	2	8
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:30 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	3	7	0	0	10	0	0	0	0	0	0	3	0	0	3	14
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Grand Total	0	0	1	0	1	3	9	0	0	12	0	0	0	0	0	0	4	0	0	4	17
Approach %	0.0	0.0	100.0	0.0		25.0	75.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	5.9	0.0	5.9	17.6	52.9	0.0	0.0	70.6	0.0	0.0	0.0	0.0	0.0	0.0	23.5	0.0	0.0	23.5	
Exiting Leg Total					3					5					0					9	17

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	2	0	0	2	8
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:30 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	1	0	1	3	7	0	0	10	0	0	0	0	0	0	3	0	0	3	14
% Approach Total	0.0	0.0	100.0	0.0		30.0	70.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.375	0.350	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.438
Entering Leg	0	0	1	0	1	3	7	0	0	10	0	0	0	0	0	0	3	0	0	3	14
Exiting Leg					3					4					0					7	14
Total					4					14					0					10	28

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	5
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:30 PM	0	0	1	0	1	1	3	0	0	4	0	0	0	0	0	0	4	0	0	4	9
4:45 PM	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	0	3	0	0	3	7
Total	0	0	4	0	4	3	8	0	0	11	0	0	0	0	0	0	9	0	0	9	24
5:00 PM	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	0	4	0	0	4	7
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:30 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	5
5:45 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	5
Total	1	0	2	0	3	1	5	0	0	6	0	0	0	0	0	0	10	0	0	10	19
Grand Total	1	0	6	0	7	4	13	0	0	17	0	0	0	0	0	0	19	0	0	19	43
Approach %	14.3	0.0	85.7	0.0		23.5	76.5	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	2.3	0.0	14.0	0.0	16.3	9.3	30.2	0.0	0.0	39.5	0.0	0.0	0.0	0.0	0.0	0.0	44.2	0.0	0.0	44.2	
Exiting Leg Total					4					25					0					14	43

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:30 PM	0	0	1	0	1	1	3	0	0	4	0	0	0	0	0	0	4	0	0	4	9
4:45 PM	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	0	3	0	0	3	7
5:00 PM	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	0	4	0	0	4	7
Total Volume	0	0	3	0	3	4	7	0	0	11	0	0	0	0	0	0	12	0	0	12	26
% Approach Total	0.0	0.0	100.0	0.0		36.4	63.6	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.750	0.000	0.750	0.500	0.583	0.000	0.000	0.688	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.750	0.722
Entering Leg	0	0	3	0	3	4	7	0	0	11	0	0	0	0	0	0	12	0	0	12	26
Exiting Leg					4					15					0					7	26
Total					7					26					0					19	52

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Grand Total	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	4	0	0	4	9
Approach %	0.0	0.0	0.0	0.0		20.0	80.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	11.1	44.4	0.0	0.0	55.6	0.0	0.0	0.0	0.0	0.0	0.0	44.4	0.0	0.0	44.4	
Exiting Leg Total					1					4					0					4	9

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Lunenburg Road (Route 70)					Main Street (Route 70/117)					Driveway					Main Street (Route 117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total Volume	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	3	0	0	3	7
% Approach Total	0.0	0.0	0.0	0.0		25.0	75.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.375	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.583
Entering Leg	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	3	0	0	3	7
Exiting Leg					1					3					0					3	7
Total					1					7					0					6	14

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Lunenburg Road (Route 70)							Main Street (Route 70/117)							Driveway							Main Street (Route 117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70)							Main Street (Route 70/117)							Driveway							Main Street (Route 117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 BB**
Location: **N: Lunenburg Road (Route 70) S: Driveway**
Location: **E: Main Street (Route 70/117) W: Main Street (Route 117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Lunenburg Road (Route 70)							Main Street (Route 70/117)							Driveway							Main Street (Route 117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	100	0		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							1							0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70)							Main Street (Route 70/117)							Driveway							Main Street (Route 117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Exiting Leg							0							0							1							0	1
Total							0							0							2							0	2

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	84	0	0	84	1	1	29	0	31	50	235	0	0	285	400
7:15 AM	0	0	1	0	1	0	102	3	0	105	1	0	37	0	38	96	196	1	0	293	437
7:30 AM	2	2	0	0	4	1	127	5	0	133	3	0	61	0	64	77	157	0	0	234	435
7:45 AM	0	1	1	0	2	1	98	1	0	100	1	0	34	0	35	82	159	1	0	242	379
Total	2	3	2	0	7	2	411	9	0	422	6	1	161	0	168	305	747	2	0	1054	1651
8:00 AM	0	1	0	0	1	0	97	5	0	102	2	0	40	0	42	58	171	0	0	229	374
8:15 AM	2	2	0	0	4	0	84	2	0	86	3	0	53	0	56	65	141	0	0	206	352
8:30 AM	0	1	0	0	1	0	112	2	0	114	3	0	48	0	51	49	127	0	0	176	342
8:45 AM	0	0	1	0	1	1	97	0	0	98	2	0	41	0	43	70	113	0	0	183	325
Total	2	4	1	0	7	1	390	9	0	400	10	0	182	0	192	242	552	0	0	794	1393
Grand Total	4	7	3	0	14	3	801	18	0	822	16	1	343	0	360	547	1299	2	0	1848	3044
Approach %	28.6	50.0	21.4	0.0		0.4	97.4	2.2	0.0		4.4	0.3	95.3	0.0		29.6	70.3	0.1	0.0		
Total %	0.1	0.2	0.1	0.0	0.5	0.1	26.3	0.6	0.0	27.0	0.5	0.0	11.3	0.0	11.8	18.0	42.7	0.1	0.0	60.7	
Exiting Leg Total					6					1318					572					1148	3044
Cars	4	6	3	0	13	3	725	17	0	745	16	1	320	0	337	526	1230	2	0	1758	2853
% Cars	100.0	85.7	100.0	0.0	92.9	100.0	90.5	94.4	0.0	90.6	100.0	100.0	93.3	0.0	93.6	96.2	94.7	100.0	0.0	95.1	93.7
Exiting Leg Total					6					1249					549					1049	2853
Heavy Vehicles	0	1	0	0	1	0	76	1	0	77	0	0	23	0	23	21	69	0	0	90	191
% Heavy Vehicles	0.0	14.3	0.0	0.0	7.1	0.0	9.5	5.6	0.0	9.4	0.0	0.0	6.7	0.0	6.4	3.8	5.3	0.0	0.0	4.9	6.3
Exiting Leg Total					0					69					23					99	191

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	84	0	0	84	1	1	29	0	31	50	235	0	0	285	400
7:15 AM	0	0	1	0	1	0	102	3	0	105	1	0	37	0	38	96	196	1	0	293	437
7:30 AM	2	2	0	0	4	1	127	5	0	133	3	0	61	0	64	77	157	0	0	234	435
7:45 AM	0	1	1	0	2	1	98	1	0	100	1	0	34	0	35	82	159	1	0	242	379
Total Volume	2	3	2	0	7	2	411	9	0	422	6	1	161	0	168	305	747	2	0	1054	1651
% Approach Total	28.6	42.9	28.6	0.0		0.5	97.4	2.1	0.0		3.6	0.6	95.8	0.0		28.9	70.9	0.2	0.0		
PHF	0.250	0.375	0.500	0.000	0.438	0.500	0.809	0.450	0.000	0.793	0.500	0.250	0.660	0.000	0.656	0.794	0.795	0.500	0.000	0.899	0.945
Cars	2	3	2	0	7	2	382	9	0	393	6	1	153	0	160	296	711	2	0	1009	1569
Cars %	100.0	100.0	100.0	0.0	100.0	100.0	92.9	100.0	0.0	93.1	100.0	100.0	95.0	0.0	95.2	97.0	95.2	100.0	0.0	95.7	95.0
Heavy Vehicles	0	0	0	0	0	0	29	0	0	29	0	0	8	0	8	9	36	0	0	45	82
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	6.9	0.0	0.0	5.0	0.0	4.8	3.0	4.8	0.0	0.0	4.3	5.0
Cars Enter Leg	2	3	2	0	7	2	382	9	0	393	6	1	153	0	160	296	711	2	0	1009	1569
Heavy Enter Leg	0	0	0	0	0	0	29	0	0	29	0	0	8	0	8	9	36	0	0	45	82
Total Entering Leg	2	3	2	0	7	2	411	9	0	422	6	1	161	0	168	305	747	2	0	1054	1651
Cars Exiting Leg					5					719					308					537	1569
Heavy Exiting Leg					0					36					9					37	82
Total Exiting Leg					5					755					317					574	1651

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	76	0	0	76	1	1	28	0	30	48	231	0	0	279	385
7:15 AM	0	0	1	0	1	0	98	3	0	101	1	0	35	0	36	92	187	1	0	280	418
7:30 AM	2	2	0	0	4	1	113	5	0	119	3	0	58	0	61	75	144	0	0	219	403
7:45 AM	0	1	1	0	2	1	95	1	0	97	1	0	32	0	33	81	149	1	0	231	363
Total	2	3	2	0	7	2	382	9	0	393	6	1	153	0	160	296	711	2	0	1009	1569
8:00 AM	0	1	0	0	1	0	91	5	0	96	2	0	35	0	37	56	159	0	0	215	349
8:15 AM	2	1	0	0	3	0	75	2	0	77	3	0	48	0	51	60	135	0	0	195	326
8:30 AM	0	1	0	0	1	0	99	1	0	100	3	0	45	0	48	47	118	0	0	165	314
8:45 AM	0	0	1	0	1	1	78	0	0	79	2	0	39	0	41	67	107	0	0	174	295
Total	2	3	1	0	6	1	343	8	0	352	10	0	167	0	177	230	519	0	0	749	1284
Grand Total	4	6	3	0	13	3	725	17	0	745	16	1	320	0	337	526	1230	2	0	1758	2853
Approach %	30.8	46.2	23.1	0.0		0.4	97.3	2.3	0.0		4.7	0.3	95.0	0.0		29.9	70.0	0.1	0.0		
Total %	0.1	0.2	0.1	0.0	0.5	0.1	25.4	0.6	0.0	26.1	0.6	0.0	11.2	0.0	11.8	18.4	43.1	0.1	0.0	61.6	
Exiting Leg Total					6					1249					549					1049	2853

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	76	0	0	76	1	1	28	0	30	48	231	0	0	279	385
7:15 AM	0	0	1	0	1	0	98	3	0	101	1	0	35	0	36	92	187	1	0	280	418
7:30 AM	2	2	0	0	4	1	113	5	0	119	3	0	58	0	61	75	144	0	0	219	403
7:45 AM	0	1	1	0	2	1	95	1	0	97	1	0	32	0	33	81	149	1	0	231	363
Total Volume	2	3	2	0	7	2	382	9	0	393	6	1	153	0	160	296	711	2	0	1009	1569
% Approach Total	28.6	42.9	28.6	0.0		0.5	97.2	2.3	0.0		3.8	0.6	95.6	0.0		29.3	70.5	0.2	0.0		
PHF	0.250	0.375	0.500	0.000	0.438	0.500	0.845	0.450	0.000	0.826	0.500	0.250	0.659	0.000	0.656	0.804	0.769	0.500	0.000	0.901	0.938
Entering Leg	2	3	2	0	7	2	382	9	0	393	6	1	153	0	160	296	711	2	0	1009	1569
Exiting Leg					5					719					308					537	1569
Total					12					1112					468					1546	3138

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	8	0	0	8	0	0	1	0	1	2	4	0	0	6	15
7:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	2	0	2	4	9	0	0	13	19
7:30 AM	0	0	0	0	0	0	14	0	0	14	0	0	3	0	3	2	13	0	0	15	32
7:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	2	0	2	1	10	0	0	11	16
Total	0	0	0	0	0	0	29	0	0	29	0	0	8	0	8	9	36	0	0	45	82
8:00 AM	0	0	0	0	0	0	6	0	0	6	0	0	5	0	5	2	12	0	0	14	25
8:15 AM	0	1	0	0	1	0	9	0	0	9	0	0	5	0	5	5	6	0	0	11	26
8:30 AM	0	0	0	0	0	0	13	1	0	14	0	0	3	0	3	2	9	0	0	11	28
8:45 AM	0	0	0	0	0	0	19	0	0	19	0	0	2	0	2	3	6	0	0	9	30
Total	0	1	0	0	1	0	47	1	0	48	0	0	15	0	15	12	33	0	0	45	109
Grand Total	0	1	0	0	1	0	76	1	0	77	0	0	23	0	23	21	69	0	0	90	191
Approach %	0.0	100.0	0.0	0.0		0.0	98.7	1.3	0.0		0.0	0.0	100.0	0.0		23.3	76.7	0.0	0.0		
Total %	0.0	0.5	0.0	0.0	0.5	0.0	39.8	0.5	0.0	40.3	0.0	0.0	12.0	0.0	12.0	11.0	36.1	0.0	0.0	47.1	
Exiting Leg Total					0					69					23					99	191
Buses	0	1	0	0	1	0	14	0	0	14	0	0	11	0	11	5	3	0	0	8	34
% Buses	0.0	100.0	0.0	0.0	100.0	0.0	18.4	0.0	0.0	18.2	0.0	0.0	47.8	0.0	47.8	23.8	4.3	0.0	0.0	8.9	17.8
Exiting Leg Total					0					3					6					25	34
Single-Unit Trucks	0	0	0	0	0	0	36	1	0	37	0	0	12	0	12	13	53	0	0	66	115
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	47.4	100.0	0.0	48.1	0.0	0.0	52.2	0.0	52.2	61.9	76.8	0.0	0.0	73.3	60.2
Exiting Leg Total					0					53					14					48	115
Articulated Trucks	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	3	13	0	0	16	42
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	34.2	0.0	0.0	33.8	0.0	0.0	0.0	0.0	0.0	14.3	18.8	0.0	0.0	17.8	22.0
Exiting Leg Total					0					13					3					26	42

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	6	0	0	6	0	0	5	0	5	2	12	0	0	14	25
8:15 AM	0	1	0	0	1	0	9	0	0	9	0	0	5	0	5	5	6	0	0	11	26
8:30 AM	0	0	0	0	0	0	13	1	0	14	0	0	3	0	3	2	9	0	0	11	28
8:45 AM	0	0	0	0	0	0	19	0	0	19	0	0	2	0	2	3	6	0	0	9	30
Total Volume	0	1	0	0	1	0	47	1	0	48	0	0	15	0	15	12	33	0	0	45	109
% Approach Total	0.0	100.0	0.0	0.0		0.0	97.9	2.1	0.0		0.0	0.0	100.0	0.0		26.7	73.3	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.618	0.250	0.000	0.632	0.000	0.000	0.750	0.000	0.750	0.600	0.688	0.000	0.000	0.804	0.908
Buses	0	1	0	0	1	0	13	0	0	13	0	0	8	0	8	2	0	0	0	2	24
Buses %	0.0	100.0	0.0	0.0	100.0	0.0	27.7	0.0	0.0	27.1	0.0	0.0	53.3	0.0	53.3	16.7	0.0	0.0	0.0	4.4	22.0
Single-Unit Trucks	0	0	0	0	0	0	20	1	0	21	0	0	7	0	7	9	29	0	0	38	66
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	42.6	100.0	0.0	43.8	0.0	0.0	46.7	0.0	46.7	75.0	87.9	0.0	0.0	84.4	60.6
Articulated Trucks	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	1	4	0	0	5	19
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	29.8	0.0	0.0	29.2	0.0	0.0	0.0	0.0	0.0	8.3	12.1	0.0	0.0	11.1	17.4
Buses	0	1	0	0	1	0	13	0	0	13	0	0	8	0	8	2	0	0	0	2	24
Single-Unit Trucks	0	0	0	0	0	0	20	1	0	21	0	0	7	0	7	9	29	0	0	38	66
Articulated Trucks	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	1	4	0	0	5	19
Total Entering Leg	0	1	0	0	1	0	47	1	0	48	0	0	15	0	15	12	33	0	0	45	109
Buses					0					0					3					21	24
Single-Unit Trucks					0					29					10					27	66
Articulated Trucks					0					4					1					14	19
Total Exiting Leg					0					33					14					62	109

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	57	0	0	57	0	0	26	0	26	43	193	0	0	236	319
7:15 AM	0	0	0	0	0	0	84	3	0	87	1	0	30	0	31	87	170	1	0	258	376
7:30 AM	1	2	0	0	3	0	86	5	0	91	3	0	45	0	48	69	115	0	0	184	326
7:45 AM	0	1	1	0	2	1	82	1	0	84	1	0	26	0	27	68	132	1	0	201	314
Total	1	3	1	0	5	1	309	9	0	319	5	0	127	0	132	267	610	2	0	879	1335
8:00 AM	0	1	0	0	1	0	69	5	0	74	2	0	30	0	32	51	140	0	0	191	298
8:15 AM	1	1	0	0	2	0	61	1	0	62	3	0	45	0	48	53	119	0	0	172	284
8:30 AM	0	1	0	0	1	0	87	1	0	88	2	0	42	0	44	38	99	0	0	137	270
8:45 AM	0	0	1	0	1	1	68	0	0	69	2	0	33	0	35	59	89	0	0	148	253
Total	1	3	1	0	5	1	285	7	0	293	9	0	150	0	159	201	447	0	0	648	1105
Grand Total	2	6	2	0	10	2	594	16	0	612	14	0	277	0	291	468	1057	2	0	1527	2440
Approach %	20.0	60.0	20.0	0.0		0.3	97.1	2.6	0.0		4.8	0.0	95.2	0.0		30.6	69.2	0.1	0.0		
Total %	0.1	0.2	0.1	0.0	0.4	0.1	24.3	0.7	0.0	25.1	0.6	0.0	11.4	0.0	11.9	19.2	43.3	0.1	0.0	62.6	
Exiting Leg Total					4					1073					490					873	2440

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	57	0	0	57	0	0	26	0	26	43	193	0	0	236	319
7:15 AM	0	0	0	0	0	0	84	3	0	87	1	0	30	0	31	87	170	1	0	258	376
7:30 AM	1	2	0	0	3	0	86	5	0	91	3	0	45	0	48	69	115	0	0	184	326
7:45 AM	0	1	1	0	2	1	82	1	0	84	1	0	26	0	27	68	132	1	0	201	314
Total Volume	1	3	1	0	5	1	309	9	0	319	5	0	127	0	132	267	610	2	0	879	1335
% Approach Total	20.0	60.0	20.0	0.0		0.3	96.9	2.8	0.0		3.8	0.0	96.2	0.0		30.4	69.4	0.2	0.0		
PHF	0.250	0.375	0.250	0.000	0.417	0.250	0.898	0.450	0.000	0.876	0.417	0.000	0.706	0.000	0.688	0.767	0.790	0.500	0.000	0.852	0.888
Entering Leg	1	3	1	0	5	1	309	9	0	319	5	0	127	0	132	267	610	2	0	879	1335
Exiting Leg					3					616					279					437	1335
Total					8					935					411					1316	2670

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	19	0	0	19	1	1	2	0	4	5	38	0	0	43	66
7:15 AM	0	0	1	0	1	0	14	0	0	14	0	0	5	0	5	5	17	0	0	22	42
7:30 AM	1	0	0	0	1	1	27	0	0	28	0	0	13	0	13	6	29	0	0	35	77
7:45 AM	0	0	0	0	0	0	13	0	0	13	0	0	6	0	6	13	17	0	0	30	49
Total	1	0	1	0	2	1	73	0	0	74	1	1	26	0	28	29	101	0	0	130	234
8:00 AM	0	0	0	0	0	0	22	0	0	22	0	0	5	0	5	5	19	0	0	24	51
8:15 AM	1	0	0	0	1	0	14	1	0	15	0	0	3	0	3	7	16	0	0	23	42
8:30 AM	0	0	0	0	0	0	12	0	0	12	1	0	3	0	4	9	19	0	0	28	44
8:45 AM	0	0	0	0	0	0	10	0	0	10	0	0	6	0	6	8	18	0	0	26	42
Total	1	0	0	0	1	0	58	1	0	59	1	0	17	0	18	29	72	0	0	101	179
Grand Total	2	0	1	0	3	1	131	1	0	133	2	1	43	0	46	58	173	0	0	231	413
Approach %	66.7	0.0	33.3	0.0		0.8	98.5	0.8	0.0		4.3	2.2	93.5	0.0		25.1	74.9	0.0	0.0		
Total %	0.5	0.0	0.2	0.0	0.7	0.2	31.7	0.2	0.0	32.2	0.5	0.2	10.4	0.0	11.1	14.0	41.9	0.0	0.0	55.9	
Exiting Leg Total					2					176					59					176	413

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	19	0	0	19	1	1	2	0	4	5	38	0	0	43	66
7:15 AM	0	0	1	0	1	0	14	0	0	14	0	0	5	0	5	5	17	0	0	22	42
7:30 AM	1	0	0	0	1	1	27	0	0	28	0	0	13	0	13	6	29	0	0	35	77
7:45 AM	0	0	0	0	0	0	13	0	0	13	0	0	6	0	6	13	17	0	0	30	49
Total Volume	1	0	1	0	2	1	73	0	0	74	1	1	26	0	28	29	101	0	0	130	234
% Approach Total	50.0	0.0	50.0	0.0		1.4	98.6	0.0	0.0		3.6	3.6	92.9	0.0		22.3	77.7	0.0	0.0		
PHF	0.250	0.000	0.250	0.000	0.500	0.250	0.676	0.000	0.000	0.661	0.250	0.250	0.500	0.000	0.538	0.558	0.664	0.000	0.000	0.756	0.760
Entering Leg	1	0	1	0	2	1	73	0	0	74	1	1	26	0	28	29	101	0	0	130	234
Exiting Leg					2					103					29					100	234
Total					4					177					57					230	468

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	2	2	0	0	4	6
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1	0	0	0	1	3
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	3	0	3	3	3	0	0	6	10
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
8:15 AM	0	1	0	0	1	0	1	0	0	1	0	0	4	0	4	1	0	0	0	1	7
8:30 AM	0	0	0	0	0	0	6	0	0	6	0	0	3	0	3	1	0	0	0	1	10
8:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	6
Total	0	1	0	0	1	0	13	0	0	13	0	0	8	0	8	2	0	0	0	2	24
Grand Total	0	1	0	0	1	0	14	0	0	14	0	0	11	0	11	5	3	0	0	8	34
Approach %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		62.5	37.5	0.0	0.0		
Total %	0.0	2.9	0.0	0.0	2.9	0.0	41.2	0.0	0.0	41.2	0.0	0.0	32.4	0.0	32.4	14.7	8.8	0.0	0.0	23.5	
Exiting Leg Total					0					3					6					25	34

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
8:15 AM	0	1	0	0	1	0	1	0	0	1	0	0	4	0	4	1	0	0	0	1	7
8:30 AM	0	0	0	0	0	0	6	0	0	6	0	0	3	0	3	1	0	0	0	1	10
8:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	6
Total Volume	0	1	0	0	1	0	13	0	0	13	0	0	8	0	8	2	0	0	0	2	24
% Approach Total	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		100.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.542	0.000	0.000	0.542	0.000	0.000	0.500	0.000	0.500	0.500	0.000	0.000	0.000	0.500	0.600
Entering Leg	0	1	0	0	1	0	13	0	0	13	0	0	8	0	8	2	0	0	0	2	24
Exiting Leg					0					0					3					21	24
Total					1					13					11					23	48

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	2	4	0	0	6	12
7:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	1	6	0	0	7	10
7:30 AM	0	0	0	0	0	0	8	0	0	8	0	0	1	0	1	0	7	0	0	7	16
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	1	7	0	0	8	11
Total	0	0	0	0	0	0	16	0	0	16	0	0	5	0	5	4	24	0	0	28	49
8:00 AM	0	0	0	0	0	0	5	0	0	5	0	0	4	0	4	2	9	0	0	11	20
8:15 AM	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	3	6	0	0	9	15
8:30 AM	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	1	8	0	0	9	15
8:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	2	0	2	3	6	0	0	9	16
Total	0	0	0	0	0	0	20	1	0	21	0	0	7	0	7	9	29	0	0	38	66
Grand Total	0	0	0	0	0	0	36	1	0	37	0	0	12	0	12	13	53	0	0	66	115
Approach %	0.0	0.0	0.0	0.0		0.0	97.3	2.7	0.0		0.0	0.0	100.0	0.0		19.7	80.3	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	31.3	0.9	0.0	32.2	0.0	0.0	10.4	0.0	10.4	11.3	46.1	0.0	0.0	57.4	
Exiting Leg Total					0					53					14					48	115

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	5	0	0	5	0	0	4	0	4	2	9	0	0	11	20
8:15 AM	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	3	6	0	0	9	15
8:30 AM	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	1	8	0	0	9	15
8:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	2	0	2	3	6	0	0	9	16
Total Volume	0	0	0	0	0	0	20	1	0	21	0	0	7	0	7	9	29	0	0	38	66
% Approach Total	0.0	0.0	0.0	0.0		0.0	95.2	4.8	0.0		0.0	0.0	100.0	0.0		23.7	76.3	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.250	0.000	0.875	0.000	0.000	0.438	0.000	0.438	0.750	0.806	0.000	0.000	0.864	0.825
Entering Leg	0	0	0	0	0	0	20	1	0	21	0	0	7	0	7	9	29	0	0	38	66
Exiting Leg					0					29					10					27	66
Total					0					50					17					65	132

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	3
7:30 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	1	6	0	0	7	13
7:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
Total	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	2	9	0	0	11	23
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
8:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	4
8:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
8:45 AM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	8
Total	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	1	4	0	0	5	19
Grand Total	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	3	13	0	0	16	42
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		18.8	81.3	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	61.9	0.0	0.0	61.9	0.0	0.0	0.0	0.0	0.0	7.1	31.0	0.0	0.0	38.1	
Exiting Leg Total					0					13					3					26	42

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	1	6	0	0	7	13
7:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
8:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	4
Total Volume	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	2	11	0	0	13	25
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		15.4	84.6	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.500	0.458	0.000	0.000	0.464	0.481
Entering Leg	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	2	11	0	0	13	25
Exiting Leg					0					11					2					12	25
Total					0					23					2					25	50

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Shirley Road							Seven Bridge Road (Route 117)							Main Street (Route 70)							Main Street (Route 70/117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Shirley Road							Seven Bridge Road (Route 117)							Main Street (Route 70)							Main Street (Route 70/117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 C**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Shirley Road from North							Seven Bridge Road (Route 117) from East							Main Street (Route 70) from South							Main Street (Route 70/117) from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	5
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	40	60		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	60	100	
Exiting Leg Total							0							0							0							5	5

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Shirley Road from North							Seven Bridge Road (Route 117) from East							Main Street (Route 70) from South							Main Street (Route 70/117) from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4	4
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	50.0	50.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.500	0.500
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4	4
Exiting Leg							0							0							0							4	4
Total							0							0							0							8	8

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	278	0	0	279	1	0	50	0	51	48	119	0	0	167	497
4:15 PM	0	0	0	0	0	0	294	2	0	296	0	0	44	0	44	63	102	0	0	165	505
4:30 PM	0	0	0	0	0	0	277	1	0	278	1	0	35	0	36	46	120	0	0	166	480
4:45 PM	1	0	0	0	1	0	225	1	0	226	1	0	55	0	56	52	106	1	0	159	442
Total	1	0	0	0	1	1	1074	4	0	1079	3	0	184	0	187	209	447	1	0	657	1924
5:00 PM	1	0	0	0	1	0	242	1	0	243	0	2	42	0	44	54	107	1	0	162	450
5:15 PM	1	2	0	0	3	3	280	0	0	283	1	0	40	0	41	38	107	1	0	146	473
5:30 PM	0	0	0	0	0	1	252	2	0	255	0	0	37	0	37	46	117	0	0	163	455
5:45 PM	0	0	0	0	0	0	208	0	0	208	0	0	45	0	45	50	98	1	0	149	402
Total	2	2	0	0	4	4	982	3	0	989	1	2	164	0	167	188	429	3	0	620	1780
Grand Total	3	2	0	0	5	5	2056	7	0	2068	4	2	348	0	354	397	876	4	0	1277	3704
Approach %	60.0	40.0	0.0	0.0		0.2	99.4	0.3	0.0		1.1	0.6	98.3	0.0		31.1	68.6	0.3	0.0		
Total %	0.1	0.1	0.0	0.0	0.1	0.1	55.5	0.2	0.0	55.8	0.1	0.1	9.4	0.0	9.6	10.7	23.7	0.1	0.0	34.5	
Exiting Leg Total					11					880					406					2407	3704
Cars	3	2	0	0	5	5	2021	7	0	2033	4	2	344	0	350	392	849	4	0	1245	3633
% Cars	100.0	100.0	0.0	0.0	100.0	100.0	98.3	100.0	0.0	98.3	100.0	100.0	98.9	0.0	98.9	98.7	96.9	100.0	0.0	97.5	98.1
Exiting Leg Total					11					853					401					2368	3633
Heavy Vehicles	0	0	0	0	0	0	35	0	0	35	0	0	4	0	4	5	27	0	0	32	71
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.7	0.0	0.0	1.1	0.0	1.1	1.3	3.1	0.0	0.0	2.5	1.9
Exiting Leg Total					0					27					5					39	71

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	278	0	0	279	1	0	50	0	51	48	119	0	0	167	497
4:15 PM	0	0	0	0	0	0	294	2	0	296	0	0	44	0	44	63	102	0	0	165	505
4:30 PM	0	0	0	0	0	0	277	1	0	278	1	0	35	0	36	46	120	0	0	166	480
4:45 PM	1	0	0	0	1	0	225	1	0	226	1	0	55	0	56	52	106	1	0	159	442
Total Volume	1	0	0	0	1	1	1074	4	0	1079	3	0	184	0	187	209	447	1	0	657	1924
% Approach Total	100.0	0.0	0.0	0.0		0.1	99.5	0.4	0.0		1.6	0.0	98.4	0.0		31.8	68.0	0.2	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.250	0.913	0.500	0.000	0.911	0.750	0.000	0.836	0.000	0.835	0.829	0.931	0.250	0.000	0.984	0.952
Cars	1	0	0	0	1	1	1051	4	0	1056	3	0	181	0	184	205	432	1	0	638	1879
Cars %	100.0	0.0	0.0	0.0	100.0	100.0	97.9	100.0	0.0	97.9	100.0	0.0	98.4	0.0	98.4	98.1	96.6	100.0	0.0	97.1	97.7
Heavy Vehicles	0	0	0	0	0	0	23	0	0	23	0	0	3	0	3	4	15	0	0	19	45
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	0.0	0.0	1.6	0.0	1.6	1.9	3.4	0.0	0.0	2.9	2.3
Cars Enter Leg	1	0	0	0	1	1	1051	4	0	1056	3	0	181	0	184	205	432	1	0	638	1879
Heavy Enter Leg	0	0	0	0	0	0	23	0	0	23	0	0	3	0	3	4	15	0	0	19	45
Total Entering Leg	1	0	0	0	1	1	1074	4	0	1079	3	0	184	0	187	209	447	1	0	657	1924
Cars Exiting Leg					2					435					209					1233	1879
Heavy Exiting Leg					0					15					4					26	45
Total Exiting Leg					2					450					213					1259	1924

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	268	0	0	269	1	0	50	0	51	46	115	0	0	161	481
4:15 PM	0	0	0	0	0	0	290	2	0	292	0	0	43	0	43	63	100	0	0	163	498
4:30 PM	0	0	0	0	0	0	270	1	0	271	1	0	35	0	36	45	116	0	0	161	468
4:45 PM	1	0	0	0	1	0	223	1	0	224	1	0	53	0	54	51	101	1	0	153	432
Total	1	0	0	0	1	1	1051	4	0	1056	3	0	181	0	184	205	432	1	0	638	1879
5:00 PM	1	0	0	0	1	0	235	1	0	236	0	2	42	0	44	54	102	1	0	157	438
5:15 PM	1	2	0	0	3	3	279	0	0	282	1	0	40	0	41	37	105	1	0	143	469
5:30 PM	0	0	0	0	0	1	251	2	0	254	0	0	37	0	37	46	114	0	0	160	451
5:45 PM	0	0	0	0	0	0	205	0	0	205	0	0	44	0	44	50	96	1	0	147	396
Total	2	2	0	0	4	4	970	3	0	977	1	2	163	0	166	187	417	3	0	607	1754
Grand Total	3	2	0	0	5	5	2021	7	0	2033	4	2	344	0	350	392	849	4	0	1245	3633
Approach %	60.0	40.0	0.0	0.0		0.2	99.4	0.3	0.0		1.1	0.6	98.3	0.0		31.5	68.2	0.3	0.0		
Total %	0.1	0.1	0.0	0.0	0.1	0.1	55.6	0.2	0.0	56.0	0.1	0.1	9.5	0.0	9.6	10.8	23.4	0.1	0.0	34.3	
Exiting Leg Total					11					853					401					2368	3633

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	268	0	0	269	1	0	50	0	51	46	115	0	0	161	481
4:15 PM	0	0	0	0	0	0	290	2	0	292	0	0	43	0	43	63	100	0	0	163	498
4:30 PM	0	0	0	0	0	0	270	1	0	271	1	0	35	0	36	45	116	0	0	161	468
4:45 PM	1	0	0	0	1	0	223	1	0	224	1	0	53	0	54	51	101	1	0	153	432
Total Volume	1	0	0	0	1	1	1051	4	0	1056	3	0	181	0	184	205	432	1	0	638	1879
% Approach Total	100.0	0.0	0.0	0.0		0.1	99.5	0.4	0.0		1.6	0.0	98.4	0.0		32.1	67.7	0.2	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.250	0.906	0.500	0.000	0.904	0.750	0.000	0.854	0.000	0.852	0.813	0.931	0.250	0.000	0.979	0.943
Entering Leg	1	0	0	0	1	1	1051	4	0	1056	3	0	181	0	184	205	432	1	0	638	1879
Exiting Leg					2					435					209					1233	1879
Total					3					1491					393					1871	3758

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	2	4	0	0	6	16
4:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	2	0	0	2	7
4:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	1	4	0	0	5	12
4:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	1	5	0	0	6	10
Total	0	0	0	0	0	0	23	0	0	23	0	0	3	0	3	4	15	0	0	19	45
5:00 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	5	0	0	5	12
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	2	0	0	3	4
5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
5:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	6
Total	0	0	0	0	0	0	12	0	0	12	0	0	1	0	1	1	12	0	0	13	26
Grand Total	0	0	0	0	0	0	35	0	0	35	0	0	4	0	4	5	27	0	0	32	71
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		15.6	84.4	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	49.3	0.0	0.0	49.3	0.0	0.0	5.6	0.0	5.6	7.0	38.0	0.0	0.0	45.1	
Exiting Leg Total					0					27					5					39	71
Buses	0	0	0	0	0	0	12	0	0	12	0	0	1	0	1	4	1	0	0	5	18
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	34.3	0.0	0.0	34.3	0.0	0.0	25.0	0.0	25.0	80.0	3.7	0.0	0.0	15.6	25.4
Exiting Leg Total					0					1					4					13	18
Single-Unit Trucks	0	0	0	0	0	0	17	0	0	17	0	0	3	0	3	1	22	0	0	23	43
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	48.6	0.0	0.0	48.6	0.0	0.0	75.0	0.0	75.0	20.0	81.5	0.0	0.0	71.9	60.6
Exiting Leg Total					0					22					1					20	43
Articulated Trucks	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	10
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	17.1	0.0	0.0	17.1	0.0	0.0	0.0	0.0	0.0	0.0	14.8	0.0	0.0	12.5	14.1
Exiting Leg Total					0					4					0					6	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	2	4	0	0	6	16
4:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	2	0	0	2	7
4:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	1	4	0	0	5	12
4:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	1	5	0	0	6	10
Total Volume	0	0	0	0	0	0	23	0	0	23	0	0	3	0	3	4	15	0	0	19	45
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		21.1	78.9	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.575	0.000	0.000	0.575	0.000	0.000	0.375	0.000	0.375	0.500	0.750	0.000	0.000	0.792	0.703
Buses	0	0	0	0	0	0	9	0	0	9	0	0	1	0	1	3	1	0	0	4	14
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	39.1	0.0	0.0	39.1	0.0	0.0	33.3	0.0	33.3	75.0	6.7	0.0	0.0	21.1	31.1
Single-Unit Trucks	0	0	0	0	0	0	11	0	0	11	0	0	2	0	2	1	11	0	0	12	25
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	47.8	0.0	0.0	47.8	0.0	0.0	66.7	0.0	66.7	25.0	73.3	0.0	0.0	63.2	55.6
Articulated Trucks	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	15.8	13.3
Buses	0	0	0	0	0	0	9	0	0	9	0	0	1	0	1	3	1	0	0	4	14
Single-Unit Trucks	0	0	0	0	0	0	11	0	0	11	0	0	2	0	2	1	11	0	0	12	25
Articulated Trucks	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
Total Entering Leg	0	0	0	0	0	0	23	0	0	23	0	0	3	0	3	4	15	0	0	19	45
Buses					0					1					3					10	14
Single-Unit Trucks					0					11					1					13	25
Articulated Trucks					0					3					0					3	6
Total Exiting Leg					0					15					4					26	45

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	218	0	0	219	1	0	45	0	46	43	100	0	0	143	408
4:15 PM	0	0	0	0	0	0	240	0	0	240	0	0	39	0	39	55	83	0	0	138	417
4:30 PM	0	0	0	0	0	0	232	1	0	233	1	0	32	0	33	41	97	0	0	138	404
4:45 PM	1	0	0	0	1	0	211	1	0	212	1	0	46	0	47	49	87	0	0	136	396
Total	1	0	0	0	1	1	901	2	0	904	3	0	162	0	165	188	367	0	0	555	1625
5:00 PM	1	0	0	0	1	0	215	0	0	215	0	1	39	0	40	54	94	0	0	148	404
5:15 PM	1	2	0	0	3	3	251	0	0	254	1	0	39	0	40	35	91	1	0	127	424
5:30 PM	0	0	0	0	0	1	235	2	0	238	0	0	32	0	32	43	102	0	0	145	415
5:45 PM	0	0	0	0	0	0	195	0	0	195	0	0	41	0	41	47	88	1	0	136	372
Total	2	2	0	0	4	4	896	2	0	902	1	1	151	0	153	179	375	2	0	556	1615
Grand Total	3	2	0	0	5	5	1797	4	0	1806	4	1	313	0	318	367	742	2	0	1111	3240
Approach %	60.0	40.0	0.0	0.0		0.3	99.5	0.2	0.0		1.3	0.3	98.4	0.0		33.0	66.8	0.2	0.0		
Total %	0.1	0.1	0.0	0.0	0.2	0.2	55.5	0.1	0.0	55.7	0.1	0.0	9.7	0.0	9.8	11.3	22.9	0.1	0.0	34.3	
Exiting Leg Total					8					746					373					2113	3240

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	1	0	0	0	1	0	211	1	0	212	1	0	46	0	47	49	87	0	0	136	396
5:00 PM	1	0	0	0	1	0	215	0	0	215	0	1	39	0	40	54	94	0	0	148	404
5:15 PM	1	2	0	0	3	3	251	0	0	254	1	0	39	0	40	35	91	1	0	127	424
5:30 PM	0	0	0	0	0	1	235	2	0	238	0	0	32	0	32	43	102	0	0	145	415
Total Volume	3	2	0	0	5	4	912	3	0	919	2	1	156	0	159	181	374	1	0	556	1639
% Approach Total	60.0	40.0	0.0	0.0		0.4	99.2	0.3	0.0		1.3	0.6	98.1	0.0		32.6	67.3	0.2	0.0		
PHF	0.750	0.250	0.000	0.000	0.417	0.333	0.908	0.375	0.000	0.905	0.500	0.250	0.848	0.000	0.846	0.838	0.917	0.250	0.000	0.939	0.966
Entering Leg	3	2	0	0	5	4	912	3	0	919	2	1	156	0	159	181	374	1	0	556	1639
Exiting Leg					6					376					186					1071	1639
Total					11					1295					345					1627	3278

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	50	0	0	50	0	0	5	0	5	3	15	0	0	18	73
4:15 PM	0	0	0	0	0	0	50	2	0	52	0	0	4	0	4	8	17	0	0	25	81
4:30 PM	0	0	0	0	0	0	38	0	0	38	0	0	3	0	3	4	19	0	0	23	64
4:45 PM	0	0	0	0	0	0	12	0	0	12	0	0	7	0	7	2	14	1	0	17	36
Total	0	0	0	0	0	0	150	2	0	152	0	0	19	0	19	17	65	1	0	83	254
5:00 PM	0	0	0	0	0	0	20	1	0	21	0	1	3	0	4	0	8	1	0	9	34
5:15 PM	0	0	0	0	0	0	28	0	0	28	0	0	1	0	1	2	14	0	0	16	45
5:30 PM	0	0	0	0	0	0	16	0	0	16	0	0	5	0	5	3	12	0	0	15	36
5:45 PM	0	0	0	0	0	0	10	0	0	10	0	0	3	0	3	3	8	0	0	11	24
Total	0	0	0	0	0	0	74	1	0	75	0	1	12	0	13	8	42	1	0	51	139
Grand Total	0	0	0	0	0	0	224	3	0	227	0	1	31	0	32	25	107	2	0	134	393
Approach %	0.0	0.0	0.0	0.0		0.0	98.7	1.3	0.0		0.0	3.1	96.9	0.0		18.7	79.9	1.5	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	57.0	0.8	0.0	57.8	0.0	0.3	7.9	0.0	8.1	6.4	27.2	0.5	0.0	34.1	
Exiting Leg Total					3					107					28					255	393

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	50	0	0	50	0	0	5	0	5	3	15	0	0	18	73
4:15 PM	0	0	0	0	0	0	50	2	0	52	0	0	4	0	4	8	17	0	0	25	81
4:30 PM	0	0	0	0	0	0	38	0	0	38	0	0	3	0	3	4	19	0	0	23	64
4:45 PM	0	0	0	0	0	0	12	0	0	12	0	0	7	0	7	2	14	1	0	17	36
Total Volume	0	0	0	0	0	0	150	2	0	152	0	0	19	0	19	17	65	1	0	83	254
% Approach Total	0.0	0.0	0.0	0.0		0.0	98.7	1.3	0.0		0.0	0.0	100.0	0.0		20.5	78.3	1.2	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.250	0.000	0.731	0.000	0.000	0.679	0.000	0.679	0.531	0.855	0.250	0.000	0.830	0.784
Entering Leg	0	0	0	0	0	0	150	2	0	152	0	0	19	0	19	17	65	1	0	83	254
Exiting Leg					1					65					19					169	254
Total					1					217					38					252	508

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	2	0	0	0	2	8
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	1	0	0	1	4
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	0	0	0	0	0	9	0	0	9	0	0	1	0	1	3	1	0	0	4	14
5:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	4
Grand Total	0	0	0	0	0	0	12	0	0	12	0	0	1	0	1	4	1	0	0	5	18
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		80.0	20.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	66.7	0.0	0.0	5.6	0.0	5.6	22.2	5.6	0.0	0.0	27.8	
Exiting Leg Total					0					1					4					13	18

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Shirley Road					Seven Bridge Road (Route 117)					Main Street (Route 70)					Main Street (Route 70/117)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	2	0	0	0	2	8
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	1	0	0	1	4
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total Volume	0	0	0	0	0	0	9	0	0	9	0	0	1	0	1	3	1	0	0	4	14
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		75.0	25.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.000	0.000	0.250	0.000	0.250	0.375	0.250	0.000	0.000	0.500	0.438
Entering Leg	0	0	0	0	0	0	9	0	0	9	0	0	1	0	1	3	1	0	0	4	14
Exiting Leg					0					1					3					10	14
Total					0					10					4					14	28

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	4	0	0	5	9
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	0	3	0	0	3	6
Total	0	0	0	0	0	0	11	0	0	11	0	0	2	0	2	1	11	0	0	12	25
5:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
5:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	2	0	0	2	5
Total	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	0	11	0	0	11	18
Grand Total	0	0	0	0	0	0	17	0	0	17	0	0	3	0	3	1	22	0	0	23	43
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		4.3	95.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	39.5	0.0	0.0	39.5	0.0	0.0	7.0	0.0	7.0	2.3	51.2	0.0	0.0	53.5	
Exiting Leg Total					0					22					1					20	43

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	4	0	0	5	9
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	0	3	0	0	3	6
5:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
Total Volume	0	0	0	0	0	0	10	0	0	10	0	0	2	0	2	1	13	0	0	14	26
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		7.1	92.9	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.000	0.000	0.250	0.000	0.250	0.250	0.650	0.000	0.000	0.700	0.722
Entering Leg	0	0	0	0	0	0	10	0	0	10	0	0	2	0	2	1	13	0	0	14	26
Exiting Leg					0					13					1					12	26
Total					0					23					3					26	52

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
5:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
Grand Total	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	10
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	40.0	
Exiting Leg Total					0					4					0					6	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Shirley Road from North					Seven Bridge Road (Route 117) from East					Main Street (Route 70) from South					Main Street (Route 70/117) from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
5:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.667
Entering Leg	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
Exiting Leg					0					3					0					5	8
Total					0					8					0					8	16

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Shirley Road							Seven Bridge Road (Route 117)							Main Street (Route 70)							Main Street (Route 70/117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Shirley Road							Seven Bridge Road (Route 117)							Main Street (Route 70)							Main Street (Route 70/117)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 CC**
Location: **N: Shirley Road S: Main Street (Route 70)**
Location: **E: Seven Bridge Road (Route 117) W: Main Street (Route 70/117)**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Shirley Road from North							Seven Bridge Road (Route 117) from East							Main Street (Route 70) from South							Main Street (Route 70/117) from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	100	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	
Exiting Leg Total							0							0							0							2	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Shirley Road from North							Seven Bridge Road (Route 117) from East							Main Street (Route 70) from South							Main Street (Route 70/117) from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Exiting Leg							0							0							0							2	2
Total							0							0							0							4	4

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	7	3	0	10	0	13	0	13	26	10	0	36	59
7:15 AM	4	1	0	5	0	13	0	13	32	11	0	43	61
7:30 AM	8	7	0	15	0	7	0	7	34	17	0	51	73
7:45 AM	6	2	0	8	0	20	0	20	30	17	0	47	75
Total	25	13	0	38	0	53	0	53	122	55	0	177	268
8:00 AM	6	2	0	8	0	14	0	14	23	5	0	28	50
8:15 AM	4	1	0	5	0	11	0	11	29	6	0	35	51
8:30 AM	5	3	0	8	0	18	0	18	35	3	0	38	64
8:45 AM	6	3	0	9	0	18	0	18	27	5	0	32	59
Total	21	9	0	30	0	61	0	61	114	19	0	133	224
Grand Total	46	22	0	68	0	114	0	114	236	74	0	310	492
Approach %	67.6	32.4	0.0		0.0	100.0	0.0		76.1	23.9	0.0		
Total %	9.3	4.5	0.0	13.8	0.0	23.2	0.0	23.2	48.0	15.0	0.0	63.0	
Exiting Leg Total				74				258				160	492
Cars	37	22	0	59	0	101	0	101	222	64	0	286	446
% Cars	80.4	100.0	0.0	86.8	0.0	88.6	0.0	88.6	94.1	86.5	0.0	92.3	90.7
Exiting Leg Total				64				244				138	446
Heavy Vehicles	9	0	0	9	0	13	0	13	14	10	0	24	46
% Heavy Vehicles	19.6	0.0	0.0	13.2	0.0	11.4	0.0	11.4	5.9	13.5	0.0	7.7	9.3
Exiting Leg Total				10				14				22	46

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	7	3	0	10	0	13	0	13	26	10	0	36	59
7:15 AM	4	1	0	5	0	13	0	13	32	11	0	43	61
7:30 AM	8	7	0	15	0	7	0	7	34	17	0	51	73
7:45 AM	6	2	0	8	0	20	0	20	30	17	0	47	75
Total Volume	25	13	0	38	0	53	0	53	122	55	0	177	268
% Approach Total	65.8	34.2	0.0		0.0	100.0	0.0		68.9	31.1	0.0		
PHF	0.781	0.464	0.000	0.633	0.000	0.663	0.000	0.663	0.897	0.809	0.000	0.868	0.893
Cars	22	13	0	35	0	49	0	49	119	48	0	167	251
Cars %	88.0	100.0	0.0	92.1	0.0	92.5	0.0	92.5	97.5	87.3	0.0	94.4	93.7
Heavy Vehicles	3	0	0	3	0	4	0	4	3	7	0	10	17
Heavy Vehicles %	12.0	0.0	0.0	7.9	0.0	7.5	0.0	7.5	2.5	12.7	0.0	5.6	6.3
Cars Enter Leg	22	13	0	35	0	49	0	49	119	48	0	167	251
Heavy Enter Leg	3	0	0	3	0	4	0	4	3	7	0	10	17
Total Entering Leg	25	13	0	38	0	53	0	53	122	55	0	177	268
Cars Exiting Leg				48				132				71	251
Heavy Exiting Leg				7				3				7	17
Total Exiting Leg				55				135				78	268

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	6	3	0	9	0	11	0	11	25	8	0	33	53
7:15 AM	4	1	0	5	0	12	0	12	31	9	0	40	57
7:30 AM	8	7	0	15	0	7	0	7	33	16	0	49	71
7:45 AM	4	2	0	6	0	19	0	19	30	15	0	45	70
Total	22	13	0	35	0	49	0	49	119	48	0	167	251
8:00 AM	3	2	0	5	0	13	0	13	19	4	0	23	41
8:15 AM	3	1	0	4	0	9	0	9	27	5	0	32	45
8:30 AM	3	3	0	6	0	14	0	14	33	3	0	36	56
8:45 AM	6	3	0	9	0	16	0	16	24	4	0	28	53
Total	15	9	0	24	0	52	0	52	103	16	0	119	195
Grand Total	37	22	0	59	0	101	0	101	222	64	0	286	446
Approach %	62.7	37.3	0.0		0.0	100.0	0.0		77.6	22.4	0.0		
Total %	8.3	4.9	0.0	13.2	0.0	22.6	0.0	22.6	49.8	14.3	0.0	64.1	
Exiting Leg Total				64				244				138	446

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	6	3	0	9	0	11	0	11	25	8	0	33	53
7:15 AM	4	1	0	5	0	12	0	12	31	9	0	40	57
7:30 AM	8	7	0	15	0	7	0	7	33	16	0	49	71
7:45 AM	4	2	0	6	0	19	0	19	30	15	0	45	70
Total Volume	22	13	0	35	0	49	0	49	119	48	0	167	251
% Approach Total	62.9	37.1	0.0		0.0	100.0	0.0		71.3	28.7	0.0		
PHF	0.688	0.464	0.000	0.583	0.000	0.645	0.000	0.645	0.902	0.750	0.000	0.852	0.884
Entering Leg	22	13	0	35	0	49	0	49	119	48	0	167	251
Exiting Leg				48				132				71	251
Total				83				181				238	502

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	1	0	0	1	0	2	0	2	1	2	0	3	6
7:15 AM	0	0	0	0	0	1	0	1	1	2	0	3	4
7:30 AM	0	0	0	0	0	0	0	0	1	1	0	2	2
7:45 AM	2	0	0	2	0	1	0	1	0	2	0	2	5
Total	3	0	0	3	0	4	0	4	3	7	0	10	17
8:00 AM	3	0	0	3	0	1	0	1	4	1	0	5	9
8:15 AM	1	0	0	1	0	2	0	2	2	1	0	3	6
8:30 AM	2	0	0	2	0	4	0	4	2	0	0	2	8
8:45 AM	0	0	0	0	0	2	0	2	3	1	0	4	6
Total	6	0	0	6	0	9	0	9	11	3	0	14	29
Grand Total	9	0	0	9	0	13	0	13	14	10	0	24	46
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		58.3	41.7	0.0		
Total %	19.6	0.0	0.0	19.6	0.0	28.3	0.0	28.3	30.4	21.7	0.0	52.2	
Exiting Leg Total				10				14				22	46
Buses	2	0	0	2	0	0	0	0	0	0	0	0	2
% Buses	22.2	0.0	0.0	22.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
Exiting Leg Total				0				0				2	2
Single-Unit Trucks	4	0	0	4	0	8	0	8	12	7	0	19	31
% Single-Unit	44.4	0.0	0.0	44.4	0.0	61.5	0.0	61.5	85.7	70.0	0.0	79.2	67.4
Exiting Leg Total				7				12				12	31
Articulated Trucks	3	0	0	3	0	5	0	5	2	3	0	5	13
% Articulated	33.3	0.0	0.0	33.3	0.0	38.5	0.0	38.5	14.3	30.0	0.0	20.8	28.3
Exiting Leg Total				3				2				8	13

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	3	0	0	3	0	1	0	1	4	1	0	5	9
8:15 AM	1	0	0	1	0	2	0	2	2	1	0	3	6
8:30 AM	2	0	0	2	0	4	0	4	2	0	0	2	8
8:45 AM	0	0	0	0	0	2	0	2	3	1	0	4	6
Total Volume	6	0	0	6	0	9	0	9	11	3	0	14	29
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		78.6	21.4	0.0		
PHF	0.500	0.000	0.000	0.500	0.000	0.563	0.000	0.563	0.688	0.750	0.000	0.700	0.806
Buses	1	0	0	1	0	0	0	0	0	0	0	0	1
Buses %	16.7	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4
Single-Unit Trucks	4	0	0	4	0	5	0	5	9	1	0	10	19
Single-Unit %	66.7	0.0	0.0	66.7	0.0	55.6	0.0	55.6	81.8	33.3	0.0	71.4	65.5
Articulated Trucks	1	0	0	1	0	4	0	4	2	2	0	4	9
Articulated %	16.7	0.0	0.0	16.7	0.0	44.4	0.0	44.4	18.2	66.7	0.0	28.6	31.0
Buses	1	0	0	1	0	0	0	0	0	0	0	0	1
Single-Unit Trucks	4	0	0	4	0	5	0	5	9	1	0	10	19
Articulated Trucks	1	0	0	1	0	4	0	4	2	2	0	4	9
Total Entering Leg	6	0	0	6	0	9	0	9	11	3	0	14	29
Buses				0				0				1	1
Single-Unit Trucks				1				9				9	19
Articulated Trucks				2				2				5	9
Total Exiting Leg				3				11				15	29

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	6	3	0	9	0	7	0	7	22	6	0	28	44
7:15 AM	4	1	0	5	0	9	0	9	27	5	0	32	46
7:30 AM	8	5	0	13	0	5	0	5	26	11	0	37	55
7:45 AM	1	2	0	3	0	12	0	12	26	6	0	32	47
Total	19	11	0	30	0	33	0	33	101	28	0	129	192
8:00 AM	3	1	0	4	0	10	0	10	16	2	0	18	32
8:15 AM	3	1	0	4	0	5	0	5	24	4	0	28	37
8:30 AM	3	1	0	4	0	10	0	10	32	2	0	34	48
8:45 AM	5	0	0	5	0	10	0	10	20	2	0	22	37
Total	14	3	0	17	0	35	0	35	92	10	0	102	154
Grand Total	33	14	0	47	0	68	0	68	193	38	0	231	346
Approach %	70.2	29.8	0.0		0.0	100.0	0.0		83.5	16.5	0.0		
Total %	9.5	4.0	0.0	13.6	0.0	19.7	0.0	19.7	55.8	11.0	0.0	66.8	
Exiting Leg Total				38				207				101	346

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	6	3	0	9	0	7	0	7	22	6	0	28	44
7:15 AM	4	1	0	5	0	9	0	9	27	5	0	32	46
7:30 AM	8	5	0	13	0	5	0	5	26	11	0	37	55
7:45 AM	1	2	0	3	0	12	0	12	26	6	0	32	47
Total Volume	19	11	0	30	0	33	0	33	101	28	0	129	192
% Approach Total	63.3	36.7	0.0		0.0	100.0	0.0		78.3	21.7	0.0		
PHF	0.594	0.550	0.000	0.577	0.000	0.688	0.000	0.688	0.935	0.636	0.000	0.872	0.873
Entering Leg	19	11	0	30	0	33	0	33	101	28	0	129	192
Exiting Leg				28				112				52	192
Total				58				145				181	384

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	4	0	4	3	2	0	5	9
7:15 AM	0	0	0	0	0	3	0	3	4	4	0	8	11
7:30 AM	0	2	0	2	0	2	0	2	7	5	0	12	16
7:45 AM	3	0	0	3	0	7	0	7	4	9	0	13	23
Total	3	2	0	5	0	16	0	16	18	20	0	38	59
8:00 AM	0	1	0	1	0	3	0	3	3	2	0	5	9
8:15 AM	0	0	0	0	0	4	0	4	3	1	0	4	8
8:30 AM	0	2	0	2	0	4	0	4	1	1	0	2	8
8:45 AM	1	3	0	4	0	6	0	6	4	2	0	6	16
Total	1	6	0	7	0	17	0	17	11	6	0	17	41
Grand Total	4	8	0	12	0	33	0	33	29	26	0	55	100
Approach %	33.3	66.7	0.0		0.0	100.0	0.0		52.7	47.3	0.0		
Total %	4.0	8.0	0.0	12.0	0.0	33.0	0.0	33.0	29.0	26.0	0.0	55.0	
Exiting Leg Total				26				37				37	100

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	4	0	4	3	2	0	5	9
7:15 AM	0	0	0	0	0	3	0	3	4	4	0	8	11
7:30 AM	0	2	0	2	0	2	0	2	7	5	0	12	16
7:45 AM	3	0	0	3	0	7	0	7	4	9	0	13	23
Total Volume	3	2	0	5	0	16	0	16	18	20	0	38	59
% Approach Total	60.0	40.0	0.0		0.0	100.0	0.0		47.4	52.6	0.0		
PHF	0.250	0.250	0.000	0.417	0.000	0.571	0.000	0.571	0.643	0.556	0.000	0.731	0.641
Entering Leg	3	2	0	5	0	16	0	16	18	20	0	38	59
Exiting Leg				20				20				19	59
Total				25				36				57	118

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	0	0	0	0	0	0	1
8:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	0	0	0	0	0	0	1
Grand Total	2	0	0	2	0	0	0	0	0	0	0	0	2
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				2	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	0	0	0	1
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	1	0	0	1	0	0	0	0	0	0	0	0	1
Exiting Leg				0				0				1	1
Total				1				0				1	2

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Single-Unit Trucks**

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	1	0	1	1	2	0	3	4
7:15 AM	0	0	0	0	0	1	0	1	1	2	0	3	4
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	1	0	1	0	2	0	2	3
Total	0	0	0	0	0	3	0	3	3	6	0	9	12
8:00 AM	2	0	0	2	0	1	0	1	2	0	0	2	5
8:15 AM	1	0	0	1	0	1	0	1	2	0	0	2	4
8:30 AM	1	0	0	1	0	2	0	2	2	0	0	2	5
8:45 AM	0	0	0	0	0	1	0	1	3	1	0	4	5
Total	4	0	0	4	0	5	0	5	9	1	0	10	19
Grand Total	4	0	0	4	0	8	0	8	12	7	0	19	31
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		63.2	36.8	0.0		
Total %	12.9	0.0	0.0	12.9	0.0	25.8	0.0	25.8	38.7	22.6	0.0	61.3	
Exiting Leg Total				7				12				12	31

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	2	0	0	2	0	1	0	1	2	0	0	2	5
8:15 AM	1	0	0	1	0	1	0	1	2	0	0	2	4
8:30 AM	1	0	0	1	0	2	0	2	2	0	0	2	5
8:45 AM	0	0	0	0	0	1	0	1	3	1	0	4	5
Total Volume	4	0	0	4	0	5	0	5	9	1	0	10	19
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		90.0	10.0	0.0		
PHF	0.500	0.000	0.000	0.500	0.000	0.625	0.000	0.625	0.750	0.250	0.000	0.625	0.950
Entering Leg	4	0	0	4	0	5	0	5	9	1	0	10	19
Exiting Leg				1				9				9	19
Total				5				14				19	38

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
7:45 AM	2	0	0	2	0	0	0	0	0	0	0	0	2
Total	2	0	0	2	0	1	0	1	0	1	0	1	4
8:00 AM	0	0	0	0	0	0	0	0	2	1	0	3	3
8:15 AM	0	0	0	0	0	1	0	1	0	1	0	1	2
8:30 AM	1	0	0	1	0	2	0	2	0	0	0	0	3
8:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	1	0	0	1	0	4	0	4	2	2	0	4	9
Grand Total	3	0	0	3	0	5	0	5	2	3	0	5	13
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		40.0	60.0	0.0		
Total %	23.1	0.0	0.0	23.1	0.0	38.5	0.0	38.5	15.4	23.1	0.0	38.5	
Exiting Leg Total				3				2				8	13

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:45 AM	2	0	0	2	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	2	1	0	3	3
8:15 AM	0	0	0	0	0	1	0	1	0	1	0	1	2
8:30 AM	1	0	0	1	0	2	0	2	0	0	0	0	3
Total Volume	3	0	0	3	0	3	0	3	2	2	0	4	10
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		50.0	50.0	0.0		
PHF	0.375	0.000	0.000	0.375	0.000	0.375	0.000	0.375	0.250	0.500	0.000	0.333	0.833
Entering Leg	3	0	0	3	0	3	0	3	2	2	0	4	10
Exiting Leg				2				2				6	10
Total				5				5				10	20

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Fort Pond Road from East						Route 2 WB Ramps from South						Fort Pond Road from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Fort Pond Road from East						Route 2 WB Ramps from South						Fort Pond Road from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 D**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Fort Pond Road from East						Route 2 WB Ramps from South						Fort Pond Road from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Fort Pond Road from East						Route 2 WB Ramps from South						Fort Pond Road from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	25	11	0	36	0	54	0	54	32	6	0	38	128
4:15 PM	28	8	0	36	0	58	0	58	49	5	0	54	148
4:30 PM	33	1	0	34	0	44	0	44	40	6	0	46	124
4:45 PM	25	5	0	30	0	57	0	57	41	2	0	43	130
Total	111	25	0	136	0	213	0	213	162	19	0	181	530
5:00 PM	25	10	0	35	0	53	0	53	34	5	0	39	127
5:15 PM	17	4	0	21	0	75	0	75	34	0	0	34	130
5:30 PM	66	5	0	71	0	121	0	121	19	5	0	24	216
5:45 PM	109	7	0	116	0	102	0	102	26	3	0	29	247
Total	217	26	0	243	0	351	0	351	113	13	0	126	720
Grand Total	328	51	0	379	0	564	0	564	275	32	0	307	1250
Approach %	86.5	13.5	0.0		0.0	100.0	0.0		89.6	10.4	0.0		
Total %	26.2	4.1	0.0	30.3	0.0	45.1	0.0	45.1	22.0	2.6	0.0	24.6	
Exiting Leg Total				32				326				892	1250
Cars	319	47	0	366	0	545	0	545	264	27	0	291	1202
% Cars	97.3	92.2	0.0	96.6	0.0	96.6	0.0	96.6	96.0	84.4	0.0	94.8	96.2
Exiting Leg Total				27				311				864	1202
Heavy Vehicles	9	4	0	13	0	19	0	19	11	5	0	16	48
% Heavy Vehicles	2.7	7.8	0.0	3.4	0.0	3.4	0.0	3.4	4.0	15.6	0.0	5.2	3.8
Exiting Leg Total				5				15				28	48

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	25	10	0	35	0	53	0	53	34	5	0	39	127
5:15 PM	17	4	0	21	0	75	0	75	34	0	0	34	130
5:30 PM	66	5	0	71	0	121	0	121	19	5	0	24	216
5:45 PM	109	7	0	116	0	102	0	102	26	3	0	29	247
Total Volume	217	26	0	243	0	351	0	351	113	13	0	126	720
% Approach Total	89.3	10.7	0.0		0.0	100.0	0.0		89.7	10.3	0.0		
PHF	0.498	0.650	0.000	0.524	0.000	0.725	0.000	0.725	0.831	0.650	0.000	0.808	0.729
Cars	212	24	0	236	0	341	0	341	108	12	0	120	697
Cars %	97.7	92.3	0.0	97.1	0.0	97.2	0.0	97.2	95.6	92.3	0.0	95.2	96.8
Heavy Vehicles	5	2	0	7	0	10	0	10	5	1	0	6	23
Heavy Vehicles %	2.3	7.7	0.0	2.9	0.0	2.8	0.0	2.8	4.4	7.7	0.0	4.8	3.2
Cars Enter Leg	212	24	0	236	0	341	0	341	108	12	0	120	697
Heavy Enter Leg	5	2	0	7	0	10	0	10	5	1	0	6	23
Total Entering Leg	217	26	0	243	0	351	0	351	113	13	0	126	720
Cars Exiting Leg				12				132				553	697
Heavy Exiting Leg				1				7				15	23
Total Exiting Leg				13				139				568	720

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	24	11	0	35	0	49	0	49	28	5	0	33	117
4:15 PM	26	6	0	32	0	56	0	56	49	3	0	52	140
4:30 PM	32	1	0	33	0	43	0	43	38	5	0	43	119
4:45 PM	25	5	0	30	0	56	0	56	41	2	0	43	129
Total	107	23	0	130	0	204	0	204	156	15	0	171	505
5:00 PM	23	10	0	33	0	51	0	51	32	5	0	37	121
5:15 PM	17	2	0	19	0	70	0	70	34	0	0	34	123
5:30 PM	65	5	0	70	0	120	0	120	18	4	0	22	212
5:45 PM	107	7	0	114	0	100	0	100	24	3	0	27	241
Total	212	24	0	236	0	341	0	341	108	12	0	120	697
Grand Total	319	47	0	366	0	545	0	545	264	27	0	291	1202
Approach %	87.2	12.8	0.0		0.0	100.0	0.0		90.7	9.3	0.0		
Total %	26.5	3.9	0.0	30.4	0.0	45.3	0.0	45.3	22.0	2.2	0.0	24.2	
Exiting Leg Total				27				311				864	1202

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	23	10	0	33	0	51	0	51	32	5	0	37	121
5:15 PM	17	2	0	19	0	70	0	70	34	0	0	34	123
5:30 PM	65	5	0	70	0	120	0	120	18	4	0	22	212
5:45 PM	107	7	0	114	0	100	0	100	24	3	0	27	241
Total Volume	212	24	0	236	0	341	0	341	108	12	0	120	697
% Approach Total	89.8	10.2	0.0		0.0	100.0	0.0		90.0	10.0	0.0		
PHF	0.495	0.600	0.000	0.518	0.000	0.710	0.000	0.710	0.794	0.600	0.000	0.811	0.723
Entering Leg	212	24	0	236	0	341	0	341	108	12	0	120	697
Exiting Leg				12				132				553	697
Total				248				473				673	1394

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	5	0	5	4	1	0	5	11
4:15 PM	2	2	0	4	0	2	0	2	0	2	0	2	8
4:30 PM	1	0	0	1	0	1	0	1	2	1	0	3	5
4:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	4	2	0	6	0	9	0	9	6	4	0	10	25
5:00 PM	2	0	0	2	0	2	0	2	2	0	0	2	6
5:15 PM	0	2	0	2	0	5	0	5	0	0	0	0	7
5:30 PM	1	0	0	1	0	1	0	1	1	1	0	2	4
5:45 PM	2	0	0	2	0	2	0	2	2	0	0	2	6
Total	5	2	0	7	0	10	0	10	5	1	0	6	23
Grand Total	9	4	0	13	0	19	0	19	11	5	0	16	48
Approach %	69.2	30.8	0.0		0.0	100.0	0.0		68.8	31.3	0.0		
Total %	18.8	8.3	0.0	27.1	0.0	39.6	0.0	39.6	22.9	10.4	0.0	33.3	
Exiting Leg Total				5				15				28	48
Buses	1	0	0	1	0	1	0	1	1	1	0	2	4
% Buses	11.1	0.0	0.0	7.7	0.0	5.3	0.0	5.3	9.1	20.0	0.0	12.5	8.3
Exiting Leg Total				1				1				2	4
Single-Unit Trucks	8	2	0	10	0	13	0	13	6	2	0	8	31
% Single-Unit	88.9	50.0	0.0	76.9	0.0	68.4	0.0	68.4	54.5	40.0	0.0	50.0	64.6
Exiting Leg Total				2				8				21	31
Articulated Trucks	0	2	0	2	0	5	0	5	4	2	0	6	13
% Articulated	0.0	50.0	0.0	15.4	0.0	26.3	0.0	26.3	36.4	40.0	0.0	37.5	27.1
Exiting Leg Total				2				6				5	13

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	5	0	5	4	1	0	5	11
4:15 PM	2	2	0	4	0	2	0	2	0	2	0	2	8
4:30 PM	1	0	0	1	0	1	0	1	2	1	0	3	5
4:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	4	2	0	6	0	9	0	9	6	4	0	10	25
% Approach Total	66.7	33.3	0.0		0.0	100.0	0.0		60.0	40.0	0.0		
PHF	0.500	0.250	0.000	0.375	0.000	0.450	0.000	0.450	0.375	0.500	0.000	0.500	0.568
Buses	1	0	0	1	0	1	0	1	1	1	0	2	4
Buses %	25.0	0.0	0.0	16.7	0.0	11.1	0.0	11.1	16.7	25.0	0.0	20.0	16.0
Single-Unit Trucks	3	1	0	4	0	7	0	7	3	1	0	4	15
Single-Unit %	75.0	50.0	0.0	66.7	0.0	77.8	0.0	77.8	50.0	25.0	0.0	40.0	60.0
Articulated Trucks	0	1	0	1	0	1	0	1	2	2	0	4	6
Articulated %	0.0	50.0	0.0	16.7	0.0	11.1	0.0	11.1	33.3	50.0	0.0	40.0	24.0
Buses	1	0	0	1	0	1	0	1	1	1	0	2	4
Single-Unit Trucks	3	1	0	4	0	7	0	7	3	1	0	4	15
Articulated Trucks	0	1	0	1	0	1	0	1	2	2	0	4	6
Total Entering Leg	4	2	0	6	0	9	0	9	6	4	0	10	25
Buses				1				1				2	4
Single-Unit Trucks				1				4				10	15
Articulated Trucks				2				3				1	6
Total Exiting Leg				4				8				13	25

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	20	10	0	30	0	37	0	37	19	3	0	22	89
4:15 PM	22	5	0	27	0	45	0	45	41	1	0	42	114
4:30 PM	30	1	0	31	0	32	0	32	30	5	0	35	98
4:45 PM	24	3	0	27	0	44	0	44	34	2	0	36	107
Total	96	19	0	115	0	158	0	158	124	11	0	135	408
5:00 PM	22	9	0	31	0	49	0	49	32	5	0	37	117
5:15 PM	16	2	0	18	0	62	0	62	34	0	0	34	114
5:30 PM	51	4	0	55	0	108	0	108	17	2	0	19	182
5:45 PM	96	6	0	102	0	87	0	87	21	3	0	24	213
Total	185	21	0	206	0	306	0	306	104	10	0	114	626
Grand Total	281	40	0	321	0	464	0	464	228	21	0	249	1034
Approach %	87.5	12.5	0.0		0.0	100.0	0.0		91.6	8.4	0.0		
Total %	27.2	3.9	0.0	31.0	0.0	44.9	0.0	44.9	22.1	2.0	0.0	24.1	
Exiting Leg Total				21				268				745	1034

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	22	9	0	31	0	49	0	49	32	5	0	37	117
5:15 PM	16	2	0	18	0	62	0	62	34	0	0	34	114
5:30 PM	51	4	0	55	0	108	0	108	17	2	0	19	182
5:45 PM	96	6	0	102	0	87	0	87	21	3	0	24	213
Total Volume	185	21	0	206	0	306	0	306	104	10	0	114	626
% Approach Total	89.8	10.2	0.0		0.0	100.0	0.0		91.2	8.8	0.0		
PHF	0.482	0.583	0.000	0.505	0.000	0.708	0.000	0.708	0.765	0.500	0.000	0.770	0.735
Entering Leg	185	21	0	206	0	306	0	306	104	10	0	114	626
Exiting Leg				10				125				491	626
Total				216				431				605	1252

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	4	1	0	5	0	12	0	12	9	2	0	11	28
4:15 PM	4	1	0	5	0	11	0	11	8	2	0	10	26
4:30 PM	2	0	0	2	0	11	0	11	8	0	0	8	21
4:45 PM	1	2	0	3	0	12	0	12	7	0	0	7	22
Total	11	4	0	15	0	46	0	46	32	4	0	36	97
5:00 PM	1	1	0	2	0	2	0	2	0	0	0	0	4
5:15 PM	1	0	0	1	0	8	0	8	0	0	0	0	9
5:30 PM	14	1	0	15	0	12	0	12	1	2	0	3	30
5:45 PM	11	1	0	12	0	13	0	13	3	0	0	3	28
Total	27	3	0	30	0	35	0	35	4	2	0	6	71
Grand Total	38	7	0	45	0	81	0	81	36	6	0	42	168
Approach %	84.4	15.6	0.0		0.0	100.0	0.0		85.7	14.3	0.0		
Total %	22.6	4.2	0.0	26.8	0.0	48.2	0.0	48.2	21.4	3.6	0.0	25.0	
Exiting Leg Total				6				43				119	168

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	4	1	0	5	0	12	0	12	9	2	0	11	28
4:15 PM	4	1	0	5	0	11	0	11	8	2	0	10	26
4:30 PM	2	0	0	2	0	11	0	11	8	0	0	8	21
4:45 PM	1	2	0	3	0	12	0	12	7	0	0	7	22
Total Volume	11	4	0	15	0	46	0	46	32	4	0	36	97
% Approach Total	73.3	26.7	0.0		0.0	100.0	0.0		88.9	11.1	0.0		
PHF	0.688	0.500	0.000	0.750	0.000	0.958	0.000	0.958	0.889	0.500	0.000	0.818	0.866
Entering Leg	11	4	0	15	0	46	0	46	32	4	0	36	97
Exiting Leg				4				36				57	97
Total				19				82				93	194

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
4:30 PM	1	0	0	1	0	0	0	0	1	0	0	1	2
4:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	1	0	0	1	0	1	0	1	1	1	0	2	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	1	0	1	0	1	1	1	0	2	4
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		50.0	50.0	0.0		
Total %	25.0	0.0	0.0	25.0	0.0	25.0	0.0	25.0	25.0	25.0	0.0	50.0	
Exiting Leg Total				1				1				2	4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
4:30 PM	1	0	0	1	0	0	0	0	1	0	0	1	2
4:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	1	0	0	1	0	1	0	1	1	1	0	2	4
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		50.0	50.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.250	0.250	0.000	0.500	0.500
Entering Leg	1	0	0	1	0	1	0	1	1	1	0	2	4
Exiting Leg				1				1				2	4
Total				2				2				4	8

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	5	0	5	3	0	0	3	9
4:15 PM	2	1	0	3	0	2	0	2	0	1	0	1	6
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	1	0	4	0	7	0	7	3	1	0	4	15
5:00 PM	2	0	0	2	0	2	0	2	2	0	0	2	6
5:15 PM	0	1	0	1	0	2	0	2	0	0	0	0	3
5:30 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
5:45 PM	2	0	0	2	0	2	0	2	1	0	0	1	5
Total	5	1	0	6	0	6	0	6	3	1	0	4	16
Grand Total	8	2	0	10	0	13	0	13	6	2	0	8	31
Approach %	80.0	20.0	0.0		0.0	100.0	0.0		75.0	25.0	0.0		
Total %	25.8	6.5	0.0	32.3	0.0	41.9	0.0	41.9	19.4	6.5	0.0	25.8	
Exiting Leg Total				2				8				21	31

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	2	0	0	2	0	2	0	2	2	0	0	2	6
5:15 PM	0	1	0	1	0	2	0	2	0	0	0	0	3
5:30 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
5:45 PM	2	0	0	2	0	2	0	2	1	0	0	1	5
Total Volume	5	1	0	6	0	6	0	6	3	1	0	4	16
% Approach Total	83.3	16.7	0.0		0.0	100.0	0.0		75.0	25.0	0.0		
PHF	0.625	0.250	0.000	0.750	0.000	0.750	0.000	0.750	0.375	0.250	0.000	0.500	0.667
Entering Leg	5	1	0	6	0	6	0	6	3	1	0	4	16
Exiting Leg				1				4				11	16
Total				7				10				15	32

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	1	1	0	2	2
4:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	1	0	1	1	1	0	2	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	1	0	1	2	2	0	4	6
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	1	0	3	0	3	0	0	0	0	4
5:30 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	1	0	1	0	4	0	4	2	0	0	2	7
Grand Total	0	2	0	2	0	5	0	5	4	2	0	6	13
Approach %	0.0	100.0	0.0		0.0	100.0	0.0		66.7	33.3	0.0		
Total %	0.0	15.4	0.0	15.4	0.0	38.5	0.0	38.5	30.8	15.4	0.0	46.2	
Exiting Leg Total				2				6				5	13

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Fort Pond Road from East				Route 2 WB Ramps from South				Fort Pond Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:30 PM	0	0	0	0	0	1	0	1	1	1	0	2	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	1	0	3	0	3	0	0	0	0	4
Total Volume	0	1	0	1	0	4	0	4	1	1	0	2	7
% Approach Total	0.0	100.0	0.0		0.0	100.0	0.0		50.0	50.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.000	0.333	0.000	0.333	0.250	0.250	0.000	0.250	0.438
Entering Leg	0	1	0	1	0	4	0	4	1	1	0	2	7
Exiting Leg				1				2				4	7
Total				2				6				6	14

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Fort Pond Road from East						Route 2 WB Ramps from South						Fort Pond Road from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Fort Pond Road from East						Route 2 WB Ramps from South						Fort Pond Road from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 DD**
Location: **S: Route 2 WB Ramps**
Location: **E: Fort Pond Road W: Fort Pond Road**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Fort Pond Road from East						Route 2 WB Ramps from South						Fort Pond Road from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Fort Pond Road from East						Route 2 WB Ramps from South						Fort Pond Road from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	7	52	64	0	123	14	9	28	0	51	25	22	14	0	61	20	24	6	0	50	285
7:15 AM	10	39	73	0	122	13	7	10	0	30	20	43	18	0	81	33	37	9	0	79	312
7:30 AM	11	55	60	0	126	12	6	11	0	29	28	56	18	0	102	16	32	5	0	53	310
7:45 AM	12	54	54	0	120	18	3	18	0	39	24	38	18	1	81	18	34	12	0	64	304
Total	40	200	251	0	491	57	25	67	0	149	97	159	68	1	325	87	127	32	0	246	1211
8:00 AM	17	65	46	0	128	13	5	27	0	45	22	30	28	0	80	25	20	10	1	56	309
8:15 AM	12	30	46	0	88	7	8	17	0	32	26	38	12	0	76	17	14	9	1	41	237
8:30 AM	11	31	25	0	67	14	12	23	0	49	24	39	29	0	92	17	8	5	0	30	238
8:45 AM	17	30	18	0	65	18	13	32	0	63	18	30	22	0	70	28	11	1	0	40	238
Total	57	156	135	0	348	52	38	99	0	189	90	137	91	0	318	87	53	25	2	167	1022
Grand Total	97	356	386	0	839	109	63	166	0	338	187	296	159	1	643	174	180	57	2	413	2233
Approach %	11.6	42.4	46.0	0.0		32.2	18.6	49.1	0.0		29.1	46.0	24.7	0.2		42.1	43.6	13.8	0.5		
Total %	4.3	15.9	17.3	0.0	37.6	4.9	2.8	7.4	0.0	15.1	8.4	13.3	7.1	0.0	28.8	7.8	8.1	2.6	0.1	18.5	
Exiting Leg Total					462					753					697					321	2233
Cars	90	336	373	0	799	93	63	155	0	311	159	275	149	1	584	167	176	54	2	399	2093
% Cars	92.8	94.4	96.6	0.0	95.2	85.3	100.0	93.4	0.0	92.0	85.0	92.9	93.7	100.0	90.8	96.0	97.8	94.7	100.0	96.6	93.7
Exiting Leg Total					422					708					659					304	2093
Heavy Vehicles	7	20	13	0	40	16	0	11	0	27	28	21	10	0	59	7	4	3	0	14	140
% Heavy Vehicles	7.2	5.6	3.4	0.0	4.8	14.7	0.0	6.6	0.0	8.0	15.0	7.1	6.3	0.0	9.2	4.0	2.2	5.3	0.0	3.4	6.3
Exiting Leg Total					40					45					38					17	140

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	10	39	73	0	122	13	7	10	0	30	20	43	18	0	81	33	37	9	0	79	312
7:30 AM	11	55	60	0	126	12	6	11	0	29	28	56	18	0	102	16	32	5	0	53	310
7:45 AM	12	54	54	0	120	18	3	18	0	39	24	38	18	1	81	18	34	12	0	64	304
8:00 AM	17	65	46	0	128	13	5	27	0	45	22	30	28	0	80	25	20	10	1	56	309
Total Volume	50	213	233	0	496	56	21	66	0	143	94	167	82	1	344	92	123	36	1	252	1235
% Approach Total	10.1	42.9	47.0	0.0		39.2	14.7	46.2	0.0		27.3	48.5	23.8	0.3		36.5	48.8	14.3	0.4		
PHF	0.735	0.819	0.798	0.000	0.969	0.778	0.750	0.611	0.000	0.794	0.839	0.746	0.732	0.250	0.843	0.697	0.831	0.750	0.250	0.797	0.990
Cars	48	201	224	0	473	47	21	60	0	128	79	154	76	1	310	88	119	33	1	241	1152
Cars %	96.0	94.4	96.1	0.0	95.4	83.9	100.0	90.9	0.0	89.5	84.0	92.2	92.7	100.0	90.1	95.7	96.7	91.7	100.0	95.6	93.3
Heavy Vehicles	2	12	9	0	23	9	0	6	0	15	15	13	6	0	34	4	4	3	0	11	83
Heavy Vehicles %	4.0	5.6	3.9	0.0	4.6	16.1	0.0	9.1	0.0	10.5	16.0	7.8	7.3	0.0	9.9	4.3	3.3	8.3	0.0	4.4	6.7
Cars Enter Leg	48	201	224	0	473	47	21	60	0	128	79	154	76	1	310	88	119	33	1	241	1152
Heavy Enter Leg	2	12	9	0	23	9	0	6	0	15	15	13	6	0	34	4	4	3	0	11	83
Total Entering Leg	50	213	233	0	496	56	21	66	0	143	94	167	82	1	344	92	123	36	1	252	1235
Cars Exiting Leg					234					422					350					146	1152
Heavy Exiting Leg					25					28					22					8	83
Total Exiting Leg					259					450					372					154	1235

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	51	61	0	117	12	9	26	0	47	20	19	14	0	53	19	24	6	0	49	266
7:15 AM	9	38	70	0	117	11	7	9	0	27	13	42	17	0	72	31	36	7	0	74	290
7:30 AM	11	52	56	0	119	10	6	10	0	26	21	51	16	0	88	16	32	5	0	53	286
7:45 AM	11	51	53	0	115	15	3	16	0	34	23	36	17	1	77	18	32	12	0	62	288
Total	36	192	240	0	468	48	25	61	0	134	77	148	64	1	290	84	124	30	0	238	1130
8:00 AM	17	60	45	0	122	11	5	25	0	41	22	25	26	0	73	23	19	9	1	52	288
8:15 AM	11	28	46	0	85	7	8	16	0	31	22	37	12	0	71	17	14	9	1	41	228
8:30 AM	9	27	24	0	60	12	12	23	0	47	20	37	28	0	85	16	8	5	0	29	221
8:45 AM	17	29	18	0	64	15	13	30	0	58	18	28	19	0	65	27	11	1	0	39	226
Total	54	144	133	0	331	45	38	94	0	177	82	127	85	0	294	83	52	24	2	161	963
Grand Total	90	336	373	0	799	93	63	155	0	311	159	275	149	1	584	167	176	54	2	399	2093
Approach %	11.3	42.1	46.7	0.0		29.9	20.3	49.8	0.0		27.2	47.1	25.5	0.2		41.9	44.1	13.5	0.5		
Total %	4.3	16.1	17.8	0.0	38.2	4.4	3.0	7.4	0.0	14.9	7.6	13.1	7.1	0.0	27.9	8.0	8.4	2.6	0.1	19.1	
Exiting Leg Total					422					708					659					304	2093

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	9	38	70	0	117	11	7	9	0	27	13	42	17	0	72	31	36	7	0	74	290
7:30 AM	11	52	56	0	119	10	6	10	0	26	21	51	16	0	88	16	32	5	0	53	286
7:45 AM	11	51	53	0	115	15	3	16	0	34	23	36	17	1	77	18	32	12	0	62	288
8:00 AM	17	60	45	0	122	11	5	25	0	41	22	25	26	0	73	23	19	9	1	52	288
Total Volume	48	201	224	0	473	47	21	60	0	128	79	154	76	1	310	88	119	33	1	241	1152
% Approach Total	10.1	42.5	47.4	0.0		36.7	16.4	46.9	0.0		25.5	49.7	24.5	0.3		36.5	49.4	13.7	0.4		
PHF	0.706	0.838	0.800	0.000	0.969	0.783	0.750	0.600	0.000	0.780	0.859	0.755	0.731	0.250	0.881	0.710	0.826	0.688	0.250	0.814	0.993
Entering Leg	48	201	224	0	473	47	21	60	0	128	79	154	76	1	310	88	119	33	1	241	1152
Exiting Leg					234					422					350					146	1152
Total					707					550					660					387	2304

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	2	1	3	0	6	2	0	2	0	4	5	3	0	0	8	1	0	0	0	1	19
7:15 AM	1	1	3	0	5	2	0	1	0	3	7	1	1	0	9	2	1	2	0	5	22
7:30 AM	0	3	4	0	7	2	0	1	0	3	7	5	2	0	14	0	0	0	0	0	24
7:45 AM	1	3	1	0	5	3	0	2	0	5	1	2	1	0	4	0	2	0	0	2	16
Total	4	8	11	0	23	9	0	6	0	15	20	11	4	0	35	3	3	2	0	8	81
8:00 AM	0	5	1	0	6	2	0	2	0	4	0	5	2	0	7	2	1	1	0	4	21
8:15 AM	1	2	0	0	3	0	0	1	0	1	4	1	0	0	5	0	0	0	0	0	9
8:30 AM	2	4	1	0	7	2	0	0	0	2	4	2	1	0	7	1	0	0	0	1	17
8:45 AM	0	1	0	0	1	3	0	2	0	5	0	2	3	0	5	1	0	0	0	1	12
Total	3	12	2	0	17	7	0	5	0	12	8	10	6	0	24	4	1	1	0	6	59
Grand Total	7	20	13	0	40	16	0	11	0	27	28	21	10	0	59	7	4	3	0	14	140
Approach %	17.5	50.0	32.5	0.0		59.3	0.0	40.7	0.0		47.5	35.6	16.9	0.0		50.0	28.6	21.4	0.0		
Total %	5.0	14.3	9.3	0.0	28.6	11.4	0.0	7.9	0.0	19.3	20.0	15.0	7.1	0.0	42.1	5.0	2.9	2.1	0.0	10.0	
Exiting Leg Total					40					45					38					17	140
Buses	3	1	0	0	4	0	0	1	0	1	1	1	1	0	3	3	1	0	0	4	12
% Buses	42.9	5.0	0.0	0.0	10.0	0.0	0.0	9.1	0.0	3.7	3.6	4.8	10.0	0.0	5.1	42.9	25.0	0.0	0.0	28.6	8.6
Exiting Leg Total					1					2					5					4	12
Single-Unit Trucks	1	13	10	0	24	12	0	9	0	21	22	16	3	0	41	1	3	3	0	7	93
% Single-Unit	14.3	65.0	76.9	0.0	60.0	75.0	0.0	81.8	0.0	77.8	78.6	76.2	30.0	0.0	69.5	14.3	75.0	100.0	0.0	50.0	66.4
Exiting Leg Total					31					35					23					4	93
Articulated Trucks	3	6	3	0	12	4	0	1	0	5	5	4	6	0	15	3	0	0	0	3	35
% Articulated	42.9	30.0	23.1	0.0	30.0	25.0	0.0	9.1	0.0	18.5	17.9	19.0	60.0	0.0	25.4	42.9	0.0	0.0	0.0	21.4	25.0
Exiting Leg Total					8					8					10					9	35

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	1	1	3	0	5	2	0	1	0	3	7	1	1	0	9	2	1	2	0	5	22
7:30 AM	0	3	4	0	7	2	0	1	0	3	7	5	2	0	14	0	0	0	0	0	24
7:45 AM	1	3	1	0	5	3	0	2	0	5	1	2	1	0	4	0	2	0	0	2	16
8:00 AM	0	5	1	0	6	2	0	2	0	4	0	5	2	0	7	2	1	1	0	4	21
Total Volume	2	12	9	0	23	9	0	6	0	15	15	13	6	0	34	4	4	3	0	11	83
% Approach Total	8.7	52.2	39.1	0.0		60.0	0.0	40.0	0.0		44.1	38.2	17.6	0.0		36.4	36.4	27.3	0.0		
PHF	0.500	0.600	0.563	0.000	0.821	0.750	0.000	0.750	0.000	0.750	0.536	0.650	0.750	0.000	0.607	0.500	0.500	0.375	0.000	0.550	0.865
Buses	1	1	0	0	2	0	0	1	0	1	1	1	1	0	3	2	1	0	0	3	9
Buses %	50.0	8.3	0.0	0.0	8.7	0.0	0.0	16.7	0.0	6.7	6.7	7.7	16.7	0.0	8.8	50.0	25.0	0.0	0.0	27.3	10.8
Single-Unit Trucks	0	6	8	0	14	7	0	4	0	11	11	10	2	0	23	0	3	3	0	6	54
Single-Unit %	0.0	50.0	88.9	0.0	60.9	77.8	0.0	66.7	0.0	73.3	73.3	76.9	33.3	0.0	67.6	0.0	75.0	100.0	0.0	54.5	65.1
Articulated Trucks	1	5	1	0	7	2	0	1	0	3	3	2	3	0	8	2	0	0	0	2	20
Articulated %	50.0	41.7	11.1	0.0	30.4	22.2	0.0	16.7	0.0	20.0	20.0	15.4	50.0	0.0	23.5	50.0	0.0	0.0	0.0	18.2	24.1
Buses	1	1	0	0	2	0	0	1	0	1	1	1	1	0	3	2	1	0	0	3	9
Single-Unit Trucks	0	6	8	0	14	7	0	4	0	11	11	10	2	0	23	0	3	3	0	6	54
Articulated Trucks	1	5	1	0	7	2	0	1	0	3	3	2	3	0	8	2	0	0	0	2	20
Total Entering Leg	2	12	9	0	23	9	0	6	0	15	15	13	6	0	34	4	4	3	0	11	83
Buses					1					2					4					2	9
Single-Unit Trucks					20					22					10					2	54
Articulated Trucks					4					4					8					4	20
Total Exiting Leg					25					28					22					8	83

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	3	43	52	0	98	7	7	22	0	36	20	14	14	0	48	17	21	4	0	42	224
7:15 AM	7	32	59	0	98	8	4	6	0	18	10	37	15	0	62	27	30	6	0	63	241
7:30 AM	11	41	46	0	98	5	5	8	0	18	18	41	15	0	74	14	28	4	0	46	236
7:45 AM	9	43	46	0	98	13	1	13	0	27	20	26	11	1	58	17	28	9	0	54	237
Total	30	159	203	0	392	33	17	49	0	99	68	118	55	1	242	75	107	23	0	205	938
8:00 AM	14	47	36	0	97	10	4	22	0	36	16	21	20	0	57	18	15	8	0	41	231
8:15 AM	10	24	38	0	72	4	7	14	0	25	18	34	11	0	63	16	10	4	0	30	190
8:30 AM	5	22	20	0	47	9	12	20	0	41	19	35	25	0	79	13	7	4	0	24	191
8:45 AM	12	24	13	0	49	14	12	23	0	49	17	25	16	0	58	24	11	0	0	35	191
Total	41	117	107	0	265	37	35	79	0	151	70	115	72	0	257	71	43	16	0	130	803
Grand Total	71	276	310	0	657	70	52	128	0	250	138	233	127	1	499	146	150	39	0	335	1741
Approach %	10.8	42.0	47.2	0.0		28.0	20.8	51.2	0.0		27.7	46.7	25.5	0.2		43.6	44.8	11.6	0.0		
Total %	4.1	15.9	17.8	0.0	37.7	4.0	3.0	7.4	0.0	14.4	7.9	13.4	7.3	0.1	28.7	8.4	8.6	2.2	0.0	19.2	
Exiting Leg Total					342					598					551					250	1741

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	7	32	59	0	98	8	4	6	0	18	10	37	15	0	62	27	30	6	0	63	241
7:30 AM	11	41	46	0	98	5	5	8	0	18	18	41	15	0	74	14	28	4	0	46	236
7:45 AM	9	43	46	0	98	13	1	13	0	27	20	26	11	1	58	17	28	9	0	54	237
8:00 AM	14	47	36	0	97	10	4	22	0	36	16	21	20	0	57	18	15	8	0	41	231
Total Volume	41	163	187	0	391	36	14	49	0	99	64	125	61	1	251	76	101	27	0	204	945
% Approach Total	10.5	41.7	47.8	0.0		36.4	14.1	49.5	0.0		25.5	49.8	24.3	0.4		37.3	49.5	13.2	0.0		
PHF	0.732	0.867	0.792	0.000	0.997	0.692	0.700	0.557	0.000	0.688	0.800	0.762	0.763	0.250	0.848	0.704	0.842	0.750	0.000	0.810	0.980
Entering Leg	41	163	187	0	391	36	14	49	0	99	64	125	61	1	251	76	101	27	0	204	945
Exiting Leg					188					352					289					116	945
Total					579					451					540					320	1890

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	2	8	9	0	19	5	2	4	0	11	0	5	0	0	5	2	3	2	0	7	42
7:15 AM	2	6	11	0	19	3	3	3	0	9	3	5	2	0	10	4	6	1	0	11	49
7:30 AM	0	11	10	0	21	5	1	2	0	8	3	10	1	0	14	2	4	1	0	7	50
7:45 AM	2	8	7	0	17	2	2	3	0	7	3	10	6	0	19	1	4	3	0	8	51
Total	6	33	37	0	76	15	8	12	0	35	9	30	9	0	48	9	17	7	0	33	192
8:00 AM	3	13	9	0	25	1	1	3	0	5	6	4	6	0	16	5	4	1	1	11	57
8:15 AM	1	4	8	0	13	3	1	2	0	6	4	3	1	0	8	1	4	5	1	11	38
8:30 AM	4	5	4	0	13	3	0	3	0	6	1	2	3	0	6	3	1	1	0	5	30
8:45 AM	5	5	5	0	15	1	1	7	0	9	1	3	3	0	7	3	0	1	0	4	35
Total	13	27	26	0	66	8	3	15	0	26	12	12	13	0	37	12	9	8	2	31	160
Grand Total	19	60	63	0	142	23	11	27	0	61	21	42	22	0	85	21	26	15	2	64	352
Approach %	13.4	42.3	44.4	0.0		37.7	18.0	44.3	0.0		24.7	49.4	25.9	0.0		32.8	40.6	23.4	3.1		
Total %	5.4	17.0	17.9	0.0	40.3	6.5	3.1	7.7	0.0	17.3	6.0	11.9	6.3	0.0	24.1	6.0	7.4	4.3	0.6	18.2	
Exiting Leg Total					80					110					108					54	352

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	2	6	11	0	19	3	3	3	0	9	3	5	2	0	10	4	6	1	0	11	49
7:30 AM	0	11	10	0	21	5	1	2	0	8	3	10	1	0	14	2	4	1	0	7	50
7:45 AM	2	8	7	0	17	2	2	3	0	7	3	10	6	0	19	1	4	3	0	8	51
8:00 AM	3	13	9	0	25	1	1	3	0	5	6	4	6	0	16	5	4	1	1	11	57
Total Volume	7	38	37	0	82	11	7	11	0	29	15	29	15	0	59	12	18	6	1	37	207
% Approach Total	8.5	46.3	45.1	0.0		37.9	24.1	37.9	0.0		25.4	49.2	25.4	0.0		32.4	48.6	16.2	2.7		
PHF	0.583	0.731	0.841	0.000	0.820	0.550	0.583	0.917	0.000	0.806	0.625	0.725	0.625	0.000	0.776	0.600	0.750	0.500	0.250	0.841	0.908
Entering Leg	7	38	37	0	82	11	7	11	0	29	15	29	15	0	59	12	18	6	1	37	207
Exiting Leg					46					70					61					30	207
Total					128					99					120					67	414

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
7:30 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
7:45 AM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Total	3	0	0	0	3	0	0	1	0	1	1	1	0	0	2	2	1	0	0	3	9
8:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	3
Grand Total	3	1	0	0	4	0	0	1	0	1	1	1	1	0	3	3	1	0	0	4	12
Approach %	75.0	25.0	0.0	0.0		0.0	0.0	100.0	0.0		33.3	33.3	33.3	0.0		75.0	25.0	0.0	0.0		
Total %	25.0	8.3	0.0	0.0	33.3	0.0	0.0	8.3	0.0	8.3	8.3	8.3	8.3	0.0	25.0	25.0	8.3	0.0	0.0	33.3	
Exiting Leg Total					1					2					5					4	12

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
7:30 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
7:45 AM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Total Volume	3	0	0	0	3	0	0	1	0	1	1	1	0	0	2	2	1	0	0	3	9
% Approach Total	100.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		50.0	50.0	0.0	0.0		66.7	33.3	0.0	0.0		
PHF	0.375	0.000	0.000	0.000	0.375	0.000	0.000	0.250	0.000	0.250	0.250	0.250	0.000	0.000	0.500	0.500	0.250	0.000	0.000	0.375	0.750
Entering Leg	3	0	0	0	3	0	0	1	0	1	1	1	0	0	2	2	1	0	0	3	9
Exiting Leg					1					2					3					3	9
Total					4					3					5					6	18

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	2	0	2	2	0	2	0	4	4	2	0	0	6	0	0	0	0	0	12
7:15 AM	0	0	2	0	2	2	0	1	0	3	5	1	1	0	7	0	0	2	0	2	14
7:30 AM	0	2	4	0	6	1	0	0	0	1	6	4	1	0	11	0	0	0	0	0	18
7:45 AM	0	1	1	0	2	3	0	1	0	4	0	1	0	0	1	0	2	0	0	2	9
Total	0	3	9	0	12	8	0	4	0	12	15	8	2	0	25	0	2	2	0	4	53
8:00 AM	0	3	1	0	4	1	0	2	0	3	0	4	0	0	4	0	1	1	0	2	13
8:15 AM	0	2	0	0	2	0	0	1	0	1	4	0	0	0	4	0	0	0	0	0	7
8:30 AM	1	4	0	0	5	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	11
8:45 AM	0	1	0	0	1	2	0	2	0	4	0	2	1	0	3	1	0	0	0	1	9
Total	1	10	1	0	12	4	0	5	0	9	7	8	1	0	16	1	1	1	0	3	40
Grand Total	1	13	10	0	24	12	0	9	0	21	22	16	3	0	41	1	3	3	0	7	93
Approach %	4.2	54.2	41.7	0.0		57.1	0.0	42.9	0.0		53.7	39.0	7.3	0.0		14.3	42.9	42.9	0.0		
Total %	1.1	14.0	10.8	0.0	25.8	12.9	0.0	9.7	0.0	22.6	23.7	17.2	3.2	0.0	44.1	1.1	3.2	3.2	0.0	7.5	
Exiting Leg Total					31					35					23					4	93

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	0	2	0	2	2	0	1	0	3	5	1	1	0	7	0	0	2	0	2	14
7:30 AM	0	2	4	0	6	1	0	0	0	1	6	4	1	0	11	0	0	0	0	0	18
7:45 AM	0	1	1	0	2	3	0	1	0	4	0	1	0	0	1	0	2	0	0	2	9
8:00 AM	0	3	1	0	4	1	0	2	0	3	0	4	0	0	4	0	1	1	0	2	13
Total Volume	0	6	8	0	14	7	0	4	0	11	11	10	2	0	23	0	3	3	0	6	54
% Approach Total	0.0	42.9	57.1	0.0		63.6	0.0	36.4	0.0		47.8	43.5	8.7	0.0		0.0	50.0	50.0	0.0		
PHF	0.000	0.500	0.500	0.000	0.583	0.583	0.000	0.500	0.000	0.688	0.458	0.625	0.500	0.000	0.523	0.000	0.375	0.375	0.000	0.750	0.750
Entering Leg	0	6	8	0	14	7	0	4	0	11	11	10	2	0	23	0	3	3	0	6	54
Exiting Leg					20					22					10					2	54
Total					34					33					33					8	108

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	1	1	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4
7:15 AM	1	1	1	0	3	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	6
7:30 AM	0	1	0	0	1	1	0	0	0	1	1	0	1	0	2	0	0	0	0	0	4
7:45 AM	0	2	0	0	2	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	5
Total	1	5	2	0	8	1	0	1	0	2	4	2	2	0	8	1	0	0	0	1	19
8:00 AM	0	1	0	0	1	1	0	0	0	1	0	1	1	0	2	1	0	0	0	1	5
8:15 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
8:30 AM	1	0	1	0	2	1	0	0	0	1	1	0	1	0	2	1	0	0	0	1	6
8:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	0	0	0	0	0	3
Total	2	1	1	0	4	3	0	0	0	3	1	2	4	0	7	2	0	0	0	2	16
Grand Total	3	6	3	0	12	4	0	1	0	5	5	4	6	0	15	3	0	0	0	3	35
Approach %	25.0	50.0	25.0	0.0		80.0	0.0	20.0	0.0		33.3	26.7	40.0	0.0		100.0	0.0	0.0	0.0		
Total %	8.6	17.1	8.6	0.0	34.3	11.4	0.0	2.9	0.0	14.3	14.3	11.4	17.1	0.0	42.9	8.6	0.0	0.0	0.0	8.6	
Exiting Leg Total					8					8					10					9	35

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	1	1	1	0	3	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	6
7:30 AM	0	1	0	0	1	1	0	0	0	1	1	0	1	0	2	0	0	0	0	0	4
7:45 AM	0	2	0	0	2	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	5
8:00 AM	0	1	0	0	1	1	0	0	0	1	0	1	1	0	2	1	0	0	0	1	5
Total Volume	1	5	1	0	7	2	0	1	0	3	3	2	3	0	8	2	0	0	0	2	20
% Approach Total	14.3	71.4	14.3	0.0		66.7	0.0	33.3	0.0		37.5	25.0	37.5	0.0		100.0	0.0	0.0	0.0		
PHF	0.250	0.625	0.250	0.000	0.583	0.500	0.000	0.250	0.000	0.750	0.375	0.500	0.750	0.000	1.000	0.500	0.000	0.000	0.000	0.500	0.833
Entering Leg	1	5	1	0	7	2	0	1	0	3	3	2	3	0	8	2	0	0	0	2	20
Exiting Leg					4					4					8					4	20
Total					11					7					16					6	40

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Lunenburg Road (Route 70) from North							Old Union Turnpike from East							Lunenburg Road (Route 70) from South							Old Union Turnpike from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North							Old Union Turnpike from East							Lunenburg Road (Route 70) from South							Old Union Turnpike from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 E**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Lunenburg Road (Route 70) from North							Old Union Turnpike from East							Lunenburg Road (Route 70) from South							Old Union Turnpike from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North							Old Union Turnpike from East							Lunenburg Road (Route 70) from South							Old Union Turnpike from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	42	46	20	0	108	27	19	31	0	77	17	63	54	0	134	28	11	8	0	47	366
4:15 PM	28	53	11	0	92	22	23	24	0	69	17	85	53	0	155	31	13	14	1	59	375
4:30 PM	33	30	12	0	75	27	20	28	0	75	18	99	60	0	177	22	14	9	0	45	372
4:45 PM	22	34	10	1	67	27	20	18	0	65	14	100	54	0	168	28	12	9	0	49	349
Total	125	163	53	1	342	103	82	101	0	286	66	347	221	0	634	109	50	40	1	200	1462
5:00 PM	19	30	15	0	64	39	19	28	0	86	12	90	44	0	146	46	16	20	1	83	379
5:15 PM	28	35	13	0	76	35	28	14	0	77	17	84	51	0	152	39	9	23	1	72	377
5:30 PM	70	45	11	0	126	31	13	24	0	68	10	69	51	0	130	22	11	16	2	51	375
5:45 PM	105	36	9	0	150	23	13	23	0	59	8	64	52	1	125	30	5	11	2	48	382
Total	222	146	48	0	416	128	73	89	0	290	47	307	198	1	553	137	41	70	6	254	1513
Grand Total	347	309	101	1	758	231	155	190	0	576	113	654	419	1	1187	246	91	110	7	454	2975
Approach %	45.8	40.8	13.3	0.1		40.1	26.9	33.0	0.0		9.5	55.1	35.3	0.1		54.2	20.0	24.2	1.5		
Total %	11.7	10.4	3.4	0.0	25.5	7.8	5.2	6.4	0.0	19.4	3.8	22.0	14.1	0.0	39.9	8.3	3.1	3.7	0.2	15.3	
Exiting Leg Total					996					305					746					928	2975
Cars	343	288	98	1	730	215	153	182	0	550	107	647	413	1	1168	242	90	110	7	449	2897
% Cars	98.8	93.2	97.0	100.0	96.3	93.1	98.7	95.8	0.0	95.5	94.7	98.9	98.6	100.0	98.4	98.4	98.9	100.0	100.0	98.9	97.4
Exiting Leg Total					973					295					713					916	2897
Heavy Vehicles	4	21	3	0	28	16	2	8	0	26	6	7	6	0	19	4	1	0	0	5	78
% Heavy Vehicles	1.2	6.8	3.0	0.0	3.7	6.9	1.3	4.2	0.0	4.5	5.3	1.1	1.4	0.0	1.6	1.6	1.1	0.0	0.0	1.1	2.6
Exiting Leg Total					23					10					33					12	78

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	19	30	15	0	64	39	19	28	0	86	12	90	44	0	146	46	16	20	1	83	379
5:15 PM	28	35	13	0	76	35	28	14	0	77	17	84	51	0	152	39	9	23	1	72	377
5:30 PM	70	45	11	0	126	31	13	24	0	68	10	69	51	0	130	22	11	16	2	51	375
5:45 PM	105	36	9	0	150	23	13	23	0	59	8	64	52	1	125	30	5	11	2	48	382
Total Volume	222	146	48	0	416	128	73	89	0	290	47	307	198	1	553	137	41	70	6	254	1513
% Approach Total	53.4	35.1	11.5	0.0		44.1	25.2	30.7	0.0		8.5	55.5	35.8	0.2		53.9	16.1	27.6	2.4		
PHF	0.529	0.811	0.800	0.000	0.693	0.821	0.652	0.795	0.000	0.843	0.691	0.853	0.952	0.250	0.910	0.745	0.641	0.761	0.750	0.765	0.990
Cars	219	133	47	0	399	119	72	88	0	279	45	305	196	1	547	137	41	70	6	254	1479
Cars %	98.6	91.1	97.9	0.0	95.9	93.0	98.6	98.9	0.0	96.2	95.7	99.3	99.0	100.0	98.9	100.0	100.0	100.0	100.0	100.0	97.8
Heavy Vehicles	3	13	1	0	17	9	1	1	0	11	2	2	2	0	6	0	0	0	0	0	34
Heavy Vehicles %	1.4	8.9	2.1	0.0	4.1	7.0	1.4	1.1	0.0	3.8	4.3	0.7	1.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	2.2
Cars Enter Leg	219	133	47	0	399	119	72	88	0	279	45	305	196	1	547	137	41	70	6	254	1479
Heavy Enter Leg	3	13	1	0	17	9	1	1	0	11	2	2	2	0	6	0	0	0	0	0	34
Total Entering Leg	222	146	48	0	416	128	73	89	0	290	47	307	198	1	553	137	41	70	6	254	1513
Cars Exiting Leg					494					133					359					493	1479
Heavy Exiting Leg					11					3					14					6	34
Total Exiting Leg					505					136					373					499	1513

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	42	42	19	0	103	24	19	29	0	72	17	61	53	0	131	28	10	8	0	46	352
4:15 PM	28	51	11	0	90	21	22	23	0	66	14	84	52	0	150	30	13	14	1	58	364
4:30 PM	33	29	11	0	73	24	20	25	0	69	17	98	59	0	174	21	14	9	0	44	360
4:45 PM	21	33	10	1	65	27	20	17	0	64	14	99	53	0	166	26	12	9	0	47	342
Total	124	155	51	1	331	96	81	94	0	271	62	342	217	0	621	105	49	40	1	195	1418
5:00 PM	19	27	14	0	60	38	19	27	0	84	11	88	43	0	142	46	16	20	1	83	369
5:15 PM	28	29	13	0	70	33	28	14	0	75	17	84	50	0	151	39	9	23	1	72	368
5:30 PM	69	43	11	0	123	25	13	24	0	62	10	69	51	0	130	22	11	16	2	51	366
5:45 PM	103	34	9	0	146	23	12	23	0	58	7	64	52	1	124	30	5	11	2	48	376
Total	219	133	47	0	399	119	72	88	0	279	45	305	196	1	547	137	41	70	6	254	1479
Grand Total	343	288	98	1	730	215	153	182	0	550	107	647	413	1	1168	242	90	110	7	449	2897
Approach %	47.0	39.5	13.4	0.1		39.1	27.8	33.1	0.0		9.2	55.4	35.4	0.1		53.9	20.0	24.5	1.6		
Total %	11.8	9.9	3.4	0.0	25.2	7.4	5.3	6.3	0.0	19.0	3.7	22.3	14.3	0.0	40.3	8.4	3.1	3.8	0.2	15.5	
Exiting Leg Total					973					295					713					916	2897

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	19	27	14	0	60	38	19	27	0	84	11	88	43	0	142	46	16	20	1	83	369
5:15 PM	28	29	13	0	70	33	28	14	0	75	17	84	50	0	151	39	9	23	1	72	368
5:30 PM	69	43	11	0	123	25	13	24	0	62	10	69	51	0	130	22	11	16	2	51	366
5:45 PM	103	34	9	0	146	23	12	23	0	58	7	64	52	1	124	30	5	11	2	48	376
Total Volume	219	133	47	0	399	119	72	88	0	279	45	305	196	1	547	137	41	70	6	254	1479
% Approach Total	54.9	33.3	11.8	0.0		42.7	25.8	31.5	0.0		8.2	55.8	35.8	0.2		53.9	16.1	27.6	2.4		
PHF	0.532	0.773	0.839	0.000	0.683	0.783	0.643	0.815	0.000	0.830	0.662	0.866	0.942	0.250	0.906	0.745	0.641	0.761	0.750	0.765	0.983
Entering Leg	219	133	47	0	399	119	72	88	0	279	45	305	196	1	547	137	41	70	6	254	1479
Exiting Leg					494					133					359					493	1479
Total					893					412					906					747	2958

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	4	1	0	5	3	0	2	0	5	0	2	1	0	3	0	1	0	0	1	14
4:15 PM	0	2	0	0	2	1	1	1	0	3	3	1	1	0	5	1	0	0	0	1	11
4:30 PM	0	1	1	0	2	3	0	3	0	6	1	1	1	0	3	1	0	0	0	1	12
4:45 PM	1	1	0	0	2	0	0	1	0	1	0	1	1	0	2	2	0	0	0	2	7
Total	1	8	2	0	11	7	1	7	0	15	4	5	4	0	13	4	1	0	0	5	44
5:00 PM	0	3	1	0	4	1	0	1	0	2	1	2	1	0	4	0	0	0	0	0	10
5:15 PM	0	6	0	0	6	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	9
5:30 PM	1	2	0	0	3	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9
5:45 PM	2	2	0	0	4	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	6
Total	3	13	1	0	17	9	1	1	0	11	2	2	2	0	6	0	0	0	0	0	34
Grand Total	4	21	3	0	28	16	2	8	0	26	6	7	6	0	19	4	1	0	0	5	78
Approach %	14.3	75.0	10.7	0.0		61.5	7.7	30.8	0.0		31.6	36.8	31.6	0.0		80.0	20.0	0.0	0.0		
Total %	5.1	26.9	3.8	0.0	35.9	20.5	2.6	10.3	0.0	33.3	7.7	9.0	7.7	0.0	24.4	5.1	1.3	0.0	0.0	6.4	
Exiting Leg Total					23					10					33					12	78
Buses	1	1	0	0	2	7	0	0	0	7	0	1	2	0	3	0	0	0	0	0	12
% Buses	25.0	4.8	0.0	0.0	7.1	43.8	0.0	0.0	0.0	26.9	0.0	14.3	33.3	0.0	15.8	0.0	0.0	0.0	0.0	0.0	15.4
Exiting Leg Total					8					0					1					3	12
Single-Unit Trucks	2	16	2	0	20	5	2	7	0	14	3	6	2	0	11	3	1	0	0	4	49
% Single-Unit	50.0	76.2	66.7	0.0	71.4	31.3	100.0	87.5	0.0	53.8	50.0	85.7	33.3	0.0	57.9	75.0	100.0	0.0	0.0	80.0	62.8
Exiting Leg Total					11					6					26					6	49
Articulated Trucks	1	4	1	0	6	4	0	1	0	5	3	0	2	0	5	1	0	0	0	1	17
% Articulated	25.0	19.0	33.3	0.0	21.4	25.0	0.0	12.5	0.0	19.2	50.0	0.0	33.3	0.0	26.3	25.0	0.0	0.0	0.0	20.0	21.8
Exiting Leg Total					4					4					6					3	17

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	4	1	0	5	3	0	2	0	5	0	2	1	0	3	0	1	0	0	1	14
4:15 PM	0	2	0	0	2	1	1	1	0	3	3	1	1	0	5	1	0	0	0	1	11
4:30 PM	0	1	1	0	2	3	0	3	0	6	1	1	1	0	3	1	0	0	0	1	12
4:45 PM	1	1	0	0	2	0	0	1	0	1	0	1	1	0	2	2	0	0	0	2	7
Total Volume	1	8	2	0	11	7	1	7	0	15	4	5	4	0	13	4	1	0	0	5	44
% Approach Total	9.1	72.7	18.2	0.0		46.7	6.7	46.7	0.0		30.8	38.5	30.8	0.0		80.0	20.0	0.0	0.0		
PHF	0.250	0.500	0.500	0.000	0.550	0.583	0.250	0.583	0.000	0.625	0.333	0.625	1.000	0.000	0.650	0.500	0.250	0.000	0.000	0.625	0.786
Buses	0	1	0	0	1	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	4
Buses %	0.0	12.5	0.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	20.0	50.0	0.0	23.1	0.0	0.0	0.0	0.0	0.0	9.1
Single-Unit Trucks	0	6	1	0	7	4	1	6	0	11	1	4	1	0	6	3	1	0	0	4	28
Single-Unit %	0.0	75.0	50.0	0.0	63.6	57.1	100.0	85.7	0.0	73.3	25.0	80.0	25.0	0.0	46.2	75.0	100.0	0.0	0.0	80.0	63.6
Articulated Trucks	1	1	1	0	3	3	0	1	0	4	3	0	1	0	4	1	0	0	0	1	12
Articulated %	100.0	12.5	50.0	0.0	27.3	42.9	0.0	14.3	0.0	26.7	75.0	0.0	25.0	0.0	30.8	25.0	0.0	0.0	0.0	20.0	27.3
Buses	0	1	0	0	1	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	4
Single-Unit Trucks	0	6	1	0	7	4	1	6	0	11	1	4	1	0	6	3	1	0	0	4	28
Articulated Trucks	1	1	1	0	3	3	0	1	0	4	3	0	1	0	4	1	0	0	0	1	12
Total Entering Leg	1	8	2	0	11	7	1	7	0	15	4	5	4	0	13	4	1	0	0	5	44
Buses					1					0					1					2	4
Single-Unit Trucks					8					3					15					2	28
Articulated Trucks					3					4					3					2	12
Total Exiting Leg					12					7					19					6	44

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	40	32	14	0	86	21	14	25	0	60	14	45	43	0	102	24	7	8	0	39	287
4:15 PM	26	43	10	0	79	19	21	20	0	60	9	66	49	0	124	25	9	13	0	47	310
4:30 PM	30	24	8	0	62	19	17	21	0	57	13	79	51	0	143	18	11	8	0	37	299
4:45 PM	21	24	8	1	54	25	20	13	0	58	11	82	49	0	142	22	11	7	0	40	294
Total	117	123	40	1	281	84	72	79	0	235	47	272	192	0	511	89	38	36	0	163	1190
5:00 PM	19	22	12	0	53	36	18	23	0	77	6	78	39	0	123	40	13	16	1	70	323
5:15 PM	27	22	11	0	60	32	27	12	0	71	16	73	43	0	132	33	8	17	1	59	322
5:30 PM	68	33	9	0	110	23	11	21	0	55	8	62	47	0	117	20	10	12	2	44	326
5:45 PM	103	29	8	0	140	21	10	21	0	52	7	59	50	1	117	30	5	7	2	44	353
Total	217	106	40	0	363	112	66	77	0	255	37	272	179	1	489	123	36	52	6	217	1324
Grand Total	334	229	80	1	644	196	138	156	0	490	84	544	371	1	1000	212	74	88	6	380	2514
Approach %	51.9	35.6	12.4	0.2		40.0	28.2	31.8	0.0		8.4	54.4	37.1	0.1		55.8	19.5	23.2	1.6		
Total %	13.3	9.1	3.2	0.0	25.6	7.8	5.5	6.2	0.0	19.5	3.3	21.6	14.8	0.0	39.8	8.4	2.9	3.5	0.2	15.1	
Exiting Leg Total					829					238					598					849	2514

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	19	22	12	0	53	36	18	23	0	77	6	78	39	0	123	40	13	16	1	70	323
5:15 PM	27	22	11	0	60	32	27	12	0	71	16	73	43	0	132	33	8	17	1	59	322
5:30 PM	68	33	9	0	110	23	11	21	0	55	8	62	47	0	117	20	10	12	2	44	326
5:45 PM	103	29	8	0	140	21	10	21	0	52	7	59	50	1	117	30	5	7	2	44	353
Total Volume	217	106	40	0	363	112	66	77	0	255	37	272	179	1	489	123	36	52	6	217	1324
% Approach Total	59.8	29.2	11.0	0.0		43.9	25.9	30.2	0.0		7.6	55.6	36.6	0.2		56.7	16.6	24.0	2.8		
PHF	0.527	0.803	0.833	0.000	0.648	0.778	0.611	0.837	0.000	0.828	0.578	0.872	0.895	0.250	0.926	0.769	0.692	0.765	0.750	0.775	0.938
Entering Leg	217	106	40	0	363	112	66	77	0	255	37	272	179	1	489	123	36	52	6	217	1324
Exiting Leg					436					113					307					468	1324
Total					799					368					796					685	2648

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	2	10	5	0	17	3	5	4	0	12	3	16	10	0	29	4	3	0	0	7	65
4:15 PM	2	8	1	0	11	2	1	3	0	6	5	18	3	0	26	5	4	1	1	11	54
4:30 PM	3	5	3	0	11	5	3	4	0	12	4	19	8	0	31	3	3	1	0	7	61
4:45 PM	0	9	2	0	11	2	0	4	0	6	3	17	4	0	24	4	1	2	0	7	48
Total	7	32	11	0	50	12	9	15	0	36	15	70	25	0	110	16	11	4	1	32	228
5:00 PM	0	5	2	0	7	2	1	4	0	7	5	10	4	0	19	6	3	4	0	13	46
5:15 PM	1	7	2	0	10	1	1	2	0	4	1	11	7	0	19	6	1	6	0	13	46
5:30 PM	1	10	2	0	13	1	2	3	0	6	2	7	4	0	13	2	1	4	0	7	39
5:45 PM	0	5	1	0	6	2	2	2	0	6	0	5	2	0	7	0	0	4	0	4	23
Total	2	27	7	0	36	6	6	11	0	23	8	33	17	0	58	14	5	18	0	37	154
Grand Total	9	59	18	0	86	18	15	26	0	59	23	103	42	0	168	30	16	22	1	69	382
Approach %	10.5	68.6	20.9	0.0		30.5	25.4	44.1	0.0		13.7	61.3	25.0	0.0		43.5	23.2	31.9	1.4		
Total %	2.4	15.4	4.7	0.0	22.5	4.7	3.9	6.8	0.0	15.4	6.0	27.0	11.0	0.0	44.0	7.9	4.2	5.8	0.3	18.1	
Exiting Leg Total					143					57					115					67	382

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	2	10	5	0	17	3	5	4	0	12	3	16	10	0	29	4	3	0	0	7	65
4:15 PM	2	8	1	0	11	2	1	3	0	6	5	18	3	0	26	5	4	1	1	11	54
4:30 PM	3	5	3	0	11	5	3	4	0	12	4	19	8	0	31	3	3	1	0	7	61
4:45 PM	0	9	2	0	11	2	0	4	0	6	3	17	4	0	24	4	1	2	0	7	48
Total Volume	7	32	11	0	50	12	9	15	0	36	15	70	25	0	110	16	11	4	1	32	228
% Approach Total	14.0	64.0	22.0	0.0		33.3	25.0	41.7	0.0		13.6	63.6	22.7	0.0		50.0	34.4	12.5	3.1		
PHF	0.583	0.800	0.550	0.000	0.735	0.600	0.450	0.938	0.000	0.750	0.750	0.921	0.625	0.000	0.887	0.800	0.688	0.500	0.250	0.727	0.877
Entering Leg	7	32	11	0	50	12	9	15	0	36	15	70	25	0	110	16	11	4	1	32	228
Exiting Leg					86					37					63					42	228
Total					136					73					173					74	456

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6
5:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	0	0	0	1	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	8
Grand Total	1	1	0	0	2	7	0	0	0	7	0	1	2	0	3	0	0	0	0	0	12
Approach %	50.0	50.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	33.3	66.7	0.0		0.0	0.0	0.0	0.0		
Total %	8.3	8.3	0.0	0.0	16.7	58.3	0.0	0.0	0.0	58.3	0.0	8.3	16.7	0.0	25.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					8					0					1					3	12

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6
Total Volume	0	1	0	0	1	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	8
% Approach Total	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.292	0.000	0.000	0.000	0.292	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333
Entering Leg	0	1	0	0	1	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	8
Exiting Leg					7					0					1					0	8
Total					8					7					1					0	16

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	4	1	0	5	2	0	2	0	4	0	2	1	0	3	0	1	0	0	1	13
4:15 PM	0	2	0	0	2	1	1	1	0	3	1	1	0	0	2	1	0	0	0	1	8
4:30 PM	0	0	0	0	0	1	0	3	0	4	0	0	0	0	0	1	0	0	0	1	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	2
Total	0	6	1	0	7	4	1	6	0	11	1	4	1	0	6	3	1	0	0	4	28
5:00 PM	0	3	1	0	4	0	0	1	0	1	1	2	1	0	4	0	0	0	0	0	9
5:15 PM	0	4	0	0	4	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	1	1	0	0	2	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	4
Total	2	10	1	0	13	1	1	1	0	3	2	2	1	0	5	0	0	0	0	0	21
Grand Total	2	16	2	0	20	5	2	7	0	14	3	6	2	0	11	3	1	0	0	4	49
Approach %	10.0	80.0	10.0	0.0		35.7	14.3	50.0	0.0		27.3	54.5	18.2	0.0		75.0	25.0	0.0	0.0		
Total %	4.1	32.7	4.1	0.0	40.8	10.2	4.1	14.3	0.0	28.6	6.1	12.2	4.1	0.0	22.4	6.1	2.0	0.0	0.0	8.2	
Exiting Leg Total					11					6					26					6	49

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	4	1	0	5	2	0	2	0	4	0	2	1	0	3	0	1	0	0	1	13
4:15 PM	0	2	0	0	2	1	1	1	0	3	1	1	0	0	2	1	0	0	0	1	8
4:30 PM	0	0	0	0	0	1	0	3	0	4	0	0	0	0	0	1	0	0	0	1	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	2
Total Volume	0	6	1	0	7	4	1	6	0	11	1	4	1	0	6	3	1	0	0	4	28
% Approach Total	0.0	85.7	14.3	0.0		36.4	9.1	54.5	0.0		16.7	66.7	16.7	0.0		75.0	25.0	0.0	0.0		
PHF	0.000	0.375	0.250	0.000	0.350	0.500	0.250	0.500	0.000	0.688	0.250	0.500	0.250	0.000	0.500	0.750	0.250	0.000	0.000	1.000	0.538
Entering Leg	0	6	1	0	7	4	1	6	0	11	1	4	1	0	6	3	1	0	0	4	28
Exiting Leg					8					3					15					2	28
Total					15					14					21					6	56

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
4:30 PM	0	1	1	0	2	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	5
4:45 PM	1	0	0	0	1	0	0	1	0	1	0	0	1	0	1	1	0	0	0	1	4
Total	1	1	1	0	3	3	0	1	0	4	3	0	1	0	4	1	0	0	0	1	12
5:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	3	0	0	3	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	5
Grand Total	1	4	1	0	6	4	0	1	0	5	3	0	2	0	5	1	0	0	0	1	17
Approach %	16.7	66.7	16.7	0.0		80.0	0.0	20.0	0.0		60.0	0.0	40.0	0.0		100.0	0.0	0.0	0.0		
Total %	5.9	23.5	5.9	0.0	35.3	23.5	0.0	5.9	0.0	29.4	17.6	0.0	11.8	0.0	29.4	5.9	0.0	0.0	0.0	5.9	
Exiting Leg Total					4					4					6					3	17

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Lunenburg Road (Route 70) from North					Old Union Turnpike from East					Lunenburg Road (Route 70) from South					Old Union Turnpike from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	1	1	0	2	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	5
4:45 PM	1	0	0	0	1	0	0	1	0	1	0	0	1	0	1	1	0	0	0	1	4
5:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
Total Volume	1	3	1	0	5	3	0	1	0	4	1	0	2	0	3	1	0	0	0	1	13
% Approach Total	20.0	60.0	20.0	0.0		75.0	0.0	25.0	0.0		33.3	0.0	66.7	0.0		100.0	0.0	0.0	0.0		
PHF	0.250	0.375	0.250	0.000	0.625	0.375	0.000	0.250	0.000	0.500	0.250	0.000	0.500	0.000	0.750	0.250	0.000	0.000	0.000	0.250	0.650
Entering Leg	1	3	1	0	5	3	0	1	0	4	1	0	2	0	3	1	0	0	0	1	13
Exiting Leg					3					2					5					3	13
Total					8					6					8					4	26

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Lunenburg Road (Route 70) from North							Old Union Turnpike from East							Lunenburg Road (Route 70) from South							Old Union Turnpike from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							1							0							0							0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Lunenburg Road (Route 70) from North							Old Union Turnpike from East							Lunenburg Road (Route 70) from South							Old Union Turnpike from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg							1							0							0							0	1
Total							1							1							0							0	2

PDI File #: **186634 EE**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Lunenburg Road (Route 70) from North							Old Union Turnpike from East							Lunenburg Road (Route 70) from South							Old Union Turnpike from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North							Old Union Turnpike from East							Lunenburg Road (Route 70) from South							Old Union Turnpike from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	117	21	0	138	10	0	10	0	20	15	27	0	0	42	2	0	0	0	2	202
7:15 AM	0	115	14	0	129	10	0	7	0	17	29	36	0	0	65	0	2	0	0	2	213
7:30 AM	0	118	18	0	136	5	0	9	0	14	34	34	0	0	68	1	2	0	0	3	221
7:45 AM	0	103	10	0	113	13	0	13	0	26	36	35	0	0	71	0	1	0	0	1	211
Total	0	453	63	0	516	38	0	39	0	77	114	132	0	0	246	3	5	0	0	8	847
8:00 AM	0	105	6	0	111	6	0	14	0	20	22	28	1	0	51	0	0	0	0	0	182
8:15 AM	0	77	15	0	92	10	0	5	0	15	20	33	0	0	53	0	0	0	0	0	160
8:30 AM	1	54	11	0	66	11	0	10	0	21	27	30	0	0	57	1	0	0	0	1	145
8:45 AM	0	50	7	0	57	11	0	15	0	26	25	22	2	0	49	0	0	0	0	0	132
Total	1	286	39	0	326	38	0	44	0	82	94	113	3	0	210	1	0	0	0	1	619
Grand Total	1	739	102	0	842	76	0	83	0	159	208	245	3	0	456	4	5	0	0	9	1466
Approach %	0.1	87.8	12.1	0.0		47.8	0.0	52.2	0.0		45.6	53.7	0.7	0.0		44.4	55.6	0.0	0.0		
Total %	0.1	50.4	7.0	0.0	57.4	5.2	0.0	5.7	0.0	10.8	14.2	16.7	0.2	0.0	31.1	0.3	0.3	0.0	0.0	0.6	
Exiting Leg Total					321					315					826					4	1466
Cars	1	710	98	0	809	65	0	71	0	136	189	224	3	0	416	4	5	0	0	9	1370
% Cars	100.0	96.1	96.1	0.0	96.1	85.5	0.0	85.5	0.0	85.5	90.9	91.4	100.0	0.0	91.2	100.0	100.0	0.0	0.0	100.0	93.5
Exiting Leg Total					289					292					785					4	1370
Heavy Vehicles	0	29	4	0	33	11	0	12	0	23	19	21	0	0	40	0	0	0	0	0	96
% Heavy Vehicles	0.0	3.9	3.9	0.0	3.9	14.5	0.0	14.5	0.0	14.5	9.1	8.6	0.0	0.0	8.8	0.0	0.0	0.0	0.0	0.0	6.5
Exiting Leg Total					32					23					41					0	96

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	117	21	0	138	10	0	10	0	20	15	27	0	0	42	2	0	0	0	2	202
7:15 AM	0	115	14	0	129	10	0	7	0	17	29	36	0	0	65	0	2	0	0	2	213
7:30 AM	0	118	18	0	136	5	0	9	0	14	34	34	0	0	68	1	2	0	0	3	221
7:45 AM	0	103	10	0	113	13	0	13	0	26	36	35	0	0	71	0	1	0	0	1	211
Total Volume	0	453	63	0	516	38	0	39	0	77	114	132	0	0	246	3	5	0	0	8	847
% Approach Total	0.0	87.8	12.2	0.0		49.4	0.0	50.6	0.0		46.3	53.7	0.0	0.0		37.5	62.5	0.0	0.0		
PHF	0.000	0.960	0.750	0.000	0.935	0.731	0.000	0.750	0.000	0.740	0.792	0.917	0.000	0.000	0.866	0.375	0.625	0.000	0.000	0.667	0.958
Cars	0	433	62	0	495	34	0	35	0	69	105	119	0	0	224	3	5	0	0	8	796
Cars %	0.0	95.6	98.4	0.0	95.9	89.5	0.0	89.7	0.0	89.6	92.1	90.2	0.0	0.0	91.1	100.0	100.0	0.0	0.0	100.0	94.0
Heavy Vehicles	0	20	1	0	21	4	0	4	0	8	9	13	0	0	22	0	0	0	0	0	51
Heavy Vehicles %	0.0	4.4	1.6	0.0	4.1	10.5	0.0	10.3	0.0	10.4	7.9	9.8	0.0	0.0	8.9	0.0	0.0	0.0	0.0	0.0	6.0
Cars Enter Leg	0	433	62	0	495	34	0	35	0	69	105	119	0	0	224	3	5	0	0	8	796
Heavy Enter Leg	0	20	1	0	21	4	0	4	0	8	9	13	0	0	22	0	0	0	0	0	51
Total Entering Leg	0	453	63	0	516	38	0	39	0	77	114	132	0	0	246	3	5	0	0	8	847
Cars Exiting Leg					153					172					471					0	796
Heavy Exiting Leg					17					10					24					0	51
Total Exiting Leg					170					182					495					0	847

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	111	20	0	131	8	0	9	0	17	13	24	0	0	37	2	0	0	0	2	187
7:15 AM	0	111	14	0	125	9	0	7	0	16	26	34	0	0	60	0	2	0	0	2	203
7:30 AM	0	112	18	0	130	5	0	9	0	14	32	30	0	0	62	1	2	0	0	3	209
7:45 AM	0	99	10	0	109	12	0	10	0	22	34	31	0	0	65	0	1	0	0	1	197
Total	0	433	62	0	495	34	0	35	0	69	105	119	0	0	224	3	5	0	0	8	796
8:00 AM	0	103	4	0	107	6	0	10	0	16	19	23	1	0	43	0	0	0	0	0	166
8:15 AM	0	76	14	0	90	9	0	3	0	12	18	33	0	0	51	0	0	0	0	0	153
8:30 AM	1	49	11	0	61	7	0	8	0	15	25	28	0	0	53	1	0	0	0	1	130
8:45 AM	0	49	7	0	56	9	0	15	0	24	22	21	2	0	45	0	0	0	0	0	125
Total	1	277	36	0	314	31	0	36	0	67	84	105	3	0	192	1	0	0	0	1	574
Grand Total	1	710	98	0	809	65	0	71	0	136	189	224	3	0	416	4	5	0	0	9	1370
Approach %	0.1	87.8	12.1	0.0		47.8	0.0	52.2	0.0		45.4	53.8	0.7	0.0		44.4	55.6	0.0	0.0		
Total %	0.1	51.8	7.2	0.0	59.1	4.7	0.0	5.2	0.0	9.9	13.8	16.4	0.2	0.0	30.4	0.3	0.4	0.0	0.0	0.7	
Exiting Leg Total					289					292					785					4	1370

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	111	20	0	131	8	0	9	0	17	13	24	0	0	37	2	0	0	0	2	187
7:15 AM	0	111	14	0	125	9	0	7	0	16	26	34	0	0	60	0	2	0	0	2	203
7:30 AM	0	112	18	0	130	5	0	9	0	14	32	30	0	0	62	1	2	0	0	3	209
7:45 AM	0	99	10	0	109	12	0	10	0	22	34	31	0	0	65	0	1	0	0	1	197
Total Volume	0	433	62	0	495	34	0	35	0	69	105	119	0	0	224	3	5	0	0	8	796
% Approach Total	0.0	87.5	12.5	0.0		49.3	0.0	50.7	0.0		46.9	53.1	0.0	0.0		37.5	62.5	0.0	0.0		
PHF	0.000	0.967	0.775	0.000	0.945	0.708	0.000	0.875	0.000	0.784	0.772	0.875	0.000	0.000	0.862	0.375	0.625	0.000	0.000	0.667	0.952
Entering Leg	0	433	62	0	495	34	0	35	0	69	105	119	0	0	224	3	5	0	0	8	796
Exiting Leg					153					172					471					0	796
Total					648					241					695					8	1592

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Lunenburg Road (Route 70)					Fort Pond Road					Lunenburg Road (Route 70)					Woods Lane					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	6	1	0	7	2	0	1	0	3	2	3	0	0	5	0	0	0	0	0	15
7:15 AM	0	4	0	0	4	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	10
7:30 AM	0	6	0	0	6	0	0	0	0	0	2	4	0	0	6	0	0	0	0	0	12
7:45 AM	0	4	0	0	4	1	0	3	0	4	2	4	0	0	6	0	0	0	0	0	14
Total	0	20	1	0	21	4	0	4	0	8	9	13	0	0	22	0	0	0	0	0	51
8:00 AM	0	2	2	0	4	0	0	4	0	4	3	5	0	0	8	0	0	0	0	0	16
8:15 AM	0	1	1	0	2	1	0	2	0	3	2	0	0	0	2	0	0	0	0	0	7
8:30 AM	0	5	0	0	5	4	0	2	0	6	2	2	0	0	4	0	0	0	0	0	15
8:45 AM	0	1	0	0	1	2	0	0	0	2	3	1	0	0	4	0	0	0	0	0	7
Total	0	9	3	0	12	7	0	8	0	15	10	8	0	0	18	0	0	0	0	0	45
Grand Total	0	29	4	0	33	11	0	12	0	23	19	21	0	0	40	0	0	0	0	0	96
Approach %	0.0	87.9	12.1	0.0		47.8	0.0	52.2	0.0		47.5	52.5	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	30.2	4.2	0.0	34.4	11.5	0.0	12.5	0.0	24.0	19.8	21.9	0.0	0.0	41.7	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					32					23					41					0	96
Buses	0	3	0	0	3	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	6
% Buses	0.0	10.3	0.0	0.0	9.1	9.1	0.0	8.3	0.0	8.7	0.0	4.8	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	6.3
Exiting Leg Total					2					0					4					0	6
Single-Unit Trucks	0	21	3	0	24	7	0	6	0	13	15	16	0	0	31	0	0	0	0	0	68
% Single-Unit	0.0	72.4	75.0	0.0	72.7	63.6	0.0	50.0	0.0	56.5	78.9	76.2	0.0	0.0	77.5	0.0	0.0	0.0	0.0	0.0	70.8
Exiting Leg Total					23					18					27					0	68
Articulated Trucks	0	5	1	0	6	3	0	5	0	8	4	4	0	0	8	0	0	0	0	0	22
% Articulated	0.0	17.2	25.0	0.0	18.2	27.3	0.0	41.7	0.0	34.8	21.1	19.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	22.9
Exiting Leg Total					7					5					10					0	22

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70)					Fort Pond Road					Lunenburg Road (Route 70)					Woods Lane					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	4	0	0	4	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	10
7:30 AM	0	6	0	0	6	0	0	0	0	0	2	4	0	0	6	0	0	0	0	0	12
7:45 AM	0	4	0	0	4	1	0	3	0	4	2	4	0	0	6	0	0	0	0	0	14
8:00 AM	0	2	2	0	4	0	0	4	0	4	3	5	0	0	8	0	0	0	0	0	16
Total Volume	0	16	2	0	18	2	0	7	0	9	10	15	0	0	25	0	0	0	0	0	52
% Approach Total	0.0	88.9	11.1	0.0		22.2	0.0	77.8	0.0		40.0	60.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.667	0.250	0.000	0.750	0.500	0.000	0.438	0.000	0.563	0.833	0.750	0.000	0.000	0.781	0.000	0.000	0.000	0.000	0.000	0.813
Buses	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	3
Buses %	0.0	6.3	0.0	0.0	5.6	0.0	0.0	14.3	0.0	11.1	0.0	6.7	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	5.8
Single-Unit Trucks	0	11	1	0	12	2	0	4	0	6	7	13	0	0	20	0	0	0	0	0	38
Single-Unit %	0.0	68.8	50.0	0.0	66.7	100.0	0.0	57.1	0.0	66.7	70.0	86.7	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	73.1
Articulated Trucks	0	4	1	0	5	0	0	2	0	2	3	1	0	0	4	0	0	0	0	0	11
Articulated %	0.0	25.0	50.0	0.0	27.8	0.0	0.0	28.6	0.0	22.2	30.0	6.7	0.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	21.2
Buses	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	3
Single-Unit Trucks	0	11	1	0	12	2	0	4	0	6	7	13	0	0	20	0	0	0	0	0	38
Articulated Trucks	0	4	1	0	5	0	0	2	0	2	3	1	0	0	4	0	0	0	0	0	11
Total Entering Leg	0	16	2	0	18	2	0	7	0	9	10	15	0	0	25	0	0	0	0	0	52
Buses					1					0					2					0	3
Single-Unit Trucks					15					8					15					0	38
Articulated Trucks					1					4					6					0	11
Total Exiting Leg					17					12					23					0	52

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	91	17	0	108	6	0	7	0	13	9	16	0	0	25	2	0	0	0	2	148
7:15 AM	0	93	11	0	104	7	0	6	0	13	21	25	0	0	46	0	2	0	0	2	165
7:30 AM	0	89	15	0	104	4	0	9	0	13	24	24	0	0	48	1	2	0	0	3	168
7:45 AM	0	91	5	0	96	9	0	5	0	14	27	26	0	0	53	0	0	0	0	0	163
Total	0	364	48	0	412	26	0	27	0	53	81	91	0	0	172	3	4	0	0	7	644
8:00 AM	0	78	3	0	81	5	0	8	0	13	14	20	1	0	35	0	0	0	0	0	129
8:15 AM	0	63	11	0	74	6	0	2	0	8	16	25	0	0	41	0	0	0	0	0	123
8:30 AM	1	39	9	0	49	5	0	6	0	11	25	20	0	0	45	1	0	0	0	1	106
8:45 AM	0	38	4	0	42	3	0	14	0	17	18	18	2	0	38	0	0	0	0	0	97
Total	1	218	27	0	246	19	0	30	0	49	73	83	3	0	159	1	0	0	0	1	455
Grand Total	1	582	75	0	658	45	0	57	0	102	154	174	3	0	331	4	4	0	0	8	1099
Approach %	0.2	88.4	11.4	0.0		44.1	0.0	55.9	0.0		46.5	52.6	0.9	0.0		50.0	50.0	0.0	0.0		
Total %	0.1	53.0	6.8	0.0	59.9	4.1	0.0	5.2	0.0	9.3	14.0	15.8	0.3	0.0	30.1	0.4	0.4	0.0	0.0	0.7	
Exiting Leg Total					219					233					643					4	1099

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	91	17	0	108	6	0	7	0	13	9	16	0	0	25	2	0	0	0	2	148
7:15 AM	0	93	11	0	104	7	0	6	0	13	21	25	0	0	46	0	2	0	0	2	165
7:30 AM	0	89	15	0	104	4	0	9	0	13	24	24	0	0	48	1	2	0	0	3	168
7:45 AM	0	91	5	0	96	9	0	5	0	14	27	26	0	0	53	0	0	0	0	0	163
Total Volume	0	364	48	0	412	26	0	27	0	53	81	91	0	0	172	3	4	0	0	7	644
% Approach Total	0.0	88.3	11.7	0.0		49.1	0.0	50.9	0.0		47.1	52.9	0.0	0.0		42.9	57.1	0.0	0.0		
PHF	0.000	0.978	0.706	0.000	0.954	0.722	0.000	0.750	0.000	0.946	0.750	0.875	0.000	0.000	0.811	0.375	0.500	0.000	0.000	0.583	0.958
Entering Leg	0	364	48	0	412	26	0	27	0	53	81	91	0	0	172	3	4	0	0	7	644
Exiting Leg					117					133					394					0	644
Total					529					186					566					7	1288

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	20	3	0	23	2	0	2	0	4	4	8	0	0	12	0	0	0	0	0	39
7:15 AM	0	18	3	0	21	2	0	1	0	3	5	9	0	0	14	0	0	0	0	0	38
7:30 AM	0	23	3	0	26	1	0	0	0	1	8	6	0	0	14	0	0	0	0	0	41
7:45 AM	0	8	5	0	13	3	0	5	0	8	7	5	0	0	12	0	1	0	0	1	34
Total	0	69	14	0	83	8	0	8	0	16	24	28	0	0	52	0	1	0	0	1	152
8:00 AM	0	25	1	0	26	1	0	2	0	3	5	3	0	0	8	0	0	0	0	0	37
8:15 AM	0	13	3	0	16	3	0	1	0	4	2	8	0	0	10	0	0	0	0	0	30
8:30 AM	0	10	2	0	12	2	0	2	0	4	0	8	0	0	8	0	0	0	0	0	24
8:45 AM	0	11	3	0	14	6	0	1	0	7	4	3	0	0	7	0	0	0	0	0	28
Total	0	59	9	0	68	12	0	6	0	18	11	22	0	0	33	0	0	0	0	0	119
Grand Total	0	128	23	0	151	20	0	14	0	34	35	50	0	0	85	0	1	0	0	1	271
Approach %	0.0	84.8	15.2	0.0		58.8	0.0	41.2	0.0		41.2	58.8	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	47.2	8.5	0.0	55.7	7.4	0.0	5.2	0.0	12.5	12.9	18.5	0.0	0.0	31.4	0.0	0.4	0.0	0.0	0.4	
Exiting Leg Total					70					59					142					0	271

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	20	3	0	23	2	0	2	0	4	4	8	0	0	12	0	0	0	0	0	39
7:15 AM	0	18	3	0	21	2	0	1	0	3	5	9	0	0	14	0	0	0	0	0	38
7:30 AM	0	23	3	0	26	1	0	0	0	1	8	6	0	0	14	0	0	0	0	0	41
7:45 AM	0	8	5	0	13	3	0	5	0	8	7	5	0	0	12	0	1	0	0	1	34
Total Volume	0	69	14	0	83	8	0	8	0	16	24	28	0	0	52	0	1	0	0	1	152
% Approach Total	0.0	83.1	16.9	0.0		50.0	0.0	50.0	0.0		46.2	53.8	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.750	0.700	0.000	0.798	0.667	0.000	0.400	0.000	0.500	0.750	0.778	0.000	0.000	0.929	0.000	0.250	0.000	0.000	0.250	0.927
Entering Leg	0	69	14	0	83	8	0	8	0	16	24	28	0	0	52	0	1	0	0	1	152
Exiting Leg					36					39					77					0	152
Total					119					55					129					1	304

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	3	0	0	3	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5
8:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	3	0	0	3	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	6
Approach %	0.0	100.0	0.0	0.0		50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	50.0	0.0	0.0	50.0	16.7	0.0	16.7	0.0	33.3	0.0	16.7	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					2					0					4					0	6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	3	0	0	3	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5
% Approach Total	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.375	0.000	0.000	0.375	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.417
Entering Leg	0	3	0	0	3	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5
Exiting Leg					2					0					3					0	5
Total					5					1					4					0	10

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	3	1	0	4	1	0	0	0	1	2	2	0	0	4	0	0	0	0	0	9
7:15 AM	0	2	0	0	2	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	8
7:30 AM	0	5	0	0	5	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	9
7:45 AM	0	3	0	0	3	1	0	1	0	2	2	3	0	0	5	0	0	0	0	0	10
Total	0	13	1	0	14	3	0	1	0	4	8	10	0	0	18	0	0	0	0	0	36
8:00 AM	0	1	1	0	2	0	0	3	0	3	1	5	0	0	6	0	0	0	0	0	11
8:15 AM	0	1	1	0	2	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	5
8:30 AM	0	5	0	0	5	2	0	1	0	3	2	1	0	0	3	0	0	0	0	0	11
8:45 AM	0	1	0	0	1	1	0	0	0	1	3	0	0	0	3	0	0	0	0	0	5
Total	0	8	2	0	10	4	0	5	0	9	7	6	0	0	13	0	0	0	0	0	32
Grand Total	0	21	3	0	24	7	0	6	0	13	15	16	0	0	31	0	0	0	0	0	68
Approach %	0.0	87.5	12.5	0.0		53.8	0.0	46.2	0.0		48.4	51.6	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	30.9	4.4	0.0	35.3	10.3	0.0	8.8	0.0	19.1	22.1	23.5	0.0	0.0	45.6	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					23					18					27					0	68

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	2	0	0	2	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	8
7:30 AM	0	5	0	0	5	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	9
7:45 AM	0	3	0	0	3	1	0	1	0	2	2	3	0	0	5	0	0	0	0	0	10
8:00 AM	0	1	1	0	2	0	0	3	0	3	1	5	0	0	6	0	0	0	0	0	11
Total Volume	0	11	1	0	12	2	0	4	0	6	7	13	0	0	20	0	0	0	0	0	38
% Approach Total	0.0	91.7	8.3	0.0		33.3	0.0	66.7	0.0		35.0	65.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.550	0.250	0.000	0.600	0.500	0.000	0.333	0.000	0.500	0.583	0.650	0.000	0.000	0.833	0.000	0.000	0.000	0.000	0.000	0.864
Entering Leg	0	11	1	0	12	2	0	4	0	6	7	13	0	0	20	0	0	0	0	0	38
Exiting Leg					15					8					15					0	38
Total					27					14					35					0	76

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Lunenburg Road (Route 70)					Fort Pond Road					Lunenburg Road (Route 70)					Woods Lane					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	3
7:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	3
Total	0	4	0	0	4	0	0	3	0	3	1	2	0	0	3	0	0	0	0	0	10
8:00 AM	0	1	1	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	2	0	1	0	3	0	1	0	0	1	0	0	0	0	0	4
8:45 AM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2
Total	0	1	1	0	2	3	0	2	0	5	3	2	0	0	5	0	0	0	0	0	12
Grand Total	0	5	1	0	6	3	0	5	0	8	4	4	0	0	8	0	0	0	0	0	22
Approach %	0.0	83.3	16.7	0.0		37.5	0.0	62.5	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	22.7	4.5	0.0	27.3	13.6	0.0	22.7	0.0	36.4	18.2	18.2	0.0	0.0	36.4	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					7					5					10					0	22

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Lunenburg Road (Route 70)					Fort Pond Road					Lunenburg Road (Route 70)					Woods Lane					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	3
8:00 AM	0	1	1	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	2	0	1	0	3	0	1	0	0	1	0	0	0	0	0	4
Total Volume	0	1	1	0	2	2	0	4	0	6	3	2	0	0	5	0	0	0	0	0	13
% Approach Total	0.0	50.0	50.0	0.0		33.3	0.0	66.7	0.0		60.0	40.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.250	0.000	0.250	0.250	0.000	0.500	0.000	0.500	0.375	0.500	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.813
Entering Leg	0	1	1	0	2	2	0	4	0	6	3	2	0	0	5	0	0	0	0	0	13
Exiting Leg					4					4					5					0	13
Total					6					10					10					0	26

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Lunenburg Road (Route 70) from North							Fort Pond Road from East							Lunenburg Road (Route 70) from South							Woods Lane from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North							Fort Pond Road from East							Lunenburg Road (Route 70) from South							Woods Lane from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 F**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Lunenburg Road (Route 70) from North							Fort Pond Road from East							Lunenburg Road (Route 70) from South							Woods Lane from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lunenburg Road (Route 70) from North							Fort Pond Road from East							Lunenburg Road (Route 70) from South							Woods Lane from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	60	11	0	71	32	1	44	0	77	28	75	0	0	103	0	0	0	0	0	251
4:15 PM	0	50	13	0	63	46	1	41	0	88	43	78	0	0	121	1	0	0	0	1	273
4:30 PM	0	43	7	0	50	44	0	32	0	76	38	97	0	0	135	1	0	1	0	2	263
4:45 PM	0	38	3	0	41	55	0	28	0	83	40	96	0	0	136	0	0	0	0	0	260
Total	0	191	34	0	225	177	2	145	0	324	149	346	0	0	495	2	0	1	0	3	1047
5:00 PM	1	39	7	0	47	48	0	29	0	77	33	116	0	0	149	2	0	0	0	2	275
5:15 PM	0	38	6	0	44	49	0	37	0	86	28	113	1	0	142	1	0	0	0	1	273
5:30 PM	0	43	7	0	50	98	0	80	0	178	16	101	1	0	118	1	0	0	0	1	347
5:45 PM	0	38	8	0	46	91	0	119	0	210	20	78	0	0	98	0	0	0	0	0	354
Total	1	158	28	0	187	286	0	265	0	551	97	408	2	0	507	4	0	0	0	4	1249
Grand Total	1	349	62	0	412	463	2	410	0	875	246	754	2	0	1002	6	0	1	0	7	2296
Approach %	0.2	84.7	15.0	0.0		52.9	0.2	46.9	0.0		24.6	75.2	0.2	0.0		85.7	0.0	14.3	0.0		
Total %	0.0	15.2	2.7	0.0	17.9	20.2	0.1	17.9	0.0	38.1	10.7	32.8	0.1	0.0	43.6	0.3	0.0	0.0	0.0	0.3	
Exiting Leg Total					1218					308					765					5	2296
Cars	1	345	53	0	399	455	2	389	0	846	239	741	2	0	982	6	0	1	0	7	2234
% Cars	100.0	98.9	85.5	0.0	96.8	98.3	100.0	94.9	0.0	96.7	97.2	98.3	100.0	0.0	98.0	100.0	0.0	100.0	0.0	100.0	97.3
Exiting Leg Total					1197					292					740					5	2234
Heavy Vehicles	0	4	9	0	13	8	0	21	0	29	7	13	0	0	20	0	0	0	0	0	62
% Heavy Vehicles	0.0	1.1	14.5	0.0	3.2	1.7	0.0	5.1	0.0	3.3	2.8	1.7	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.7
Exiting Leg Total					21					16					25					0	62

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	1	39	7	0	47	48	0	29	0	77	33	116	0	0	149	2	0	0	0	2	275
5:15 PM	0	38	6	0	44	49	0	37	0	86	28	113	1	0	142	1	0	0	0	1	273
5:30 PM	0	43	7	0	50	98	0	80	0	178	16	101	1	0	118	1	0	0	0	1	347
5:45 PM	0	38	8	0	46	91	0	119	0	210	20	78	0	0	98	0	0	0	0	0	354
Total Volume	1	158	28	0	187	286	0	265	0	551	97	408	2	0	507	4	0	0	0	4	1249
% Approach Total	0.5	84.5	15.0	0.0		51.9	0.0	48.1	0.0		19.1	80.5	0.4	0.0		100.0	0.0	0.0	0.0		
PHF	0.250	0.919	0.875	0.000	0.935	0.730	0.000	0.557	0.000	0.656	0.735	0.879	0.500	0.000	0.851	0.500	0.000	0.000	0.000	0.500	0.882
Cars	1	157	24	0	182	283	0	252	0	535	95	402	2	0	499	4	0	0	0	4	1220
Cars %	100.0	99.4	85.7	0.0	97.3	99.0	0.0	95.1	0.0	97.1	97.9	98.5	100.0	0.0	98.4	100.0	0.0	0.0	0.0	100.0	97.7
Heavy Vehicles	0	1	4	0	5	3	0	13	0	16	2	6	0	0	8	0	0	0	0	0	29
Heavy Vehicles %	0.0	0.6	14.3	0.0	2.7	1.0	0.0	4.9	0.0	2.9	2.1	1.5	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	2.3
Cars Enter Leg	1	157	24	0	182	283	0	252	0	535	95	402	2	0	499	4	0	0	0	4	1220
Heavy Enter Leg	0	1	4	0	5	3	0	13	0	16	2	6	0	0	8	0	0	0	0	0	29
Total Entering Leg	1	158	28	0	187	286	0	265	0	551	97	408	2	0	507	4	0	0	0	4	1249
Cars Exiting Leg					685					119					413					3	1220
Heavy Exiting Leg					9					6					14					0	29
Total Exiting Leg					694					125					427					3	1249

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	59	8	0	67	30	1	40	0	71	26	73	0	0	99	0	0	0	0	0	237
4:15 PM	0	50	12	0	62	44	1	39	0	84	42	77	0	0	119	1	0	0	0	1	266
4:30 PM	0	42	6	0	48	44	0	31	0	75	36	94	0	0	130	1	0	1	0	2	255
4:45 PM	0	37	3	0	40	54	0	27	0	81	40	95	0	0	135	0	0	0	0	0	256
Total	0	188	29	0	217	172	2	137	0	311	144	339	0	0	483	2	0	1	0	3	1014
5:00 PM	1	38	7	0	46	48	0	25	0	73	32	113	0	0	145	2	0	0	0	2	266
5:15 PM	0	38	6	0	44	48	0	32	0	80	28	112	1	0	141	1	0	0	0	1	266
5:30 PM	0	43	5	0	48	98	0	78	0	176	16	99	1	0	116	1	0	0	0	1	341
5:45 PM	0	38	6	0	44	89	0	117	0	206	19	78	0	0	97	0	0	0	0	0	347
Total	1	157	24	0	182	283	0	252	0	535	95	402	2	0	499	4	0	0	0	4	1220
Grand Total	1	345	53	0	399	455	2	389	0	846	239	741	2	0	982	6	0	1	0	7	2234
Approach %	0.3	86.5	13.3	0.0		53.8	0.2	46.0	0.0		24.3	75.5	0.2	0.0		85.7	0.0	14.3	0.0		
Total %	0.0	15.4	2.4	0.0	17.9	20.4	0.1	17.4	0.0	37.9	10.7	33.2	0.1	0.0	44.0	0.3	0.0	0.0	0.0	0.3	
Exiting Leg Total					1197					292					740					5	2234

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	1	38	7	0	46	48	0	25	0	73	32	113	0	0	145	2	0	0	0	2	266
5:15 PM	0	38	6	0	44	48	0	32	0	80	28	112	1	0	141	1	0	0	0	1	266
5:30 PM	0	43	5	0	48	98	0	78	0	176	16	99	1	0	116	1	0	0	0	1	341
5:45 PM	0	38	6	0	44	89	0	117	0	206	19	78	0	0	97	0	0	0	0	0	347
Total Volume	1	157	24	0	182	283	0	252	0	535	95	402	2	0	499	4	0	0	0	4	1220
% Approach Total	0.5	86.3	13.2	0.0		52.9	0.0	47.1	0.0		19.0	80.6	0.4	0.0		100.0	0.0	0.0	0.0		
PHF	0.250	0.913	0.857	0.000	0.948	0.722	0.000	0.538	0.000	0.649	0.742	0.889	0.500	0.000	0.860	0.500	0.000	0.000	0.000	0.500	0.879
Entering Leg	1	157	24	0	182	283	0	252	0	535	95	402	2	0	499	4	0	0	0	4	1220
Exiting Leg					685					119					413					3	1220
Total					867					654					912					7	2440

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Lunenburg Road (Route 70)					Fort Pond Road					Lunenburg Road (Route 70)					Woods Lane					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	3	0	4	2	0	4	0	6	2	2	0	0	4	0	0	0	0	0	14
4:15 PM	0	0	1	0	1	2	0	2	0	4	1	1	0	0	2	0	0	0	0	0	7
4:30 PM	0	1	1	0	2	0	0	1	0	1	2	3	0	0	5	0	0	0	0	0	8
4:45 PM	0	1	0	0	1	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	4
Total	0	3	5	0	8	5	0	8	0	13	5	7	0	0	12	0	0	0	0	0	33
5:00 PM	0	1	0	0	1	0	0	4	0	4	1	3	0	0	4	0	0	0	0	0	9
5:15 PM	0	0	0	0	0	1	0	5	0	6	0	1	0	0	1	0	0	0	0	0	7
5:30 PM	0	0	2	0	2	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	6
5:45 PM	0	0	2	0	2	2	0	2	0	4	1	0	0	0	1	0	0	0	0	0	7
Total	0	1	4	0	5	3	0	13	0	16	2	6	0	0	8	0	0	0	0	0	29
Grand Total	0	4	9	0	13	8	0	21	0	29	7	13	0	0	20	0	0	0	0	0	62
Approach %	0.0	30.8	69.2	0.0		27.6	0.0	72.4	0.0		35.0	65.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	6.5	14.5	0.0	21.0	12.9	0.0	33.9	0.0	46.8	11.3	21.0	0.0	0.0	32.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					21					16					25					0	62
Buses	0	0	1	0	1	2	0	0	0	2	1	1	0	0	2	0	0	0	0	0	5
% Buses	0.0	0.0	11.1	0.0	7.7	25.0	0.0	0.0	0.0	6.9	14.3	7.7	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	8.1
Exiting Leg Total					3					2					0					0	5
Single-Unit Trucks	0	2	4	0	6	5	0	17	0	22	4	9	0	0	13	0	0	0	0	0	41
% Single-Unit	0.0	50.0	44.4	0.0	46.2	62.5	0.0	81.0	0.0	75.9	57.1	69.2	0.0	0.0	65.0	0.0	0.0	0.0	0.0	0.0	66.1
Exiting Leg Total					14					8					19					0	41
Articulated Trucks	0	2	4	0	6	1	0	4	0	5	2	3	0	0	5	0	0	0	0	0	16
% Articulated	0.0	50.0	44.4	0.0	46.2	12.5	0.0	19.0	0.0	17.2	28.6	23.1	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	25.8
Exiting Leg Total					4					6					6					0	16

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70)					Fort Pond Road					Lunenburg Road (Route 70)					Woods Lane					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	3	0	4	2	0	4	0	6	2	2	0	0	4	0	0	0	0	0	14
4:15 PM	0	0	1	0	1	2	0	2	0	4	1	1	0	0	2	0	0	0	0	0	7
4:30 PM	0	1	1	0	2	0	0	1	0	1	2	3	0	0	5	0	0	0	0	0	8
4:45 PM	0	1	0	0	1	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	4
Total Volume	0	3	5	0	8	5	0	8	0	13	5	7	0	0	12	0	0	0	0	0	33
% Approach Total	0.0	37.5	62.5	0.0		38.5	0.0	61.5	0.0		41.7	58.3	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.750	0.417	0.000	0.500	0.625	0.000	0.500	0.000	0.542	0.625	0.583	0.000	0.000	0.600	0.000	0.000	0.000	0.000	0.000	0.589
Buses	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	3
Buses %	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0	15.4	20.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	9.1
Single-Unit Trucks	0	1	3	0	4	3	0	7	0	10	2	6	0	0	8	0	0	0	0	0	22
Single-Unit %	0.0	33.3	60.0	0.0	50.0	60.0	0.0	87.5	0.0	76.9	40.0	85.7	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	66.7
Articulated Trucks	0	2	2	0	4	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	8
Articulated %	0.0	66.7	40.0	0.0	50.0	0.0	0.0	12.5	0.0	7.7	40.0	14.3	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	24.2
Buses	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	3
Single-Unit Trucks	0	1	3	0	4	3	0	7	0	10	2	6	0	0	8	0	0	0	0	0	22
Articulated Trucks	0	2	2	0	4	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	8
Total Entering Leg	0	3	5	0	8	5	0	8	0	13	5	7	0	0	12	0	0	0	0	0	33
Buses					2					1					0					0	3
Single-Unit Trucks					9					5					8					0	22
Articulated Trucks					1					4					3					0	8
Total Exiting Leg					12					10					11					0	33

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	45	6	0	51	23	1	35	0	59	16	58	0	0	74	0	0	0	0	0	184
4:15 PM	0	43	10	0	53	35	1	35	0	71	34	67	0	0	101	1	0	0	0	1	226
4:30 PM	0	33	4	0	37	35	0	29	0	64	31	73	0	0	104	1	0	1	0	2	207
4:45 PM	0	35	1	0	36	42	0	21	0	63	33	75	0	0	108	0	0	0	0	0	207
Total	0	156	21	0	177	135	2	120	0	257	114	273	0	0	387	2	0	1	0	3	824
5:00 PM	1	36	6	0	43	42	0	23	0	65	31	109	0	0	140	2	0	0	0	2	250
5:15 PM	0	36	6	0	42	41	0	29	0	70	27	107	1	0	135	1	0	0	0	1	248
5:30 PM	0	41	3	0	44	78	0	67	0	145	15	88	1	0	104	1	0	0	0	1	294
5:45 PM	0	37	5	0	42	69	0	111	0	180	19	75	0	0	94	0	0	0	0	0	316
Total	1	150	20	0	171	230	0	230	0	460	92	379	2	0	473	4	0	0	0	4	1108
Grand Total	1	306	41	0	348	365	2	350	0	717	206	652	2	0	860	6	0	1	0	7	1932
Approach %	0.3	87.9	11.8	0.0		50.9	0.3	48.8	0.0		24.0	75.8	0.2	0.0		85.7	0.0	14.3	0.0		
Total %	0.1	15.8	2.1	0.0	18.0	18.9	0.1	18.1	0.0	37.1	10.7	33.7	0.1	0.0	44.5	0.3	0.0	0.1	0.0	0.4	
Exiting Leg Total					1018					247					662					5	1932

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	1	36	6	0	43	42	0	23	0	65	31	109	0	0	140	2	0	0	0	2	250
5:15 PM	0	36	6	0	42	41	0	29	0	70	27	107	1	0	135	1	0	0	0	1	248
5:30 PM	0	41	3	0	44	78	0	67	0	145	15	88	1	0	104	1	0	0	0	1	294
5:45 PM	0	37	5	0	42	69	0	111	0	180	19	75	0	0	94	0	0	0	0	0	316
Total Volume	1	150	20	0	171	230	0	230	0	460	92	379	2	0	473	4	0	0	0	4	1108
% Approach Total	0.6	87.7	11.7	0.0		50.0	0.0	50.0	0.0		19.5	80.1	0.4	0.0		100.0	0.0	0.0	0.0		
PHF	0.250	0.915	0.833	0.000	0.972	0.737	0.000	0.518	0.000	0.639	0.742	0.869	0.500	0.000	0.845	0.500	0.000	0.000	0.000	0.500	0.877
Entering Leg	1	150	20	0	171	230	0	230	0	460	92	379	2	0	473	4	0	0	0	4	1108
Exiting Leg					609					112					384					3	1108
Total					780					572					857					7	2216

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	14	2	0	16	7	0	5	0	12	10	15	0	0	25	0	0	0	0	0	53
4:15 PM	0	7	2	0	9	9	0	4	0	13	8	10	0	0	18	0	0	0	0	0	40
4:30 PM	0	9	2	0	11	9	0	2	0	11	5	21	0	0	26	0	0	0	0	0	48
4:45 PM	0	2	2	0	4	12	0	6	0	18	7	20	0	0	27	0	0	0	0	0	49
Total	0	32	8	0	40	37	0	17	0	54	30	66	0	0	96	0	0	0	0	0	190
5:00 PM	0	2	1	0	3	6	0	2	0	8	1	4	0	0	5	0	0	0	0	0	16
5:15 PM	0	2	0	0	2	7	0	3	0	10	1	5	0	0	6	0	0	0	0	0	18
5:30 PM	0	2	2	0	4	20	0	11	0	31	1	11	0	0	12	0	0	0	0	0	47
5:45 PM	0	1	1	0	2	20	0	6	0	26	0	3	0	0	3	0	0	0	0	0	31
Total	0	7	4	0	11	53	0	22	0	75	3	23	0	0	26	0	0	0	0	0	112
Grand Total	0	39	12	0	51	90	0	39	0	129	33	89	0	0	122	0	0	0	0	0	302
Approach %	0.0	76.5	23.5	0.0		69.8	0.0	30.2	0.0		27.0	73.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	12.9	4.0	0.0	16.9	29.8	0.0	12.9	0.0	42.7	10.9	29.5	0.0	0.0	40.4	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					179					45					78					0	302

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	14	2	0	16	7	0	5	0	12	10	15	0	0	25	0	0	0	0	0	53
4:15 PM	0	7	2	0	9	9	0	4	0	13	8	10	0	0	18	0	0	0	0	0	40
4:30 PM	0	9	2	0	11	9	0	2	0	11	5	21	0	0	26	0	0	0	0	0	48
4:45 PM	0	2	2	0	4	12	0	6	0	18	7	20	0	0	27	0	0	0	0	0	49
Total Volume	0	32	8	0	40	37	0	17	0	54	30	66	0	0	96	0	0	0	0	0	190
% Approach Total	0.0	80.0	20.0	0.0		68.5	0.0	31.5	0.0		31.3	68.8	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.571	1.000	0.000	0.625	0.771	0.000	0.708	0.000	0.750	0.750	0.786	0.000	0.000	0.889	0.000	0.000	0.000	0.000	0.000	0.896
Entering Leg	0	32	8	0	40	37	0	17	0	54	30	66	0	0	96	0	0	0	0	0	190
Exiting Leg					103					38					49					0	190
Total					143					92					145					0	380

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Grand Total	0	0	1	0	1	2	0	0	0	2	1	1	0	0	2	0	0	0	0	0	5
Approach %	0.0	0.0	100.0	0.0		100.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	20.0	0.0	20.0	40.0	0.0	0.0	0.0	40.0	20.0	20.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					3					2					0					0	5

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	3
% Approach Total	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.750
Entering Leg	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	3
Exiting Leg					2					1					0					0	3
Total					2					3					1					0	6

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	2	0	3	2	0	4	0	6	1	2	0	0	3	0	0	0	0	0	12
4:15 PM	0	0	1	0	1	1	0	2	0	3	1	1	0	0	2	0	0	0	0	0	6
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
Total	0	1	3	0	4	3	0	7	0	10	2	6	0	0	8	0	0	0	0	0	22
5:00 PM	0	1	0	0	1	0	0	4	0	4	1	2	0	0	3	0	0	0	0	0	8
5:15 PM	0	0	0	0	0	0	0	3	0	3	0	1	0	0	1	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	1	0	1	2	0	2	0	4	1	0	0	0	1	0	0	0	0	0	6
Total	0	1	1	0	2	2	0	10	0	12	2	3	0	0	5	0	0	0	0	0	19
Grand Total	0	2	4	0	6	5	0	17	0	22	4	9	0	0	13	0	0	0	0	0	41
Approach %	0.0	33.3	66.7	0.0		22.7	0.0	77.3	0.0		30.8	69.2	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	4.9	9.8	0.0	14.6	12.2	0.0	41.5	0.0	53.7	9.8	22.0	0.0	0.0	31.7	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					14					8					19					0	41

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	2	0	3	2	0	4	0	6	1	2	0	0	3	0	0	0	0	0	12
4:15 PM	0	0	1	0	1	1	0	2	0	3	1	1	0	0	2	0	0	0	0	0	6
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
Total Volume	0	1	3	0	4	3	0	7	0	10	2	6	0	0	8	0	0	0	0	0	22
% Approach Total	0.0	25.0	75.0	0.0		30.0	0.0	70.0	0.0		25.0	75.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.375	0.000	0.333	0.375	0.000	0.438	0.000	0.417	0.500	0.750	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.458
Entering Leg	0	1	3	0	4	3	0	7	0	10	2	6	0	0	8	0	0	0	0	0	22
Exiting Leg					9					5					8					0	22
Total					13					15					16					0	44

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	1	0	2	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	5
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	2	0	4	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	8
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	1	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	3
5:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	2	0	2	1	0	3	0	4	0	2	0	0	2	0	0	0	0	0	8
Grand Total	0	2	4	0	6	1	0	4	0	5	2	3	0	0	5	0	0	0	0	0	16
Approach %	0.0	33.3	66.7	0.0		20.0	0.0	80.0	0.0		40.0	60.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	12.5	25.0	0.0	37.5	6.3	0.0	25.0	0.0	31.3	12.5	18.8	0.0	0.0	31.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					4					6					6					0	16

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Lunenburg Road (Route 70) from North					Fort Pond Road from East					Lunenburg Road (Route 70) from South					Woods Lane from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	1	1	0	2	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	5
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	3
Total Volume	0	2	1	0	3	1	0	3	0	4	1	2	0	0	3	0	0	0	0	0	10
% Approach Total	0.0	66.7	33.3	0.0		25.0	0.0	75.0	0.0		33.3	66.7	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.250	0.000	0.375	0.250	0.000	0.375	0.000	0.333	0.250	0.500	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	2	1	0	3	1	0	3	0	4	1	2	0	0	3	0	0	0	0	0	10
Exiting Leg					3					2					5					0	10
Total					6					6					8					0	20

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Lunenburg Road (Route 70) from North							Fort Pond Road from East							Lunenburg Road (Route 70) from South							Woods Lane from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North							Fort Pond Road from East							Lunenburg Road (Route 70) from South							Woods Lane from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 FF**
Location: **N: Lunenburg Road (Route 70) S: Lunenburg Road (Route 70)**
Location: **E: Fort Pond Road W: Woods Lane**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Lunenburg Road (Route 70) from North							Fort Pond Road from East							Lunenburg Road (Route 70) from South							Woods Lane from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lunenburg Road (Route 70) from North							Fort Pond Road from East							Lunenburg Road (Route 70) from South							Woods Lane from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Route 2 EB Ramps from North				Old Union Turnpike from East				Old Union Turnpike from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	27	4	0	31	0	23	0	23	26	91	0	117	171
7:15 AM	13	1	0	14	0	16	0	16	33	98	0	131	161
7:30 AM	20	4	1	25	0	11	0	11	30	90	0	120	156
7:45 AM	28	2	0	30	0	11	0	11	30	81	0	111	152
Total	88	11	1	100	0	61	0	61	119	360	0	479	640
8:00 AM	28	3	0	31	0	18	0	18	24	67	0	91	140
8:15 AM	19	2	0	21	0	13	0	13	21	63	0	84	118
8:30 AM	31	2	0	33	0	19	0	19	11	44	0	55	107
8:45 AM	48	3	0	51	1	18	0	19	10	38	0	48	118
Total	126	10	0	136	1	68	0	69	66	212	0	278	483
Grand Total	214	21	1	236	1	129	0	130	185	572	0	757	1123
Approach %	90.7	8.9	0.4		0.8	99.2	0.0		24.4	75.6	0.0		
Total %	19.1	1.9	0.1	21.0	0.1	11.5	0.0	11.6	16.5	50.9	0.0	67.4	
Exiting Leg Total				574				206				343	1123
Cars	186	21	1	208	1	127	0	128	180	532	0	712	1048
% Cars	86.9	100.0	100.0	88.1	100.0	98.4	0.0	98.5	97.3	93.0	0.0	94.1	93.3
Exiting Leg Total				534				201				313	1048
Heavy Vehicles	28	0	0	28	0	2	0	2	5	40	0	45	75
% Heavy Vehicles	13.1	0.0	0.0	11.9	0.0	1.6	0.0	1.5	2.7	7.0	0.0	5.9	6.7
Exiting Leg Total				40				5				30	75

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps from North				Old Union Turnpike from East				Old Union Turnpike from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	27	4	0	31	0	23	0	23	26	91	0	117	171
7:15 AM	13	1	0	14	0	16	0	16	33	98	0	131	161
7:30 AM	20	4	1	25	0	11	0	11	30	90	0	120	156
7:45 AM	28	2	0	30	0	11	0	11	30	81	0	111	152
Total Volume	88	11	1	100	0	61	0	61	119	360	0	479	640
% Approach Total	88.0	11.0	1.0		0.0	100.0	0.0		24.8	75.2	0.0		
PHF	0.786	0.688	0.250	0.806	0.000	0.663	0.000	0.663	0.902	0.918	0.000	0.914	0.936
Cars	73	11	1	85	0	60	0	60	114	332	0	446	591
Cars %	83.0	100.0	100.0	85.0	0.0	98.4	0.0	98.4	95.8	92.2	0.0	93.1	92.3
Heavy Vehicles	15	0	0	15	0	1	0	1	5	28	0	33	49
Heavy Vehicles %	17.0	0.0	0.0	15.0	0.0	1.6	0.0	1.6	4.2	7.8	0.0	6.9	7.7
Cars Enter Leg	73	11	1	85	0	60	0	60	114	332	0	446	591
Heavy Enter Leg	15	0	0	15	0	1	0	1	5	28	0	33	49
Total Entering Leg	88	11	1	100	0	61	0	61	119	360	0	479	640
Cars Exiting Leg				333				125				133	591
Heavy Exiting Leg				28				5				16	49
Total Exiting Leg				361				130				149	640

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	23	4	0	27	0	22	0	22	25	85	0	110	159
7:15 AM	11	1	0	12	0	16	0	16	31	89	0	120	148
7:30 AM	15	4	1	20	0	11	0	11	30	79	0	109	140
7:45 AM	24	2	0	26	0	11	0	11	28	79	0	107	144
Total	73	11	1	85	0	60	0	60	114	332	0	446	591
8:00 AM	24	3	0	27	0	18	0	18	24	65	0	89	134
8:15 AM	17	2	0	19	0	13	0	13	21	59	0	80	112
8:30 AM	29	2	0	31	0	19	0	19	11	38	0	49	99
8:45 AM	43	3	0	46	1	17	0	18	10	38	0	48	112
Total	113	10	0	123	1	67	0	68	66	200	0	266	457
Grand Total	186	21	1	208	1	127	0	128	180	532	0	712	1048
Approach %	89.4	10.1	0.5		0.8	99.2	0.0		25.3	74.7	0.0		
Total %	17.7	2.0	0.1	19.8	0.1	12.1	0.0	12.2	17.2	50.8	0.0	67.9	
Exiting Leg Total				534				201				313	1048

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	23	4	0	27	0	22	0	22	25	85	0	110	159
7:15 AM	11	1	0	12	0	16	0	16	31	89	0	120	148
7:30 AM	15	4	1	20	0	11	0	11	30	79	0	109	140
7:45 AM	24	2	0	26	0	11	0	11	28	79	0	107	144
Total Volume	73	11	1	85	0	60	0	60	114	332	0	446	591
% Approach Total	85.9	12.9	1.2		0.0	100.0	0.0		25.6	74.4	0.0		
PHF	0.760	0.688	0.250	0.787	0.000	0.682	0.000	0.682	0.919	0.933	0.000	0.929	0.929
Entering Leg	73	11	1	85	0	60	0	60	114	332	0	446	591
Exiting Leg				333				125				133	591
Total				418				185				579	1182

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	4	0	0	4	0	1	0	1	1	6	0	7	12
7:15 AM	2	0	0	2	0	0	0	0	2	9	0	11	13
7:30 AM	5	0	0	5	0	0	0	0	0	11	0	11	16
7:45 AM	4	0	0	4	0	0	0	0	2	2	0	4	8
Total	15	0	0	15	0	1	0	1	5	28	0	33	49
8:00 AM	4	0	0	4	0	0	0	0	0	2	0	2	6
8:15 AM	2	0	0	2	0	0	0	0	0	4	0	4	6
8:30 AM	2	0	0	2	0	0	0	0	0	6	0	6	8
8:45 AM	5	0	0	5	0	1	0	1	0	0	0	0	6
Total	13	0	0	13	0	1	0	1	0	12	0	12	26
Grand Total	28	0	0	28	0	2	0	2	5	40	0	45	75
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		11.1	88.9	0.0		
Total %	37.3	0.0	0.0	37.3	0.0	2.7	0.0	2.7	6.7	53.3	0.0	60.0	
Exiting Leg Total				40				5				30	75
Buses	1	0	0	1	0	0	0	0	2	1	0	3	4
% Buses	3.6	0.0	0.0	3.6	0.0	0.0	0.0	0.0	40.0	2.5	0.0	6.7	5.3
Exiting Leg Total				1				2				1	4
Single-Unit Trucks	21	0	0	21	0	2	0	2	3	32	0	35	58
% Single-Unit	75.0	0.0	0.0	75.0	0.0	100.0	0.0	100.0	60.0	80.0	0.0	77.8	77.3
Exiting Leg Total				32				3				23	58
Articulated Trucks	6	0	0	6	0	0	0	0	0	7	0	7	13
% Articulated	21.4	0.0	0.0	21.4	0.0	0.0	0.0	0.0	0.0	17.5	0.0	15.6	17.3
Exiting Leg Total				7				0				6	13

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	4	0	0	4	0	1	0	1	1	6	0	7	12
7:15 AM	2	0	0	2	0	0	0	0	2	9	0	11	13
7:30 AM	5	0	0	5	0	0	0	0	0	11	0	11	16
7:45 AM	4	0	0	4	0	0	0	0	2	2	0	4	8
Total Volume	15	0	0	15	0	1	0	1	5	28	0	33	49
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		15.2	84.8	0.0		
PHF	0.750	0.000	0.000	0.750	0.000	0.250	0.000	0.250	0.625	0.636	0.000	0.750	0.766
Buses	1	0	0	1	0	0	0	0	2	0	0	2	3
Buses %	6.7	0.0	0.0	6.7	0.0	0.0	0.0	0.0	40.0	0.0	0.0	6.1	6.1
Single-Unit Trucks	11	0	0	11	0	1	0	1	3	23	0	26	38
Single-Unit %	73.3	0.0	0.0	73.3	0.0	100.0	0.0	100.0	60.0	82.1	0.0	78.8	77.6
Articulated Trucks	3	0	0	3	0	0	0	0	0	5	0	5	8
Articulated %	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	17.9	0.0	15.2	16.3
Buses	1	0	0	1	0	0	0	0	2	0	0	2	3
Single-Unit Trucks	11	0	0	11	0	1	0	1	3	23	0	26	38
Articulated Trucks	3	0	0	3	0	0	0	0	0	5	0	5	8
Total Entering Leg	15	0	0	15	0	1	0	1	5	28	0	33	49
Buses				0				2				1	3
Single-Unit Trucks				23				3				12	38
Articulated Trucks				5				0				3	8
Total Exiting Leg				28				5				16	49

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	14	2	0	16	0	19	0	19	22	72	0	94	129
7:15 AM	5	1	0	6	0	10	0	10	26	74	0	100	116
7:30 AM	10	3	1	14	0	9	0	9	26	67	0	93	116
7:45 AM	20	2	0	22	0	8	0	8	22	73	0	95	125
Total	49	8	1	58	0	46	0	46	96	286	0	382	486
8:00 AM	22	3	0	25	0	15	0	15	20	51	0	71	111
8:15 AM	13	1	0	14	0	12	0	12	16	48	0	64	90
8:30 AM	25	2	0	27	0	18	0	18	10	33	0	43	88
8:45 AM	38	2	0	40	1	14	0	15	9	34	0	43	98
Total	98	8	0	106	1	59	0	60	55	166	0	221	387
Grand Total	147	16	1	164	1	105	0	106	151	452	0	603	873
Approach %	89.6	9.8	0.6		0.9	99.1	0.0		25.0	75.0	0.0		
Total %	16.8	1.8	0.1	18.8	0.1	12.0	0.0	12.1	17.3	51.8	0.0	69.1	
Exiting Leg Total				454				167				252	873

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	14	2	0	16	0	19	0	19	22	72	0	94	129
7:15 AM	5	1	0	6	0	10	0	10	26	74	0	100	116
7:30 AM	10	3	1	14	0	9	0	9	26	67	0	93	116
7:45 AM	20	2	0	22	0	8	0	8	22	73	0	95	125
Total Volume	49	8	1	58	0	46	0	46	96	286	0	382	486
% Approach Total	84.5	13.8	1.7		0.0	100.0	0.0		25.1	74.9	0.0		
PHF	0.613	0.667	0.250	0.659	0.000	0.605	0.000	0.605	0.923	0.966	0.000	0.955	0.942
Entering Leg	49	8	1	58	0	46	0	46	96	286	0	382	486
Exiting Leg				287				104				95	486
Total				345				150				477	972

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	9	2	0	11	0	3	0	3	3	13	0	16	30
7:15 AM	6	0	0	6	0	6	0	6	5	15	0	20	32
7:30 AM	5	1	0	6	0	2	0	2	4	12	0	16	24
7:45 AM	4	0	0	4	0	3	0	3	6	6	0	12	19
Total	24	3	0	27	0	14	0	14	18	46	0	64	105
8:00 AM	2	0	0	2	0	3	0	3	4	14	0	18	23
8:15 AM	4	1	0	5	0	1	0	1	5	11	0	16	22
8:30 AM	4	0	0	4	0	1	0	1	1	5	0	6	11
8:45 AM	5	1	0	6	0	3	0	3	1	4	0	5	14
Total	15	2	0	17	0	8	0	8	11	34	0	45	70
Grand Total	39	5	0	44	0	22	0	22	29	80	0	109	175
Approach %	88.6	11.4	0.0		0.0	100.0	0.0		26.6	73.4	0.0		
Total %	22.3	2.9	0.0	25.1	0.0	12.6	0.0	12.6	16.6	45.7	0.0	62.3	
Exiting Leg Total				80				34				61	175

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	9	2	0	11	0	3	0	3	3	13	0	16	30
7:15 AM	6	0	0	6	0	6	0	6	5	15	0	20	32
7:30 AM	5	1	0	6	0	2	0	2	4	12	0	16	24
7:45 AM	4	0	0	4	0	3	0	3	6	6	0	12	19
Total Volume	24	3	0	27	0	14	0	14	18	46	0	64	105
% Approach Total	88.9	11.1	0.0		0.0	100.0	0.0		28.1	71.9	0.0		
PHF	0.667	0.375	0.000	0.614	0.000	0.583	0.000	0.583	0.750	0.767	0.000	0.800	0.820
Entering Leg	24	3	0	27	0	14	0	14	18	46	0	64	105
Exiting Leg				46				21				38	105
Total				73				35				102	210

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
7:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	1	0	0	1	0	0	0	0	2	0	0	2	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	1
Grand Total	1	0	0	1	0	0	0	0	2	1	0	3	4
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		66.7	33.3	0.0		
Total %	25.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	50.0	25.0	0.0	75.0	
Exiting Leg Total				1				2				1	4

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
7:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	1	0	0	1	0	0	0	0	2	0	0	2	3
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.750
Entering Leg	1	0	0	1	0	0	0	0	2	0	0	2	3
Exiting Leg				0				2				1	3
Total				1				2				3	6

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	4	0	0	4	0	1	0	1	1	5	0	6	11
7:15 AM	1	0	0	1	0	0	0	0	1	6	0	7	8
7:30 AM	3	0	0	3	0	0	0	0	0	10	0	10	13
7:45 AM	3	0	0	3	0	0	0	0	1	2	0	3	6
Total	11	0	0	11	0	1	0	1	3	23	0	26	38
8:00 AM	3	0	0	3	0	0	0	0	0	2	0	2	5
8:15 AM	2	0	0	2	0	0	0	0	0	4	0	4	6
8:30 AM	1	0	0	1	0	0	0	0	0	3	0	3	4
8:45 AM	4	0	0	4	0	1	0	1	0	0	0	0	5
Total	10	0	0	10	0	1	0	1	0	9	0	9	20
Grand Total	21	0	0	21	0	2	0	2	3	32	0	35	58
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		8.6	91.4	0.0		
Total %	36.2	0.0	0.0	36.2	0.0	3.4	0.0	3.4	5.2	55.2	0.0	60.3	
Exiting Leg Total				32				3				23	58

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	4	0	0	4	0	1	0	1	1	5	0	6	11
7:15 AM	1	0	0	1	0	0	0	0	1	6	0	7	8
7:30 AM	3	0	0	3	0	0	0	0	0	10	0	10	13
7:45 AM	3	0	0	3	0	0	0	0	1	2	0	3	6
Total Volume	11	0	0	11	0	1	0	1	3	23	0	26	38
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		11.5	88.5	0.0		
PHF	0.688	0.000	0.000	0.688	0.000	0.250	0.000	0.250	0.750	0.575	0.000	0.650	0.731
Entering Leg	11	0	0	11	0	1	0	1	3	23	0	26	38
Exiting Leg				23				3				12	38
Total				34				4				38	76

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
7:15 AM	1	0	0	1	0	0	0	0	0	3	0	3	4
7:30 AM	1	0	0	1	0	0	0	0	0	1	0	1	2
7:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	3	0	0	3	0	0	0	0	0	5	0	5	8
8:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	1	0	0	1	0	0	0	0	0	2	0	2	3
8:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	3	0	0	3	0	0	0	0	0	2	0	2	5
Grand Total	6	0	0	6	0	0	0	0	0	7	0	7	13
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	46.2	0.0	0.0	46.2	0.0	0.0	0.0	0.0	0.0	53.8	0.0	53.8	
Exiting Leg Total				7				0				6	13

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
7:15 AM	1	0	0	1	0	0	0	0	0	3	0	3	4
7:30 AM	1	0	0	1	0	0	0	0	0	1	0	1	2
7:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	3	0	0	3	0	0	0	0	0	5	0	5	8
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.750	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.417	0.000	0.417	0.500
Entering Leg	3	0	0	3	0	0	0	0	0	5	0	5	8
Exiting Leg				5				0				3	8
Total				8				0				8	16

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Route 2 EB Ramps						Old Union Turnpike						Old Union Turnpike						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps						Old Union Turnpike						Old Union Turnpike						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 G**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Route 2 EB Ramps						Old Union Turnpike						Old Union Turnpike						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Route 2 EB Ramps						Old Union Turnpike						Old Union Turnpike						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Route 2 EB Ramps from North				Old Union Turnpike from East				Old Union Turnpike from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	48	6	0	54	1	31	0	32	22	27	0	49	135
4:15 PM	40	3	0	43	1	29	0	30	14	27	0	41	114
4:30 PM	50	3	0	53	0	21	0	21	24	21	0	45	119
4:45 PM	42	5	0	47	0	22	0	22	14	22	0	36	105
Total	180	17	0	197	2	103	0	105	74	97	0	171	473
5:00 PM	56	3	0	59	0	29	0	29	20	22	0	42	130
5:15 PM	53	3	0	56	1	27	0	28	24	15	0	39	123
5:30 PM	46	2	0	48	0	19	0	19	13	20	0	33	100
5:45 PM	43	3	0	46	0	15	0	15	9	13	0	22	83
Total	198	11	0	209	1	90	0	91	66	70	0	136	436
Grand Total	378	28	0	406	3	193	0	196	140	167	0	307	909
Approach %	93.1	6.9	0.0		1.5	98.5	0.0		45.6	54.4	0.0		
Total %	41.6	3.1	0.0	44.7	0.3	21.2	0.0	21.6	15.4	18.4	0.0	33.8	
Exiting Leg Total				170				168				571	909
Cars	361	28	0	389	3	189	0	192	137	157	0	294	875
% Cars	95.5	100.0	0.0	95.8	100.0	97.9	0.0	98.0	97.9	94.0	0.0	95.8	96.3
Exiting Leg Total				160				165				550	875
Heavy Vehicles	17	0	0	17	0	4	0	4	3	10	0	13	34
% Heavy Vehicles	4.5	0.0	0.0	4.2	0.0	2.1	0.0	2.0	2.1	6.0	0.0	4.2	3.7
Exiting Leg Total				10				3				21	34

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Route 2 EB Ramps from North				Old Union Turnpike from East				Old Union Turnpike from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:30 PM	50	3	0	53	0	21	0	21	24	21	0	45	119
4:45 PM	42	5	0	47	0	22	0	22	14	22	0	36	105
5:00 PM	56	3	0	59	0	29	0	29	20	22	0	42	130
5:15 PM	53	3	0	56	1	27	0	28	24	15	0	39	123
Total Volume	201	14	0	215	1	99	0	100	82	80	0	162	477
% Approach Total	93.5	6.5	0.0		1.0	99.0	0.0		50.6	49.4	0.0		
PHF	0.897	0.700	0.000	0.911	0.250	0.853	0.000	0.862	0.854	0.909	0.000	0.900	0.917
Cars	190	14	0	204	1	99	0	100	80	75	0	155	459
Cars %	94.5	100.0	0.0	94.9	100.0	100.0	0.0	100.0	97.6	93.8	0.0	95.7	96.2
Heavy Vehicles	11	0	0	11	0	0	0	0	2	5	0	7	18
Heavy Vehicles %	5.5	0.0	0.0	5.1	0.0	0.0	0.0	0.0	2.4	6.3	0.0	4.3	3.8
Cars Enter Leg	190	14	0	204	1	99	0	100	80	75	0	155	459
Heavy Enter Leg	11	0	0	11	0	0	0	0	2	5	0	7	18
Total Entering Leg	201	14	0	215	1	99	0	100	82	80	0	162	477
Cars Exiting Leg				76				94				289	459
Heavy Exiting Leg				5				2				11	18
Total Exiting Leg				81				96				300	477

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	45	6	0	51	1	29	0	30	22	25	0	47	128
4:15 PM	38	3	0	41	1	28	0	29	14	24	0	38	108
4:30 PM	44	3	0	47	0	21	0	21	24	18	0	42	110
4:45 PM	41	5	0	46	0	22	0	22	14	22	0	36	104
Total	168	17	0	185	2	100	0	102	74	89	0	163	450
5:00 PM	54	3	0	57	0	29	0	29	19	20	0	39	125
5:15 PM	51	3	0	54	1	27	0	28	23	15	0	38	120
5:30 PM	45	2	0	47	0	19	0	19	13	20	0	33	99
5:45 PM	43	3	0	46	0	14	0	14	8	13	0	21	81
Total	193	11	0	204	1	89	0	90	63	68	0	131	425
Grand Total	361	28	0	389	3	189	0	192	137	157	0	294	875
Approach %	92.8	7.2	0.0		1.6	98.4	0.0		46.6	53.4	0.0		
Total %	41.3	3.2	0.0	44.5	0.3	21.6	0.0	21.9	15.7	17.9	0.0	33.6	
Exiting Leg Total				160				165				550	875

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:30 PM	44	3	0	47	0	21	0	21	24	18	0	42	110
4:45 PM	41	5	0	46	0	22	0	22	14	22	0	36	104
5:00 PM	54	3	0	57	0	29	0	29	19	20	0	39	125
5:15 PM	51	3	0	54	1	27	0	28	23	15	0	38	120
Total Volume	190	14	0	204	1	99	0	100	80	75	0	155	459
% Approach Total	93.1	6.9	0.0		1.0	99.0	0.0		51.6	48.4	0.0		
PHF	0.880	0.700	0.000	0.895	0.250	0.853	0.000	0.862	0.833	0.852	0.000	0.923	0.918
Entering Leg	190	14	0	204	1	99	0	100	80	75	0	155	459
Exiting Leg				76				94				289	459
Total				280				194				444	918

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	3	0	0	3	0	2	0	2	0	2	0	2	7
4:15 PM	2	0	0	2	0	1	0	1	0	3	0	3	6
4:30 PM	6	0	0	6	0	0	0	0	0	3	0	3	9
4:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	12	0	0	12	0	3	0	3	0	8	0	8	23
5:00 PM	2	0	0	2	0	0	0	0	1	2	0	3	5
5:15 PM	2	0	0	2	0	0	0	0	1	0	0	1	3
5:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
Total	5	0	0	5	0	1	0	1	3	2	0	5	11
Grand Total	17	0	0	17	0	4	0	4	3	10	0	13	34
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		23.1	76.9	0.0		
Total %	50.0	0.0	0.0	50.0	0.0	11.8	0.0	11.8	8.8	29.4	0.0	38.2	
Exiting Leg Total				10				3				21	34
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0
Single-Unit Trucks	11	0	0	11	0	4	0	4	3	6	0	9	24
% Single-Unit	64.7	0.0	0.0	64.7	0.0	100.0	0.0	100.0	100.0	60.0	0.0	69.2	70.6
Exiting Leg Total				6				3				15	24
Articulated Trucks	6	0	0	6	0	0	0	0	0	4	0	4	10
% Articulated	35.3	0.0	0.0	35.3	0.0	0.0	0.0	0.0	0.0	40.0	0.0	30.8	29.4
Exiting Leg Total				4				0				6	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	3	0	0	3	0	2	0	2	0	2	0	2	7
4:15 PM	2	0	0	2	0	1	0	1	0	3	0	3	6
4:30 PM	6	0	0	6	0	0	0	0	0	3	0	3	9
4:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	12	0	0	12	0	3	0	3	0	8	0	8	23
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		0.0	100.0	0.0		
PHF	0.500	0.000	0.000	0.500	0.000	0.375	0.000	0.375	0.000	0.667	0.000	0.667	0.639
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	8	0	0	8	0	3	0	3	0	4	0	4	15
Single-Unit %	66.7	0.0	0.0	66.7	0.0	100.0	0.0	100.0	0.0	50.0	0.0	50.0	65.2
Articulated Trucks	4	0	0	4	0	0	0	0	0	4	0	4	8
Articulated %	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	50.0	0.0	50.0	34.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	8	0	0	8	0	3	0	3	0	4	0	4	15
Articulated Trucks	4	0	0	4	0	0	0	0	0	4	0	4	8
Total Entering Leg	12	0	0	12	0	3	0	3	0	8	0	8	23
Buses				0				0				0	0
Single-Unit Trucks				4				0				11	15
Articulated Trucks				4				0				4	8
Total Exiting Leg				8				0				15	23

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	39	6	0	45	1	23	0	24	19	18	0	37	106
4:15 PM	33	2	0	35	1	26	0	27	9	20	0	29	91
4:30 PM	38	3	0	41	0	16	0	16	18	15	0	33	90
4:45 PM	38	5	0	43	0	19	0	19	12	19	0	31	93
Total	148	16	0	164	2	84	0	86	58	72	0	130	380
5:00 PM	54	2	0	56	0	21	0	21	13	19	0	32	109
5:15 PM	51	2	0	53	1	24	0	25	18	14	0	32	110
5:30 PM	43	1	0	44	0	14	0	14	8	19	0	27	85
5:45 PM	42	2	0	44	0	10	0	10	7	13	0	20	74
Total	190	7	0	197	1	69	0	70	46	65	0	111	378
Grand Total	338	23	0	361	3	153	0	156	104	137	0	241	758
Approach %	93.6	6.4	0.0		1.9	98.1	0.0		43.2	56.8	0.0		
Total %	44.6	3.0	0.0	47.6	0.4	20.2	0.0	20.6	13.7	18.1	0.0	31.8	
Exiting Leg Total				140				127				491	758

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:30 PM	38	3	0	41	0	16	0	16	18	15	0	33	90
4:45 PM	38	5	0	43	0	19	0	19	12	19	0	31	93
5:00 PM	54	2	0	56	0	21	0	21	13	19	0	32	109
5:15 PM	51	2	0	53	1	24	0	25	18	14	0	32	110
Total Volume	181	12	0	193	1	80	0	81	61	67	0	128	402
% Approach Total	93.8	6.2	0.0		1.2	98.8	0.0		47.7	52.3	0.0		
PHF	0.838	0.600	0.000	0.862	0.250	0.833	0.000	0.810	0.847	0.882	0.000	0.970	0.914
Entering Leg	181	12	0	193	1	80	0	81	61	67	0	128	402
Exiting Leg				68				73				261	402
Total				261				154				389	804

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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Email: datarequests@pdillc.com

Light Goods Vehicle

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	6	0	0	6	0	6	0	6	3	7	0	10	22
4:15 PM	5	1	0	6	0	2	0	2	5	4	0	9	17
4:30 PM	6	0	0	6	0	5	0	5	6	3	0	9	20
4:45 PM	3	0	0	3	0	3	0	3	2	3	0	5	11
Total	20	1	0	21	0	16	0	16	16	17	0	33	70
5:00 PM	0	1	0	1	0	8	0	8	6	1	0	7	16
5:15 PM	0	1	0	1	0	3	0	3	5	1	0	6	10
5:30 PM	2	1	0	3	0	5	0	5	5	1	0	6	14
5:45 PM	1	1	0	2	0	4	0	4	1	0	0	1	7
Total	3	4	0	7	0	20	0	20	17	3	0	20	47
Grand Total	23	5	0	28	0	36	0	36	33	20	0	53	117
Approach %	82.1	17.9	0.0		0.0	100.0	0.0		62.3	37.7	0.0		
Total %	19.7	4.3	0.0	23.9	0.0	30.8	0.0	30.8	28.2	17.1	0.0	45.3	
Exiting Leg Total				20				38				59	117

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	6	0	0	6	0	6	0	6	3	7	0	10	22
4:15 PM	5	1	0	6	0	2	0	2	5	4	0	9	17
4:30 PM	6	0	0	6	0	5	0	5	6	3	0	9	20
4:45 PM	3	0	0	3	0	3	0	3	2	3	0	5	11
Total Volume	20	1	0	21	0	16	0	16	16	17	0	33	70
% Approach Total	95.2	4.8	0.0		0.0	100.0	0.0		48.5	51.5	0.0		
PHF	0.833	0.250	0.000	0.875	0.000	0.667	0.000	0.667	0.667	0.607	0.000	0.825	0.795
Entering Leg	20	1	0	21	0	16	0	16	16	17	0	33	70
Exiting Leg				17				17				36	70
Total				38				33				69	140

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

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Buses

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

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Single-Unit Trucks

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	2	0	0	2	0	2	0	2	0	2	0	2	6
4:15 PM	2	0	0	2	0	1	0	1	0	1	0	1	4
4:30 PM	4	0	0	4	0	0	0	0	0	1	0	1	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	8	0	0	8	0	3	0	3	0	4	0	4	15
5:00 PM	1	0	0	1	0	0	0	0	1	2	0	3	4
5:15 PM	2	0	0	2	0	0	0	0	1	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
Total	3	0	0	3	0	1	0	1	3	2	0	5	9
Grand Total	11	0	0	11	0	4	0	4	3	6	0	9	24
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		33.3	66.7	0.0		
Total %	45.8	0.0	0.0	45.8	0.0	16.7	0.0	16.7	12.5	25.0	0.0	37.5	
Exiting Leg Total				6				3				15	24

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	2	0	0	2	0	2	0	2	0	2	0	2	6
4:15 PM	2	0	0	2	0	1	0	1	0	1	0	1	4
4:30 PM	4	0	0	4	0	0	0	0	0	1	0	1	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	8	0	0	8	0	3	0	3	0	4	0	4	15
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		0.0	100.0	0.0		
PHF	0.500	0.000	0.000	0.500	0.000	0.375	0.000	0.375	0.000	0.500	0.000	0.500	0.625
Entering Leg	8	0	0	8	0	3	0	3	0	4	0	4	15
Exiting Leg				4				0				11	15
Total				12				3				15	30

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
4:30 PM	2	0	0	2	0	0	0	0	0	2	0	2	4
4:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	4	0	0	4	0	0	0	0	0	4	0	4	8
5:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	2	0	0	0	0	0	0	0	0	2
Grand Total	6	0	0	6	0	0	0	0	0	4	0	4	10
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	60.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	40.0	
Exiting Leg Total				4				0				6	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Route 2 EB Ramps				Old Union Turnpike				Old Union Turnpike				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
4:30 PM	2	0	0	2	0	0	0	0	0	2	0	2	4
4:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	4	0	0	4	0	0	0	0	0	4	0	4	8
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.500
Entering Leg	4	0	0	4	0	0	0	0	0	4	0	4	8
Exiting Leg				4				0				4	8
Total				8				0				8	16

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Route 2 EB Ramps						Old Union Turnpike						Old Union Turnpike						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Route 2 EB Ramps						Old Union Turnpike						Old Union Turnpike						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **186634 GG**
Location: **N: Route 2 EB Ramps**
Location: **E: Old Union Turnpike W: Old Union Turnpike**
City, State: **Lancaster, MA**
Client: **TEC/ L. Oltman**
Site Code: **T0852**
Count Date: **Wednesday, December 19, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Route 2 EB Ramps						Old Union Turnpike						Old Union Turnpike						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Route 2 EB Ramps						Old Union Turnpike						Old Union Turnpike						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **196895 A**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	27	1	0	28	7	0	0	0	7	0	116	0	0	116	151
7:15 AM	0	0	0	0	0	0	25	2	0	27	6	0	1	0	7	0	113	0	0	113	147
7:30 AM	0	0	0	0	0	0	39	1	0	40	3	0	0	0	3	2	136	0	0	138	181
7:45 AM	0	0	0	0	0	0	57	1	0	58	4	0	0	0	4	0	117	0	0	117	179
Total	0	0	0	0	0	0	148	5	0	153	20	0	1	0	21	2	482	0	0	484	658
8:00 AM	0	0	0	0	0	0	36	1	0	37	7	0	0	0	7	1	94	0	0	95	139
8:15 AM	0	0	0	0	0	0	46	0	0	46	1	0	2	0	3	0	85	0	0	85	134
8:30 AM	0	0	0	0	0	0	50	2	0	52	1	0	2	0	3	0	62	0	0	62	117
8:45 AM	0	0	0	0	0	0	63	1	0	64	1	0	1	0	2	1	71	0	0	72	138
Total	0	0	0	0	0	0	195	4	0	199	10	0	5	0	15	2	312	0	0	314	528
Grand Total	0	0	0	0	0	0	343	9	0	352	30	0	6	0	36	4	794	0	0	798	1186
Approach %	0.0	0.0	0.0	0.0		0.0	97.4	2.6	0.0		83.3	0.0	16.7	0.0		0.5	99.5	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	28.9	0.8	0.0	29.7	2.5	0.0	0.5	0.0	3.0	0.3	66.9	0.0	0.0	67.3	
Exiting Leg Total					0					824					13					349	1186
Cars	0	0	0	0	0	0	327	6	0	333	27	0	4	0	31	2	772	0	0	774	1138
% Cars	0.0	0.0	0.0	0.0	0.0	0.0	95.3	66.7	0.0	94.6	90.0	0.0	66.7	0.0	86.1	50.0	97.2	0.0	0.0	97.0	96.0
Exiting Leg Total					0					799					8					331	1138
Heavy Vehicles	0	0	0	0	0	0	16	3	0	19	3	0	2	0	5	2	22	0	0	24	48
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	4.7	33.3	0.0	5.4	10.0	0.0	33.3	0.0	13.9	50.0	2.8	0.0	0.0	3.0	4.0
Exiting Leg Total					0					25					5					18	48

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	27	1	0	28	7	0	0	0	7	0	116	0	0	116	151
7:15 AM	0	0	0	0	0	0	25	2	0	27	6	0	1	0	7	0	113	0	0	113	147
7:30 AM	0	0	0	0	0	0	39	1	0	40	3	0	0	0	3	2	136	0	0	138	181
7:45 AM	0	0	0	0	0	0	57	1	0	58	4	0	0	0	4	0	117	0	0	117	179
Total Volume	0	0	0	0	0	0	148	5	0	153	20	0	1	0	21	2	482	0	0	484	658
% Approach Total	0.0	0.0	0.0	0.0		0.0	96.7	3.3	0.0		95.2	0.0	4.8	0.0		0.4	99.6	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.649	0.625	0.000	0.659	0.714	0.000	0.250	0.000	0.750	0.250	0.886	0.000	0.000	0.877	0.909
Cars	0	0	0	0	0	0	139	2	0	141	18	0	1	0	19	2	470	0	0	472	632
Cars %	0.0	0.0	0.0	0.0	0.0	0.0	93.9	40.0	0.0	92.2	90.0	0.0	100.0	0.0	90.5	100.0	97.5	0.0	0.0	97.5	96.0
Heavy Vehicles	0	0	0	0	0	0	9	3	0	12	2	0	0	0	2	0	12	0	0	12	26
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	6.1	60.0	0.0	7.8	10.0	0.0	0.0	0.0	9.5	0.0	2.5	0.0	0.0	2.5	4.0
Cars Enter Leg	0	0	0	0	0	0	139	2	0	141	18	0	1	0	19	2	470	0	0	472	632
Heavy Enter Leg	0	0	0	0	0	0	9	3	0	12	2	0	0	0	2	0	12	0	0	12	26
Total Entering Leg	0	0	0	0	0	0	148	5	0	153	20	0	1	0	21	2	482	0	0	484	658
Cars Exiting Leg					0					488					4					140	632
Heavy Exiting Leg					0					14					3					9	26
Total Exiting Leg					0					502					7					149	658

PDI File #: **196895 A**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	24	0	0	24	7	0	0	0	7	0	111	0	0	111	142
7:15 AM	0	0	0	0	0	0	23	1	0	24	4	0	1	0	5	0	111	0	0	111	140
7:30 AM	0	0	0	0	0	0	38	1	0	39	3	0	0	0	3	2	132	0	0	134	176
7:45 AM	0	0	0	0	0	0	54	0	0	54	4	0	0	0	4	0	116	0	0	116	174
Total	0	0	0	0	0	0	139	2	0	141	18	0	1	0	19	2	470	0	0	472	632
8:00 AM	0	0	0	0	0	0	34	1	0	35	6	0	0	0	6	0	91	0	0	91	132
8:15 AM	0	0	0	0	0	0	46	0	0	46	1	0	0	0	1	0	82	0	0	82	129
8:30 AM	0	0	0	0	0	0	45	2	0	47	1	0	2	0	3	0	60	0	0	60	110
8:45 AM	0	0	0	0	0	0	63	1	0	64	1	0	1	0	2	0	69	0	0	69	135
Total	0	0	0	0	0	0	188	4	0	192	9	0	3	0	12	0	302	0	0	302	506
Grand Total	0	0	0	0	0	0	327	6	0	333	27	0	4	0	31	2	772	0	0	774	1138
Approach %	0.0	0.0	0.0	0.0		0.0	98.2	1.8	0.0		87.1	0.0	12.9	0.0		0.3	99.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	28.7	0.5	0.0	29.3	2.4	0.0	0.4	0.0	2.7	0.2	67.8	0.0	0.0	68.0	
Exiting Leg Total					0					799					8					331	1138

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	24	0	0	24	7	0	0	0	7	0	111	0	0	111	142
7:15 AM	0	0	0	0	0	0	23	1	0	24	4	0	1	0	5	0	111	0	0	111	140
7:30 AM	0	0	0	0	0	0	38	1	0	39	3	0	0	0	3	2	132	0	0	134	176
7:45 AM	0	0	0	0	0	0	54	0	0	54	4	0	0	0	4	0	116	0	0	116	174
Total Volume	0	0	0	0	0	0	139	2	0	141	18	0	1	0	19	2	470	0	0	472	632
% Approach Total	0.0	0.0	0.0	0.0		0.0	98.6	1.4	0.0		94.7	0.0	5.3	0.0		0.4	99.6	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.644	0.500	0.000	0.653	0.643	0.000	0.250	0.000	0.679	0.250	0.890	0.000	0.000	0.881	0.898
Entering Leg	0	0	0	0	0	0	139	2	0	141	18	0	1	0	19	2	470	0	0	472	632
Exiting Leg					0					488					4					140	632
Total					0					629					23					612	1264

PDI File #: **196895 A**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	5	0	0	5	9
7:15 AM	0	0	0	0	0	0	2	1	0	3	2	0	0	0	2	0	2	0	0	2	7
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
7:45 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	5
Total	0	0	0	0	0	0	9	3	0	12	2	0	0	0	2	0	12	0	0	12	26
8:00 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	1	3	0	0	4	7
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	3	0	0	3	5
8:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	7
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	3
Total	0	0	0	0	0	0	7	0	0	7	1	0	2	0	3	2	10	0	0	12	22
Grand Total	0	0	0	0	0	0	16	3	0	19	3	0	2	0	5	2	22	0	0	24	48
Approach %	0.0	0.0	0.0	0.0		0.0	84.2	15.8	0.0		60.0	0.0	40.0	0.0		8.3	91.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	33.3	6.3	0.0	39.6	6.3	0.0	4.2	0.0	10.4	4.2	45.8	0.0	0.0	50.0	
Exiting Leg Total					0					25					5					18	48
Buses	0	0	0	0	0	0	4	3	0	7	3	0	1	0	4	1	7	0	0	8	19
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	25.0	100.0	0.0	36.8	100.0	0.0	50.0	0.0	80.0	50.0	31.8	0.0	0.0	33.3	39.6
Exiting Leg Total					0					10					4					5	19
Single-Unit Trucks	0	0	0	0	0	0	10	0	0	10	0	0	1	0	1	1	11	0	0	12	23
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	62.5	0.0	0.0	52.6	0.0	0.0	50.0	0.0	20.0	50.0	50.0	0.0	0.0	50.0	47.9
Exiting Leg Total					0					11					1					11	23
Articulated Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0	0.0	16.7	12.5
Exiting Leg Total					0					4					0					2	6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	5	0	0	5	9
7:15 AM	0	0	0	0	0	0	2	1	0	3	2	0	0	0	2	0	2	0	0	2	7
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
7:45 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	5
Total Volume	0	0	0	0	0	0	9	3	0	12	2	0	0	0	2	0	12	0	0	12	26
% Approach Total	0.0	0.0	0.0	0.0		0.0	75.0	25.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.750	0.000	0.750	0.250	0.000	0.000	0.000	0.250	0.000	0.600	0.000	0.000	0.600	0.722
Buses	0	0	0	0	0	0	2	3	0	5	2	0	0	0	2	0	4	0	0	4	11
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	22.2	100.0	0.0	41.7	100.0	0.0	0.0	0.0	100.0	0.0	33.3	0.0	0.0	33.3	42.3
Single-Unit Trucks	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	11
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	41.7	0.0	0.0	41.7	42.3
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	25.0	15.4
Buses	0	0	0	0	0	0	2	3	0	5	2	0	0	0	2	0	4	0	0	4	11
Single-Unit Trucks	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	11
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Total Entering Leg	0	0	0	0	0	0	9	3	0	12	2	0	0	0	2	0	12	0	0	12	26
Buses					0					6					3					2	11
Single-Unit Trucks					0					5					0					6	11
Articulated Trucks					0					3					0					1	4
Total Exiting Leg					0					14					3					9	26

PDI File #: **196895 A**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	3
7:15 AM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
7:45 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	0	2	3	0	5	2	0	0	0	2	0	4	0	0	4	11
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	3
8:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	1	3	0	0	4	8
Grand Total	0	0	0	0	0	0	4	3	0	7	3	0	1	0	4	1	7	0	0	8	19
Approach %	0.0	0.0	0.0	0.0		0.0	57.1	42.9	0.0		75.0	0.0	25.0	0.0		12.5	87.5	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	21.1	15.8	0.0	36.8	15.8	0.0	5.3	0.0	21.1	5.3	36.8	0.0	0.0	42.1	
Exiting Leg Total					0					10					4					5	19

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	3
7:15 AM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
7:45 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	3
Total Volume	0	0	0	0	0	0	2	3	0	5	2	0	0	0	2	0	4	0	0	4	11
% Approach Total	0.0	0.0	0.0	0.0		0.0	40.0	60.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.750	0.000	0.625	0.250	0.000	0.000	0.000	0.250	0.000	0.500	0.000	0.000	0.500	0.917
Entering Leg	0	0	0	0	0	0	2	3	0	5	2	0	0	0	2	0	4	0	0	4	11
Exiting Leg					0					6					3					2	11
Total					0					11					5					6	22

PDI File #: **196895 A**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
7:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	11
8:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
8:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	3
Total	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	1	6	0	0	7	12
Grand Total	0	0	0	0	0	0	10	0	0	10	0	0	1	0	1	1	11	0	0	12	23
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		8.3	91.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	43.5	0.0	0.0	43.5	0.0	0.0	4.3	0.0	4.3	4.3	47.8	0.0	0.0	52.2	
Exiting Leg Total					0					11					1					11	23

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
8:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	3
Total Volume	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	1	6	0	0	7	12
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		14.3	85.7	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.250	0.000	0.250	0.250	0.750	0.000	0.000	0.583	0.750
Entering Leg	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	1	6	0	0	7	12
Exiting Leg					0					6					1					5	12
Total					0					10					2					12	24

PDI File #: **196895 A**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Grand Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	66.7	
Exiting Leg Total					0					4					0					2	6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.500
Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Exiting Leg					0					3					0					1	4
Total					0					4					0					4	8

PDI File #: **196895 A**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Driveway							Mechanic Street							White Pond Road							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	
Exiting Leg Total							0							1							0							0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway							Mechanic Street							White Pond Road							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Exiting Leg							0							1							0							0	1
Total							0							1							0							1	2

PDI File #: **196895 A**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Driveway							Mechanic Street							White Pond Road							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway							Mechanic Street							White Pond Road							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **196895 AA**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	92	3	0	95	2	0	1	0	3	3	74	0	0	77	175
4:15 PM	0	0	0	0	0	0	91	1	0	92	3	0	2	0	5	7	51	0	0	58	155
4:30 PM	0	0	0	0	0	0	97	1	0	98	2	0	4	0	6	5	72	0	0	77	181
4:45 PM	0	0	0	0	0	0	117	5	0	122	3	0	2	0	5	1	59	0	0	60	187
Total	0	0	0	0	0	0	397	10	0	407	10	0	9	0	19	16	256	0	0	272	698
5:00 PM	0	0	0	0	0	0	135	5	0	140	1	0	2	0	3	1	100	0	0	101	244
5:15 PM	0	0	0	0	0	0	125	2	0	127	2	0	1	0	3	1	55	0	0	56	186
5:30 PM	0	0	0	0	0	0	92	4	0	96	2	0	1	0	3	2	62	0	0	64	163
5:45 PM	0	0	0	4	4	1	103	2	0	106	1	0	4	0	5	2	62	0	0	64	179
Total	0	0	0	4	4	1	455	13	0	469	6	0	8	0	14	6	279	0	0	285	772
Grand Total	0	0	0	4	4	1	852	23	0	876	16	0	17	0	33	22	535	0	0	557	1470
Approach %	0.0	0.0	0.0	100.0		0.1	97.3	2.6	0.0		48.5	0.0	51.5	0.0		3.9	96.1	0.0	0.0		
Total %	0.0	0.0	0.0	0.3	0.3	0.1	58.0	1.6	0.0	59.6	1.1	0.0	1.2	0.0	2.2	1.5	36.4	0.0	0.0	37.9	
Exiting Leg Total					5					551					45					869	1470
Cars	0	0	0	4	4	1	842	23	0	866	16	0	17	0	33	21	522	0	0	543	1446
% Cars	0.0	0.0	0.0	100.0	100.0	100.0	98.8	100.0	0.0	98.9	100.0	0.0	100.0	0.0	100.0	95.5	97.6	0.0	0.0	97.5	98.4
Exiting Leg Total					5					538					44					859	1446
Heavy Vehicles	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	1	13	0	0	14	24
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	4.5	2.4	0.0	0.0	2.5	1.6
Exiting Leg Total					0					13					1					10	24

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	0	0	0	0	0	97	1	0	98	2	0	4	0	6	5	72	0	0	77	181
4:45 PM	0	0	0	0	0	0	117	5	0	122	3	0	2	0	5	1	59	0	0	60	187
5:00 PM	0	0	0	0	0	0	135	5	0	140	1	0	2	0	3	1	100	0	0	101	244
5:15 PM	0	0	0	0	0	0	125	2	0	127	2	0	1	0	3	1	55	0	0	56	186
Total Volume	0	0	0	0	0	0	474	13	0	487	8	0	9	0	17	8	286	0	0	294	798
% Approach Total	0.0	0.0	0.0	0.0		0.0	97.3	2.7	0.0		47.1	0.0	52.9	0.0		2.7	97.3	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.878	0.650	0.000	0.870	0.667	0.000	0.563	0.000	0.708	0.400	0.715	0.000	0.000	0.728	0.818
Cars	0	0	0	0	0	0	468	13	0	481	8	0	9	0	17	7	281	0	0	288	786
Cars %	0.0	0.0	0.0	0.0	0.0	0.0	98.7	100.0	0.0	98.8	100.0	0.0	100.0	0.0	100.0	87.5	98.3	0.0	0.0	98.0	98.5
Heavy Vehicles	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	1	5	0	0	6	12
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	12.5	1.7	0.0	0.0	2.0	1.5
Cars Enter Leg	0	0	0	0	0	0	468	13	0	481	8	0	9	0	17	7	281	0	0	288	786
Heavy Enter Leg	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	1	5	0	0	6	12
Total Entering Leg	0	0	0	0	0	0	474	13	0	487	8	0	9	0	17	8	286	0	0	294	798
Cars Exiting Leg					0					289					20					477	786
Heavy Exiting Leg					0					5					1					6	12
Total Exiting Leg					0					294					21					483	798

PDI File #: **196895 AA**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	88	3	0	91	2	0	1	0	3	3	71	0	0	74	168
4:15 PM	0	0	0	0	0	0	91	1	0	92	3	0	2	0	5	7	47	0	0	54	151
4:30 PM	0	0	0	0	0	0	95	1	0	96	2	0	4	0	6	4	70	0	0	74	176
4:45 PM	0	0	0	0	0	0	115	5	0	120	3	0	2	0	5	1	58	0	0	59	184
Total	0	0	0	0	0	0	389	10	0	399	10	0	9	0	19	15	246	0	0	261	679
5:00 PM	0	0	0	0	0	0	134	5	0	139	1	0	2	0	3	1	100	0	0	101	243
5:15 PM	0	0	0	0	0	0	124	2	0	126	2	0	1	0	3	1	53	0	0	54	183
5:30 PM	0	0	0	0	0	0	92	4	0	96	2	0	1	0	3	2	62	0	0	64	163
5:45 PM	0	0	0	4	4	1	103	2	0	106	1	0	4	0	5	2	61	0	0	63	178
Total	0	0	0	4	4	1	453	13	0	467	6	0	8	0	14	6	276	0	0	282	767
Grand Total	0	0	0	4	4	1	842	23	0	866	16	0	17	0	33	21	522	0	0	543	1446
Approach %	0.0	0.0	0.0	100.0		0.1	97.2	2.7	0.0		48.5	0.0	51.5	0.0		3.9	96.1	0.0	0.0		
Total %	0.0	0.0	0.0	0.3	0.3	0.1	58.2	1.6	0.0	59.9	1.1	0.0	1.2	0.0	2.3	1.5	36.1	0.0	0.0	37.6	
Exiting Leg Total					5					538					44					859	1446

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	0	0	0	0	0	95	1	0	96	2	0	4	0	6	4	70	0	0	74	176
4:45 PM	0	0	0	0	0	0	115	5	0	120	3	0	2	0	5	1	58	0	0	59	184
5:00 PM	0	0	0	0	0	0	134	5	0	139	1	0	2	0	3	1	100	0	0	101	243
5:15 PM	0	0	0	0	0	0	124	2	0	126	2	0	1	0	3	1	53	0	0	54	183
Total Volume	0	0	0	0	0	0	468	13	0	481	8	0	9	0	17	7	281	0	0	288	786
% Approach Total	0.0	0.0	0.0	0.0		0.0	97.3	2.7	0.0		47.1	0.0	52.9	0.0		2.4	97.6	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.873	0.650	0.000	0.865	0.667	0.000	0.563	0.000	0.708	0.438	0.703	0.000	0.000	0.713	0.809
Entering Leg	0	0	0	0	0	0	468	13	0	481	8	0	9	0	17	7	281	0	0	288	786
Exiting Leg					0					289					20					477	786
Total					0					770					37					765	1572

PDI File #: **196895 AA**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	5
4:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	1	10	0	0	11	19
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
Grand Total	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	1	13	0	0	14	24
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		7.1	92.9	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	41.7	0.0	0.0	41.7	0.0	0.0	0.0	0.0	0.0	4.2	54.2	0.0	0.0	58.3	
Exiting Leg Total					0					13					1					10	24
Buses	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	7	0	0	7	10
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	53.8	0.0	0.0	50.0	41.7
Exiting Leg Total					0					7					0					3	10
Single-Unit Trucks	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	1	5	0	0	6	12
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	100.0	38.5	0.0	0.0	42.9	50.0
Exiting Leg Total					0					5					1					6	12
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	7.1	8.3
Exiting Leg Total					0					1					0					1	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	5
4:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total Volume	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	1	10	0	0	11	19
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		9.1	90.9	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.250	0.625	0.000	0.000	0.688	0.679
Buses	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	7
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	45.5	36.8
Single-Unit Trucks	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	4	0	0	5	10
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	62.5	0.0	0.0	62.5	0.0	0.0	0.0	0.0	0.0	100.0	40.0	0.0	0.0	45.5	52.6
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	9.1	10.5
Buses	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	7
Single-Unit Trucks	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	4	0	0	5	10
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total Entering Leg	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	1	10	0	0	11	19
Buses					0					5					0					2	7
Single-Unit Trucks					0					4					1					5	10
Articulated Trucks					0					1					0					1	2
Total Exiting Leg					0					10					1					8	19

PDI File #: **196895 AA**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	7
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Grand Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	7	0	0	7	10
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	70.0	0.0	0.0	70.0	
Exiting Leg Total					0					7					0					3	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	7
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.583
Entering Leg	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	7
Exiting Leg					0					5					0					2	7
Total					0					7					0					7	14

PDI File #: **196895 AA**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	4
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	4	0	0	5	10
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Grand Total	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	1	5	0	0	6	12
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		16.7	83.3	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	8.3	41.7	0.0	0.0	50.0	
Exiting Leg Total					0					5					1					6	12

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway from North					Mechanic Street from East					White Pond Road from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	4
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	4	0	0	5	10
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		20.0	80.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.000	0.625	0.625
Entering Leg	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	4	0	0	5	10
Exiting Leg					0					4					1					5	10
Total					0					9					1					10	20

PDI File #: **196895 AA**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	
Exiting Leg Total					0					1					0					1	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway					Mechanic Street					White Pond Road					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Exiting Leg					0					1					0					1	2
Total					0					2					0					2	4

PDI File #: **196895 AA**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Driveway							Mechanic Street							White Pond Road							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Approach %	0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							1							0							0							0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Driveway							Mechanic Street							White Pond Road							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg							1							0							0							0	1
Total							2							0							0							0	2

PDI File #: **196895 AA**
Location: **N: Driveway S: White Pond Road**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Driveway							Mechanic Street							White Pond Road							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway							Mechanic Street							White Pond Road							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **196895 B**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	26	1	0	27	4	0	9	0	13	3	113	0	0	116	156
7:15 AM	1	0	0	0	1	0	28	0	0	28	2	0	3	0	5	2	123	1	0	126	160
7:30 AM	0	0	0	0	0	0	39	0	0	39	6	0	8	0	14	1	119	0	0	120	173
7:45 AM	0	0	0	0	0	0	56	1	0	57	4	0	4	0	8	2	114	0	0	116	181
Total	1	0	0	0	1	0	149	2	0	151	16	0	24	0	40	8	469	1	0	478	670
8:00 AM	0	0	0	0	0	0	37	0	0	37	4	0	4	0	8	0	85	0	0	85	130
8:15 AM	1	0	0	0	1	0	45	0	0	45	1	0	5	0	6	2	86	1	0	89	141
8:30 AM	0	0	0	0	0	0	53	0	0	53	5	0	6	0	11	1	57	0	0	58	122
8:45 AM	0	0	0	0	0	0	62	0	0	62	3	0	3	0	6	1	69	0	0	70	138
Total	1	0	0	0	1	0	197	0	0	197	13	0	18	0	31	4	297	1	0	302	531
Grand Total	2	0	0	0	2	0	346	2	0	348	29	0	42	0	71	12	766	2	0	780	1201
Approach %	100.0	0.0	0.0	0.0		0.0	99.4	0.6	0.0		40.8	0.0	59.2	0.0		1.5	98.2	0.3	0.0		
Total %	0.2	0.0	0.0	0.0	0.2	0.0	28.8	0.2	0.0	29.0	2.4	0.0	3.5	0.0	5.9	1.0	63.8	0.2	0.0	64.9	
Exiting Leg Total					2					795					14					390	1201
Cars	2	0	0	0	2	0	331	1	0	332	27	0	37	0	64	9	748	2	0	759	1157
% Cars	100.0	0.0	0.0	0.0	100.0	0.0	95.7	50.0	0.0	95.4	93.1	0.0	88.1	0.0	90.1	75.0	97.7	100.0	0.0	97.3	96.3
Exiting Leg Total					2					775					10					370	1157
Heavy Vehicles	0	0	0	0	0	0	15	1	0	16	2	0	5	0	7	3	18	0	0	21	44
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	4.3	50.0	0.0	4.6	6.9	0.0	11.9	0.0	9.9	25.0	2.3	0.0	0.0	2.7	3.7
Exiting Leg Total					0					20					4					20	44

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	26	1	0	27	4	0	9	0	13	3	113	0	0	116	156
7:15 AM	1	0	0	0	1	0	28	0	0	28	2	0	3	0	5	2	123	1	0	126	160
7:30 AM	0	0	0	0	0	0	39	0	0	39	6	0	8	0	14	1	119	0	0	120	173
7:45 AM	0	0	0	0	0	0	56	1	0	57	4	0	4	0	8	2	114	0	0	116	181
Total Volume	1	0	0	0	1	0	149	2	0	151	16	0	24	0	40	8	469	1	0	478	670
% Approach Total	100.0	0.0	0.0	0.0		0.0	98.7	1.3	0.0		40.0	0.0	60.0	0.0		1.7	98.1	0.2	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.000	0.665	0.500	0.000	0.662	0.667	0.000	0.667	0.000	0.714	0.667	0.953	0.250	0.000	0.948	0.925
Cars	1	0	0	0	1	0	140	1	0	141	15	0	23	0	38	7	459	1	0	467	647
Cars %	100.0	0.0	0.0	0.0	100.0	0.0	94.0	50.0	0.0	93.4	93.8	0.0	95.8	0.0	95.0	87.5	97.9	100.0	0.0	97.7	96.6
Heavy Vehicles	0	0	0	0	0	0	9	1	0	10	1	0	1	0	2	1	10	0	0	11	23
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	6.0	50.0	0.0	6.6	6.3	0.0	4.2	0.0	5.0	12.5	2.1	0.0	0.0	2.3	3.4
Cars Enter Leg	1	0	0	0	1	0	140	1	0	141	15	0	23	0	38	7	459	1	0	467	647
Heavy Enter Leg	0	0	0	0	0	0	9	1	0	10	1	0	1	0	2	1	10	0	0	11	23
Total Entering Leg	1	0	0	0	1	0	149	2	0	151	16	0	24	0	40	8	469	1	0	478	670
Cars Exiting Leg					1					474					8					164	647
Heavy Exiting Leg					0					11					2					10	23
Total Exiting Leg					1					485					10					174	670

PDI File #: **196895 B**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	23	1	0	24	3	0	8	0	11	2	110	0	0	112	147
7:15 AM	1	0	0	0	1	0	26	0	0	26	2	0	3	0	5	2	122	1	0	125	157
7:30 AM	0	0	0	0	0	0	38	0	0	38	6	0	8	0	14	1	115	0	0	116	168
7:45 AM	0	0	0	0	0	0	53	0	0	53	4	0	4	0	8	2	112	0	0	114	175
Total	1	0	0	0	1	0	140	1	0	141	15	0	23	0	38	7	459	1	0	467	647
8:00 AM	0	0	0	0	0	0	36	0	0	36	4	0	3	0	7	0	83	0	0	83	126
8:15 AM	1	0	0	0	1	0	44	0	0	44	1	0	5	0	6	1	83	1	0	85	136
8:30 AM	0	0	0	0	0	0	49	0	0	49	4	0	4	0	8	0	56	0	0	56	113
8:45 AM	0	0	0	0	0	0	62	0	0	62	3	0	2	0	5	1	67	0	0	68	135
Total	1	0	0	0	1	0	191	0	0	191	12	0	14	0	26	2	289	1	0	292	510
Grand Total	2	0	0	0	2	0	331	1	0	332	27	0	37	0	64	9	748	2	0	759	1157
Approach %	100.0	0.0	0.0	0.0		0.0	99.7	0.3	0.0		42.2	0.0	57.8	0.0		1.2	98.6	0.3	0.0		
Total %	0.2	0.0	0.0	0.0	0.2	0.0	28.6	0.1	0.0	28.7	2.3	0.0	3.2	0.0	5.5	0.8	64.6	0.2	0.0	65.6	
Exiting Leg Total					2					775					10					370	1157

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	23	1	0	24	3	0	8	0	11	2	110	0	0	112	147
7:15 AM	1	0	0	0	1	0	26	0	0	26	2	0	3	0	5	2	122	1	0	125	157
7:30 AM	0	0	0	0	0	0	38	0	0	38	6	0	8	0	14	1	115	0	0	116	168
7:45 AM	0	0	0	0	0	0	53	0	0	53	4	0	4	0	8	2	112	0	0	114	175
Total Volume	1	0	0	0	1	0	140	1	0	141	15	0	23	0	38	7	459	1	0	467	647
% Approach Total	100.0	0.0	0.0	0.0		0.0	99.3	0.7	0.0		39.5	0.0	60.5	0.0		1.5	98.3	0.2	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.000	0.660	0.250	0.000	0.665	0.625	0.000	0.719	0.000	0.679	0.875	0.941	0.250	0.000	0.934	0.924
Entering Leg	1	0	0	0	1	0	140	1	0	141	15	0	23	0	38	7	459	1	0	467	647
Exiting Leg					1					474					8					164	647
Total					2					615					46					631	1294

PDI File #: **196895 B**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Driveway from North					Mechanic Street from East					Johnny Appleseed Lane from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	3	0	0	3	1	0	1	0	2	1	3	0	0	4	9
7:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
7:45 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	2	0	0	2	6
Total	0	0	0	0	0	0	9	1	0	10	1	0	1	0	2	1	10	0	0	11	23
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	2	0	0	2	4
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	3	0	0	4	5
8:30 AM	0	0	0	0	0	0	4	0	0	4	1	0	2	0	3	1	1	0	0	2	9
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	3
Total	0	0	0	0	0	0	6	0	0	6	1	0	4	0	5	2	8	0	0	10	21
Grand Total	0	0	0	0	0	0	15	1	0	16	2	0	5	0	7	3	18	0	0	21	44
Approach %	0.0	0.0	0.0	0.0		0.0	93.8	6.3	0.0		28.6	0.0	71.4	0.0		14.3	85.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	34.1	2.3	0.0	36.4	4.5	0.0	11.4	0.0	15.9	6.8	40.9	0.0	0.0	47.7	
Exiting Leg Total					0					20					4					20	44
Buses	0	0	0	0	0	0	4	0	0	4	1	0	4	0	5	3	6	0	0	9	18
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	26.7	0.0	0.0	25.0	50.0	0.0	80.0	0.0	71.4	100.0	33.3	0.0	0.0	42.9	40.9
Exiting Leg Total					0					7					3					8	18
Single-Unit Trucks	0	0	0	0	0	0	9	1	0	10	1	0	1	0	2	0	8	0	0	8	20
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	60.0	100.0	0.0	62.5	50.0	0.0	20.0	0.0	28.6	0.0	44.4	0.0	0.0	38.1	45.5
Exiting Leg Total					0					9					1					10	20
Articulated Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	22.2	0.0	0.0	19.0	13.6
Exiting Leg Total					0					4					0					2	6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Driveway from North					Mechanic Street from East					Johnny Appleseed Lane from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	2	0	0	2	6
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	2	0	0	2	4
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	3	0	0	4	5
8:30 AM	0	0	0	0	0	0	4	0	0	4	1	0	2	0	3	1	1	0	0	2	9
Total Volume	0	0	0	0	0	0	9	1	0	10	1	0	3	0	4	2	8	0	0	10	24
% Approach Total	0.0	0.0	0.0	0.0		0.0	90.0	10.0	0.0		25.0	0.0	75.0	0.0		20.0	80.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.563	0.250	0.000	0.625	0.250	0.000	0.375	0.000	0.333	0.500	0.667	0.000	0.000	0.625	0.667
Buses	0	0	0	0	0	0	3	0	0	3	0	0	2	0	2	2	4	0	0	6	11
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	30.0	0.0	0.0	66.7	0.0	50.0	100.0	50.0	0.0	0.0	60.0	45.8
Single-Unit Trucks	0	0	0	0	0	0	5	1	0	6	1	0	1	0	2	0	3	0	0	3	11
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	55.6	100.0	0.0	60.0	100.0	0.0	33.3	0.0	50.0	0.0	37.5	0.0	0.0	30.0	45.8
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	10.0	8.3
Buses	0	0	0	0	0	0	3	0	0	3	0	0	2	0	2	2	4	0	0	6	11
Single-Unit Trucks	0	0	0	0	0	0	5	1	0	6	1	0	1	0	2	0	3	0	0	3	11
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total Entering Leg	0	0	0	0	0	0	9	1	0	10	1	0	3	0	4	2	8	0	0	10	24
Buses					0					4					2					5	11
Single-Unit Trucks					0					4					1					6	11
Articulated Trucks					0					1					0					1	2
Total Exiting Leg					0					9					3					12	24

PDI File #: **196895 B**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	1	0	0	2	4
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Total	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	1	4	0	0	5	9
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	3
8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	1	0	0	0	1	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	2	0	0	2	0	0	3	0	3	2	2	0	0	4	9
Grand Total	0	0	0	0	0	0	4	0	0	4	1	0	4	0	5	3	6	0	0	9	18
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		20.0	0.0	80.0	0.0		33.3	66.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	22.2	0.0	0.0	22.2	5.6	0.0	22.2	0.0	27.8	16.7	33.3	0.0	0.0	50.0	
Exiting Leg Total					0					7					3					8	18

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	3
8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	1	0	0	0	1	4
Total Volume	0	0	0	0	0	0	3	0	0	3	0	0	2	0	2	2	4	0	0	6	11
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		33.3	66.7	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.750	0.000	0.000	0.250	0.000	0.250	0.500	0.500	0.000	0.000	0.750	0.688
Entering Leg	0	0	0	0	0	0	3	0	0	3	0	0	2	0	2	2	4	0	0	6	11
Exiting Leg					0					4					2					5	11
Total					0					7					4					11	22

PDI File #: **196895 B**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
7:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	0	0	6	1	0	7	0	0	0	0	0	0	3	0	0	3	10
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
8:30 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	1	0	0	1	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	0	0	0	0	0	3	0	0	3	1	0	1	0	2	0	5	0	0	5	10
Grand Total	0	0	0	0	0	0	9	1	0	10	1	0	1	0	2	0	8	0	0	8	20
Approach %	0.0	0.0	0.0	0.0		0.0	90.0	10.0	0.0		50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	45.0	5.0	0.0	50.0	5.0	0.0	5.0	0.0	10.0	0.0	40.0	0.0	0.0	40.0	
Exiting Leg Total					0					9					1					10	20

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
8:30 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	1	0	0	1	4
Total Volume	0	0	0	0	0	0	5	1	0	6	1	0	1	0	2	0	3	0	0	3	11
% Approach Total	0.0	0.0	0.0	0.0		0.0	83.3	16.7	0.0		50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.250	0.000	0.500	0.250	0.000	0.250	0.000	0.500	0.000	0.375	0.000	0.000	0.375	0.688
Entering Leg	0	0	0	0	0	0	5	1	0	6	1	0	1	0	2	0	3	0	0	3	11
Exiting Leg					0					4					1					6	11
Total					0					10					3					9	22

PDI File #: **196895 B**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Grand Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	66.7	
Exiting Leg Total					0					4					0					2	6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.500
Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Exiting Leg					0					3					0					1	4
Total					0					4					0					4	8

PDI File #: **196895 B**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Driveway							Mechanic Street							Johnny Appleseed Lane							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway							Mechanic Street							Johnny Appleseed Lane							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **196895 B**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Driveway							Mechanic Street							Johnny Appleseed Lane							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
Approach %	0	0	0	0	0	0		0	0	0	0	0	100		0	0	0	0	0	100		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	50	50	0	0	0	0	0	50	50	0	0	0	0	0	0	0	
Exiting Leg Total							0							1							1							0	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Driveway							Mechanic Street							Johnny Appleseed Lane							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
Exiting Leg							0							0							1							0	1
Total							0							0							2							0	2

PDI File #: **196895 BB**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	89	4	0	93	2	0	6	0	8	10	72	0	0	82	183
4:15 PM	1	0	0	0	1	1	83	3	0	87	4	0	4	0	8	3	51	0	0	54	150
4:30 PM	0	0	0	0	0	0	103	4	0	107	2	0	3	0	5	3	73	0	0	76	188
4:45 PM	1	0	0	0	1	0	111	1	0	112	3	0	8	0	11	8	58	0	0	66	190
Total	2	0	0	0	2	1	386	12	0	399	11	0	21	0	32	24	254	0	0	278	711
5:00 PM	0	0	0	0	0	0	131	13	0	144	3	0	4	0	7	4	99	0	0	103	254
5:15 PM	0	0	0	0	0	2	120	2	0	124	2	0	8	0	10	5	53	1	0	59	193
5:30 PM	0	0	2	0	2	0	90	4	0	94	2	0	8	0	10	7	57	0	0	64	170
5:45 PM	0	0	0	0	0	0	97	6	1	104	1	0	4	0	5	6	64	0	0	70	179
Total	0	0	2	0	2	2	438	25	1	466	8	0	24	0	32	22	273	1	0	296	796
Grand Total	2	0	2	0	4	3	824	37	1	865	19	0	45	0	64	46	527	1	0	574	1507
Approach %	50.0	0.0	50.0	0.0		0.3	95.3	4.3	0.1		29.7	0.0	70.3	0.0		8.0	91.8	0.2	0.0		
Total %	0.1	0.0	0.1	0.0	0.3	0.2	54.7	2.5	0.1	57.4	1.3	0.0	3.0	0.0	4.2	3.1	35.0	0.1	0.0	38.1	
Exiting Leg Total					4					549					83					871	1507
Cars	2	0	2	0	4	3	814	37	1	855	19	0	43	0	62	44	515	1	0	560	1481
% Cars	100.0	0.0	100.0	0.0	100.0	100.0	98.8	100.0	100.0	98.8	100.0	0.0	95.6	0.0	96.9	95.7	97.7	100.0	0.0	97.6	98.3
Exiting Leg Total					4					537					81					859	1481
Heavy Vehicles	0	0	0	0	0	0	10	0	0	10	0	0	2	0	2	2	12	0	0	14	26
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	0.0	0.0	4.4	0.0	3.1	4.3	2.3	0.0	0.0	2.4	1.7
Exiting Leg Total					0					12					2					12	26

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	0	0	0	0	0	103	4	0	107	2	0	3	0	5	3	73	0	0	76	188
4:45 PM	1	0	0	0	1	0	111	1	0	112	3	0	8	0	11	8	58	0	0	66	190
5:00 PM	0	0	0	0	0	0	131	13	0	144	3	0	4	0	7	4	99	0	0	103	254
5:15 PM	0	0	0	0	0	2	120	2	0	124	2	0	8	0	10	5	53	1	0	59	193
Total Volume	1	0	0	0	1	2	465	20	0	487	10	0	23	0	33	20	283	1	0	304	825
% Approach Total	100.0	0.0	0.0	0.0		0.4	95.5	4.1	0.0		30.3	0.0	69.7	0.0		6.6	93.1	0.3	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.250	0.887	0.385	0.000	0.845	0.833	0.000	0.719	0.000	0.750	0.625	0.715	0.250	0.000	0.738	0.812
Cars	1	0	0	0	1	2	459	20	0	481	10	0	22	0	32	19	278	1	0	298	812
Cars %	100.0	0.0	0.0	0.0	100.0	100.0	98.7	100.0	0.0	98.8	100.0	0.0	95.7	0.0	97.0	95.0	98.2	100.0	0.0	98.0	98.4
Heavy Vehicles	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	1	5	0	0	6	13
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.2	0.0	0.0	4.3	0.0	3.0	5.0	1.8	0.0	0.0	2.0	1.6
Cars Enter Leg	1	0	0	0	1	2	459	20	0	481	10	0	22	0	32	19	278	1	0	298	812
Heavy Enter Leg	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	1	5	0	0	6	13
Total Entering Leg	1	0	0	0	1	2	465	20	0	487	10	0	23	0	33	20	283	1	0	304	825
Cars Exiting Leg					3					288					39					482	812
Heavy Exiting Leg					0					5					1					7	13
Total Exiting Leg					3					293					40					489	825

PDI File #: **196895 BB**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Driveway from North					Mechanic Street from East					Johnny Appleseed Lane from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	85	4	0	89	2	0	5	0	7	9	69	0	0	78	174
4:15 PM	1	0	0	0	1	1	83	3	0	87	4	0	4	0	8	3	48	0	0	51	147
4:30 PM	0	0	0	0	0	0	101	4	0	105	2	0	3	0	5	3	71	0	0	74	184
4:45 PM	1	0	0	0	1	0	109	1	0	110	3	0	7	0	10	7	57	0	0	64	185
Total	2	0	0	0	2	1	378	12	0	391	11	0	19	0	30	22	245	0	0	267	690
5:00 PM	0	0	0	0	0	0	130	13	0	143	3	0	4	0	7	4	98	0	0	102	252
5:15 PM	0	0	0	0	0	2	119	2	0	123	2	0	8	0	10	5	52	1	0	58	191
5:30 PM	0	0	2	0	2	0	90	4	0	94	2	0	8	0	10	7	57	0	0	64	170
5:45 PM	0	0	0	0	0	0	97	6	1	104	1	0	4	0	5	6	63	0	0	69	178
Total	0	0	2	0	2	2	436	25	1	464	8	0	24	0	32	22	270	1	0	293	791
Grand Total	2	0	2	0	4	3	814	37	1	855	19	0	43	0	62	44	515	1	0	560	1481
Approach %	50.0	0.0	50.0	0.0		0.4	95.2	4.3	0.1		30.6	0.0	69.4	0.0		7.9	92.0	0.2	0.0		
Total %	0.1	0.0	0.1	0.0	0.3	0.2	55.0	2.5	0.1	57.7	1.3	0.0	2.9	0.0	4.2	3.0	34.8	0.1	0.0	37.8	
Exiting Leg Total					4					537					81					859	1481

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Driveway from North					Mechanic Street from East					Johnny Appleseed Lane from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	0	0	0	0	0	101	4	0	105	2	0	3	0	5	3	71	0	0	74	184
4:45 PM	1	0	0	0	1	0	109	1	0	110	3	0	7	0	10	7	57	0	0	64	185
5:00 PM	0	0	0	0	0	0	130	13	0	143	3	0	4	0	7	4	98	0	0	102	252
5:15 PM	0	0	0	0	0	2	119	2	0	123	2	0	8	0	10	5	52	1	0	58	191
Total Volume	1	0	0	0	1	2	459	20	0	481	10	0	22	0	32	19	278	1	0	298	812
% Approach Total	100.0	0.0	0.0	0.0		0.4	95.4	4.2	0.0		31.3	0.0	68.8	0.0		6.4	93.3	0.3	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.250	0.883	0.385	0.000	0.841	0.833	0.000	0.688	0.000	0.800	0.679	0.709	0.250	0.000	0.730	0.806
Entering Leg	1	0	0	0	1	2	459	20	0	481	10	0	22	0	32	19	278	1	0	298	812
Exiting Leg					3					288					39					482	812
Total					4					769					71					780	1624

PDI File #: **196895 BB**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Driveway from North					Mechanic Street from East					Johnny Appleseed Lane from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	1	3	0	0	4	9
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
4:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	1	1	0	0	2	5
Total	0	0	0	0	0	0	8	0	0	8	0	0	2	0	2	2	9	0	0	11	21
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
Grand Total	0	0	0	0	0	0	10	0	0	10	0	0	2	0	2	2	12	0	0	14	26
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		14.3	85.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	38.5	0.0	0.0	38.5	0.0	0.0	7.7	0.0	7.7	7.7	46.2	0.0	0.0	53.8	
Exiting Leg Total					0					12					2					12	26
Buses	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	7	0	0	7	11
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0	30.0	0.0	0.0	50.0	0.0	50.0	0.0	58.3	0.0	0.0	50.0	42.3
Exiting Leg Total					0					7					0					4	11
Single-Unit Trucks	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	2	5	0	0	7	14
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	0.0	60.0	0.0	0.0	50.0	0.0	50.0	100.0	41.7	0.0	0.0	50.0	53.8
Exiting Leg Total					0					5					2					7	14
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8
Exiting Leg Total					0					0					0					1	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway from North					Mechanic Street from East					Johnny Appleseed Lane from South					Mechanic Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	1	3	0	0	4	9
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
4:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	1	1	0	0	2	5
Total Volume	0	0	0	0	0	0	8	0	0	8	0	0	2	0	2	2	9	0	0	11	21
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		18.2	81.8	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.500	0.500	0.750	0.000	0.000	0.688	0.583
Buses	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	5	0	0	5	8
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	50.0	0.0	50.0	0.0	55.6	0.0	0.0	45.5	38.1
Single-Unit Trucks	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	2	4	0	0	6	12
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	62.5	0.0	0.0	62.5	0.0	0.0	50.0	0.0	50.0	100.0	44.4	0.0	0.0	54.5	57.1
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
Buses	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	5	0	0	5	8
Single-Unit Trucks	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	2	4	0	0	6	12
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Entering Leg	0	0	0	0	0	0	8	0	0	8	0	0	2	0	2	2	9	0	0	11	21
Buses					0					5					0					3	8
Single-Unit Trucks					0					4					2					6	12
Articulated Trucks					0					0					0					1	1
Total Exiting Leg					0					9					2					10	21

PDI File #: **196895 BB**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	1	0	0	1	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	5	0	0	5	8
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Grand Total	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	7	0	0	7	11
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	27.3	0.0	0.0	27.3	0.0	0.0	9.1	0.0	9.1	0.0	63.6	0.0	0.0	63.6	
Exiting Leg Total					0					7					0					4	11

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	1	0	0	1	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	5	0	0	5	8
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.625	0.000	0.000	0.625	0.500
Entering Leg	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	5	0	0	5	8
Exiting Leg					0					5					0					3	8
Total					0					7					1					8	16

PDI File #: **196895 BB**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	1	0	0	0	1	3
Total	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	2	4	0	0	6	12
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Grand Total	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	2	5	0	0	7	14
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		28.6	71.4	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	42.9	0.0	0.0	42.9	0.0	0.0	7.1	0.0	7.1	14.3	35.7	0.0	0.0	50.0	
Exiting Leg Total					0					5					2					7	14

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	1	0	0	0	1	3
Total Volume	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	2	4	0	0	6	12
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		33.3	66.7	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.000	0.000	0.250	0.000	0.250	0.500	0.500	0.000	0.000	0.500	0.600
Entering Leg	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	2	4	0	0	6	12
Exiting Leg					0					4					2					6	12
Total					0					9					3					12	24

PDI File #: **196895 BB**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					1	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway					Mechanic Street					Johnny Appleseed Lane					Mechanic Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg					0					0					0					1	1
Total					0					1					0					1	2

PDI File #: **196895 BB**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Driveway							Mechanic Street							Johnny Appleseed Lane							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway							Mechanic Street							Johnny Appleseed Lane							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **196895 BB**
Location: **N: Driveway S: Johnny Appleseed Lane**
Location: **E: Mechanic Street W: Mechanic Street**
City, State: **Leominster, MA**
Client: **TEC/ S. Gregorio**
Site Code: **T0852**
Count Date: **Thursday, April 25, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Driveway							Mechanic Street							Johnny Appleseed Lane							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	2
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	50	50		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	100	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							2							0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Driveway							Mechanic Street							Johnny Appleseed Lane							Mechanic Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	2
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	50.0	50.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	2
Exiting Leg							0							0							2							0	2
Total							0							0							4							0	4

Appendix B

Automatic Traffic Recorder (ATR) Counts

Lunenburg Road (Route 70)
north Kimball Farms
City, State: Lancaster, MA
Client: TEC / E. Oltman

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186634 A Volume
Site Code: T0852

Start	12/18/18		12/19/18		12/20/18		12/21/18		12/22/18		12/23/18		12/24/18		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	22	16	17	22	*	*	*	*	*	*	*	*	*	*	20	19
01:00	14	6	9	12	*	*	*	*	*	*	*	*	*	*	12	9
02:00	23	12	17	8	*	*	*	*	*	*	*	*	*	*	20	10
03:00	24	17	27	15	*	*	*	*	*	*	*	*	*	*	26	16
04:00	84	31	76	35	*	*	*	*	*	*	*	*	*	*	80	33
05:00	235	81	241	78	*	*	*	*	*	*	*	*	*	*	238	80
06:00	**352**	180	**362**	177	*	*	*	*	*	*	*	*	*	*	**357**	178
07:00	346	**343**	350	**328**	*	*	*	*	*	*	*	*	*	*	348	**336**
08:00	335	336	332	319	*	*	*	*	*	*	*	*	*	*	334	328
09:00	295	275	315	285	*	*	*	*	*	*	*	*	*	*	305	280
10:00	281	264	310	271	*	*	*	*	*	*	*	*	*	*	296	268
11:00	307	235	337	282	*	*	*	*	*	*	*	*	*	*	322	258
12:00 PM	273	250	304	302	*	*	*	*	*	*	*	*	*	*	288	276
01:00	318	277	371	308	*	*	*	*	*	*	*	*	*	*	**344**	292
02:00	314	358	363	382	*	*	*	*	*	*	*	*	*	*	338	370
03:00	**343**	504	331	478	*	*	*	*	*	*	*	*	*	*	337	491
04:00	287	**528**	**381**	**641**	*	*	*	*	*	*	*	*	*	*	334	**584**
05:00	261	527	360	555	*	*	*	*	*	*	*	*	*	*	310	541
06:00	226	346	253	418	*	*	*	*	*	*	*	*	*	*	240	382
07:00	168	196	245	246	*	*	*	*	*	*	*	*	*	*	206	221
08:00	130	175	149	154	*	*	*	*	*	*	*	*	*	*	140	164
09:00	84	121	110	171	*	*	*	*	*	*	*	*	*	*	97	146
10:00	56	58	68	79	*	*	*	*	*	*	*	*	*	*	62	68
11:00	30	45	34	49	*	*	*	*	*	*	*	*	*	*	32	47
Total	4808	5181	5362	5615	0	0	0	0	0	0	0	0	0	0	5086	5397
Day	9989		10977		0		0		0		0		0		10483	
AM Peak	06:00	07:00	06:00	07:00	-	-	-	-	-	-	-	-	-	-	06:00	07:00
Vol.	352	343	362	328	-	-	-	-	-	-	-	-	-	-	357	336
PM Peak	15:00	16:00	16:00	16:00	-	-	-	-	-	-	-	-	-	-	13:00	16:00
Vol.	343	528	381	641	-	-	-	-	-	-	-	-	-	-	344	584

Lunenburg Road (Route 70)
north Kimball Farms
City, State: Lancaster, MA
Client: TEC / E. Oltman

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186634 A Volume
Site Code: T0852

Start	SB				NB				Combined				12/18/18
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Tue
12:00	7		67		7		55		14		122		
12:15	6		63		3		69		9		132		
12:30	3		71		1		53		4		124		
12:45	6	22	72	273	5	16	73	250	11	38	145	523	
01:00	6		76		3		53		9		129		
01:15	3		82		1		83		4		165		
01:30	2		78		0		69		2		147		
01:45	3	14	82	318	2	6	72	277	5	20	154	595	
02:00	4		76		5		68		9		144		
02:15	7		76		4		83		11		159		
02:30	5		77		1		96		6		173		
02:45	7	23	85	314	2	12	111	358	9	35	196	672	
03:00	5		73		2		128		7		201		
03:15	4		95		8		135		12		230		
03:30	7		94		2		113		9		207		
03:45	8	24	81	343	5	17	128	504	13	41	209	847	
04:00	10		67		4		137		14		204		
04:15	16		73		6		142		22		215		
04:30	26		74		12		124		38		198		
04:45	32	84	73	287	9	31	125	528	41	115	198	815	
05:00	34		66		14		135		48		201		
05:15	43		67		21		114		64		181		
05:30	69		75		22		139		91		214		
05:45	89	235	53	261	24	81	139	527	113	316	192	788	
06:00	101		60		28		96		129		156		
06:15	89		66		36		104		125		170		
06:30	81		51		62		86		143		137		
06:45	81	352	49	226	54	180	60	346	135	532	109	572	
07:00	86		48		67		55		153		103		
07:15	89		44		77		56		166		100		
07:30	79		39		105		47		184		86		
07:45	92	346	37	168	94	343	38	196	186	689	75	364	
08:00	107		34		81		47		188		81		
08:15	67		36		76		35		143		71		
08:30	77		33		89		53		166		86		
08:45	84	335	27	130	90	336	40	175	174	671	67	305	
09:00	90		18		64		35		154		53		
09:15	64		17		71		38		135		55		
09:30	77		21		68		26		145		47		
09:45	64	295	28	84	72	275	22	121	136	570	50	205	
10:00	72		26		64		17		136		43		
10:15	85		14		76		21		161		35		
10:30	51		9		66		11		117		20		
10:45	73	281	7	56	58	264	9	58	131	545	16	114	
11:00	68		7		57		8		125		15		
11:15	67		13		50		13		117		26		
11:30	83		6		65		14		148		20		
11:45	89	307	4	30	63	235	10	45	152	542	14	75	
Total	2318		2490		1796		3385		4114		5875		
Percent	56.3%		42.4%		43.7%		57.6%						
Day Total		4808				5181				9989			
Peak	07:15	-	02:45	-	07:15	-	03:45	-	07:15	-	03:15	-	- -
Vol.	367	-	347	-	357	-	531	-	724	-	850	-	- -
P.H.F.	0.857		0.913		0.850		0.935		0.963		0.924		

Lunenburg Road (Route 70)
north Kimball Farms
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Email: datarequests@pdillc.com

186634 A Volume
Site Code: T0852

Start	SB				NB				Combined				12/19/18
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	5		92		8		66		13		158		
12:15	4		82		6		88		10		170		
12:30	1		66		6		66		7		132		
12:45	7	17	64	304	2	22	82	302	9	39	146	606	
01:00	3		109		3		76		6		185		
01:15	4		86		3		74		7		160		
01:30	2		87		4		80		6		167		
01:45	0	9	89	371	2	12	78	308	2	21	167	679	
02:00	1		92		3		94		4		186		
02:15	5		92		1		88		6		180		
02:30	6		76		3		93		9		169		
02:45	5	17	103	363	1	8	107	382	6	25	210	745	
03:00	2		87		3		95		5		182		
03:15	7		79		3		131		10		210		
03:30	12		94		4		124		16		218		
03:45	6	27	71	331	5	15	128	478	11	42	199	809	
04:00	10		112		4		131		14		243		
04:15	10		101		10		155		20		256		
04:30	20		87		8		178		28		265		
04:45	36	76	81	381	13	35	177	641	49	111	258	1022	
05:00	38		95		15		139		53		234		
05:15	52		86		19		152		71		238		
05:30	62		91		16		133		78		224		
05:45	89	241	88	360	28	78	131	555	117	319	219	915	
06:00	80		70		25		154		105		224		
06:15	88		57		37		101		125		158		
06:30	94		62		47		86		141		148		
06:45	100	362	64	253	68	177	77	418	168	539	141	671	
07:00	93		73		61		49		154		122		
07:15	90		86		83		65		173		151		
07:30	80		39		98		87		178		126		
07:45	87	350	47	245	86	328	45	246	173	678	92	491	
08:00	108		44		80		39		188		83		
08:15	68		34		78		45		146		79		
08:30	74		34		94		41		168		75		
08:45	82	332	37	149	67	319	29	154	149	651	66	303	
09:00	78		39		90		47		168		86		
09:15	84		25		65		54		149		79		
09:30	72		20		69		35		141		55		
09:45	81	315	26	110	61	285	35	171	142	600	61	281	
10:00	64		25		62		22		126		47		
10:15	86		19		75		18		161		37		
10:30	71		16		60		24		131		40		
10:45	89	310	8	68	74	271	15	79	163	581	23	147	
11:00	79		17		70		9		149		26		
11:15	81		6		57		18		138		24		
11:30	92		7		77		14		169		21		
11:45	85	337	4	34	78	282	8	49	163	619	12	83	
Total	2393		2969		1832		3783		4225		6752		
Percent	56.6%		44.0%		43.4%		56.0%						
Day Total		5362				5615				10977			
Peak	06:30	-	04:00	-	07:15	-	04:15	-	07:15	-	04:00	-	-	-
Vol.	377	-	381	-	347	-	649	-	712	-	1022	-	-	-
P.H.F.	0.943		0.850		0.885		0.912		0.947		0.964			

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186634 A Class
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SB

Start Time	Cycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/18/1														
8	1	16	3	0	0	1	0	1	0	0	0	0	0	22
01:00	0	6	3	1	4	0	0	0	0	0	0	0	0	14
02:00	1	9	3	2	3	5	0	0	0	0	0	0	0	23
03:00	0	16	6	0	2	0	0	0	0	0	0	0	0	24
04:00	0	61	16	0	6	1	0	0	0	0	0	0	0	84
05:00	1	154	59	1	14	1	1	1	2	1	0	0	0	235
06:00	1	225	85	1	28	5	0	2	4	1	0	0	0	352
07:00	1	261	65	2	11	3	0	2	1	0	0	0	0	346
08:00	2	240	61	5	13	3	3	4	4	0	0	0	0	335
09:00	0	211	60	2	14	3	1	0	4	0	0	0	0	295
10:00	1	201	51	3	12	7	3	0	3	0	0	0	0	281
11:00	0	207	63	1	17	7	2	4	6	0	0	0	0	307
12 PM	0	179	51	5	22	7	5	1	2	1	0	0	0	273
13:00	4	206	66	4	12	15	3	5	3	0	0	0	0	318
14:00	0	213	66	5	17	6	1	1	5	0	0	0	0	314
15:00	1	253	53	4	17	9	1	5	0	0	0	0	0	343
16:00	0	207	49	3	16	6	0	1	5	0	0	0	0	287
17:00	3	197	42	2	10	4	0	0	3	0	0	0	0	261
18:00	0	175	45	0	4	1	0	0	1	0	0	0	0	226
19:00	2	130	32	0	4	0	0	0	0	0	0	0	0	168
20:00	0	106	21	0	2	1	0	0	0	0	0	0	0	130
21:00	0	67	13	0	3	1	0	0	0	0	0	0	0	84
22:00	0	47	8	0	1	0	0	0	0	0	0	0	0	56
23:00	0	20	7	0	2	0	0	0	1	0	0	0	0	30
Total	18	3407	928	41	234	86	20	27	44	3	0	0	0	4808
Percent	0.4%	70.9%	19.3%	0.9%	4.9%	1.8%	0.4%	0.6%	0.9%	0.1%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	06:00	08:00	06:00	10:00	08:00	08:00	11:00	05:00				06:00
Vol.	2	261	85	5	28	7	3	4	6	1				352
PM Peak	13:00	15:00	13:00	12:00	12:00	13:00	12:00	13:00	14:00	12:00				15:00
Vol.	4	253	66	5	22	15	5	5	5	1				343

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186634 A Class
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SB

Start Time	Cycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/19/1														
8	0	13	3	0	0	1	0	0	0	0	0	0	0	17
01:00	0	4	1	0	3	1	0	0	0	0	0	0	0	9
02:00	0	10	3	2	1	1	0	0	0	0	0	0	0	17
03:00	0	17	5	0	1	3	0	0	1	0	0	0	0	27
04:00	0	53	17	0	5	0	0	1	0	0	0	0	0	76
05:00	1	154	58	0	19	2	1	2	4	0	0	0	0	241
06:00	0	234	85	3	27	3	0	5	5	0	0	0	0	362
07:00	0	269	61	3	8	3	0	1	4	1	0	0	0	350
08:00	1	248	49	6	18	4	3	1	2	0	0	0	0	332
09:00	0	225	55	1	20	6	1	1	6	0	0	0	0	315
10:00	0	218	57	2	17	2	3	2	9	0	0	0	0	310
11:00	1	236	63	0	20	3	2	2	10	0	0	0	0	337
12 PM	2	220	55	3	9	5	3	1	5	1	0	0	0	304
13:00	3	250	66	7	20	9	4	7	4	1	0	0	0	371
14:00	6	234	72	5	18	15	4	1	8	0	0	0	0	363
15:00	2	237	52	6	18	10	1	3	2	0	0	0	0	331
16:00	1	283	62	0	20	13	1	1	0	0	0	0	0	381
17:00	1	266	76	0	8	6	0	0	3	0	0	0	0	360
18:00	2	192	49	0	7	2	0	0	1	0	0	0	0	253
19:00	0	201	38	0	3	0	0	1	2	0	0	0	0	245
20:00	0	121	25	1	0	1	0	0	1	0	0	0	0	149
21:00	0	95	14	0	1	0	0	0	0	0	0	0	0	110
22:00	0	55	10	0	2	1	0	0	0	0	0	0	0	68
23:00	0	24	5	0	4	0	0	0	1	0	0	0	0	34
Total	20	3859	981	39	249	91	23	29	68	3	0	0	0	5362
Percent	0.4%	72.0%	18.3%	0.7%	4.6%	1.7%	0.4%	0.5%	1.3%	0.1%	0.0%	0.0%	0.0%	
AM Peak	05:00	07:00	06:00	08:00	06:00	09:00	08:00	06:00	11:00	07:00				06:00
Vol.	1	269	85	6	27	6	3	5	10	1				362
PM Peak	14:00	16:00	17:00	13:00	13:00	14:00	13:00	13:00	14:00	12:00				16:00
Vol.	6	283	76	7	20	15	4	7	8	1				381

Lunenburg Road (Route 70)
north Kimball Farms
City, State: Lancaster, MA
Client: TEC / E. Oltman

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186634 A Class
Site Code: T0852

NB

Start Time	Cycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/18/1														
8	0	10	4	1	0	0	0	0	1	0	0	0	0	16
01:00	0	5	0	0	1	0	0	0	0	0	0	0	0	6
02:00	0	8	3	0	0	0	0	0	1	0	0	0	0	12
03:00	0	8	5	0	0	4	0	0	0	0	0	0	0	17
04:00	0	18	7	0	1	5	0	0	0	0	0	0	0	31
05:00	0	50	20	1	4	5	0	1	0	0	0	0	0	81
06:00	0	104	35	4	19	13	0	3	0	1	0	0	1	180
07:00	2	248	61	3	5	17	1	1	4	1	0	0	0	343
08:00	2	264	57	0	10	3	0	0	0	0	0	0	0	336
09:00	1	188	58	3	13	5	0	2	4	1	0	0	0	275
10:00	0	188	47	1	13	6	0	3	5	1	0	0	0	264
11:00	1	170	33	2	15	7	0	4	3	0	0	0	0	235
12 PM	1	178	39	6	11	8	0	2	5	0	0	0	0	250
13:00	2	194	46	2	15	9	1	3	4	1	0	0	0	277
14:00	1	265	61	4	17	6	0	2	2	0	0	0	0	358
15:00	1	378	98	3	16	5	2	1	0	0	0	0	0	504
16:00	3	392	109	1	15	0	0	6	2	0	0	0	0	528
17:00	1	440	68	2	13	2	0	1	0	0	0	0	0	527
18:00	0	301	35	1	9	0	0	0	0	0	0	0	0	346
19:00	0	165	26	0	3	1	0	1	0	0	0	0	0	196
20:00	0	148	21	1	5	0	0	0	0	0	0	0	0	175
21:00	0	108	11	0	2	0	0	0	0	0	0	0	0	121
22:00	0	50	6	0	1	1	0	0	0	0	0	0	0	58
23:00	0	39	6	0	0	0	0	0	0	0	0	0	0	45
Total	15	3919	856	35	188	97	4	30	31	5	0	0	1	5181
Percent	0.3%	75.6%	16.5%	0.7%	3.6%	1.9%	0.1%	0.6%	0.6%	0.1%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	07:00	06:00	06:00	07:00	07:00	11:00	10:00	06:00			06:00	07:00
Vol.	2	264	61	4	19	17	1	4	5	1			1	343
PM Peak	16:00	17:00	16:00	12:00	14:00	13:00	15:00	16:00	12:00	13:00				16:00
Vol.	3	440	109	6	17	9	2	6	5	1				528

Lunenburg Road (Route 70)
north Kimball Farms
City, State: Lancaster, MA
Client: TEC / E. Oltman

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186634 A Class
Site Code: T0852

NB

Start Time	Cycles	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/19/1														
8	0	18	3	1	0	0	0	0	0	0	0	0	0	22
01:00	0	8	2	0	1	0	0	0	1	0	0	0	0	12
02:00	0	6	1	0	0	0	0	0	1	0	0	0	0	8
03:00	0	8	3	0	0	4	0	0	0	0	0	0	0	15
04:00	1	18	7	1	2	6	0	0	0	0	0	0	0	35
05:00	0	49	13	0	7	5	0	2	2	0	0	0	0	78
06:00	2	109	32	2	16	11	0	3	2	0	0	0	0	177
07:00	0	236	60	2	9	13	2	2	3	1	0	0	0	328
08:00	2	237	56	3	9	7	0	1	4	0	0	0	0	319
09:00	2	212	41	0	11	8	2	3	5	1	0	0	0	285
10:00	0	192	49	2	17	1	0	4	6	0	0	0	0	271
11:00	2	183	53	4	18	11	0	5	5	1	0	0	0	282
12 PM	1	219	42	2	20	7	0	3	8	0	0	0	0	302
13:00	1	246	37	3	13	5	0	0	3	0	0	0	0	308
14:00	1	283	59	5	17	11	0	2	4	0	0	0	0	382
15:00	0	359	97	3	12	5	0	0	2	0	0	0	0	478
16:00	1	508	105	0	23	2	0	1	1	0	0	0	0	641
17:00	1	462	78	0	11	1	0	2	0	0	0	0	0	555
18:00	2	350	58	0	7	0	0	0	1	0	0	0	0	418
19:00	1	210	32	0	2	0	0	1	0	0	0	0	0	246
20:00	0	134	19	1	0	0	0	0	0	0	0	0	0	154
21:00	0	145	22	0	4	0	0	0	0	0	0	0	0	171
22:00	0	67	10	0	2	0	0	0	0	0	0	0	0	79
23:00	0	40	8	0	0	0	0	0	1	0	0	0	0	49
Total	17	4299	887	29	201	97	4	29	49	3	0	0	0	5615
Percent	0.3%	76.6%	15.8%	0.5%	3.6%	1.7%	0.1%	0.5%	0.9%	0.1%	0.0%	0.0%	0.0%	
AM Peak	06:00	08:00	07:00	11:00	11:00	07:00	07:00	11:00	10:00	07:00				07:00
Vol.	2	237	60	4	18	13	2	5	6	1				328
PM Peak	18:00	16:00	16:00	14:00	16:00	14:00		12:00	12:00					16:00
Vol.	2	508	105	5	23	11		3	8					641

Lunenburg Road (Route 70)
north Kimball Farms
City, State: Lancaster, MA
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186634 A Speed
Site Code: T0852

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/18/ 18	0	0	0	0	0	3	0	7	5	4	3	0	0	22	58	51
01:00	0	0	0	0	0	0	3	1	4	3	3	0	0	14	60	53
02:00	0	0	0	0	0	3	1	6	8	4	1	0	0	23	55	50
03:00	0	0	0	0	0	1	1	3	13	5	0	1	0	24	56	52
04:00	0	0	0	0	1	0	2	14	35	21	9	**2**	0	84	58	53
05:00	**1**	0	0	0	0	0	13	49	103	51	16	2	0	235	57	52
06:00	1	0	0	0	0	3	19	80	146	**85**	**17**	1	0	**352**	56	52
07:00	1	0	0	1	0	3	12	92	**164**	61	11	0	**1**	346	55	51
08:00	0	**1**	0	0	0	2	**42**	104	125	53	8	0	0	335	55	50
09:00	0	0	0	0	0	6	42	**114**	106	21	5	1	0	295	53	49
10:00	0	0	**2**	0	1	**14**	30	99	89	35	10	0	1	281	54	49
11:00	0	0	0	**2**	**3**	2	24	103	118	50	3	2	0	307	54	50
12 PM	0	0	0	1	1	6	20	77	110	45	12	1	0	273	55	51
13:00	0	**1**	0	**2**	**4**	**19**	23	88	120	50	10	1	0	318	55	50
14:00	0	0	0	0	2	7	25	101	102	**60**	**15**	**2**	0	314	56	51
15:00	0	0	**2**	0	3	6	38	116	**126**	40	11	1	0	**343**	54	50
16:00	0	0	0	0	0	3	19	**118**	99	40	6	2	0	287	54	50
17:00	**1**	0	0	0	0	6	**39**	102	89	23	1	0	0	261	53	49
18:00	0	0	0	0	0	2	33	89	79	21	1	1	0	226	53	49
19:00	0	0	0	0	0	2	13	57	62	27	7	0	0	168	55	51
20:00	0	0	0	0	0	0	19	37	45	24	4	1	0	130	55	50
21:00	0	0	0	0	0	1	6	25	36	9	5	1	**1**	84	55	51
22:00	0	0	0	0	0	0	3	13	27	7	5	0	1	56	56	52
23:00	0	0	0	0	0	0	0	6	13	8	3	0	0	30	58	53
Total	4	2	4	6	15	89	427	1501	1824	747	166	19	4	4808		
%	0.1%	0.0%	0.1%	0.1%	0.3%	1.9%	8.9%	31.2%	37.9%	15.5%	3.5%	0.4%	0.1%			
AM Peak	05:00	08:00	10:00	11:00	11:00	10:00	08:00	09:00	07:00	06:00	06:00	04:00	07:00	06:00		
Vol.	1	1	2	2	3	14	42	114	164	85	17	2	1	352		
PM Peak	17:00	13:00	15:00	13:00	13:00	13:00	17:00	16:00	15:00	14:00	14:00	14:00	21:00	15:00		
Vol.	1	1	2	2	4	19	39	118	126	60	15	2	1	343		

Stats

15th Percentile :	44 MPH
50th Percentile :	49 MPH
85th Percentile :	55 MPH
95th Percentile :	58 MPH
Mean Speed(Average) :	50 MPH
10 MPH Pace Speed :	45-54 MPH
Number in Pace :	3325
Percent in Pace :	69.2%
Number of Vehicles > 50 MPH :	2395
Percent of Vehicles > 50 MPH :	49.8%

Lunenburg Road (Route 70)
north Kimball Farms
City, State: Lancaster, MA
Client: TEC / E. Oltman

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186634 A Speed
Site Code: T0852

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/19/ 18	0	0	0	0	0	0	1	4	6	5	1	0	0	17	57	52
01:00	0	0	0	0	0	1	0	4	2	2	0	0	0	9	55	49
02:00	0	0	0	0	0	0	3	3	8	2	1	0	0	17	55	51
03:00	0	0	0	0	0	0	3	5	14	4	1	0	0	27	55	51
04:00	0	0	0	0	1	0	3	13	37	13	6	3	0	76	58	53
05:00	0	0	0	0	0	0	11	56	97	64	7	**6**	0	241	57	52
06:00	0	0	0	0	0	3	36	99	**140**	**71**	11	2	0	**362**	56	51
07:00	0	0	0	**4**	1	3	31	98	131	63	**14**	4	**1**	350	56	51
08:00	0	0	0	0	2	2	37	**112**	118	48	13	0	0	332	55	50
09:00	0	0	0	2	0	7	24	109	123	45	4	1	0	315	54	50
10:00	0	0	**1**	0	**5**	12	21	101	117	46	6	1	0	310	54	50
11:00	**2**	0	0	1	2	**13**	**38**	102	126	43	10	0	0	337	54	49
12 PM	1	0	0	**2**	3	4	28	96	121	40	6	**3**	0	304	54	50
13:00	1	0	0	2	1	5	33	131	121	**62**	**14**	1	0	371	55	50
14:00	**2**	**2**	**1**	1	**4**	**12**	61	136	108	30	4	2	0	363	53	48
15:00	1	1	0	1	2	0	41	115	**124**	40	5	0	**1**	331	53	49
16:00	0	0	0	0	2	3	52	149	117	50	8	0	0	**381**	54	49
17:00	0	0	0	0	1	9	**75**	**159**	92	20	3	1	0	360	52	48
18:00	0	0	0	0	0	10	50	85	83	23	1	1	0	253	53	48
19:00	0	0	0	0	0	1	36	95	81	24	5	3	0	245	53	49
20:00	0	0	0	0	0	0	25	58	50	14	2	0	0	149	53	49
21:00	0	0	0	0	0	1	17	44	31	11	6	0	0	110	54	49
22:00	0	0	0	0	0	1	4	18	25	10	8	2	0	68	58	52
23:00	0	0	0	0	0	0	5	7	10	9	3	0	0	34	57	52
Total	7	3	2	13	24	87	635	1799	1882	739	139	30	2	5362		
%	0.1%	0.1%	0.0%	0.2%	0.4%	1.6%	11.8%	33.6%	35.1%	13.8%	2.6%	0.6%	0.0%			
AM Peak	11:00		10:00	07:00	10:00	11:00	11:00	08:00	06:00	06:00	07:00	05:00	07:00	06:00		
Vol.	2		1	4	5	13	38	112	140	71	14	6	1	362		
PM Peak	14:00	14:00	14:00	12:00	14:00	14:00	17:00	17:00	15:00	13:00	13:00	12:00	15:00	16:00		
Vol.	2	2	1	2	4	12	75	159	124	62	14	3	1	381		

Stats

15th Percentile :	44 MPH
50th Percentile :	49 MPH
85th Percentile :	54 MPH
95th Percentile :	58 MPH
Mean Speed(Average) :	50 MPH
10 MPH Pace Speed :	45-54 MPH
Number in Pace :	3681
Percent in Pace :	68.6%
Number of Vehicles > 50 MPH :	2416
Percent of Vehicles > 50 MPH :	45.1%

Lunenburg Road (Route 70)
north Kimball Farms
City, State: Lancaster, MA
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186634 A Speed
Site Code: T0852

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/18/ 18	0	0	0	0	0	0	2	7	5	2	0	0	0	16	53	49
01:00	0	0	0	0	0	1	2	2	1	0	0	0	0	6	49	45
02:00	0	0	0	0	0	0	0	7	4	0	0	**1**	0	12	52	50
03:00	0	0	0	**2**	1	1	6	3	4	0	0	0	0	17	50	43
04:00	0	0	0	0	1	1	5	14	8	2	0	0	0	31	52	47
05:00	0	0	0	0	0	3	13	32	24	8	1	0	0	81	53	48
06:00	0	0	0	0	**3**	15	34	66	59	3	0	0	0	180	51	47
07:00	0	0	0	0	2	**17**	**62**	**140**	106	14	2	0	0	**343**	52	48
08:00	0	0	**1**	0	0	5	50	139	**118**	**22**	1	0	0	336	52	48
09:00	0	0	0	1	1	12	45	137	71	7	1	0	0	275	51	47
10:00	0	0	1	0	3	11	33	108	90	16	2	0	0	264	52	48
11:00	0	0	1	0	2	10	24	86	90	19	**3**	0	0	235	53	49
12 PM	0	0	**2**	**1**	2	13	48	77	90	14	3	0	0	250	52	48
13:00	0	**1**	1	0	**4**	4	33	101	111	20	2	0	0	277	53	49
14:00	0	0	0	1	4	11	49	133	**139**	17	**4**	0	0	358	52	48
15:00	0	0	1	0	0	9	70	**261**	138	**22**	2	**1**	0	504	52	48
16:00	0	0	0	0	0	24	140	235	117	11	1	0	0	**528**	51	47
17:00	0	0	0	0	2	**47**	**170**	243	58	5	2	0	0	527	48	45
18:00	0	0	0	0	0	8	113	162	57	4	2	0	0	346	49	46
19:00	0	0	0	0	0	7	31	95	51	10	2	0	0	196	52	48
20:00	0	0	0	0	1	5	29	79	52	7	2	0	0	175	52	48
21:00	0	0	0	0	0	6	22	50	36	6	1	0	0	121	52	48
22:00	0	0	0	0	0	0	6	24	22	5	1	0	0	58	53	50
23:00	0	0	0	0	0	3	8	17	10	7	0	0	0	45	54	48
Total	0	1	7	5	26	213	995	2218	1461	221	32	2	0	5181		
%	0.0%	0.0%	0.1%	0.1%	0.5%	4.1%	19.2%	42.8%	28.2%	4.3%	0.6%	0.0%	0.0%			
AM Peak			08:00	03:00	06:00	07:00	07:00	07:00	08:00	08:00	11:00	02:00		07:00		
Vol.			1	2	3	17	62	140	118	22	3	1		343		
PM Peak		13:00	12:00	12:00	13:00	17:00	17:00	15:00	14:00	15:00	14:00	15:00		16:00		
Vol.		1	2	1	4	47	170	261	139	22	4	1		528		

Stats

15th Percentile :	41 MPH
50th Percentile :	47 MPH
85th Percentile :	52 MPH
95th Percentile :	53 MPH
Mean Speed(Average) :	47 MPH
10 MPH Pace Speed :	45-54 MPH
Number in Pace :	3679
Percent in Pace :	71.0%
Number of Vehicles > 50 MPH :	1424
Percent of Vehicles > 50 MPH :	27.5%

Lunenburg Road (Route 70)
north Kimball Farms
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186634 A Speed
Site Code: T0852

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/19/ 18	0	0	0	0	0	0	0	9	8	3	1	1	0	22	56	52
01:00	0	0	0	0	0	2	2	6	1	1	0	0	0	12	49	46
02:00	0	0	0	0	0	1	0	3	3	1	0	0	0	8	53	49
03:00	0	0	0	0	1	0	3	6	4	1	0	0	0	15	52	47
04:00	0	0	0	0	0	5	2	10	16	2	0	0	0	35	52	48
05:00	0	0	0	0	1	3	10	32	26	5	1	0	0	78	52	48
06:00	0	0	0	1	0	9	42	68	48	7	0	**2**	0	177	52	47
07:00	0	0	**3**	**3**	3	15	**75**	121	99	9	0	0	0	**328**	51	47
08:00	0	0	0	1	1	8	44	**148**	96	16	**5**	0	0	319	52	48
09:00	0	0	0	1	3	7	43	124	87	16	3	1	0	285	52	48
10:00	0	0	0	1	**6**	2	33	99	**113**	13	2	2	0	271	52	49
11:00	0	**1**	0	0	3	**19**	38	115	85	**20**	1	0	0	282	52	48
12 PM	0	0	0	0	**8**	8	35	119	103	**25**	**4**	0	0	302	53	48
13:00	**1**	0	0	1	6	13	36	131	102	15	2	0	**1**	308	52	48
14:00	0	0	**1**	2	1	10	64	172	110	20	2	0	0	382	52	48
15:00	0	0	1	**4**	5	15	68	212	**152**	21	0	0	0	478	52	48
16:00	0	0	0	0	0	20	**202**	**301**	101	15	2	0	0	**641**	50	46
17:00	0	0	0	3	2	**45**	156	261	77	10	1	0	0	555	49	46
18:00	0	0	0	0	1	21	130	188	67	10	1	0	0	418	50	46
19:00	0	0	0	0	1	5	67	115	51	6	1	0	0	246	51	47
20:00	0	0	0	0	0	11	25	67	36	10	2	**2**	1	154	52	48
21:00	0	0	0	0	0	7	48	80	32	2	2	0	0	171	50	46
22:00	0	0	0	0	0	0	6	24	34	13	2	0	0	79	55	51
23:00	0	0	0	0	0	0	5	18	17	8	1	0	0	49	55	50
Total	1	1	5	17	42	226	1134	2429	1468	249	33	8	2	5615		
%	0.0%	0.0%	0.1%	0.3%	0.7%	4.0%	20.2%	43.3%	26.1%	4.4%	0.6%	0.1%	0.0%			
AM Peak		11:00	07:00	07:00	10:00	11:00	07:00	08:00	10:00	11:00	08:00	06:00		07:00		
Vol.		1	3	3	6	19	75	148	113	20	5	2		328		
PM Peak	13:00		14:00	15:00	12:00	17:00	16:00	16:00	15:00	12:00	12:00	20:00	13:00	16:00		
Vol.	1		1	4	8	45	202	301	152	25	4	2	1	641		

Stats

15th Percentile :	41 MPH
50th Percentile :	46 MPH
85th Percentile :	52 MPH
95th Percentile :	54 MPH
Mean Speed(Average) :	47 MPH
10 MPH Pace Speed :	45-54 MPH
Number in Pace :	3897
Percent in Pace :	69.4%
Number of Vehicles > 50 MPH :	1466
Percent of Vehicles > 50 MPH :	26.1%

Appendix C

Seasonal Adjustment Data

Seasonal Adjustment

Project: T0852 - Capital Commerce Center - Lancaster, Massachusetts
Date: April 4, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: MassDOT Permanent Count Station #34

STATION 34 - LANCASTER - RTE.2 - WEST OF RTE.70

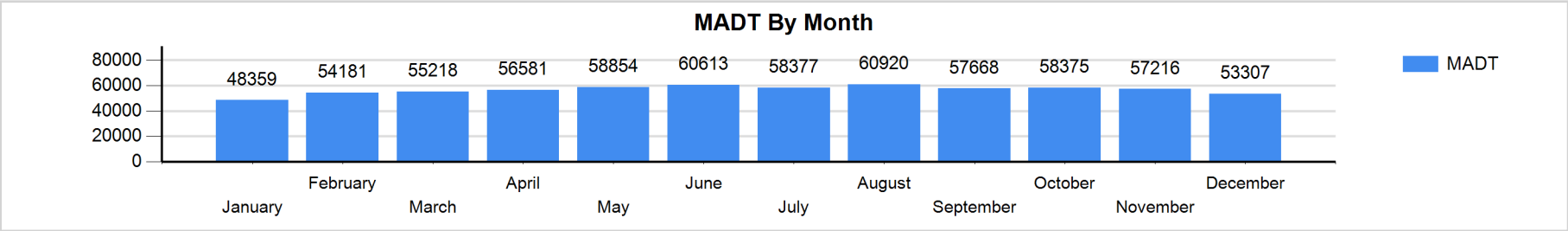
YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	April Seasonal Adjustment	December Seasonal Adjustment
16	48,359	54,181	55,218	56,581	58,854	60,613	58,377	60,920	57,668	58,375	57,216	53,307	56,639	0.1%	5.9%
17	51,048	50,853	53,637	54,355	56,934	59,006	56,546	59,116	57,559	58,141	55,096	52,436	55,394	1.9%	5.3%
													Seasonal Average =	**1.0%**	**5.6%**

Massachusetts Highway Department

ADT by Day of Week by Month for 1/1/2017 - 12/31/2017

District		**Location ID**	34	**Located On**	ROUTE 2
Community	Lancaster	**Direction**	2-WAY	**AADT**	
County	Worcester	**RoadBed**	ML	**Collection Type**	HPMS
Factor Group	U2			**Functional Class**	(2) Freeway & Expressway

	Average Daily Number of Vehicles							Avg. Day (Mon-Sun)	Avg. Day as % of Year Avg.	Avg. Weekday (Mon-Thu)	Avg. Day as % of Avg. Weekday (Mon-Thu)	Avg. Weekday (Mon-Fri)	Avg. Day as % of Avg. Weekday (Mon-Fri)
	Sun	Mon	Tue	Wed	Thu	Fri	Sat						
JAN	35,878	39,401	54,315	58,041	59,414	60,565	30,903	48,359	85.38%	52,793	91.60%	54,347	88.98%
FEB	40,765	54,974	54,057	58,904	61,268	62,493	46,814	54,181	95.66%	57,301	94.56%	58,339	92.87%
MAR	42,421	56,660	58,920	57,281	60,720	62,616	47,916	55,218	97.49%	58,395	94.56%	59,239	93.21%
APR	45,579	58,684	59,571	61,196	61,937	66,090	43,015	56,581	99.90%	60,347	93.76%	61,496	92.01%
MAY	45,648	54,530	62,029	63,763	65,309	67,632	53,072	58,854	103.91%	61,408	95.84%	62,653	93.94%
JUN	49,807	61,093	62,248	64,260	65,419	67,724	53,743	60,613	107.02%	63,255	95.82%	64,149	94.49%
JUL	48,830	58,070	55,175	62,383	64,323	67,409	52,453	58,377	103.07%	59,988	97.31%	61,472	94.97%
AUG	51,670	61,292	62,790	63,387	65,221	68,119	53,968	60,920	107.56%	63,173	96.43%	64,162	94.95%
SEP	45,396	52,546	62,035	60,610	61,360	68,561	53,175	57,668	101.82%	59,138	97.51%	61,022	94.50%
OCT	46,845	58,085	58,984	59,887	59,350	68,074	57,405	58,375	103.06%	59,077	98.81%	60,876	95.89%
NOV	45,813	55,014	57,807	60,490	61,568	65,942	53,887	57,216	101.02%	58,720	97.44%	60,164	95.10%
DEC	38,462	46,583	60,121	64,645	63,402	60,197	39,743	53,307	94.12%	58,688	90.83%	58,990	90.37%
Year	**44,760**	**54,744**	**59,004**	**61,237**	**62,441**	**65,452**	**48,841**	**56,639**		**59,357**	95.42%	**60,576**	93.50%



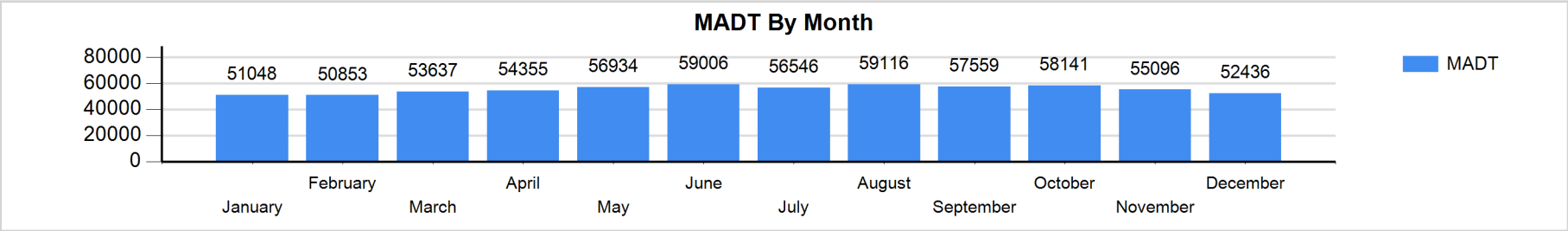
NOTE: VALUES ARE ROUNDED; TOTALS AND PERCENTS MAY NOT ADD UP.

Massachusetts Highway Department

ADT by Day of Week by Month for 1/1/2016 - 12/31/2016

District		**Location ID**	34	**Located On**	ROUTE 2
Community	Lancaster	**Direction**	2-WAY	**AADT**	55471
County	Worcester	**RoadBed**	ML	**Collection Type**	HPMS
Factor Group	U2			**Functional Class**	(2) Freeway & Expressway

	Average Daily Number of Vehicles							Avg. Day (Mon-Sun)	Avg. Day as % of Year Avg.	Avg. Weekday (Mon-Thu)	Avg. Day as % of Avg. Weekday (Mon-Thu)	Avg. Weekday (Mon-Fri)	Avg. Day as % of Avg. Weekday (Mon-Fri)
	Sun	Mon	Tue	Wed	Thu	Fri	Sat						
JAN	37,785	53,157	55,295	55,674	55,906	58,956	40,573	51,048	92.15%	55,008	92.80%	55,798	91.49%
FEB	38,466	49,416	54,876	55,075	58,583	54,270	45,290	50,853	91.80%	54,488	93.33%	54,444	93.40%
MAR	42,750	51,920	56,262	57,634	58,306	61,007	47,584	53,637	96.83%	56,031	95.73%	57,026	94.06%
APR	41,682	52,830	56,696	58,715	59,890	62,051	48,626	54,355	98.12%	57,033	95.30%	58,036	93.66%
MAY	44,299	53,834	59,577	61,312	63,105	64,664	51,757	56,934	102.78%	59,457	95.76%	60,498	94.11%
JUN	47,238	60,340	60,639	61,448	63,677	66,241	53,462	59,006	106.52%	61,526	95.90%	62,469	94.46%
JUL	44,149	52,944	59,863	61,808	62,487	64,390	50,188	56,546	102.08%	59,276	95.40%	60,298	93.78%
AUG	48,624	59,894	60,384	61,717	63,710	66,976	52,514	59,116	106.72%	61,426	96.24%	62,536	94.53%
SEP	47,120	54,147	59,550	60,571	62,508	66,146	52,875	57,559	103.91%	59,194	97.24%	60,584	95.01%
OCT	45,354	58,886	60,434	61,343	62,279	66,038	52,658	58,141	104.96%	60,736	95.73%	61,796	94.09%
NOV	43,537	58,305	59,402	60,207	56,124	58,760	49,345	55,096	99.46%	58,510	94.17%	58,560	94.09%
DEC	40,614	48,925	58,494	60,892	56,996	58,632	42,507	52,436	94.66%	56,327	93.09%	56,788	92.34%
Year	**43,468**	**54,550**	**58,456**	**59,700**	**60,298**	**62,344**	**48,948**	**55,394**		**58,251**	95.10%	**59,069**	93.78%



NOTE: VALUES ARE ROUNDED; TOTALS AND PERCENTS MAY NOT ADD UP.

Appendix D

Road Safety Audit

ROAD SAFETY AUDIT

Main Street (Route 70 / Route 117) @
Lunenburg Road (Route 70)

Town of Lancaster

May 27, 2017

Prepared For:
Massachusetts Department of Transportation (MassDOT)
Highway Division – District 3

Town of Lancaster, Massachusetts

Prepared By:
TEC, Inc.
65 Glenn Street
Lawrence, MA 01843

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Background

The Town of Lancaster, Massachusetts is currently planning improvements along the Main Street corridor, specifically at the intersections with Lunenburg Road and Seven Bridge Road, to address existing operational and safety concerns. TEC, Inc. (TEC) has been retained by the Town of Lancaster to specifically evaluate the existing traffic safety characteristics at the intersection of Main Street (Route 70 / Route 117) / Lunenburg Road (Route 70), an intersection designated as a high crash location for the region.

Road Safety Audit Justification

In conjunction with the preliminary design (pre-25% Design) stage and Functional Design Report (FDR) for these improvements, TEC is submitting this Road Safety Audit (RSA) report for the intersection of Main Street / Lunenburg Road (Route 70) in Lancaster, Massachusetts. An RSA, as defined by the Federal Highway Administration (FHWA), is the *formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team.* The purpose of the RSA is to observe, identify, and report all safety issues and identify future opportunities for safety enhancement improvements for all roadway users. This includes identifying short-term, mid-term, and long-term safety improvements that can be implemented through general maintenance, immediate installation / removal, or could be potentially incorporated into future improvement projects.

The U.S. Congress enacted the "Safe, Accountable, Flexible, Efficient, Transportation Act - A Legacy for Users" (SAFETEA-LU) in August 2005. This act provides guidance and funding for the implementation of a State Highway Safety Improvement Program (HSIP). As part of this Program, all states are required to develop a Strategic Highway Safety Plan (SHSP). The Massachusetts Department of Transportation (MassDOT) guidelines require an RSA be conducted where HSIP-eligible crash clusters are present within the study area of a transportation improvement project prior to commencing or finalizing a 25% Design. An intersection is defined as HSIP-eligible if the intersection is within the top five (5) percent of clusters in its respective Regional Planning Commission (RPC) boundaries based on Equivalent Property Damage Only (EPDO). EPDO rates crashes based on the crash severity.

Based on the published MassDOT database, the intersection of Main Street / Lunenburg Road is designated as a 2012-2014 HSIP Crash Cluster.

Project Data

TEC of Lawrence, Massachusetts is the primary traffic safety investigation consultant in this RSA for the intersection of Main Street / Lunenburg Road in Lancaster, Massachusetts. The RSA meeting was conducted on Thursday, May 4, 2017 at 9:00 AM, with the pre- and post-audit meetings held in the auditorium at the Lancaster Town Hall, located at 695 Main Street in Lancaster, Massachusetts. A copy of the RSA agenda can be found in Appendix A. TEC also conducted various field visits to the audit location as part of its scoping and planning during the preliminary design stage.

As presented below in Table 1, the audit team consisted of a cross-section of state, regional, and local engineering, enforcement, maintenance, and emergency response professionals and was assembled in

conjunction with input from MassDOT's Traffic Safety Management Unit. Contact information for all participating audit team members is provided in Appendix B.

Table 1: Participating Audit Team Members

Audit Team Member	Agency/Affiliation
Noreen Piazza	Lancaster Town Planner
Everett Moody	Lancaster Police Department
Courtney Manning	Lancaster Fire Department
Kevin Bartlett	Lancaster Department of Public Works
Sheri Bean	Montachusett Regional Planning Commission
George Snow	Montachusett Regional Planning Commission
Elsa Chan	MassDOT Traffic Safety
Christopher Falcos	MassDOT Traffic Safety
Connor Keating	MassDOT Traffic Safety
Lori Shattuck	MassDOT District 3
Lola Campbell	MassDOT District 3
Samuel Gregorio	TEC, Inc.
Douglas Halpert	TEC, Inc.

Audit participants were provided with materials to review prior to the audit meeting. The materials included a summary of crash data, collision diagrams (See Appendix), a summary of the type and severity of crashes, and traffic volume data. Participants were encouraged to visit the site prior to the audit and were urged to consider elements on MassDOT's Safety Review Prompt List.

On the day of the audit, a pre-audit meeting was held to discuss the project's background, the audit process, review the distributed materials, and discuss some of the issues that Team members had observed individually. The audit site walk consisted of field observations at the audit intersection. Handwritten notes and photographs documented the observations made by audit team members during the site walk. Following the audit site walk, a post-audit meeting was held where the Team confirmed the observations made in the field and offered solutions to enhance the safety of areas noted in the site walk and pre-audit meeting.

Project Location and Description

The RSA was conducted at the intersection of Main Street / Lunenburg Road in Lancaster, Massachusetts. A study area location map is provided in Figure 1. A detailed description of the study area roadways and intersections is provided below:

Existing Geometry and Infrastructure Summary

Main Street (Route 70 / Route 117)

Main Street, signed as MA State Route 117 west of the audit intersection and both MA State Route 70 and MA State Route 117 east of the audit intersection, is a two-lane, northwest-southeast urban principal arterial roadway under jurisdiction and maintained by the Town of Lancaster. The roadway is also designated as a National Highway System (NHS) roadway. Main Street provides connection between the City of Leominster to the west and the Town of Clinton to the south. In the vicinity of the audit area, Main Street is approximately 30 to 35 feet wide. Directional flow along Main Street is separated by a marked centerline. A posted speed limit of 30 miles per hour (mph) is present on the corridor; however MassDOT speed regulations indicate that Main Street is regulated at 40 mph in the vicinity of the intersection. A 20 mph speed for the school zone when signage is flashing is present is present to the east of the audit area. Land uses along Main Street generally include residential uses. A sidewalk is present along the southerly side of Main Street. There are no bicycle accommodations provided along Main Street.

Lunenburg Road (Route 70)

Lunenburg Road, signed as MA State Route 70, is a two-lane, north-south urban minor arterial roadway under jurisdiction and maintained by the Town of Lancaster. The roadway provides local connection between the Town of Lunenburg to the north and Main Street to the south. In the vicinity of the audit area, Lunenburg Road is approximately 40 feet wide. Directional flow along Lunenburg Road is separated by a marked centerline. A posted/regulated speed limit of 25 miles per hour (mph) is present along Lunenburg Road southbound approaching the intersection. Generally, the posted/regulated speed along the corridor is 45 mph to the north of the audit intersection. Land uses along Lunenburg Road generally include residential use. There are no sidewalks or bicycle accommodations provided along Lunenburg Road.

Intersection: Main Street (Route 70 / Route 117) / Lunenburg Road (Route 70)

Lunenburg Road intersects Main Street to form a three-legged, unsignalized intersection. The Lunenburg Road southbound approach operates under STOP-control and consists of an exclusive left-turn lane and an exclusive right-turn lane with separation of directional flow separated by a marked double-yellow centerline and an approximately seven foot long raised median island at the intersection. The Main Street eastbound and westbound approaches operate under free-flow conditions and with each approach consisting of a single general-purpose lane. Directional flow along the roadway is separated by a marked centerline. Sidewalks are provided along the southerly side of Main Street. There are no crosswalks or bicycle accommodations provided at the intersection.

1" = 20'

North

Lunenburg Road (Route 70) at Main Street (Route 117) - Lancaster, Massachusetts

Road Safety Audit

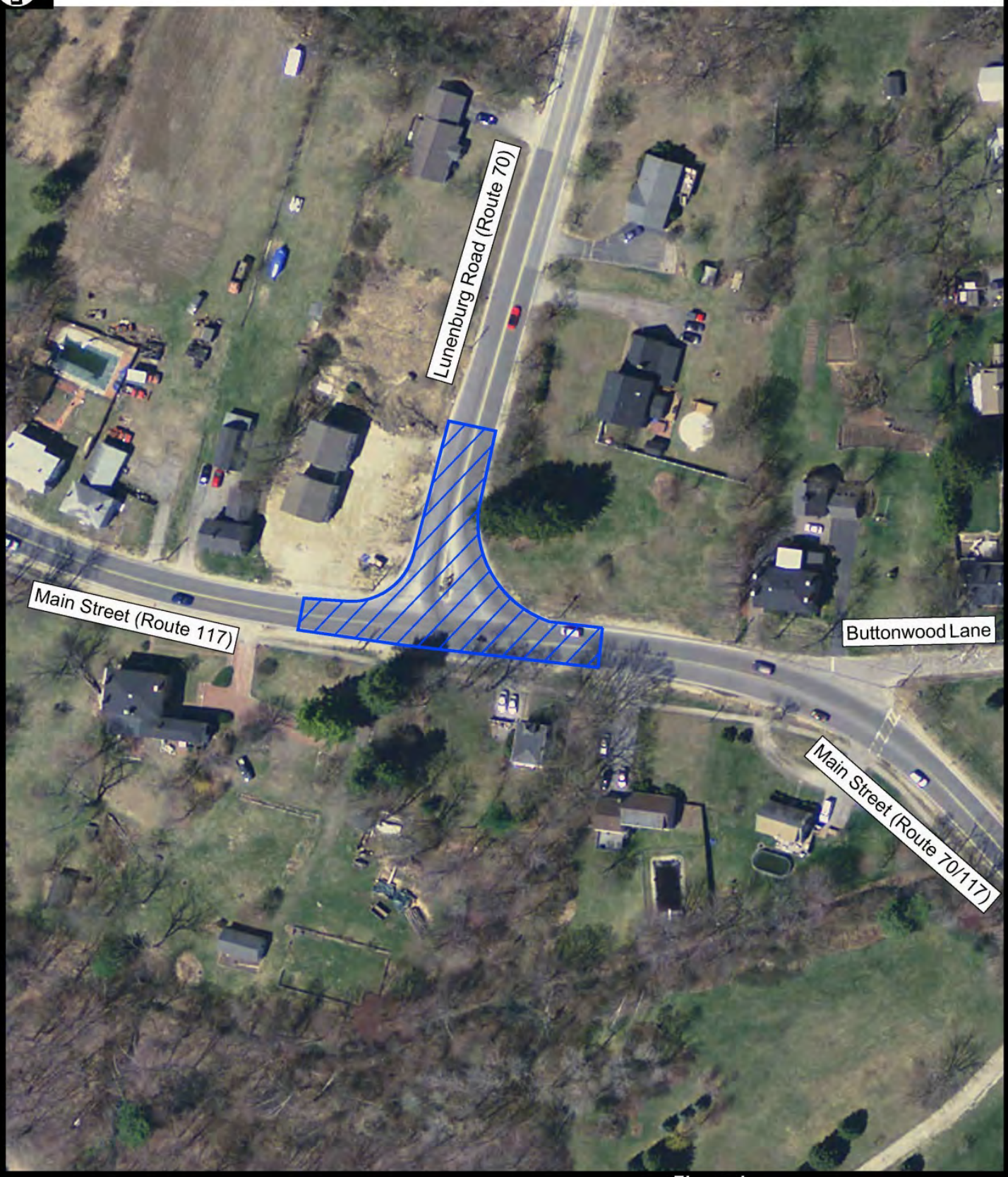


Figure 1

Project Location Map & Study Area Intersections

TEC

T:\T0698\CAD\Highway\Graphics\T0698_RSA__Locus Map.dwg 5/1/2017 4:34:54 PM

Automatic Traffic Recorder Count Data

Automatic Traffic Recorder (ATR) counts were conducted by MassDOT on behalf of the Montachusett Regional Planning Commission (MRPC) on Main Street between Shirley Road and Lunenburg Road and on Lunenburg Road north of Main Street from Tuesday, December 1, 2015 to Wednesday, December 2, 2015 to record traffic volumes during a continuous 48-hour period. The counts were used to collect volume, speed, and vehicle classification information. A summary of the weekday ATR traffic data is presented in Table 2.

Table 2: Existing Traffic Volume Summary

Location	Weekday Traffic Volume[a]	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		Traffic Volume[b]	K Factor[c]	Directional Distribution[d]	Traffic Volume	K Factor	Directional Distribution
Route 117 (between Shirley Road and Lunenburg Road)	19,550	1,486	7.6%	65.3% EB	1,667	8.5%	66.0% WB
Route 70 (North of Route 117)	8,150	518	6.4%	66.6% SB	713	8.8%	60.6% NB

Main Street carries approximately 19,550 vehicles-per-day (vpd) on an average weekday between Shirley Road and Lunenburg Road. The majority of vehicles along Main Street are travelling eastbound in the weekday morning peak period and westbound during the weekday evening peak period. The directional distribution is almost split in reciprocal favor during the weekday morning and weekday evening peak hours, confirming heavy commuters travel to / from Interstate 495.

Lunenburg Road carries approximately 8,150 vehicles-per-day (vpd) on an average weekday. The majority of vehicles along Lunenburg Road are travelling southbound in the weekday morning peak period and northbound during the weekday evening peak period. Similar to Main Street, the directional distribution is almost split in reciprocal favor during the weekday morning and weekday evening peak hours, confirming heavy commuters travel to / from Interstate 495.

Speed Data

The ATR counts that were conducted from Tuesday, December 1, 2015 to Wednesday, December 2, 2015 included an evaluation of travel speeds for all vehicles during the course of the 48-hour period. This speed data indicated an 85th percentile speed along Main Street of 39 mph and 38 mph in the eastbound and westbound directions, respectively. The 85th percentile speeds along Main Street increase to 40 mph and 41 mph west of Lunenburg Road in the eastbound and westbound directions, respectively. This speed data also indicated an 85th percentile speed along Lunenburg Road is approximately 45 mph and 43 mph in the northbound and southbound directions, respectively. The data along Lunenburg Road was provided from a location further upstream along the roadway.

General Crash History

Crash data for the Main Street / Lunenburg Road intersection was compiled and analyzed for the most-recent consecutive five-year period (2012-2016) on file with the Town of Lancaster Police Department

and MassDOT. The motor vehicle crash data was reviewed to determine if any crash trends exist within the study area.

In addition to examining the number of crashes at the study area intersection, a crash rate was calculated to compare the occurrence of crashes to the volume of traffic passing through the intersection. The crash rate per million entering vehicles (MEV) was calculated using the evening peak-hour volumes from the TMCs, and the K-factor of 0.085 was obtained from ATR counts conducted along Main Street between Shirley Road and Lunenburg Road. The crash rates at the study area intersections were compared to the statewide and district-wide averages published by MassDOT in February 2016 to determine the significance of the crash occurrence. The statewide average for unsignalized intersections is 0.58 crashes per MEV and the District 3 average for unsignalized intersections is 0.65 crashes per MEV.

The crash rates per MEV for the Main Street / Lunenburg Road intersection is provided in Table 3.

Table 3: Crash Rates by Intersection

Intersection	Total Crashes	Crash Rate
Main Street / Lunenburg Road	39	0.94

The Main Street / Lunenburg Road intersection experienced an average of approximately eight (7.8) crashes per year over the five-year (2012-2016) study period, yielding a crash rate of 0.94 crashes per MEV, significantly above the statewide and District 3 averages for unsignalized intersections. Approximately 30 percent (12 of 39) of the crashes were rear-end crashes, 40 percent (15 of 39) were angled crashes, 25 percent (10 of 39) of the crashes were single vehicle crashes, and the remaining 5 percent (2 of 39) of the crashes were equally distributed amongst head-on and other/not reported crashes.

The reported ages of the drivers were polarized, with 66 percent under 21, between the ages of 21 and 30 and between 51 and 60, comprising over half of the motorists involved in the crashes. Of the reported crashes, 44 percent (17 of 39) were attributed to “inattention/distracted”, 21 percent (8 of 39) were “failure to yield right-of-way” or “other /not reported”.

There were nine (9) crashes reported to have occurred during wet and an additional 4 crashes in snow or ice covered roadway conditions. The pavement along the Lunenburg Road southbound approach is in poor condition with rutting and settling from heavy vehicles decelerating and coming to a stop just north of Main Street. During peak hours, vehicle queues along the southbound approach have been observed by audit participants to exceed 30 vehicles. It is likely that vehicle fluids are discharged over time while waiting in the queue. Combined with the lack of a crowned roadway to lead water efficiently to the catch basins, water likely mixes with vehicle oils and creates a slippery driving surface. Other key crash characteristics are highlighted in the following observations section.

Audit Observations and Potential Safety Enhancements

Pre- and post-RSA site walk meetings were held in the auditorium at the Town Hall, located at 695 Main Street in Lancaster, Massachusetts. The pre-audit meeting included brief introductions, an overview of the future design project and RSA process, and an overview of the safety characteristics of the Main Street / Lunenburg Road intersection. Each participant was asked to provide his or her concerns and comments related to the safety issues at the study area intersection. At the end of discussion about the intersection's deficiencies, the group participated in a site walk to observe. After the group's site walk concluded, the meeting was reconvened to discuss potential countermeasures for concerns raised during the morning session and site walk.

The RSA Team's field observations and discussions show that the Team has several general concerns about existing conditions at the study intersections which may negatively impact safety. Several of these concerns require further evaluation and design work to develop appropriate safety enhancements. More specific safety challenges located at the audit area intersections are also included.

Summary of Safety Concerns

The RSA Team identified the following safety issues at the Main Street / Lunenburg Road intersection prior to, during, and after the field visit:

- Driver frustration and bypassing behavior due to intersection queues;
- Deteriorated or sub-standard multi-modal accommodations;
- Deteriorated or sub-standard pavement markings;
- Deteriorated, blocked, or damaged corridor signage;
- Deteriorated or sub-standard drainage;
- Cell phone usage and distracted driving;
- Visibility;
- Lane departures; and
- Vehicle speeds.

The following section provides a detailed summary of the identified safety concerns and potential safety enhancements at the study intersections.

Safety Issue #1: Driver Frustration & Bypassing Behavior Due to Intersection Queues

Specific Observations:

The Main Street / Lunenburg Road intersection operates as an unsignalized intersection, inadequately accommodating the vehicle queues on the Lunenburg Road southbound approach which operates under STOP-control. Audit participants noted that Lunenburg Road is a major cut-through route, especially for

heavy vehicle trips which seek to by-pass US Route 2 for access to Interstate 495 to the east. Main Street was also noted as a major cut-through route for heavy vehicle trips which seek access between Interstate 190 to the west and Interstate 495 to the east. In addition to regional cut-through vehicles, audit participants noted that there are a number of local heavy construction companies which utilize the study area intersection for access to principal arterial roadways. As a result, there are a high percentage of heavy vehicles which, by nature, decelerate and accelerate at slower rates than passenger vehicles which may contribute to increased delays at the intersection which have been noted to reach approximately 30 vehicles or more during the peak hours.

Lunenburg Road Southbound – The extended queue during commute hours leads to driver frustration and may be contributing factors for the ten (10) rear-end crashes and sixteen (16) angle crashes involving a southbound vehicle. The queue results from drivers attempting to judge gaps in traffic that is usually insufficient to make turns out from the approach. Audit participants noted that additional crashes may go unrecorded as minor fender-benders may not result in more than $1,000 worth of damage. Audit participants also noted that the long queue of vehicles attempting to make a left-turn onto Main Street results in vehicles making a right-turn instead and then making an illegal U-turn in a private driveway in order to head back in the eastbound direction. The Department has unsuccessfully sought grants for commercial vehicle enforcement which could reduce the number of heavy vehicles attempting to cut-through Lancaster. Traffic during peak hours is one of the few things helping to reduce the travel speeds along the approaches.

Image 1: Within the queue along Lunenburg Road southbound approach.

Main Street Eastbound – Audit participants noted that a roadway extension was constructed to allow Main Street eastbound vehicles to by-pass left-turning vehicles onto Lunenburg Road northbound. While the lanes are greater than 13 feet wide for the eastbound approach to the intersection, the extension of road is only passable if the first vehicle is encroaching into the oncoming lane. Some vehicles still do not utilize the bypass area resulting in queuing along the approach.

Potential Safety Enhancements:

1. Evaluate the installation of a fully actuated traffic signal to mitigate queuing and accommodate the roadway ADT. Evaluation should be checked against MUTCD signal warrants for traffic volume and safety.
2. Evaluate the installation of a roundabout to mitigate queuing.
3. Evaluate signal phasing opportunities (pending installation of a traffic signal) to include a Main Street eastbound protected left-turn phase.
4. Evaluate traffic calming measures, such as the narrowing of travel lanes, to reduce travel speed and increase gaps in Main Street traffic flow.
5. Evaluate turning lane warrants for dedicated left-turn lane for Main Street eastbound approach and improved storage length for Lunenburg Road southbound approach.

6. Evaluate extending the right-turn lane along the Lunenburg Road southbound approach to vehicles attempting to turn right are less likely to wait in a longer queue for left-turning vehicles.
7. Consider targeted enforcement by Lancaster Police for vehicles attempting to make a right-turn along Lunenburg Road southbound and then making an illegal U-turn in a private driveway in order to head back in the eastbound direction.
8. Consider further commercial vehicle enforcement for Lancaster Police to help reduce the number of heavy vehicles cutting through Lancaster.

Safety Issue #2: Sub-Standard Multi-Modal Accommodations

Specific Observations:

Pedestrian Accommodations – The sidewalk is provided along the southerly side of Main Street in poor to fair condition. The sidewalk is separate from the roadway by an approximately 3-foot grass buffer. The buffer does not provide any vertical separation as there is no curbing on either side of the roadway for any approach. A crossing guard is present at the nearby school crossing during the weekday morning peak period. There is a potential for increased pedestrian usage along Main Street to access the Rowlandson Elementary School, located south of the intersection, should enhancements for pedestrian accommodations be made. The reported crash data does not indicate any recent pedestrian related crashes.

Image 2: Variable width grass buffer with lack of vertical separation for sidewalk along southerly side of Main Street

Non-crosswalk Crossing – Audit participants noted that there are no crosswalks provided at the Main Street / Lunenburg Road intersection. Pedestrians are observed crossing Main Street south of the Lunenburg Road / Main Street intersection at the Buttonwood Lane / Main Street intersection at an existing crosswalk in order to access the sidewalks along the southwesterly side of Main Street. The existing crosswalk is located on a horizontal curve and lacks the appropriate advanced warning signage to alert approaching vehicles of a potential pedestrian in the crosswalk. There is also a lack of ADA/AAB compliant access ramps on either side of the crosswalk.

Bicycle Accommodations – Formalized bicycle accommodations are not provided along Main Street or Lunenburg Road. Audit participants noted that cyclists utilize Main Street for recreation and advanced cyclist events where they utilize the roadway over sidewalk. Some cyclists have been observed to ride side-by-side instead of single file which has historically resulted in vehicle delays. Lancaster Police are currently seeking a grant for targeted enforcement for cyclists. The reported crash data does not indicate any recent bicycle related crashes. Proposed multi-modal countermeasures should be considered for future improvements along the Main Street corridor.

Image 3: Lack of bicycle accommodations and sidewalk along northerly side of Main Street

Potential Safety Enhancements:

1. Conduct educational events or distribute pamphlets at the surrounding schools or notable pedestrian-heavy destinations to help promote walking safety. Use these events and pamphlets to discuss safe walking habits associated with both existing and any new pedestrian infrastructure along the corridor.
2. Consider constructing sidewalk along the northerly side of Main Street and along Lunenburg Road to improve connectivity for residents. This enhancement should be considered as part of a larger corridor improvement.
3. Construct Americans with Disabilities Act (ADA) / Architectural Access Board (AAB) compliant accessible curb ramps on the corners of the Main Street / Lunenburg Road intersection with a corresponding crosswalk between each ramp pair upon enhancements to sidewalk facilities. Providing defined crossing opportunities is anticipated to assist in relocating pedestrian crossing maneuvers to a more safe and defined location.
4. Consider adding shared-use lane markings (also referred to as "sharrow" bicycle markings) with associated signage along the Main Street and Lunenburg Road corridors to increase driver awareness of the shared-use nature of the roadways. This improvement should be considered as part of a larger corridor-wide improvement to provide connectivity for multi-modal usage.
5. Evaluate the potential to construct dedicated bicycle lanes along Main Street and Lunenburg Road corridors. Note that the construction of bicycle lanes may require the removal or relocation of grass buffer for sidewalk and require potential private property easements. This improvement should be considered as part of a larger corridor-wide improvement to provide connectivity for multi-modal usage.
6. Should a traffic signal or roundabout be considered, provide specific pedestrian crossing enhancements, such as pedestrian traffic signal phasing, countdown signals housings, MUTCD-compliant signage, ADA-compliant accessible pedestrian signals (APS), and push buttons.

7. Consider installation of crosswalks across Main Street, at the intersection with Lunenburg Road, pending the installation of sidewalk connectivity through the intersection.

Safety Issue #3: Deteriorated or Sub-Standard Pavement Markings

Specific Observations:

Lack of Lane Delineation – At present, lane delineation for turning lanes on the Lunenburg Road southbound approach is in poor condition. The exclusive right-turn lane was observed as having two edge lines which is confusing for drivers as to where the lane splits off from the exclusive left-turn lane. In addition, no lane delineation pavement markings, such as arrows, are provided along the Lunenburg Road southbound approach.

Stop Bar Location – The STOP bar located at the terminus of the Lunenburg Road southbound approach is highly faded. Audit participants noted that due to the high number of heavy vehicles, drivers will pull farther out into the intersection in an attempt to maintain their sight lines. The lack of sight lines may be the contributing factors for many rear-end crashes along the approach where vehicles following have assumed a vehicle is moving, but only "inching" forward to reset sight line visibility.

Faded Pavement Markings – Audit participants noted that many of the existing pavement markings along all approaches to the intersection are faded and difficult to see, particularly at night and during periods of solar glare. Poor pavement markings give the appearance of wide travel lanes which frequently leads to high travel speeds.

Potential Safety Enhancements:

1. Eliminate second edge line pavement markings along the Lunenburg Road Southbound approach corridor to eliminate lane confusion.
2. Apply arrow pavement markings to the Lunenburg Road southbound approach to delineate the turning movements in each striped lane. This countermeasure is currently being pursued by the Town DPW.
3. Consider relocating or staggering of STOP-bar for the left-turn and right-turn lanes along the Lunenburg Road southbound approach to improve sight lines. This countermeasure is currently being pursued by the Town DPW.
4. Reapply all existing pavement markings; including STOP bars, and centerlines; to improve motorist and pedestrian safety. This countermeasure is currently being pursued by the Town DPW.
5. Consider replacement of existing pavement markings with thermoplastic markings which will last longer against snow plow damage and improve visibility during inclement weather.

Safety Issue #4: Deteriorated, Blocked, or Damaged Corridor Signage

<u>*Specific Observations:*</u>

Faded, Damaged, and Non-compliant Signage – Audit participants noted that some of the existing signs along Main Street are faded, damaged, or not MUTCD-compliant which is detracting from their effectiveness.

Image 4: Guide signage heights below 7-foot minimum set by MUTCD standards

Signage Height Placement – Audit participants noted damage to guide signage placed in the median island of the Lunenburg Road southbound approach. It was also noted that the signs had been hit before and then re-installed where the sign height was adjusted to avoid conflict with heavy vehicles.

Object Marker Signage – A red object marker (OM4-1) sign was installed opposite the Lunenburg Road (Route 70) southbound approach in an effort to catch the headlights of oncoming vehicles. However, the sign height is less than the minimum required by the MUTCD and is located out of the general cone of vision for vehicles along the approach. This is similar to other signage in the vicinity of the intersection. The sign is to the extreme east of the opposing approach and does not convey the roadway terminus effectively. The property resident noted that it is not uncommon for vehicles to end up on his property as they were unaware of the terminus of the roadway. The crash data noted eight (8) single vehicle crashes where vehicles struck an object across Main Street opposite Lunenburg Road, which may be the result of no warning signage and an open opposing grass area were drivers may consider opportunities for a non-existing through movement. In addition, 6 of 8 single vehicle crashes in which objects opposite Lunenburg Road were struck occurred at night where the improper placement did not convey the geometry of the T-intersection.

Lack of Advanced Warning Signage – The posted speed limit along Lunenburg Road southbound drops from 45 mph to 25 mph approximately 450 feet north of the intersection. However, there are no advanced warning signs for the reduction in posted speed or other advance warning signage, such as an intersection ahead warning signage, along the southbound approach. Although not directly noted, some of the crashes involving a southbound vehicle may be a direct result on the lack of clarity in speed reduction and the lack of advance intersection warning.

<u>*Potential Safety Enhancements:*</u>

1. Complete a full sign inventory along all three approaches to the Main Street / Lunenburg Road intersections to determine accurate placement, condition, and possible replacement of existing signs.
2. Replace all existing signs along Lunenburg Road and Main Street that are currently faded, damaged, or non-compliant with new MUTCD-compliant signs to provide clear and concise regulatory and warning messages. Provide retro-reflective signs where necessary.

3. Evaluate the relocation of guide and regulatory signage from the median island of the Lunenburg Road southbound approach.
4. Adjust heights of existing signage to meet current MUTCD minimum height standard of 7-feet in urbanized areas.
5. Evaluate the relocation of existing signage which is not currently within the cone of vision for the intended drivers, utility poles, and other roadside structures that do not comply with current lateral offset standards.
6. Consider replacement on the red object marker (OM4-1) with a W1-7 dual arrow sign for improved visibility. Relocate position of sign to be directly opposing Lunenburg Road and positioned to impede the through path of travel. This countermeasure is currently being pursued by the Town DPW.
7. Consider installation of an advance intersection sign (W2-4) along Lunenburg Road southbound approach along with reduced speed warning signage (W3-5). This countermeasure is currently being pursued by the Town DPW.
8. Consider installation of dynamic speed signs or an advance speed reduction sign (W3-5) along Lunenburg Road southbound approach along with reduced speed warning signage.

Safety Issue #5: Deteriorated or Sub-Standard Drainage

Specific Observations:

Audit participants noted that due to the high percentage of heavy vehicles through this intersection, there are sections of pavement heaving where vehicles begin to decelerate by downshifting or compression release braking. The resulted heaving of the pavement creates difficulties with snow removal and drainage. Audit participants noted that while vehicles are in the long queue on Lunenburg Road southbound, there are likely leaking oils and other vehicle fluids escaping as the vehicles advance towards the intersection. This could contribute to the 33 percent of crashes which occurred under wet or snow/ice covered roadways, or even in crashes where deceleration may not have been noted.

Image 5: Sand buildup around existing catch basin along the southerly side of Main Street

Audit participants noted that there is no curbing provided along either side of all approaches to the intersection. The edge of roadway was noted to be predominately a sandy soil that requires street sweeping. There are two catch basins located along the southerly side of Main Street. However, they are not the lowest points of the roadway compared to resident gravel driveways. On the day of the audit, the catch basins were predominately full. Audit participants noted that catch basins throughout the town are cleared annually. It was also noted that the roadway was last repaved approximately 6-7 years ago.

Potential Safety Enhancements:

1. Consider installing vertical granite curbing along both sides of all approaches to define edge of roadway, reduce roadway erosion, and improve drainage. This would have an added benefit as a traffic calming measure.
2. Consider resurfacing all intersection approaches to achieve a 2% cross-slope for improved drainage of roadway runoff out of the travel lane.
3. Consider regrading of driveway aprons and center of intersection towards exiting catch basins. This countermeasure is currently being pursued by the Town DPW.

Safety Issue #6: Cell Phone Usage and Distracted Driving

Specific Observations:

Audit participants indicated that distracted driving due to cell phone usage is a serious problem in the vicinity of the audit area. Of the reported crashes within the audit area, 17 listed "inattention / distracted" as the main contributing factor. Although no specific crash report noted cell phone usage, audit participants noted that during general field observations and enforcement activities, it is not uncommon for a large number of drivers at the intersection to be using a cell phone while operating the vehicle. Current enforcement exists at the study area intersection during multiple hour blocks throughout the day.

Potential Safety Enhancements:

1. Increase police enforcement of cell phone usage and other distracted driving occurrences in the vicinity of the audit area.
2. Conduct educational events or distribute pamphlets at the surrounding schools and residents to help promote driving safety. Use these events and pamphlets to discuss the dangers of distracted driving, including texting while behind the wheel of a motor vehicle.

Safety Issue #7: Visibility

Specific Observations:

Truck and Passenger Vehicle Sight Lines – Audit participants noted that due to the high volume of heavy vehicles through the study area intersection, personal vehicles attempting to turn onto Main Street encroach into the intersection in an attempt to regain site lines past the blocking heavy vehicle. It was also noted that solar glare during the weekday morning peak period impedes drivers' visibility for Main Street eastbound traffic during certain times of the year. Guide and regulatory signage located in the raised median on the Lunenburg Road southbound approach limits sight distance of personal vehicles due to bottom sign's low mounting height. A percentage of the angled crashes at this intersection may be the result of temporarily impaired sight lines.

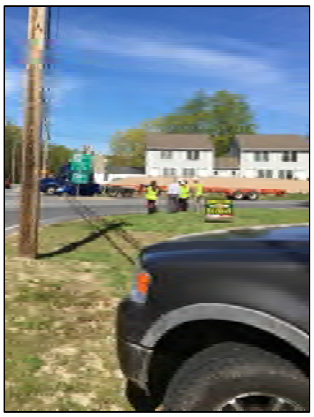


Image 6: Heavy vehicle attempting to exit Lunenburg Road approach

Roadway Lighting – The Town of Lancaster replaced all street luminaries within the last year; however there is only one present at the northeast corner of the intersection. While additional lighting could be beneficial for reducing nighttime crashes, there is awareness against light pollution for nearby residents. There were 26 crashes which occurred at dawn, dusk, or night hours for 2012-2016.

Potential Safety Enhancements:

1. Evaluate the installation of a fully actuated traffic signal to eliminate the need to encroach into the intersection to improve sight lines.
2. Should a traffic signal be considered, provide signal head backplates for solar glare with retro-reflective tape for nighttime visibility and louvers to limit the signal head visibility to within 20 degrees of the cone of visibility to reduce light pollution of surrounding residents.
3. Evaluate the installation of a roundabout to eliminate the need to encroach into the intersection to improve sight lines.
4. Consider installing new retro-reflective signage for improved visibility for existing signage which is faded or no longer compliant with current MUTCD standards.
5. Consider relocating or staggering of STOP-bar along the Lunenburg Road southbound approach to improve sight lines. This countermeasure is currently being pursued by the Town DPW.
6. Consider the installation of additional overhead lighting luminaries to increase the nighttime visibility at the intersection and its approaches.

Safety Issue #8: Lane Departure

Specific Observations:

Truck Lane Departures – Tire tracks through the soil are present on the northeast corner of the intersection where no curbing is present. Field observations showed heavy vehicles attempting wide turns from Main Street westbound to Lunenburg Road and from Lunenburg Road southbound to Main Street eastbound. The lane departures wheel path did not specifically result in any past crash history; however, the potential introduction of enhanced pedestrian and bicycle accommodations may be effected by the current wheel path of heavy vehicles.

Opposing Driveway Apron – Audit participants noted that the residential driveway apron present along the southerly side of Main Street opposing the Lunenburg Road southbound approach is a concern. As previously noted, no object marker sign or associated warning sign is placed immediately opposite Lunenburg Road. The property resident noted that it is not uncommon for vehicles to end up on his property as they were unaware of the terminus of the roadway. Current fixed object placement has been recorded as struck by vehicles multiple times from 2012-2016.

Objects off the Road – Eight (8) crashes during the study period at the intersection resulted in a vehicle striking a fixed object off the roadway including a combination of sign posts, utility poles, and fire hydrants.

Roadway Edge Drop-off – There is a culvert located under the driveway accessing #1357 Main Street housing units which has a drop-off swale parallel to Lunenburg Road approximately 2-foot deep. The swale presents a safety hazard because it is not protected by a guardrail and exceeds the MassDOT standard for the minimally accepted 1:4 foreslope grade. The crash reports did not indicate any particular crash occurrence where a lane departure vehicle entered the drainage swale.

Potential Safety Enhancements:

1. Redefine the intersection's northeast corner with granite curbing to separate the travel way from the adjacent property. Consider the installation of a raised truck apron to allow for wider truck turns but providing a traditional turning radius for passenger vehicles to lower speeds. This countermeasure is currently being pursued by the Town DPW.
2. Evaluate gates with reflective tape for secondary driveways and differentiated pavement materials to separate the intersection roadway and delineate where the Lunenburg Road southbound approach terminates.
3. Evaluate the relocation of existing object marker (OM4-1) signage which is not currently within the cone of vision for the intended drivers.
4. Consider replacement on the red object marker (OM4-1) with a W1-7 dual arrow sign for improved visibility. Relocate position of sign to be directly opposing Lunenburg Road and positioned to impede the through path of travel.
5. Consider applying reflector plaques on roadside utility poles and sign posts for improved visibility.

6. Install guardrail and/or vertical curbing along the west side of Lunenburg Road approaching the intersection to provide separation of vehicle traffic from the drainage swale on the edge of pavement without adversely affecting stormwater runoff.

7. Consider reconstruction of existing drainage swale with erosion resistant materials to prevent future roadway and drainage issues and conform to MassDOT roadside design guide standards.

Safety Issue #9: Vehicle Speeds

Specific Observations:

Audit participants expressed concerns over vehicle speeds within the audit area. The Police Department indicated that target speed enforcement has been conducted in the past due to resident complaints; however, the Police Department noted that the heavy vehicle congestion along Main Street helps in reducing vehicle speeds. Speed data obtained from ATR counts in the audit area indicate an 85th percentile speed at or above 40 mph, is in excess of the posted speed regulations. It was also noted that the Lunenburg Road southbound approach is graded down towards the intersection which attributes to higher speeds. Lancaster Police noted that tickets are being issued approximately three (3) per hour in a four-hour window throughout the day to discourage speeding and distracted driving with additional grants being sought. However, little improvement in driver behavior has been recognized.

Image 7: Wide turn radii for heavy vehicles leads to high turning speeds for personal vehicles

Audit participants noted that there was a lack of traffic calming along the Lunenburg Road southbound approach which could change the nature of the roadway and indicate to motorists that they are entering a reduced speed zone in addition to regulatory signage. Audit participants also noted that there was a lack of reduce speed warning signage, as previously noted, to highlight the reduction of speed limit from 45 mph to 25 mph along the Lunenburg Road southbound approach to the intersection. The intersection's wide geometry is required in order to facilitate heavy vehicles which require more room when executing turns. As a result, smaller vehicles are able to travel at higher rates of speed through turns. Despite the existing warning signage, enforcement, and traffic calming measures in place along the Main Street corridor, audit participants noted that excessive speed still occurs through the study area intersection.

Excessive speed was only noted as the contributing factor in one (1) crash within the study period; however, twelve (12) crashes within the audit area occurred during the nighttime hours when speeds are typically at their peak along the corridor.

The Town installed chevron signage, within the last year, along Main Street east of the study area intersection at Buttonwood Lane / Main Street and warning signage for a 30 mph speed limit around the roadway curve. This bend in the roadway had a fatal crash which occurred years prior to signage.

Potential Safety Enhancements:

1. Consider increased enforcement of speeding within the audit area outside of peak commuter congestion periods.
2. Consider strategic placement of dynamic message speed signs consistent with those already installed in the Town and advanced warning signage.
3. Consider narrowing travel lanes along Main Street and Lunenburg Road comply with the minimum for NHS and arterial roadways respectively to help reduce vehicle travel speeds down towards their regulated and posted limits.
4. Consider installation of vertical granite curbing and sidewalks along both sides of all approaches to provide vertical separation from the roadway and change the characteristic of a high speed location.
5. Redefine the intersection's northeast corner with granite curbing to separate the travel way from the adjacent property. Consider the installation of a raised truck apron to allow for wider truck turns but providing a traditional turning radius for passenger vehicles to lower speeds.
6. Consider installation of reduce speed flashers along Lunenburg Road southbound approach along with advanced warning signage in a location where light pollution will not adversely affect residents.

Summary of Road Safety Audit

Each improvement considered has been categorized as short-term, mid-term, or long-term. Additionally, a cost category has been assigned to each improvement based on the definitions shown in Table 4. Table 5 includes a summary of the potential safety enhancements. Safety benefit estimates are subjective, based on engineering experience and the relative percentage of crashes that may be reduced by the enhancement based on known and documented crash reduction factors (such as FHWA documented crash reduction factors).

Note that some costs are noted with two cost thresholds. This is included as some enhancements may require additional measures to ensure regulatory compliance. For instance, the targeted enforcement by Lancaster police for vehicles attempting to make an illegal U-turn may require short-term or mid-term sources depending on the timeline of planning through construction. In addition, some enhancements are defined to mitigate multiple safety issues. For those enhancements identified for multiple issues, such as the consideration of relocating or staggering of stop bar along the Lunenburg Road southbound approach to improve sight lines, the enhancement has only been listed once in Table 5.

Table 4: Estimated Time Frame and Costs Breakdown

Time Frame		**Costs**	
Short-Term	<1 Year	Low	<$10,000
Mid-Term	1-3 Years	Medium	$10,001-$50,000
Long-Term	>3 Years	High	>$50,000

Table 5: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Party
Driver Frustration and Bypassing Behavior due to Intersection Queues	Evaluate the installation of a fully actuated traffic signal. Evaluation should be checked against MUTCD signal warrants for traffic volume and safety. [Also applies to Visibility Safety Issue].	High	Long-Term	High	Town
	Evaluate the installation of a roundabout. [Also applies to Visibility Safety Issue].	High	Long-Term	High	Town
	Evaluate signal phasing opportunities (pending installation of a traffic signal) to include a Main street eastbound protected left-turn phase.	Medium	Long-Term	Low	Town
	Evaluate turning lane warrants for dedicated left-turn lane for Main Street eastbound approach and improved storage length for Lunenburg Road southbound approach.	Medium	Long-Term	Medium	Town
	Evaluate extending the right-turn lane along the Lunenburg Road southbound approach	Low	Mid-Term	Low to Medium	Town
	Consider targeted enforcement by Lancaster Police for vehicles attempting to make a right-turn along Lunenburg Road southbound and then making an illegal U-turn in a private driveway.	Medium	Short-Term	Low to Medium	Town Police
	Consider further commercial vehicle enforcement for Lancaster Police.	Medium	Mid-Term	Low to Medium	Town Police
Sub-Standard Multi-Modal Accommodations	Conduct educational events or distribute pamphlets at the surrounding schools or notable pedestrian-heavy destinations. [Also applies to Cell Phone Usage and Distracted Driving Safety Issue].	Medium	Short-Term	Low	Town
	Consider constructing sidewalk along the northerly side of Main Street and along Lunenburg Road.	High	Long-Term	High	Town
	Construct ADA / AAB compliant accessible curb ramps on the corners of the intersection with a corresponding crosswalk between each ramp pair upon enhancements to sidewalk facilities.	Medium	Long-Term	Medium	Town
	Consider adding shared-use lane markings with associated signage along the Main Street and Lunenburg Road corridors.	Low	Short-Term	Low	Town
	Evaluate the potential to construct dedicated bicycle lanes along Main Street and Lunenburg Road corridors.	High	Long-Term	High	Town

Table 5 Continued: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Deteriorated or Sub-Standard Multi-Modal Accommodations	Should a traffic signal be considered, provide pedestrian traffic signal operations including phasing and infrastructure, such as countdown signals with MUTCD compliant signage, ADA compliant APS, and push buttons.	High	Long-Term	Medium	Town
	Consider installation of crosswalks across Main Street, at the intersection with Lunenburg Road, pending the installation of sidewalk connectivity through the intersection.	High	Long-Term	Medium	Town
Deteriorated or Sub-Standard Pavement Markings	Eliminate second edge line pavement markings along the Lunenburg Road Southbound approach corridor.	Low	Short-Term	Low	Town
	Apply arrow pavement markings to the Lunenburg Road southbound approach. This countermeasure is currently being pursued by the Town DPW.	Low	Short-Term	Low	Town
	Consider relocating or staggering of STOP-bar for left-turn and right-turn lanes along the Lunenburg Road southbound approach. [Also applies to Visibility Safety Issue].	Medium	Short-Term	Low	Town
	Reapply all existing pavement markings; including STOP bars, and centerlines.	Medium	Short-Term	Low	Town
	Consider replacement of existing pavement markings with thermoplastic markings which will last longer against snow plow damage and improve visibility during inclement weather.	Medium	Mid-Term	High	Town
Deteriorated, Blocked, or Damaged Corridor Signage	Complete a full sign inventory along all three approaches to the Main Street / Lunenburg Road intersections.	Medium	Short-Term	Low	Town
	Replace all existing signs along Lunenburg Road and Main Street that are currently faded, damaged, or non-compliant with new MUTCD-compliant signs.	Medium	Short-Term	Medium	Town
	Evaluate the relocation of guide and regulatory signage from the median island of the Lunenburg Road southbound approach. [Also applies to Visibility and Lane Departure Safety Issue].	Low	Short-Term	Low	Town
	Adjust heights of existing signage to meet current MUTCD minimum height standard of 7-feet. [Also applies to Visibility Safety Issue].	Medium	Short-Term	Low	Town

Table 5 Continued: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Deteriorated, Blocked, or Damaged Corridor Signage	Evaluate the relocation of existing signage which is not currently within the cone of vision for the intended drivers, utility poles, and other roadside structures that do not comply with current lateral offset standards. [Also applies to Visibility Safety Issue].	High	Short-Term	Low	Town
	Consider replacement on the red object marker (OM4-1) with a W1-7 dual arrow sign and relocate position. [Also applies to Visibility and Lane Departure Safety Issue].	Medium	Short-Term	Low	Town
Deteriorated, Blocked, or Damaged Corridor Signage	Consider installation of an advance intersection sign (W2-4) along Lunenburg Road southbound approach along with reduced speed warning signage (W3-5).	Medium	Short-Term	Low	Town
	Consider installation of dynamic speed signs consistent with those already installed in the Town or an advanced speed reduction sign (W3-5) along Lunenburg Road southbound approach along with reduced speed warning signage. [Also applies to Vehicle Speeds Safety Issue].	Medium	Short-Term	Medium	Town
Deteriorated or Sub-Standard Drainage	Consider installing vertical granite curbing along both sides of all approaches. [Also applies to Vehicle Speeds Safety Issue].	Medium	Long-Term	High	Town
	Consider resurfacing all intersection approaches to achieve a 2% cross-slope for improved drainage of roadway runoff out of the travel lane.	High	Mid-Term	High	Town
	Consider regrading of driveway aprons and center of intersection towards exiting catch basins.	Low	Mid-Term	Medium	Town
Cell Phone Usage and Distracted Driving	Increase police enforcement of cell phone usage while driving in the vicinity of the audit area.	Medium	Short-Term	Low	Town Police
	Conduct educational events or distribute pamphlets at the surrounding schools and residents to help promote driving safety regarding distracted driving.	Medium	Short-Term	Low	Town
Visibility	Evaluate the installation of a fully actuated traffic signal to eliminate the need to encroach into the intersection.	High	Long-Term	High	Town
	Should a traffic signal be considered, provide signal head backplates for solar glare with retro-reflective tape for improved visibility and louvers to limit the signal head visibility to within 20 degrees of the cone of visibility to reduce light pollution of surrounding residents.	Medium	Mid-Term	Low	Town

Table 5 Continued: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Visibility	Consider installing new retro-reflective signage.	Medium	Short-Term	Medium	Town
	Consider the installation of additional overhead lighting luminaries at the intersection.	Medium	Short-Term	Medium	Town
Lane Departure	Redefine the intersection's northeast corner with granite curbing. Consider the installation of a raised truck apron for wider truck turns but providing a traditional turning radius for passenger vehicles.	Medium	Long-Term	Medium	Town
	Evaluate gates with reflective tape for secondary driveways and differentiated pavement materials.	Low	Short-Term	Low	Town
	Evaluate the relocation of existing object marker signage (OM4-1) signage which is not currently within the cone of vision for the intended drivers	High	Short-Term	Low	Town
	Consider applying reflector plaques on roadside utility poles and sign posts for improved visibility.	Low	Short-Term	Low	Town
	Install guardrail and/or curbing along the west side of Lunenburg Road approaching the intersection adjacent to drainage swale.	Medium	Mid-Term	Medium	Town
	Consider reconstruction of existing drainage swale with erosion resistant materials.	Low	Mid-Term	Low	Town
Vehicle Speeds	Consider increased enforcement of speeding within the audit area outside of peak commuter congestion periods.	Medium	On-Going	High	Town Police
	Consider narrowing travel lanes along Main Street and Lunenburg Road comply with the minimum for NHS and arterial roadways respectively. [Also applies to Driver Frustration and Bypassing Behavior due to Intersection Queues Safety Issue].	Medium	Mid-Term	Medium	Town
	Redefine the intersection's northeast corner with granite curbing to separate the travel way from the adjacent property. Consider the installation of a raised truck apron to allow for wider truck turns but providing a traditional turning radius for passenger vehicles.	High	Long-Term	High	Town
	Consider installation of reduce speed flashers along Lunenburg Road southbound approach along with advanced warning signage in a location where light pollution will not adversely affect residents	Medium	Short-Term	Medium	Town

Appendix A. RSA Meeting Agenda

Agenda

Road Safety Audit

LOCATION

Meeting Location:
Lancaster Town Hall
Auditorium
695 Main Street
Lancaster, Massachusetts
Thursday May 4, 2017
9:00 AM – 12:00 PM

Type of meeting:	**High Crash Locations – Road Safety Audit**
Attendees:	**Invited Participants to Comprise a Multidisciplinary Team**
Please bring:	**Thoughts and Enthusiasm!**

9:00 AM	**Welcome and Introductions** • Introductions
9:15 AM	**Review of Site Specific Material** • Crash Summaries – provided in advance • Lunenburg Road (Route 70) @ Main Street (Route 117) • Existing Geometries, Volumes, Speed, and Conditions
10:00 AM	**Visit the Site** • Conduct Field Visit • As a group, identify areas for improvement
11:00 AM	**Post Visit Discussion / Completion of RSA** • Discuss observations and finalize findings • Discuss potential improvements and finalize recommendations
12:00 PM	**Adjourn for the Day – but the RSA has not ended**

Instructions for Participants:

- **Before attending the RSA on May 4, participants are encouraged to drive through the intersection and complete / consider elements on the RSA Prompt List, with a focus on safety.**
- **All participants will be actively involved throughout the RSA process. Participants are encouraged to come with thoughts and ideas; however, remember that the synergy that develops and respect for others' opinions are key elements to the success of the overall RSA process.**
- **After the RSA meeting, participants will be asked to comment and respond to the document materials to assure it is reflective of the RSA completed by the multidisciplinary team.**

Appendix B. RSA Audit Team Contact List

Participating Audit Team Members

Date: May 4, 2017 Location: Lancaster, Massachusetts

Audit Team Members	Agency/Affiliation	Email Address
Noreen Piazza	Lancaster Town Planner	npiazza@lancasterma.net
Everett Moody	Lancaster Police Department	elmoody@lancasterma.net
Courtney Manning	Lancaster Fire Department	cmanning@lancasterfd.net
Kevin Bartlett	Lancaster Department of Public Works	kbartlett@lancasterma.net
Sheri Bean	Montachusett Regional Planning Commission	sbean@mrpc.com
George Snow	Montachusett Regional Planning Commission	gnow@mprc.com
Elsa Chan	MassDOT Traffic Safety	elsa.chan@state.ma.us
Christopher Falcos	MassDOT Traffic Safety	christopher.falcos@dot.state.ma.us
Connor Keating	MassDOT Traffic Safety	connor.keating@state.ma.us
Lori Shattuck	MassDOT District 3	lori.shattuck@dot.state.ma.us
Lola Campbell	MassDOT District 3	alolade.campbell@state.ma.us
Samuel Gregorio	TEC, Inc.	sgregorio@theengineeringcorp.com
Douglas Halpert	TEC, Inc.	dhalpert@theengineeringcorp.com

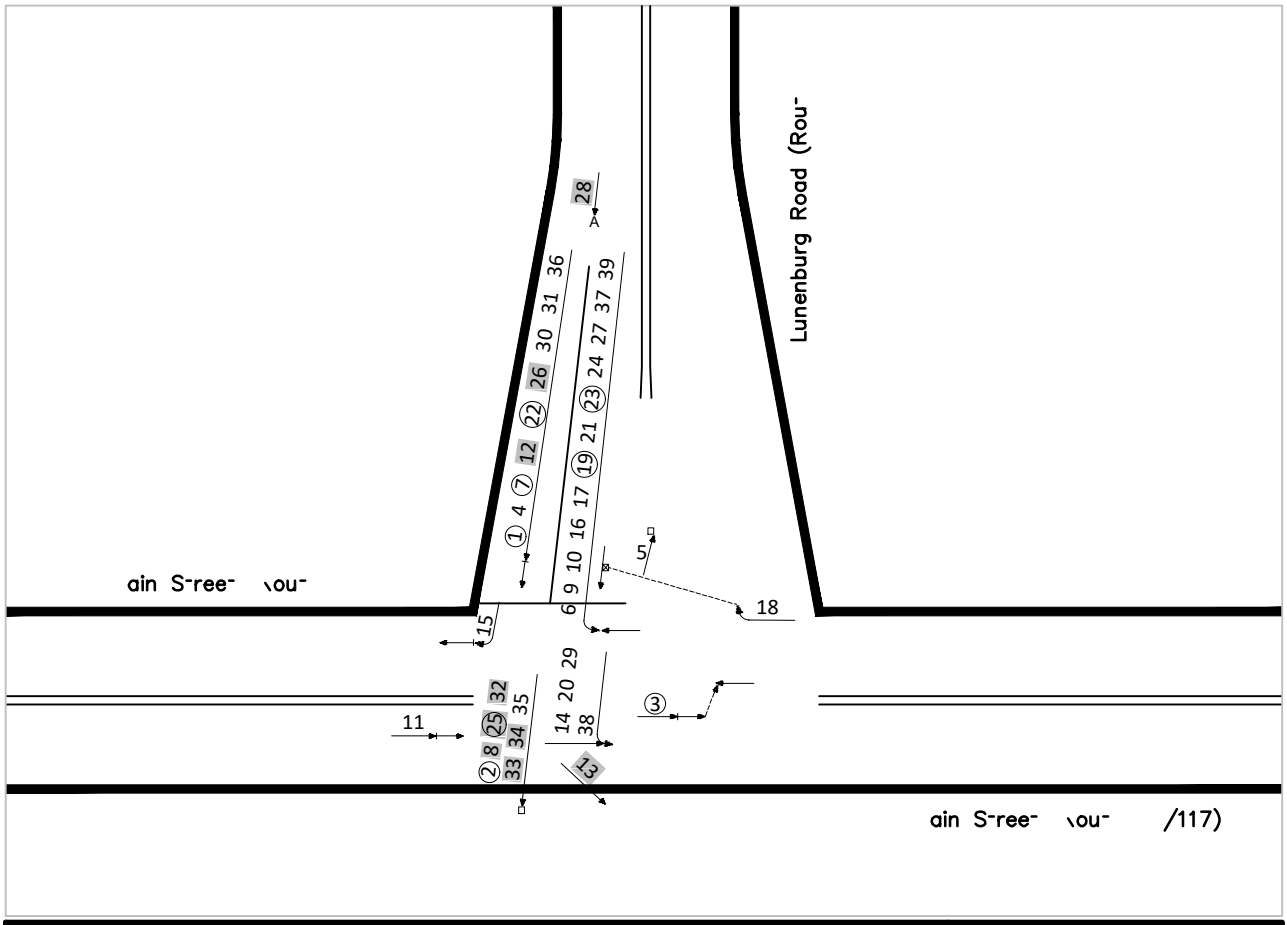
Appendix C. Detailed Crash Data

Not to Scale

Route 117 from Lunenburg Road (Route 70) to Main Street (Route 70) - Lancaster, MA

Road Safety Audit

LOCATION: Main Street (Route 117) @ Lunenburg Road (Route 70)
CITY/STATE: Lancaster, Massachusetts
TIME PERIOD: 2012- 2016
PREPARED BY: TEC, Inc. / Eindra (Elena) Aung, E.I.T.
SOURCE: MassDOT / Town of Lancaster Police Department



LEGEND						SHOW FOR COLLISION
	VEHICLE PATH		HEAD-ON COLLISION		FIXED OBJECT	1. Approximate location of collision,
	BACKING VEHICLE		ANGLED COLLISION		MOVEABLE OBJECT	2. Direction of collision,
	SIDESWIPE COLLISION		FIXED OBJECT COLLISION		PARKED VEHICLE	3. Type of collision and vehicles involved,
P	PEDESTRIAN COLLISION		OVERTURNED VEHICLE		PERSONAL INJURY	4. Time, Day, Date
C	CYCLIST COLLISION		OUT-OF-CONTROL VEHICLE		FATALITY	5. Any other pertinent factors mentioned on the report.
	REAR-END COLLISION			A	ANIMAL	NOTE: Shaded number indicates crash occurred under "nighttime" conditions.

SUMMARY OF CRASHES ON DIAGRAM [*no fatal collisions*]

	REAR-END	SIDESWIPE	HEAD-ON	ANGLED	SINGLE VEH	PED/BIKE	OTHER / UNK	TOTAL
PROPERTY DAMAGE ONLY	9	0	0	15	9	0	1	34
NON-FATAL INJURY	3	0	1	0	1	0	0	5
UNKNOWN / NOT REPORTED	0	0	0	0	0	0	0	0
TOTAL	12	0	1	15	10	0	1	39

Figure RSA-1

Collision Diagram
2012-2016 Collision Data

TEC, Inc.
65 Glenn Street | 169 Ocean Blvd, Unit 101
Lawrence, MA 01843 | Hampton, NH 03842
(978) 794.1792 | (603) 601.8154
www.TheEngineeringCorp.com

T:\T0698\CAD\HIGHWAY\GRAPHICS\T0698_RSA_COLLISION DIAGRAMS.DWG 4/14/2017 3:58 PM

Crash Data Summary Tables
Main Street (Route 117) @ Lunenburg Road (Route 70) - Lancaster, Massachusetts
01/01/2012 - 12/31/2016

Collision Diagram	Crash Date	Crash Time	Day of Week	Ambient Light	Weather Condition	Road Surface	Operator's Age				Crash Severity	Manner of Collision	Driver Contributing Codes	Detailed Narrative (from Crash Report)
							V1	V2	V3	V4				
1	4/1/2012	3:14 PM	Sunday	Daylight	Cloudy	Dry	26	17			Non-fatal Injury	Rear-end	Inattention / Distracted	MV1 and MV2: travelling SB on Lunenburg Rd. MV1 was stopped in traffic. MV2 did not stop on time and rear-ended MV1.
2	8/21/2012	12:41 PM	Tuesday	Daylight	Clear	Dry	27				Non-fatal Injury	Single Vehicle	Erratic / Aggressive / Reckless Driving	MV1: travelling SB on Lunenburg Rd. Due to its high speed, MV1 failed to stop at the stop sign and collide into the utility pole.
3	10/23/2012	4:20 PM	Tuesday	Daylight	Clear	Dry	25	64	58		Non-fatal Injury	Rear-end	Inattention / Distracted	MV1 and MV2: travelling EB on Main St; MV3: travelling WB on Main St. MV1 rear-ended MV2 when MV2 stopped to turn left onto Lunenburg Rd. The collision cause MV2 to move forward across the road and stuck MV3.
4	10/30/2012	10:18 AM	Tuesday	Daylight	Cloudy	Wet	42	27			Property Damage Only	Rear-end	Inattention / Distracted	MV1 and MV2: travelling SB on Lunenburg Rd. MV1 was stopped in traffic. MV2 did not stop on time and rear-ended MV1.
5	2/23/2013	6:05 AM	Saturday	Dawn	Clear	Dry	23				Property Damage Only	Single Vehicle	Other	MV1: travelling EB on Main St. MV1 drifted across the WB lane and drove onto the traffic island separating the lanes of Lunenburg Rd. MV1 hit the street sign on the island and continued across Lunenburg Rd. The vehicle came to a stop after colliding the samll trees and shrubs. The operator of MV1 was fatigued.
6	4/4/2013	4:20 PM	Thursday	Daylight	Clear	Dry	57	25			Property Damage Only	Angled	Inattention / Distracted	MV1: travelling SB on Lunenburg Rd; MV2: travelling WB on Main St. MV2 collided with MV1 when MV1 attempted to take a left-turn onto Main St.
7	4/7/2013	1:07 PM	Sunday	Daylight	Clear	Dry	52	43			Non-fatal Injury	Rear-end	Inattention / Distracted	MV1 and MV2: travelling SB on Lunenburg Rd. MV1 was stopped in traffic at the STOP-sign. MV2 did not stop on time and rear-ended MV1.
8	7/7/2013	10:07 PM	Sunday	Dark - Not Lighted	Clear	Dry	33				Property Damage Only	Single Vehicle	Other	MV1: travelling SB on Lunenburg Rd. MV1 failed to come to a stop, and continued through the intersection striking a sign and bushes.
9	10/29/2013	7:22 AM	Tuesday	Daylight	Clear	Dry	19	16			Property Damage Only	Angled	Failure to Yield Right-of-Way	MV1: travelling WB on Main St; MV2: travelling SB on Lunenburg Rd. MV1 struck MV2 when MV2 attempted to turn left onto Main St.
10	10/30/2014	3:57 PM	Thursday	Daylight	Clear	Dry	51	25			Property Damage Only	Angled	Inattention / Distracted	MV1: travelling WB on Main St; MV2: travelling SB on Lunenburg Rd. MV1 struck MV2 when MV2 attempted to turn left onto Main St.
11	1/16/2015	4:38 PM	Friday	Dusk	Clear	Dry	57	84			Property Damage Only	Rear-end	Disregarded Traffic Controls	MV1 and MV2: travelling EB on Main St. MV1 was stopped in traffic at the Lunenburg Rd intersection. MV2 attempted to pass MV1 on the left and struck the rear of MV1.
12	1/12/2016	6:52 PM	Tuesday	Dark - Lighted	Snow	Snow	63	20			Property Damage Only	Rear-end	Followed Too Closely	MV1 and MV2: travelling SB on Lunenburg Rd. Due to the snow on the road, MV2 slid and rear-ended MV1 when MV1 was slowing to stop at the STOP-sign.
13	2/7/2016	2:18 AM	Sunday	Dark - Lighted	Clear	Dry	22				Property Damage Only	Single Vehicle	Other	MV1: travelling EB on Main St. MV1 travelled off the road to the right, hit the guard posts and a tree at the Lunenburg Rd intersection. The vehicle rotated left and landed on the WB lane of Main St.
14	2/9/2016	11:44 AM	Tuesday	Daylight	Clear	Wet	58	44			Property Damage Only	Angled	Inattention / Distracted	MV1: travelling SB on Lunenburg Rd; MV2: travelling EB on Main St. MV2 collided with MV1 when MV1 attempted to take a left-turn onto Main St.
15	4/4/2016	7:20 AM	Monday	Daylight	Snow	Snow	57	62			Property Damage Only	Rear-end	Not Reported	MV1: travelling WB on Main St; MV2: travelling SB on Lunenburg Rd. MV1 was making a left-turn just west of the intersection. MV2 rear-ended MV1 when MV2 turned right onto Main St.
16	10/6/2016	11:42 AM	Thursday	Daylight	Clear	Dry	29	58			Property Damage Only	Angled	Failure to Yield Right-of-Way	MV1: travelling WB on Main St; MV2: travelling SB on Lunenburg Rd. MV2 struck MV1 when MV2 pulled out from Lunenburg Rd thinking that MV1 was making a right-turn.
17	10/20/2016	5:08 PM	Thursday	Daylight	Cloudy	Dry	37	56			Property Damage Only	Angled	Failure to Yield Right-of-Way	MV1: travelling WB on Main St; MV2: travelling SB on Lunenburg Rd. MV1 struck MV2 when MV2 pulled out from Lunenburg Rd and entered the travel lane of MV1.

Crash Data Summary Tables
Main Street (Route 117) @ Lunenburg Road (Route 70) - Lancaster, Massachusetts
01/01/2012 - 12/31/2016

Collision Diagram	Crash Date	Crash Time	Day of Week	Ambient Light	Weather Condition	Road Surface	Operator's Age				Crash Severity	Manner of Collision	Driver Contributing Codes	Detailed Narrative (from Crash Report)
							V1	V2	V3	V4				
18	11/3/2016	3:50 PM	Thursday	Daylight	Rain	Wet	34	61			Property Damage Only	Other	Other	MV1: stopped at the STOP-sign on Lunenburg Rd; MV2: turning right from Main St WB lane onto Lunenburg Rd NB lane. The folding tables that MV2 was carrying falls out and hit MV1 while MV2 was making the turn.
19	12/7/2016	1:06 PM	Wednesday	Daylight	Cloudy	Wet	59	44			Non-fatal Injury	Head-on	Failure to Yield Right-of-Way	MV1: travelling SB on Lunenburg Rd; MV2: travelling WB on Main St. MV2 collided with MV1 when MV1 attempted to take a left-turn onto Main St.
20	12/10/2016	11:54 AM	Saturday	Daylight	Clear	Dry	25	71			Property Damage Only	Angled	Not Reported	MV1: turning left from Main St EB lane onto Lunenburg Rd NB lane; MV2: attempting to turn left onto Main St EB lane from Lunenburg Rd SB lane. MV2 stuck MV1 while maing the turn.
21	1/19/2012	3:34 PM	Thursday	Daylight	Cloudy	Wet	47	20			Property Damage Only	Angled	Failure to Yield Right-of-Way	MV1: travelling WB on Main St; MV2: travelling SB on Lunenburg Rd. MV1 and MV2 collided with each other when MV2 attempted to make a left-turn without yielding for MV1.
22	4/27/2013	1:07 PM	Saturday	Daylight	Clear	Dry	52	43			Non-fatal Injury	Rear-end	Inattention / Distracted	MV1 and MV2: travelling SB on Lunenburg Rd. M1 was stopped at the STOP-sign and got rear-ended by MV2.
23	9/30/2013	8:35 AM	Monday	Daylight	Clear	Dry	57	47			Non-fatal Injury	Angled	Failure to Yield Right-of-Way	MV1: travelling SB on Lunenburg Rd; MV2: travelling WB on Main St. MV2 collided with MV1 when MV1 attempted to take a left-turn onto Main St.
24	11/4/2013	3:34 PM	Monday	Daylight	Clear	Dry	29	31			Property Damage Only	Angled	Inattention / Distracted	MV1: travelling WB on Main St; MV2: travelling SB on Lunenburg Rd. MV1 had its right turn blinker on and turned it off before it approaches the Lunenburg Rd intersection. MV2 struck MV1 when MV2 did not see the blinker turned off and made a left-turn.
25	12/14/2013	7:27 PM	Saturday	Dark - Lighted	Snow	Snow	57				Non-fatal Injury	Single Vehicle	Erratic / Aggressive / Reckless Driving	MV1: travelling SB on Lunenburg Rd. MV1 lost control of the vehicle on the snowy roads and went off roadway and struck the utility pole across the intersection.
26	12/19/2013	6:22 PM	Thursday	Dark - Lighted	Clear	Dry	46	20			Property Damage Only	Rear-end	Inattention / Distracted	MV1 and MV2: travelling SB on Lunenburg Rd. MV2 rear-ended MV1 when MV1 stopped at the STOP-sign.
27	8/11/2014	10:29 AM	Monday	Daylight	Clear	Dry	20	15			Property Damage Only	Angled	Failure to Yield Right-of-Way	MV1: travelling WB on Main St; MV2: travelling SB on Lunenburg Rd. MV1 struck MV2 when MV2 made a left-turn without yielding for MV1.
28	10/26/2013	1:39 AM	Saturday	Dark - Not Lighted	Clear	Dry	18				Property Damage Only	Single Vehicle	No Improper Driving	MV1: travelling SB on Lunenburg Rd. A deer ran out in front of the vehicle and MV1 collided with it.
29	1/22/2015	8:43 AM	Thursday	Daylight	Clear	Dry	48	63			Property Damage Only	Angled	Inattention / Distracted	MV1: travelling EB on Main St; MV2: travelling SB on Lunenburg Rd. MV2 collided with MV1 when MV2 entered Main St.
30	2/3/2015	1:06 PM	Tuesday	Daylight	Clear	Snow	53	54			Property Damage Only	Rear-end	Inattention / Distracted	MV1 and MV2: travelling SB on Lunenburg Rd. MV2 slid on ice and rear-ended MV1 when MV1 slowed down to stop at the STOP-sign.
31	2/4/2015	11:26 AM	Wednesday	Daylight	Clear	Wet	45	17			Property Damage Only	Rear-end	Inattention / Distracted	MV1 and MV2: travelling SB on Lunenburg Rd. MV2 rear-ended MV1 when MV1 had to stop for traffic.
32	6/10/2015	11:30 PM	Wednesday	Dark - Lighted	Clear	Dry	29				Property Damage Only	Single Vehicle	Inattention / Distracted	MV1: travelling SB on Lunenburg Rd. MV1 went through the STOP-sign without stopping and struck a tree across Main St.
33	7/21/2015	2:31 AM	Tuesday	Dark - Lighted	Clear	Dry	23				Property Damage Only	Single Vehicle	Other	MV1: travelling SB on Lunenburg Rd. Operator of MV1 fell asleep and entered the intersection, crossing Main St without stopping at the STOP-sign and crashed into the wooded area.
34	9/10/2015	12:04 AM	Thursday	Dark - Lighted	Rain	Wet	32				Property Damage Only	Single Vehicle	Other	MV1: travelling SB on Lunenburg Rd. MV1 did not stop at the STOP-sign and collided with a fire hydrant at the intersection.
35	12/11/2015	4:12 AM	Friday	Dark - Lighted	Other	Wet	20				Property Damage Only	Single Vehicle	Inattention / Distracted	MV1: travelling SB on Lunenburg Rd. MV1 crossed both travel lanes of Main St and struck with the bushes and stone wall.
36	6/29/2016	11:07 AM	Wednesday	Daylight	Cloudy	Dry	53	42			Property Damage Only	Rear-end	Inattention / Distracted	MV1 and MV2: travelling SB on Lunenburg Rd. MV2 rear-ended MV1 when MV1 stopped at the STOP-sign.
37	7/23/2016	11:51 AM	Saturday	Daylight	Clear	Dry	57	42			Property Damage Only	Angled	Inattention / Distracted	MV1: travelling WB on Main St; MV2: travelling SB on Lunenburg Rd. MV2 struck MV1 when MV2 attempted to make a left-turn.

Crash Data Summary Tables

Main Street (Route 117) @ Lunenburg Road (Route 70) - Lancaster, Massachusetts

01/01/2012 - 12/31/2016

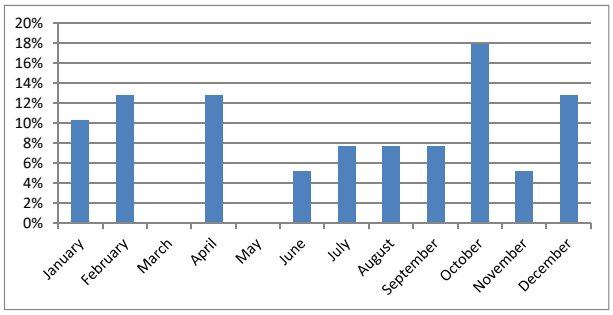
Collision Diagram	Crash Date	Crash Time	Day of Week	Ambient Light	Weather Condition	Road Surface	Operator's Age				Crash Severity	Manner of Collision	Driver Contributing Codes	Detailed Narrative (from Crash Report)
							V1	V2	V3	V4				
38	8/2/2016	7:30 AM	Tuesday	Daylight	Cloudy	Wet	55	53			Property Damage Only	Angled	Failure to Yield Right-of-Way	MV1: travelling EB on Main St; MV2: travelling SB on Lunenburg Rd. MV2 collided with MV1 when MV2 made a left-turn.
39	9/25/2016	5:29 PM	Sunday	Daylight	Clear	Dry	25	76			Property Damage Only	Angled	Over-Steering / Over-Correcting	MV1: travelling SB on Lunenburg Rd; MV2: travelling WB on Main St. MV2 collided with MV1 when MV1 made a left-turn onto Main St.

Crash Data Summary Tables
Main Street (Route 117) @ Lunenburg Road (Route 70) - Lancaster, Massachusetts
01/01/2012 - 12/31/2016

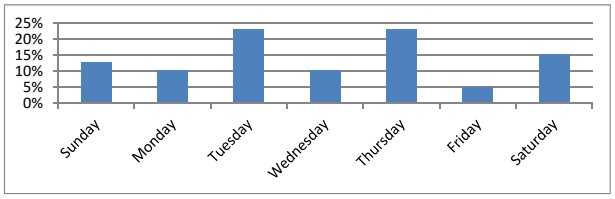
Main Street @ Lunenburg Road

39

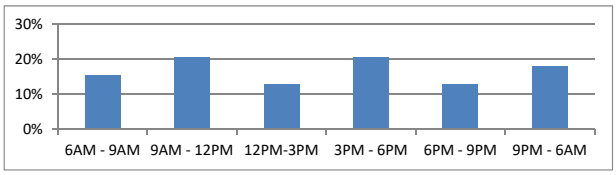
Month	#	%
January	4	10%
February	5	13%
March	0	0%
April	5	13%
May	0	0%
June	2	5%
July	3	8%
August	3	8%
September	3	8%
October	7	18%
November	2	5%
December	5	13%



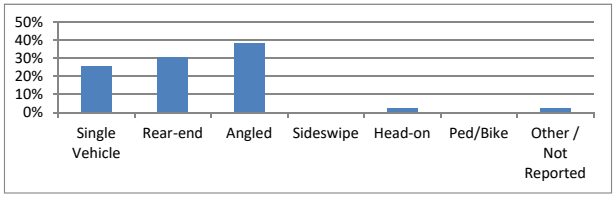
Day of Week	#	%
Sunday	5	13%
Monday	4	10%
Tuesday	9	23%
Wednesday	4	10%
Thursday	9	23%
Friday	2	5%
Saturday	6	15%



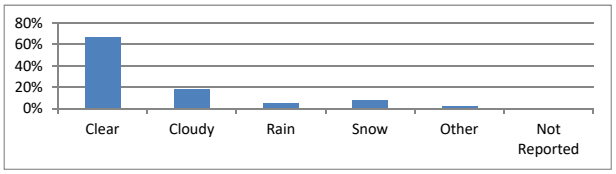
Time of Day	#	%
6AM - 9AM	6	15%
9AM - 12PM	8	21%
12PM-3PM	5	13%
3PM - 6PM	8	21%
6PM - 9PM	5	13%
9PM - 6AM	7	18%



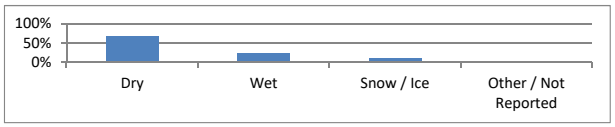
Manner of Collision	#	%
Single Vehicle	10	26%
Rear-end	12	31%
Angled	15	38%
Sideswipe	0	0%
Head-on	1	3%
Ped/Bike	0	0%
Other / Not Reported	1	3%



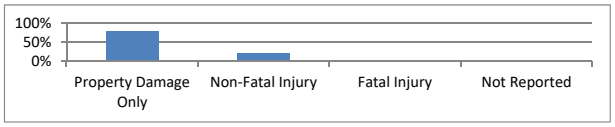
Weather Conditions	#	%
Clear	26	67%
Cloudy	7	18%
Rain	2	5%
Snow	3	8%
Other	1	3%
Not Reported	0	0%



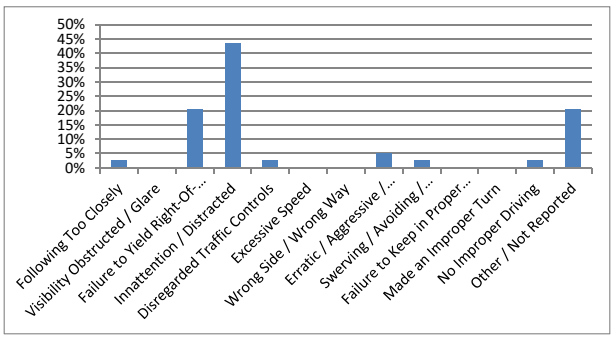
Road Surface	#	%
Dry	26	67%
Wet	9	23%
Snow / Ice	4	10%
Other / Not Reported	0	0%



Crash Severity	#	%
Property Damage Only	31	79%
Non-Fatal Injury	8	21%
Fatal Injury	0	0%
Not Reported	0	0%



Main Contributing Factor from Narrative	#	%
Following Too Closely	1	3%
Visibility Obstructed / Glare	0	0%
Failure to Yield Right-Of-Way	8	21%
Innattention / Distracted	17	44%
Disregarded Traffic Controls	1	3%
Excessive Speed	0	0%
Wrong Side / Wrong Way	0	0%
Erratic / Aggressive / Reckless Driving	2	5%
Swerving / Avoiding / Over-Steering / Over-Correcting	1	3%
Failure to Keep in Proper Lane	0	0%
Made an Improper Turn	0	0%
No Improper Driving	1	3%
Other / Not Reported	8	21%



5/12/2017

Appendix D. Additional Information

Study Name	Lancaster - Route 117 at Route 70 and Shirley Road TM1 TMC
Start Date	Wednesday, December 02, 2015 7:00 AM
End Date	Wednesday, December 02, 2015 7:00 PM
Site Code	

Report Summary

		Southbound						Westbound						Northbound						Eastbound								Crosswalk	
Time Period	Class.	R	T	L	U	I	O	R	T	L	U	I	O	R	T	L	U	I	O	R	T	L	U	I	O	Total		Pedestrians	Total
Peak 1	Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 12:00 PM	Cars	0	1	0	0	1	1	0	315	13	0	328	575	4	0	97	1	102	359	344	571	1	0	916	412	1347	E	0	0
One Hour Peak	%	0%	100%	0%	0%	100%	50%	0%	76%	100%	0%	77%	86%	80%	0%	82%	100%	82%	90%	90%	86%	50%	0%	88%	77%	84%		0%	
7:00 AM - 8:00 AM	Light Goods Vehicles	0	0	0	0	0	1	0	75	0	0	75	68	0	0	15	0	15	22	22	68	1	0	91	90	181	S	0	0
	%	0%	0%	0%	0%	0%	50%	0%	18%	0%	0%	18%	10%	0%	0%	13%	0%	12%	6%	6%	10%	50%	0%	9%	17%	11%		0%	
	Buses	0	0	0	0	0	0	0	2	0	0	2	5	0	0	2	0	2	8	8	5	0	0	13	4	17	W	2	2
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%	2%	2%	2%	1%	0%	0%	1%	1%	1%		100%	
	Single-Unit Trucks	0	0	0	0	0	0	0	17	0	0	17	14	1	0	4	0	5	7	7	13	0	0	20	21	42		2	2
	%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	4%	2%	20%	0%	3%	0%	4%	2%	2%	2%	0%	0%	2%	4%	3%			
	Articulated Trucks	0	0	0	0	0	0	0	6	0	0	6	5	0	0	0	0	0	1	1	5	0	0	6	6	12			
	%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	1%	1%			
	Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	0	1	0	0	1	2	0	415	13	0	428	667	5	0	118	1	124	397	382	662	2	0	1046	533	1599			
	PHF	0	0.25	0	0	0.25	0.25	0	0.88	0.65	0	0.87	0.76	0.62	0	0.76	0.25	0.76	0.83	0.84	0.76	0.25	0	0.9	0.87	0.93			
	Approach %					0%	0%					27%	42%					8%	25%					65%	33%				
Peak 2	Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
12:00 PM - 7:00 PM	Cars	1	1	0	0	2	5	2	815	4	0	821	307	7	2	150	1	160	213	207	300	1	0	508	966	1491	E	0	0
One Hour Peak	%	100%	100%	0%	0%	100%	100%	100%	83%	57%	0%	83%	81%	100%	100%	91%	100%	92%	88%	89%	81%	100%	0%	84%	84%	84%		0%	
3:45 PM - 4:45 PM	Light Goods Vehicles	0	0	0	0	0	0	0	129	0	0	129	54	0	0	7	0	7	17	17	54	0	0	71	136	207	S	0	0
	%	0%	0%	0%	0%	0%	0%	0%	13%	0%	0%	13%	14%	0%	0%	4%	0%	4%	7%	7%	15%	0%	0%	12%	12%	12%		0%	
	Buses	0	0	0	0	0	0	0	7	0	0	7	1	0	0	4	0	4	5	5	1	0	0	6	11	17	W	0	0
	%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	2%	0%	2%	2%	2%	0%	0%	0%	1%	1%	1%		0%	
	Single-Unit Trucks	0	0	0	0	0	0	0	22	3	0	25	11	0	0	1	0	1	5	2	11	0	0	13	23	39		0	0
	%	0%	0%	0%	0%	0%	0%	0%	2%	43%	0%	3%	3%	0%	0%	1%	0%	1%	2%	1%	3%	0%	0%	2%	2%	2%			
	Articulated Trucks	0	0	0	0	0	0	0	10	0	0	10	5	0	0	2	0	2	1	1	5	0	0	6	12	18			
	%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	1%	0%	0%	1%	0%	1%	0%	0%	1%	0%	0%	1%	1%	1%			
	Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	1	1	0	0	2	5	2	983	7	0	992	378	7	2	164	1	174	241	232	371	1	0	604	1148	1772			
	PHF	0.25	0.25	0	0	0.5	0.42	0.25	0.95	0.44	0	0.96	0.95	0.58	0.25	0.87	0.25	0.85	0.89	0.89	0.95	0.25	0	0.94	0.94	0.98			
	Approach %					0%	0%					56%	21%					10%	14%					34%	65%				

Study Name	Lancaster - Routes 117/70 (Main Street) at Route 70 (Lunenberg Road) TM2 TMC
Start Date	Wednesday, December 02, 2015 7:00 AM
End Date	Wednesday, December 02, 2015 7:00 PM
Site Code	

Report Summary

		Southbound					Westbound					Eastbound							Crosswalk	
Time Period	Class.	R	L	U	I	O	R	T	U	I	O	T	L	U	I	O	Total		Pedestrians	Total
Peak 1	**Motorcycles**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 12:00 PM	**Cars**	25	190	1	216	219	179	261	0	440	879	689	39	0	728	286	1384	E	0	0
One Hour Peak	%	93%	82%	100%	83%	87%	88%	79%	0%	83%	85%	86%	83%	0%	86%	80%	84%		0%	
7:00 AM - 8:00 AM	**Light Goods Vehicles**	2	30	0	32	23	17	49	0	66	114	84	6	0	90	51	188	W	0	0
	%	7%	13%	0%	12%	9%	8%	15%	0%	12%	11%	10%	13%	0%	11%	14%	11%		0%	
	Buses	0	1	0	1	1	1	3	0	4	11	10	0	0	10	3	15		0	0
	%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	1%	0%	0%	1%	1%	1%			
	Single-Unit Trucks	0	6	0	6	8	6	10	0	16	21	15	2	0	17	10	39			
	%	0%	3%	0%	2%	3%	3%	3%	0%	3%	2%	2%	4%	0%	2%	3%	2%			
	Articulated Trucks	0	5	0	5	1	1	6	0	7	9	4	0	0	4	6	16			
	%	0%	2%	0%	2%	0%	0%	2%	0%	1%	1%	0%	0%	0%	0%	2%	1%			
	Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	27	232	1	260	252	204	329	0	533	1034	802	47	0	849	356	1642			
	PHF	0.61	0.89	0.25	0.87	0.86	0.82	0.78	0	0.83	0.91	0.92	0.84	0	0.92	0.83	0.97			
	Approach %				16%	15%				32%	63%				52%	22%				
Peak 2	**Motorcycles**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
12:00 PM - 7:00 PM	**Cars**	46	167	0	213	387	350	597	0	947	472	305	37	0	342	643	1502	E	0	0
One Hour Peak	%	79%	80%	0%	79%	87%	87%	81%	0%	83%	78%	77%	90%	0%	79%	81%	81%		0%	
3:45 PM - 4:45 PM	**Light Goods Vehicles**	12	37	0	49	43	40	112	0	152	103	66	3	0	69	124	270	W	0	0
	%	21%	18%	0%	18%	10%	10%	15%	0%	13%	17%	17%	7%	0%	16%	16%	15%		0%	
	Buses	0	1	0	1	2	2	10	0	12	5	4	0	0	4	10	17		0	0
	%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	1%	0%	0%	1%	1%	1%			
	Single-Unit Trucks	0	3	0	3	8	7	11	0	18	18	15	1	0	16	11	37			
	%	0%	1%	0%	1%	2%	2%	1%	0%	2%	3%	4%	2%	0%	4%	1%	2%			
	Articulated Trucks	0	2	0	2	4	4	10	0	14	6	4	0	0	4	10	20			
	%	0%	1%	0%	1%	1%	1%	1%	0%	1%	1%	1%	0%	0%	1%	1%	1%			
	Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	58	210	0	268	444	403	740	0	1143	604	394	41	0	435	798	1846			
	PHF	0.76	0.86	0	0.88	0.9	0.95	0.91	0	0.95	0.96	0.94	0.6	0	0.95	0.92	0.99			
	Approach %				15%	24%				62%	33%				24%	43%				

MassDOT Highway Division
SPEED SUMMARY
Mon 11/30/2015

STA. 2 EB

Site Reference: 150580000513
Site ID: 000000000203
Location: RTE. 117, BTWN SHIRLEY RD &LUNENBURG RD
Direction: EAST
Lane: 1

File: SPD2-03.prn
City: LANCASTER
County: SPEED EB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
12:00	0	1	0	10	39	190	188	53	2	0	0	0	0	0	483
13:00	0	1	2	6	79	194	166	37	2	0	0	0	0	0	487
14:00	0	0	1	5	75	268	146	22	3	0	0	0	0	0	520
15:00	0	0	2	33	127	249	123	22	2	0	0	0	0	0	558
16:00	1	2	11	75	114	235	139	24	3	1	0	0	0	0	605
17:00	0	0	1	10	84	244	194	38	1	1	0	0	0	0	573
18:00	0	0	0	12	86	310	146	23	3	0	0	0	0	0	580
19:00	0	0	0	1	16	160	158	23	3	0	0	0	0	0	361
20:00	0	0	0	2	18	132	134	27	2	0	0	0	0	0	315
21:00	0	0	0	0	20	110	95	22	0	0	0	0	0	0	247
22:00	0	0	0	0	11	56	73	20	4	0	0	0	0	0	164
23:00	0	0	0	0	5	31	39	19	1	0	0	0	0	0	95
24:00	0	0	0	0	4	15	23	9	3	1	0	0	0	0	55
DAY TOTAL	1	4	17	154	678	2194	1624	339	29	3	0	0	0	0	5043
PERCENTS	0.1%	0.1%	0.4%	3.1%	13.4%	43.5%	32.2%	6.7%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
29.3 mph

85th Percentile Speed
38.8 mph

Median Speed
33.8 mph

Average Speed
33.8 mph

10 MPH Pace Speed
30 mph to 40 mph
3818 vehicles in pace
Representing 75.7% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Tue 12/1/2015

Site Reference: 150580000513
Site ID: 000000000203
Location: RTE. 117, BTWN SHIRLEY RD &LUNENBURG RD
Direction: EAST
Lane: 1

File: SPD2-03.prn
City: LANCASTER
County: SPEED EB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	2	12	8	4	0	0	0	0	0	0	26
02:00	0	0	0	0	1	3	6	2	0	0	0	0	0	0	12
03:00	0	0	0	0	0	4	3	3	2	0	0	1	0	0	13
04:00	0	0	0	0	1	9	13	4	5	0	0	0	0	0	32
05:00	0	0	0	1	2	15	44	29	7	0	0	0	0	0	98
06:00	0	0	0	0	13	140	270	61	2	1	0	0	0	0	487
07:00	22	5	5	9	95	468	279	32	3	0	0	0	0	0	918
08:00	17	25	50	169	315	330	107	8	0	0	0	0	0	0	1021
09:00	0	0	6	39	140	349	229	30	0	0	0	0	0	0	793
10:00	0	0	0	10	34	262	195	45	5	0	0	0	0	0	551
11:00	0	0	0	3	46	217	157	35	0	0	0	0	0	0	458
12:00	0	0	0	2	62	196	169	23	5	0	0	0	0	0	457
13:00	0	0	0	1	63	195	175	29	2	0	0	0	0	0	465
14:00	0	0	0	7	53	224	165	28	0	0	0	0	0	0	477
15:00	1	3	17	53	145	201	101	14	1	0	0	0	0	0	536
16:00	0	0	3	35	140	245	145	34	2	0	0	0	0	0	604
17:00	0	0	0	4	96	294	167	17	0	0	0	0	0	0	578
18:00	0	0	0	11	84	284	136	18	3	0	0	0	0	0	536
19:00	0	0	0	7	46	194	137	23	1	0	0	0	0	0	408
20:00	0	0	0	0	20	156	120	21	0	0	0	0	0	0	317
21:00	0	0	0	0	7	95	91	24	1	0	0	0	0	0	218
22:00	0	0	0	0	9	76	94	20	1	0	0	0	0	0	200
23:00	0	0	0	0	7	42	41	16	3	0	0	0	0	0	109
24:00	0	0	0	0	2	20	19	8	3	0	0	0	0	0	52
DAY TOTAL	40	33	81	351	1383	4031	2871	528	46	1	0	1	0	0	9366
PERCENTS	0.5%	0.4%	0.9%	3.8%	14.8%	43.0%	30.6%	5.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
28.3 mph

85th Percentile Speed
38.6 mph

Median Speed
33.5 mph

Average Speed
33.3 mph

10 MPH Pace Speed
30 mph to 40 mph
6902 vehicles in pace
Representing 73.6% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Wed 12/2/2015

Site Reference: 150580000513
Site ID: 000000000203
Location: RTE. 117, BTWN SHIRLEY RD &LUNENBURG RD
Direction: EAST
Lane: 1

File: SPD2-03.prn
City: LANCASTER
County: SPEED EB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	3	5	6	5	0	0	0	0	0	0	19
02:00	0	0	0	0	1	8	6	3	0	0	0	0	0	0	18
03:00	0	0	0	0	1	4	6	3	1	0	0	0	0	0	15
04:00	0	0	0	0	3	6	9	4	0	0	0	0	0	0	22
05:00	0	0	1	0	3	39	57	11	4	1	1	0	0	0	117
06:00	0	0	0	0	35	206	193	40	1	0	0	0	0	0	475
07:00	2	0	4	28	216	551	205	17	0	0	0	0	0	0	1023
08:00	1	10	21	103	255	418	152	11	0	0	0	0	0	0	971
09:00	0	0	5	61	164	333	165	17	0	0	0	0	0	0	745
10:00	0	0	1	4	78	292	184	34	2	0	0	0	0	0	595
11:00	0	0	0	4	82	223	167	21	1	0	0	0	0	0	498
12:00	0	0	0	2	41	231	194	29	1	0	0	0	0	0	498
13:00	2	0	0	1	44	205	175	45	3	0	0	0	0	0	475
14:00	0	0	0	7	32	236	188	42	1	0	0	0	0	0	506
15:00	0	0	7	61	136	228	139	21	2	0	0	0	0	0	594
16:00	0	0	9	46	117	232	131	17	5	0	0	0	0	0	557
17:00	1	5	2	5	96	291	143	23	1	0	0	0	0	0	567
18:00	0	0	1	7	78	253	166	23	1	0	0	0	0	0	529
19:00	0	0	1	0	45	220	98	14	0	0	0	0	0	0	378
20:00	0	0	0	3	34	139	113	9	3	0	0	0	0	0	301
21:00	0	0	0	0	17	111	83	20	5	1	0	0	0	0	237
22:00	0	0	0	1	13	67	79	12	3	1	0	0	0	0	176
23:00	0	0	0	2	13	42	58	21	3	0	0	0	0	0	139
24:00	0	0	0	0	3	22	17	8	2	0	0	0	0	0	52
DAY TOTAL	6	15	52	335	1510	4362	2734	450	39	3	1	0	0	0	9507
PERCENTS	0.1%	0.2%	0.6%	3.6%	15.9%	45.8%	28.7%	4.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
28.4 mph

85th Percentile Speed
38.3 mph

Median Speed
33.3 mph

Average Speed
33.2 mph

10 MPH Pace Speed
30 mph to 40 mph
7096 vehicles in pace
Representing 74.6% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Thu 12/3/2015

Site Reference: 150580000513
Site ID: 000000000203
Location: RTE. 117, BTWN SHIRLEY RD &LUNENBURG RD
Direction: EAST
Lane: 1

File: SPD2-03.prn
City: LANCASTER
County: SPEED EB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	1	4	7	4	0	0	0	0	0	0	16
02:00	0	0	1	0	1	6	2	6	0	0	0	0	0	0	16
03:00	0	0	0	0	2	11	10	2	1	0	0	0	0	0	26
04:00	0	0	0	1	0	6	12	4	1	1	0	0	0	0	25
05:00	0	0	0	0	4	30	48	20	5	0	0	0	0	0	107
06:00	0	0	0	0	17	165	252	62	9	0	0	0	0	0	505
07:00	0	1	0	21	141	460	330	25	1	0	0	0	0	0	979
08:00	3	7	29	101	251	378	160	30	0	0	0	0	0	0	959
09:00	0	0	13	72	150	261	213	49	2	0	0	0	0	0	760
DAY TOTAL	3	8	43	195	567	1321	1034	202	19	1	0	0	0	0	3393
PERCENTS	0.1%	0.3%	1.3%	5.8%	16.8%	38.9%	30.4%	5.9%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
27.3 mph

85th Percentile Speed
38.6 mph

Median Speed
33.3 mph

Average Speed
33.0 mph

10 MPH Pace Speed
30 mph to 40 mph
2355 vehicles in pace
Representing 69.4% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Mon 11/30/2015

STA 2 WB

Site Reference: 150580000732
Site ID: 000000000204
Location: RTE. 117, BTWN SHIRLEY RD &LUNENBURG RD
Direction: WEST
Lane: 1

File: SPD2-04.prn
City: LANCASTER
County: SPEED WB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
12:00	0	0	1	7	55	209	175	23	2	0	0	0	0	0	472
13:00	0	1	1	7	39	255	173	18	2	0	0	0	0	0	496
14:00	0	0	2	7	93	253	117	7	1	0	0	0	0	0	480
15:00	0	0	1	6	60	412	189	14	1	0	0	0	0	0	683
16:00	10	7	15	44	164	495	199	23	1	0	0	0	0	0	958
17:00	0	0	1	11	196	617	222	11	1	0	0	0	0	0	1059
18:00	0	0	1	19	145	606	257	9	0	0	0	0	0	0	1037
19:00	0	0	0	9	91	442	238	21	1	0	0	0	0	0	802
20:00	0	0	0	2	24	224	150	19	1	0	0	0	0	0	420
21:00	0	0	0	0	14	112	124	18	0	0	0	0	0	0	268
22:00	0	0	0	0	20	69	101	17	0	0	0	0	0	0	207
23:00	0	0	0	6	3	50	68	18	1	0	0	0	0	0	146
24:00	0	0	0	0	3	34	42	14	4	0	0	0	0	0	97
DAY TOTAL	10	8	22	118	907	3778	2055	212	15	0	0	0	0	0	7125
PERCENTS	0.2%	0.2%	0.4%	1.6%	12.7%	53.0%	28.8%	2.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
30.0 mph

85th Percentile Speed
38.0 mph

Median Speed
33.3 mph

Average Speed
33.4 mph

10 MPH Pace Speed
30 mph to 40 mph
5833 vehicles in pace
Representing 81.8% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Tue 12/1/2015

Site Reference: 150580000732
Site ID: 000000000204
Location: RTE. 117, BTWN SHIRLEY RD &LUNENBURG RD
Direction: WEST
Lane: 1

File: SPD2-04.prn
City: LANCASTER
County: SPEED WB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	1	5	28	21	3	0	0	0	0	0	0	58
02:00	0	0	0	0	3	9	7	4	0	0	0	0	0	0	23
03:00	0	0	0	0	4	2	1	2	1	0	0	0	0	0	10
04:00	0	0	0	0	0	5	8	4	1	0	0	0	0	0	18
05:00	0	0	0	1	2	18	28	3	0	0	0	0	0	0	52
06:00	0	0	0	0	10	47	40	16	1	0	0	0	0	0	114
07:00	0	1	0	2	22	112	111	21	1	0	0	0	0	0	270
08:00	1	0	0	23	133	282	139	17	1	0	0	0	0	0	596
09:00	0	0	0	2	67	292	194	17	0	0	0	0	0	0	572
10:00	0	0	1	19	45	226	164	14	0	0	0	0	0	0	469
11:00	0	0	1	7	59	204	140	15	1	0	0	0	0	0	427
12:00	0	0	0	6	65	196	115	19	0	0	0	0	0	0	401
13:00	0	0	0	2	59	268	144	18	1	0	0	0	0	0	492
14:00	1	0	0	12	88	213	130	14	0	0	0	0	0	0	458
15:00	0	0	1	15	147	368	98	11	0	0	0	0	0	0	640
16:00	1	0	1	11	186	509	211	18	0	0	0	0	0	0	937
17:00	0	0	0	39	301	571	151	7	1	0	0	0	0	0	1070
18:00	0	0	0	13	179	619	260	8	0	0	0	0	0	0	1079
19:00	0	0	0	4	90	499	224	23	1	0	0	0	0	0	841
20:00	0	0	0	0	36	256	161	13	0	0	0	0	0	0	466
21:00	0	0	0	1	19	153	107	11	0	0	0	0	0	0	291
22:00	0	0	2	1	19	109	75	10	0	0	0	0	0	0	216
23:00	0	0	0	0	17	76	68	7	0	0	0	0	0	0	168
24:00	0	0	0	1	6	62	47	11	2	0	0	0	0	0	129
DAY TOTAL	3	1	6	160	1562	5124	2644	286	11	0	0	0	0	0	9797
PERCENTS	0.1%	0.1%	0.1%	1.6%	15.9%	52.3%	26.9%	2.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
29.2 mph

85th Percentile Speed
37.8 mph

Median Speed
33.1 mph

Average Speed
33.2 mph

10 MPH Pace Speed
30 mph to 40 mph
7768 vehicles in pace
Representing 79.2% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Wed 12/2/2015

Site Reference: 150580000732
Site ID: 000000000204
Location: RTE. 117, BTWN SHIRLEY RD &LUNENBURG RD
Direction: WEST
Lane: 1

File: SPD2-04.prn
City: LANCASTER
County: SPEED WB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	5	26	13	5	0	0	0	0	0	0	49
02:00	0	0	0	0	3	4	8	2	0	0	0	0	0	0	17
03:00	0	0	0	0	1	1	6	2	1	0	0	0	0	0	11
04:00	0	0	0	0	0	4	6	0	1	0	0	0	0	0	11
05:00	0	0	0	0	7	15	12	5	1	0	0	0	0	0	40
06:00	0	0	0	1	10	50	47	8	2	0	0	0	0	0	118
07:00	0	0	1	6	37	125	108	21	1	0	0	0	0	0	299
08:00	0	0	1	7	87	219	170	29	2	0	0	0	0	0	515
09:00	0	0	0	2	71	317	174	23	0	0	0	0	0	0	587
10:00	0	0	1	7	66	268	134	20	1	0	0	0	0	0	497
11:00	0	1	0	6	51	229	159	17	2	0	0	0	0	0	465
12:00	1	1	1	14	82	215	121	11	0	0	0	0	0	0	446
13:00	0	0	1	6	52	253	168	12	3	0	0	0	0	0	495
14:00	0	1	0	1	67	229	169	15	2	0	0	0	0	0	484
15:00	0	0	0	14	155	352	147	6	1	0	0	0	0	0	675
16:00	5	15	38	41	181	490	176	14	0	1	0	0	0	0	961
17:00	0	0	0	52	372	571	103	2	0	0	0	0	0	0	1100
18:00	0	0	3	24	276	655	112	6	0	0	0	0	0	0	1076
19:00	0	0	2	7	116	474	222	17	0	0	0	0	0	0	838
20:00	0	0	0	6	46	311	142	10	0	0	0	0	0	0	515
21:00	0	0	1	5	20	180	116	16	0	0	0	0	0	0	338
22:00	0	0	0	3	11	102	73	14	0	0	0	0	0	0	203
23:00	0	0	0	0	12	65	74	11	1	0	0	0	0	0	163
24:00	0	0	0	0	7	40	55	22	0	0	0	0	0	0	124
DAY TOTAL	6	18	49	202	1735	5195	2515	288	18	1	0	0	0	0	10027
PERCENTS	0.1%	0.2%	0.5%	2.1%	17.4%	51.8%	25.0%	2.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
28.6 mph

85th Percentile Speed
37.6 mph

Median Speed
32.9 mph

Average Speed
32.9 mph

10 MPH Pace Speed
30 mph to 40 mph
7710 vehicles in pace
Representing 76.8% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Thu 12/3/2015

Site Reference: 150580000732
Site ID: 000000000204
Location: RTE. 117, BTWN SHIRLEY RD &LUNENBURG RD
Direction: WEST
Lane: 1

File: SPD2-04.prn
City: LANCASTER
County: SPEED WB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	2	32	17	3	2	0	0	0	0	0	56
02:00	0	0	0	1	1	7	6	1	2	1	0	0	0	0	19
03:00	0	0	0	0	2	5	8	2	0	0	0	0	0	0	17
04:00	0	0	0	0	0	8	4	3	0	0	0	0	0	0	15
05:00	0	0	0	1	4	16	16	4	1	0	0	0	0	0	42
06:00	0	0	0	0	13	49	50	10	0	0	0	0	0	0	122
07:00	0	0	0	3	42	144	114	8	0	0	0	0	0	0	311
08:00	0	0	1	44	111	265	134	13	0	0	0	0	0	0	568
09:00	0	0	1	13	71	291	196	16	2	0	0	0	0	0	590
DAY TOTAL	0	0	2	62	246	817	545	60	7	1	0	0	0	0	1740
PERCENTS	0.0%	0.0%	0.2%	3.6%	14.2%	46.9%	31.3%	3.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
29.0 mph

85th Percentile Speed
38.2 mph

Median Speed
33.4 mph

Average Speed
33.4 mph

10 MPH Pace Speed
30 mph to 40 mph
1362 vehicles in pace
Representing 78.2% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Mon 11/30/2015

STA. 3 EB

Site Reference: 150580000423
Site ID: 000000000303
Location: RTE. 117, W. OF RTE. 70 (LUNENBURG RD.)
Direction: EAST
Lane: 1

File: SPD3-03.prn
City: LANCASTER
County: SPEED EB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
11:00	0	0	1	0	21	94	132	69	2	0	0	0	0	0	319
12:00	1	0	0	6	15	83	135	67	6	0	0	0	0	0	313
13:00	1	2	0	6	23	83	122	58	3	0	0	0	0	0	298
14:00	0	0	1	0	25	114	159	44	3	1	0	0	0	0	347
15:00	0	0	0	0	17	118	162	60	4	0	0	0	0	0	361
16:00	1	0	0	4	17	144	187	62	6	1	0	0	0	0	422
17:00	0	1	1	7	28	130	202	49	4	1	0	0	0	0	423
18:00	0	2	0	1	19	132	217	50	2	0	0	0	0	0	423
19:00	0	0	0	0	5	60	127	51	5	0	0	0	0	0	248
20:00	0	0	0	0	4	31	73	45	7	0	1	0	0	0	161
21:00	0	0	0	0	3	35	52	37	7	1	0	0	0	0	135
22:00	0	0	0	0	0	15	42	16	7	0	1	0	0	0	81
23:00	0	0	0	0	1	11	20	24	5	0	0	0	0	0	61
24:00	0	0	0	0	1	3	10	6	5	1	1	0	0	0	27
DAY TOTAL	3	5	3	24	179	1053	1640	638	66	5	3	0	0	0	3619
PERCENTS	0.1%	0.2%	0.1%	0.7%	5.0%	29.1%	45.3%	17.6%	1.8%	0.1%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
31.6 mph

85th Percentile Speed
41.3 mph

Median Speed
36.7 mph

Average Speed
36.5 mph

10 MPH Pace Speed
30 mph to 40 mph
2693 vehicles in pace
Representing 74.4% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Tue 12/1/2015

Site Reference: 150580000423
Site ID: 000000000303
Location: RTE. 117, W. OF RTE. 70 (LUNENBURG RD.)
Direction: EAST
Lane: 1

File: SPD3-03.prn
City: LANCASTER
County: SPEED EB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	1	3	6	4	1	0	0	0	0	0	15
02:00	0	0	0	0	0	2	2	1	0	0	0	0	0	0	5
03:00	0	0	0	0	0	2	1	5	0	1	0	1	0	0	10
04:00	0	0	0	0	1	1	9	6	4	1	0	0	0	0	22
05:00	0	0	2	0	3	10	20	20	10	1	2	0	0	0	68
06:00	0	0	0	0	5	57	162	92	7	2	1	0	0	0	326
07:00	4	4	1	9	47	221	327	81	5	0	0	0	0	0	699
08:00	51	61	51	105	67	153	264	62	8	1	0	0	0	0	823
09:00	0	0	2	14	47	147	296	66	4	0	0	0	0	0	576
10:00	1	5	1	2	28	125	137	57	5	0	0	0	0	0	361
11:00	1	1	0	5	22	107	122	35	4	0	0	0	0	0	297
12:00	1	1	0	9	37	94	109	30	1	0	0	0	0	0	282
13:00	0	0	1	3	23	95	121	35	3	0	0	0	0	0	281
14:00	1	0	0	0	21	114	132	26	5	0	0	0	0	0	299
15:00	0	0	0	2	49	133	139	34	4	1	0	0	0	0	362
16:00	2	1	5	0	40	141	175	41	5	0	0	0	0	0	410
17:00	0	1	10	3	28	158	190	31	0	0	0	0	0	0	421
18:00	1	0	0	1	31	158	150	40	0	0	0	0	0	0	381
19:00	2	1	0	2	9	95	117	39	2	0	0	0	0	0	267
20:00	0	1	0	0	8	64	67	19	3	0	0	0	0	0	162
21:00	0	0	0	0	8	42	57	17	1	0	0	0	0	0	125
22:00	0	0	0	0	7	40	55	11	0	0	0	0	0	0	113
23:00	0	0	0	2	3	22	26	17	3	2	0	0	0	0	75
24:00	0	0	0	1	1	15	7	4	1	0	0	0	0	0	29
DAY TOTAL	64	76	73	158	486	1999	2691	773	76	9	3	1	0	0	6409
PERCENTS	1.0%	1.2%	1.2%	2.5%	7.6%	31.2%	42.0%	12.1%	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
30.3 mph

85th Percentile Speed
39.8 mph

Median Speed
35.7 mph

Average Speed
34.7 mph

10 MPH Pace Speed
30 mph to 40 mph
4690 vehicles in pace
Representing 73.1% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Wed 12/2/2015

Site Reference: 150580000423
Site ID: 000000000303
Location: RTE. 117, W. OF RTE. 70 (LUNENBURG RD.)
Direction: EAST
Lane: 1

File: SPD3-03.prn
City: LANCASTER
County: SPEED EB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	0	4	4	4	0	0	0	0	0	0	12
02:00	0	1	0	0	0	1	6	1	0	0	0	0	0	0	9
03:00	0	0	0	0	1	3	1	3	1	0	0	0	0	0	9
04:00	0	0	0	0	0	2	4	5	0	0	0	0	0	0	11
05:00	0	2	0	0	2	15	40	14	4	0	0	1	0	0	78
06:00	0	0	0	0	10	71	163	54	10	0	0	0	0	0	308
07:00	0	1	0	6	59	246	381	64	5	0	0	0	0	0	762
08:00	3	2	7	4	32	286	409	86	6	1	0	0	0	0	836
09:00	2	0	1	12	55	188	218	65	4	0	0	0	0	0	545
10:00	1	0	0	5	27	175	157	39	4	0	0	0	0	0	408
11:00	2	0	0	0	30	100	142	48	2	0	0	0	0	0	324
12:00	0	0	0	4	19	113	142	40	2	0	0	0	0	0	320
13:00	0	0	0	0	9	95	128	45	5	0	0	0	0	0	282
14:00	0	1	0	1	6	114	145	46	2	0	0	0	0	0	315
15:00	1	0	0	6	21	110	187	61	8	0	0	0	0	0	394
16:00	0	0	1	11	60	150	137	30	3	0	0	0	0	0	392
17:00	1	0	1	2	25	143	189	45	1	0	0	0	0	0	407
18:00	0	0	0	1	35	146	149	29	2	0	0	0	0	0	362
19:00	2	0	1	6	19	93	104	20	1	0	0	0	0	0	246
20:00	0	0	0	0	6	68	83	28	6	0	0	0	0	0	191
21:00	0	0	0	2	8	43	68	26	3	0	0	0	0	0	150
22:00	0	0	0	0	2	16	42	15	9	1	0	0	0	0	85
23:00	0	0	0	0	1	19	42	14	4	0	0	0	0	0	80
24:00	0	0	0	0	0	7	14	4	2	0	0	0	0	0	27
DAY TOTAL	12	7	11	60	427	2208	2955	786	84	2	0	1	0	0	6553
PERCENTS	0.2%	0.2%	0.2%	1.0%	6.6%	33.7%	45.0%	11.9%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
31.1 mph

85th Percentile Speed
39.8 mph

Median Speed
35.9 mph

Average Speed
35.7 mph

10 MPH Pace Speed
30 mph to 40 mph
5163 vehicles in pace
Representing 78.7% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Thu 12/3/2015

Site Reference: 150580000423
Site ID: 000000000303
Location: RTE. 117, W. OF RTE. 70 (LUNENBURG RD.)
Direction: EAST
Lane: 1

File: SPD3-03.prn
City: LANCASTER
County: SPEED EB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	0	3	1	2	1	0	0	0	0	0	7
02:00	0	0	0	0	0	3	5	3	0	0	0	0	0	0	11
03:00	0	0	0	0	0	4	6	6	0	1	0	0	0	0	17
04:00	0	0	0	0	0	3	6	2	1	0	0	0	0	0	12
05:00	0	0	0	0	0	18	30	16	5	0	0	0	0	0	69
06:00	0	0	0	1	14	78	163	70	7	1	0	0	0	0	334
07:00	1	0	4	11	99	267	289	68	4	0	0	0	0	0	743
08:00	5	3	3	16	56	293	337	75	4	0	0	0	0	0	792
09:00	2	10	19	45	33	94	203	137	17	1	0	0	0	0	561
DAY TOTAL	8	13	26	73	202	763	1040	379	39	3	0	0	0	0	2546
PERCENTS	0.4%	0.6%	1.1%	2.9%	7.9%	29.9%	40.8%	14.8%	1.5%	0.1%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
30.4 mph

85th Percentile Speed
40.5 mph

Median Speed
35.9 mph

Average Speed
35.3 mph

10 MPH Pace Speed
30 mph to 40 mph
1803 vehicles in pace
Representing 70.8% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Mon 11/30/2015

STA 3 WB

Site Reference: 150580000429
Site ID: 000000000304
Location: RTE. 117, W. OF RTE. 70 (LUNENBURG RD.)
Direction: WEST
Lane: 1

File: SPD3-04.prn
City: LANCASTER
County: SPEED WB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
11:00	0	0	0	2	9	91	154	67	5	1	0	0	0	0	329
12:00	1	2	1	6	7	84	137	67	6	0	0	0	0	0	311
13:00	0	0	2	2	19	110	159	57	5	0	0	0	0	0	354
14:00	4	0	2	1	16	79	178	53	5	0	0	0	0	0	338
15:00	3	1	4	1	7	109	246	94	7	0	0	0	0	0	472
16:00	0	1	4	0	23	185	372	131	7	0	0	0	0	0	723
17:00	0	1	0	0	9	180	413	127	14	0	0	0	0	0	744
18:00	0	0	0	4	17	133	414	134	15	0	0	0	0	0	717
19:00	0	0	0	1	8	91	316	110	10	0	0	0	0	0	536
20:00	0	1	1	0	0	47	157	88	6	2	0	0	0	0	302
21:00	0	0	0	0	5	34	114	47	2	0	0	0	0	0	202
22:00	0	0	0	0	0	14	73	43	6	0	0	0	0	0	136
23:00	0	0	0	0	3	25	30	29	6	0	0	0	0	0	93
24:00	0	0	0	0	2	10	32	17	7	2	1	0	0	0	71
DAY TOTAL	8	6	14	17	125	1192	2795	1064	101	5	1	0	0	0	5328
PERCENTS	0.2%	0.2%	0.3%	0.4%	2.4%	22.4%	52.4%	19.9%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
32.6 mph

85th Percentile Speed
41.8 mph

Median Speed
37.3 mph

Average Speed
37.2 mph

10 MPH Pace Speed
30 mph to 40 mph
3987 vehicles in pace
Representing 74.8% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Tue 12/1/2015

Site Reference: 150580000429
Site ID: 000000000304
Location: RTE. 117, W. OF RTE. 70 (LUNENBURG RD.)
Direction: WEST
Lane: 1

File: SPD3-04.prn
City: LANCASTER
County: SPEED WB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	2	10	13	6	3	1	0	0	0	0	35
02:00	0	0	0	0	0	3	9	4	3	0	1	0	0	0	20
03:00	0	0	0	0	0	3	3	2	2	0	0	0	0	0	10
04:00	0	0	0	0	0	0	6	3	0	0	0	0	0	0	9
05:00	0	0	0	0	0	4	18	11	1	0	0	0	0	0	34
06:00	0	0	0	0	2	11	34	19	3	0	0	0	0	0	69
07:00	1	0	0	0	1	42	86	42	6	0	0	0	0	0	178
08:00	0	1	0	5	52	166	183	55	7	0	0	0	0	0	469
09:00	3	0	0	1	18	118	196	48	3	0	0	0	0	0	387
10:00	0	1	0	0	7	106	171	35	3	1	0	0	0	0	324
11:00	0	0	1	1	36	116	132	26	1	0	0	0	0	0	313
12:00	0	0	0	1	11	103	118	35	0	0	0	0	0	0	268
13:00	0	0	1	0	27	101	161	46	2	1	0	0	0	0	339
14:00	0	0	0	1	22	121	125	45	5	1	0	0	0	0	320
15:00	0	0	0	2	23	161	223	55	3	0	0	0	0	0	467
16:00	3	1	3	4	14	180	343	114	9	0	0	0	0	0	671
17:00	0	0	2	2	25	283	359	81	5	1	0	0	0	0	758
18:00	0	0	0	2	29	238	398	95	5	0	0	0	0	0	767
19:00	0	0	2	0	2	111	364	105	6	0	0	0	0	0	590
20:00	0	1	2	1	5	81	149	73	4	0	0	0	0	0	316
21:00	0	0	0	0	0	58	99	45	2	0	0	0	0	0	204
22:00	0	0	0	0	3	48	74	21	5	0	0	0	0	0	151
23:00	0	0	0	0	5	33	53	28	2	0	0	0	0	0	121
24:00	0	0	0	0	1	18	47	25	4	0	0	0	0	0	95
DAY TOTAL	7	4	11	20	285	2115	3364	1019	84	5	1	0	0	0	6915
PERCENTS	0.2%	0.1%	0.2%	0.3%	4.2%	30.5%	48.6%	14.7%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
31.7 mph

85th Percentile Speed
40.4 mph

Median Speed
36.5 mph

Average Speed
36.3 mph

10 MPH Pace Speed
30 mph to 40 mph
5479 vehicles in pace
Representing 79.2% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Wed 12/2/2015

Site Reference: 150580000429
Site ID: 000000000304
Location: RTE. 117, W. OF RTE. 70 (LUNENBURG RD.)
Direction: WEST
Lane: 1

File: SPD3-04.prn
City: LANCASTER
County: SPEED WB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	4	13	10	9	0	0	0	0	0	0	36
02:00	0	0	0	0	0	3	3	4	0	0	0	0	0	0	10
03:00	0	0	0	0	1	0	3	4	3	0	0	0	0	0	11
04:00	0	0	0	0	0	0	4	2	0	0	0	0	0	0	6
05:00	0	0	0	0	2	5	15	8	2	0	0	0	0	0	32
06:00	0	0	0	0	2	17	30	12	3	0	0	0	0	0	64
07:00	0	0	0	1	5	70	91	23	3	0	0	0	0	0	193
08:00	0	0	0	2	13	106	164	65	5	0	0	0	0	0	355
09:00	2	2	1	1	11	118	201	61	4	0	1	0	0	0	402
10:00	0	0	0	0	17	103	169	42	6	0	0	0	0	0	337
11:00	0	1	0	0	7	99	158	49	4	2	0	0	0	0	320
12:00	0	0	2	2	15	100	150	51	4	0	0	0	0	0	324
13:00	0	0	0	0	19	88	163	61	4	0	0	0	0	0	335
14:00	0	1	0	1	17	115	140	56	4	0	0	0	0	0	334
15:00	0	0	0	1	10	119	276	67	5	0	0	0	0	0	478
16:00	4	1	4	22	93	305	211	50	5	1	0	0	0	0	696
17:00	0	2	1	5	39	286	351	88	7	0	0	0	0	0	779
18:00	0	0	2	7	20	242	366	88	5	2	0	0	0	0	732
19:00	0	0	0	2	20	146	316	93	4	0	0	0	0	0	581
20:00	0	0	0	0	9	89	218	62	4	0	0	0	0	0	382
21:00	0	0	0	0	3	43	143	47	4	0	0	0	0	0	240
22:00	0	0	0	0	3	33	64	34	4	0	0	0	0	0	138
23:00	0	0	0	0	1	20	69	27	7	0	0	0	0	0	124
24:00	0	0	0	0	5	23	36	21	8	0	0	0	0	0	93
DAY TOTAL	6	7	10	44	316	2143	3351	1024	95	5	1	0	0	0	7002
PERCENTS	0.1%	0.1%	0.2%	0.7%	4.6%	30.6%	47.8%	14.6%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
31.6 mph

85th Percentile Speed
40.4 mph

Median Speed
36.5 mph

Average Speed
36.2 mph

10 MPH Pace Speed
30 mph to 40 mph
5494 vehicles in pace
Representing 78.4% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Thu 12/3/2015

Site Reference: 150580000429
Site ID: 000000000304
Location: RTE. 117, W. OF RTE. 70 (LUNENBURG RD.)
Direction: WEST
Lane: 1

File: SPD3-04.prn
City: LANCASTER
County: SPEED WB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	0	10	18	5	2	0	0	0	0	0	35
02:00	0	0	0	0	0	0	2	4	0	2	0	0	0	0	8
03:00	0	0	0	0	1	6	3	1	2	0	0	0	0	0	13
04:00	0	0	0	0	0	3	6	3	1	0	0	0	0	0	13
05:00	0	0	0	0	3	4	15	5	7	0	1	0	0	0	35
06:00	0	0	0	0	0	9	39	12	3	0	0	0	0	0	63
07:00	0	1	1	0	12	57	99	30	4	1	0	0	0	0	205
08:00	1	0	1	6	25	134	180	58	9	0	0	0	0	0	414
09:00	1	0	0	1	16	135	209	58	3	0	0	0	0	0	423
DAY TOTAL	2	1	2	7	57	358	571	176	31	3	1	0	0	0	1209
PERCENTS	0.2%	0.1%	0.2%	0.6%	4.8%	29.7%	47.2%	14.5%	2.5%	0.2%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
31.6 mph

85th Percentile Speed
40.9 mph

Median Speed
36.6 mph

Average Speed
36.4 mph

10 MPH Pace Speed
30 mph to 40 mph
929 vehicles in pace
Representing 76.8% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Mon 11/30/2015

STA 5 NB

Site Reference: 150580000497
Site ID: 000000000501
Location: RTE. 70 (LUNENBURG RD.) N. OF RTE. 117
Direction: NORTH
Lane: 1

File: SPD5-01.prn
City: LANCASTER
County: SPEED NB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
12:00	0	0	0	0	11	23	80	67	16	1	0	0	0	0	198
13:00	0	0	0	0	1	10	89	68	21	2	1	0	0	0	192
14:00	0	0	0	0	4	19	81	69	22	2	0	0	0	0	197
15:00	0	0	0	0	7	28	108	87	35	9	0	0	0	0	274
16:00	0	0	0	1	6	24	133	171	56	6	1	0	0	0	398
17:00	0	0	0	2	11	33	149	173	56	7	0	2	0	0	433
18:00	0	0	0	0	1	21	175	176	39	7	1	0	0	0	420
19:00	0	0	0	0	0	31	108	120	31	3	1	0	0	0	294
20:00	0	0	0	0	0	16	52	55	14	4	1	0	0	0	142
21:00	0	0	0	0	1	10	50	21	13	1	0	0	0	0	96
22:00	0	0	0	0	6	7	33	26	12	1	0	0	0	0	85
23:00	0	0	0	0	2	4	21	20	10	0	0	1	0	0	58
24:00	0	0	0	0	0	2	11	10	4	2	0	0	0	0	29
DAY TOTAL	0	0	0	3	50	228	1090	1063	329	45	5	3	0	0	2816
PERCENTS	0.0%	0.0%	0.0%	0.2%	1.8%	8.1%	38.8%	37.8%	11.6%	1.5%	0.1%	0.1%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
35.7 mph

85th Percentile Speed
44.8 mph

Median Speed
40.2 mph

Average Speed
40.3 mph

10 MPH Pace Speed
35 mph to 45 mph
2153 vehicles in pace
Representing 76.4% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Tue 12/1/2015

Site Reference: 150580000497
Site ID: 000000000501
Location: RTE. 70 (LUNENBURG RD.) N. OF RTE. 117
Direction: NORTH
Lane: 1

File: SPD5-01.prn
City: LANCASTER
County: SPEED NB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	0	2	8	9	2	0	0	0	0	0	21
02:00	0	0	0	0	0	3	4	0	1	0	0	0	0	0	8
03:00	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
04:00	0	0	0	0	1	0	3	1	0	2	0	1	0	0	8
05:00	0	0	0	0	1	5	10	6	0	0	0	0	0	0	22
06:00	0	0	0	0	0	6	30	22	12	1	0	0	0	0	71
07:00	0	0	0	0	0	22	35	59	22	6	1	0	0	0	145
08:00	0	0	0	0	2	19	92	109	37	1	1	0	0	0	261
09:00	0	0	0	0	2	16	80	103	41	2	0	1	0	0	245
10:00	0	0	0	0	4	22	89	66	19	2	0	0	0	0	202
11:00	0	0	0	0	3	21	61	56	19	2	0	0	0	0	162
12:00	0	0	0	0	7	25	65	70	11	3	0	0	0	0	181
13:00	0	0	0	1	4	25	82	69	22	3	0	0	0	0	206
14:00	0	0	0	0	3	25	86	68	17	3	0	0	0	0	202
15:00	0	0	0	1	11	20	100	99	22	4	1	0	0	0	258
16:00	0	0	0	0	1	36	137	153	51	5	1	0	0	0	384
17:00	0	0	2	4	4	42	182	152	33	2	1	0	0	0	422
18:00	0	0	0	0	3	42	173	172	39	8	0	0	0	0	437
19:00	0	0	0	0	1	27	119	97	41	1	0	0	0	0	286
20:00	0	0	0	0	5	26	82	54	15	3	1	0	0	0	186
21:00	0	0	0	0	1	20	45	36	14	2	0	0	0	0	118
22:00	0	0	0	0	2	12	41	24	4	1	0	0	0	0	84
23:00	0	0	0	0	2	6	22	27	10	1	1	0	0	0	69
24:00	0	0	0	0	0	3	7	19	6	1	0	0	0	0	36
DAY TOTAL	0	0	2	6	57	426	1554	1471	438	53	7	2	0	0	4016
PERCENTS	0.0%	0.0%	0.1%	0.2%	1.5%	10.7%	38.6%	36.6%	10.9%	1.3%	0.1%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
35.4 mph

85th Percentile Speed
44.7 mph

Median Speed
39.9 mph

Average Speed
40.0 mph

10 MPH Pace Speed
35 mph to 45 mph
3025 vehicles in pace
Representing 75.3% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Wed 12/2/2015

Site Reference: 150580000497
Site ID: 000000000501
Location: RTE. 70 (LUNENBURG RD.) N. OF RTE. 117
Direction: NORTH
Lane: 1

File: SPD5-01.prn
City: LANCASTER
County: SPEED NB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	3	0	6	9	1	0	0	0	0	0	19
02:00	0	0	0	0	0	0	3	3	1	0	0	0	0	0	7
03:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
04:00	0	0	0	0	0	1	2	2	0	0	0	1	0	0	6
05:00	0	0	0	0	0	5	6	4	0	0	0	0	0	0	15
06:00	0	0	0	0	1	7	31	21	5	1	0	0	0	0	66
07:00	0	0	0	0	3	24	73	60	11	2	0	0	0	0	173
08:00	0	0	0	0	1	21	71	109	37	5	1	0	0	0	245
09:00	3	0	3	5	28	74	82	39	4	1	0	0	0	0	239
10:00	0	0	1	2	23	59	87	27	11	1	0	0	0	0	211
11:00	0	0	0	3	4	19	79	59	13	1	1	0	0	0	179
12:00	0	0	0	0	6	23	75	58	18	2	0	0	0	0	182
13:00	0	0	0	2	7	29	78	60	15	3	0	0	0	0	194
14:00	0	0	0	0	7	28	74	69	17	0	0	0	0	0	195
15:00	0	0	0	0	2	27	113	97	32	3	0	0	0	0	274
16:00	0	0	0	0	6	23	147	156	51	3	1	0	0	0	387
17:00	0	0	0	0	1	27	192	172	38	2	0	0	0	0	432
18:00	0	0	0	0	2	45	205	155	29	8	1	0	0	0	445
19:00	0	0	0	0	1	16	125	118	36	3	1	0	0	0	300
20:00	0	0	0	0	2	4	80	64	22	2	0	0	0	0	174
21:00	0	0	0	0	3	12	51	36	12	0	0	0	0	0	114
22:00	0	0	0	0	0	5	28	33	8	0	1	0	0	0	75
23:00	0	0	0	0	0	6	15	17	12	0	0	0	0	0	50
24:00	0	0	0	0	0	3	6	15	4	0	0	0	0	0	28
DAY TOTAL	3	0	4	12	101	459	1629	1383	377	37	6	1	0	0	4012
PERCENTS	0.1%	0.0%	0.1%	0.3%	2.6%	11.5%	40.7%	34.4%	9.3%	0.9%	0.1%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
35.1 mph

85th Percentile Speed
44.4 mph

Median Speed
39.4 mph

Average Speed
39.4 mph

10 MPH Pace Speed
35 mph to 45 mph
3012 vehicles in pace
Representing 75.0% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Thu 12/3/2015

Site Reference: 150580000497
Site ID: 000000000501
Location: RTE. 70 (LUNENBURG RD.) N. OF RTE. 117
Direction: NORTH
Lane: 1

File: SPD5-01.prn
City: LANCASTER
County: SPEED NB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	1	0	0	1	2	14	5	1	0	0	0	0	0	24
02:00	0	0	0	0	0	1	6	4	1	0	0	0	0	0	12
03:00	0	0	0	0	0	1	4	1	0	1	0	0	0	0	7
04:00	0	0	0	0	0	0	0	2	0	0	1	0	0	0	3
05:00	0	0	0	0	0	5	10	1	0	0	0	0	0	0	16
06:00	0	0	0	0	1	12	33	21	6	0	0	0	0	0	73
07:00	0	0	0	0	0	16	61	67	14	2	0	0	0	0	160
08:00	0	0	0	0	3	11	94	96	39	3	0	0	0	0	246
09:00	0	0	1	0	3	21	80	104	33	3	0	0	0	0	245
DAY TOTAL	0	1	1	0	8	69	302	301	94	9	1	0	0	0	786
PERCENTS	0.0%	0.2%	0.2%	0.0%	1.1%	8.8%	38.4%	38.2%	11.9%	1.1%	0.1%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
35.7 mph

85th Percentile Speed
44.8 mph

Median Speed
40.2 mph

Average Speed
40.2 mph

10 MPH Pace Speed
35 mph to 45 mph
603 vehicles in pace
Representing 76.7% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Mon 11/30/2015

STA. 5 SB

Site Reference: 150580000832
Site ID: 000000000502
Location: RTE. 70 (LUNENBURG RD.) N. OF RTE. 117
Direction: SOUTH
Lane: 1

File: SPD5-02.prn
City: LANCASTER
County: SPEED SB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
12:00	0	0	0	0	3	19	61	89	44	9	0	0	0	0	225
13:00	0	0	0	1	6	44	89	64	19	4	0	0	0	0	227
14:00	0	0	0	0	13	29	79	91	13	0	0	0	0	0	225
15:00	0	0	6	6	15	55	86	67	17	1	0	0	0	0	253
16:00	2	6	10	9	37	81	78	49	10	0	1	0	0	0	283
17:00	0	0	1	4	25	64	98	49	10	2	0	0	0	0	253
18:00	0	0	0	4	14	81	84	45	9	0	0	0	0	0	237
19:00	0	0	1	2	3	26	52	52	18	1	0	0	0	0	155
20:00	0	0	0	1	9	34	58	59	16	3	0	0	0	0	180
21:00	0	0	2	2	4	12	45	49	15	2	0	0	0	0	131
22:00	0	0	0	0	1	4	19	45	21	3	0	0	0	0	93
23:00	0	0	0	1	3	1	14	12	10	2	1	0	0	0	44
24:00	0	0	0	0	0	1	10	10	6	1	1	0	0	0	29
DAY TOTAL	2	6	20	30	133	451	773	681	208	28	3	0	0	0	2335
PERCENTS	0.1%	0.3%	0.9%	1.3%	5.7%	19.4%	33.1%	29.1%	8.9%	1.1%	0.1%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
31.8 mph

85th Percentile Speed
44.2 mph

Median Speed
38.4 mph

Average Speed
38.1 mph

10 MPH Pace Speed
35 mph to 45 mph
1454 vehicles in pace
Representing 62.2% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Tue 12/1/2015

Site Reference: 150580000832
Site ID: 000000000502
Location: RTE. 70 (LUNENBURG RD.) N. OF RTE. 117
Direction: SOUTH
Lane: 1

File: SPD5-02.prn
City: LANCASTER
County: SPEED SB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	0	1	4	2	3	0	0	0	0	0	10
02:00	0	0	0	0	1	3	2	4	2	0	0	0	0	0	12
03:00	0	0	0	0	0	1	2	2	0	0	0	0	0	0	5
04:00	0	0	0	0	0	0	5	3	2	1	0	0	0	0	11
05:00	0	0	0	0	0	1	6	15	10	4	0	0	0	0	36
06:00	0	0	0	0	0	15	81	65	22	5	0	0	0	0	188
07:00	10	2	6	7	46	99	108	41	8	0	0	0	0	0	327
08:00	166	1	6	8	15	38	31	24	2	1	0	0	0	0	292
09:00	8	2	7	18	34	53	63	51	11	0	0	0	0	0	247
10:00	1	0	0	0	2	39	74	75	25	3	0	0	0	0	219
11:00	0	0	0	4	15	45	59	61	22	2	0	0	0	0	208
12:00	2	0	0	3	16	32	72	71	23	2	0	0	0	0	221
13:00	0	0	2	6	15	41	72	77	11	1	1	0	0	0	226
14:00	0	0	0	1	11	64	98	29	21	0	0	0	0	0	224
15:00	0	0	1	7	23	73	105	53	6	0	0	0	0	0	268
16:00	25	5	2	10	22	49	103	72	14	0	0	0	0	0	302
17:00	45	20	9	15	37	63	58	21	3	0	0	0	0	0	271
18:00	23	5	24	23	31	58	61	25	5	3	1	0	0	0	259
19:00	0	0	0	4	8	43	66	58	11	0	0	0	0	0	190
20:00	0	0	0	1	15	50	79	32	11	2	0	0	0	0	190
21:00	0	0	0	0	7	33	40	27	7	2	0	0	0	1	117
22:00	0	0	0	0	0	13	48	30	11	1	0	0	0	0	103
23:00	0	0	0	0	0	5	17	12	10	0	0	0	0	0	44
24:00	0	0	0	0	2	5	6	7	10	2	0	0	0	0	32
DAY TOTAL	280	35	57	107	300	824	1260	857	250	29	2	0	0	1	4002
PERCENTS	7.0%	0.9%	1.5%	2.7%	7.5%	20.6%	31.5%	21.4%	6.2%	0.7%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
27.0 mph

85th Percentile Speed
43.2 mph

Median Speed
36.6 mph

Average Speed
34.4 mph

10 MPH Pace Speed
35 mph to 45 mph
2117 vehicles in pace
Representing 52.8% of the total vehicles

Vehicles > 65 MPH
1
0.0%

MassDOT Highway Division
SPEED SUMMARY
Wed 12/2/2015

Site Reference: 150580000832
Site ID: 000000000502
Location: RTE. 70 (LUNENBURG RD.) N. OF RTE. 117
Direction: SOUTH
Lane: 1

File: SPD5-02.prn
City: LANCASTER
County: SPEED SB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	0	2	2	5	3	0	0	0	0	0	12
02:00	0	0	0	0	0	4	3	4	1	0	0	0	0	0	12
03:00	0	0	0	0	0	2	1	2	0	0	0	0	0	0	5
04:00	0	0	0	0	0	3	6	3	0	0	0	0	0	0	12
05:00	0	0	0	0	2	2	13	16	6	3	0	0	0	0	42
06:00	0	0	0	1	19	33	70	43	10	5	0	0	0	0	181
07:00	161	14	10	20	24	38	42	33	3	0	0	0	0	0	345
08:00	5	0	1	7	25	65	85	54	9	0	0	0	0	0	251
09:00	3	0	8	25	91	133	104	40	6	0	0	0	0	0	410
10:00	3	3	0	10	40	104	110	35	3	0	0	0	0	0	308
11:00	0	0	0	3	22	48	48	52	21	4	0	0	0	0	198
12:00	0	0	0	0	15	49	86	58	16	1	1	0	0	0	226
13:00	0	0	0	3	5	34	93	75	17	3	0	0	0	0	230
14:00	0	0	2	3	8	29	99	67	18	3	0	0	0	0	229
15:00	0	0	0	7	14	49	124	67	14	0	1	0	0	0	276
16:00	0	0	3	14	22	85	86	60	5	0	0	0	0	0	275
17:00	0	0	1	13	55	71	66	37	3	0	0	0	0	0	246
18:00	0	0	0	7	40	57	76	49	8	1	0	0	0	0	238
19:00	0	0	0	3	7	54	73	42	6	2	1	0	0	0	188
20:00	0	0	0	1	8	26	58	39	13	2	0	0	0	0	147
21:00	0	0	0	0	4	19	38	32	10	2	0	0	0	0	105
22:00	0	0	0	1	1	7	36	41	13	2	0	1	0	0	102
23:00	0	0	0	5	4	4	23	16	8	1	0	0	0	0	61
24:00	0	0	0	0	0	2	7	11	9	0	0	0	0	0	29
DAY TOTAL	172	17	25	123	406	920	1349	881	202	29	3	1	0	0	4128
PERCENTS	4.2%	0.5%	0.7%	3.0%	9.9%	22.3%	32.6%	21.3%	4.8%	0.7%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
28.5 mph

85th Percentile Speed
42.8 mph

Median Speed
36.5 mph

Average Speed
35.1 mph

10 MPH Pace Speed
30 mph to 40 mph
2269 vehicles in pace
Representing 54.9% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Thu 12/3/2015

Site Reference: 150580000832
Site ID: 000000000502
Location: RTE. 70 (LUNENBURG RD.) N. OF RTE. 117
Direction: SOUTH
Lane: 1

File: SPD5-02.prn
City: LANCASTER
County: SPEED SB

TIME	10	15	20	25	30	35	40	45	50	55	60	65	70	71+	Total
01:00	0	0	0	0	0	1	2	2	4	1	0	0	0	0	10
02:00	0	0	0	0	0	1	0	3	0	0	0	0	0	0	4
03:00	0	0	0	0	0	3	3	5	1	0	0	0	0	0	12
04:00	0	0	0	0	0	1	5	3	4	1	0	0	0	0	14
05:00	0	0	0	0	0	0	10	15	12	3	0	0	0	0	40
06:00	0	0	0	0	6	31	66	63	18	4	0	0	0	0	188
07:00	31	3	18	19	23	58	86	40	9	2	0	0	0	0	289
08:00	0	0	0	9	41	52	87	84	13	1	0	0	0	0	287
09:00	0	0	0	6	34	64	78	58	24	6	0	0	0	0	270
DAY TOTAL	31	3	18	34	104	211	337	273	85	18	0	0	0	0	1114
PERCENTS	2.8%	0.3%	1.7%	3.1%	9.3%	18.9%	30.2%	24.5%	7.6%	1.6%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
28.9 mph

85th Percentile Speed
43.8 mph

Median Speed
37.3 mph

Average Speed
36.1 mph

10 MPH Pace Speed
35 mph to 45 mph
610 vehicles in pace
Representing 54.7% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Sullivan

MAR 2 1977

TOWN OF LANCASTER
SPECIAL SPEED REGULATION NO. 619-A

Highway Location: LANCASTER

Authority In Control: TOWN OF LANCASTER

Name of Highway: LUNENBURG ROAD

In accordance with the provisions of Chapter 90, Section 18, of the General Laws (Ter. Ed.) as amended, the following Special Speed Regulation is

hereby Adopted

by the Board of Selectmen

of the Town of Lancaster

Special Speed Regulation Number 619 dated April 13, 1971 is hereby amended by striking out the regulation in its entirety and inserting in place thereof the following revisions and addenda.

That the following speed limits are established at which motor vehicles may be operated in the areas described:

LUNENBURG ROAD-NORTHBOUND

Beginning at a point 400 feet north of Main Street (Route 117)
Thence northerly on Lunenburg Road.

1.05	miles	at	45	miles	per	hour	
2.23	"	"	50	"	"	"	
0.23	"	"	30	"	"	"	
0.82	"	"	40	"	"	"	ending at the

Lunenburg Town Line; the total distance being 4.33 miles.

LUNENBURG ROAD-SOUTHBOUND

Beginning at the Lunenburg Town Line
Thence southerly on Lunenburg Road

0.82	miles	at	40	miles	per	hour	
0.23	"	"	30	"	"	"	
2.23	"	"	50	"	"	"	
1.05	"	"	45	"	"	"	
0.08	"	"	25	"	"	"	ending at Main Street

(Route 117); the total distance being 4.41 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense Chapter 90, Section 14, of the General Laws (Ter. Ed).

Date of Passage January 27, 1977

Board of Selectmen

Attest
Town Clerk

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 619-A

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly, do hereby certify that this regulation is consistent with the public interests.

Standard signs must be erected at the beginning of each zone.

DATE: MAR 2 1977

FOR THE DEPARTMENT OF PUBLIC WORKS

BY:
Traffic Engineer

Chief Deputy Registrar

TOWN OF LANCASTER
SPECIAL SPEED REGULATION
NO. 6034-A

Highway Location: TOWN OF LANCASTER

Authority In Control: TOWN OF LANCASTER

Name of Highway(s) ROUTE 117

In accordance with the provisions of Chapter 90, Section 18, of the General Laws (Ter.Ed) as amended, the following Special Speed Regulation is

hereby adopted

by the Board of Selectmen

of the Town of Lancaster

Special Speed Regulation number 6034, dated April 15, 1980, is hereby amended by striking out the regulation in its entirety and inserting in place thereof the following revision.

That the following speed limits are established at which motor vehicles may be operated in the areas described:

ROUTE 117--EASTBOUND

Beginning at the end of State Highway
thence easterly on Route 117
0.90 miles at 40 miles per hour
0.34 miles at 35 miles per hour
1.17 miles at 40 miles per hour
0.65 miles at 30 miles per hour
0.31 miles at 35 miles per hour
0.92 miles at 45 miles per hour ending at the Bolton Town Line; the total distance being 4.29 miles.

ROUTE 117--WESTBOUND

Beginning at the Bolton Town Line
thence westerly on Route 117
0.92 miles at 45 miles per hour
0.31 miles at 35 miles per hour
0.65 miles at 30 miles per hour
1.17 miles at 40 miles per hour
0.34 miles at 35 miles per hour
0.90 miles at 40 miles per hour ending at the beginning of State Highway; the total distance being 4.29 miles.

NO. 6034-A

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense Chapter 90, Section 14, of the General Laws (Ter. Ed).

Date of passage January 13, 1982

Board of Selectmen

Attest Eunice F. Jandas

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 6034-A

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly, do hereby certify that this regulation is consistent with the public interests.

Standard signs must be erected at the beginning of each zone.

DATE: 3/4/82

FOR THE DEPARTMENT OF PUBLIC WORKS

BY: M. Carlone

Traffic Engineer

Robert A. Parsons

Chief Deputy Registrar

Appendix E. Road Safety Audit References

Road Safety Audit References

Massachusetts Traffic Safety Toolbox, Massachusetts Highway Department, www.mhd.state.ma.us/safetytoolbox.

Road Safety Audits, A Synthesis of Highway Practice. NCHRP Synthesis 336. Transportation Research Board, National Cooperative Highway Research Program, 2004.

Road Safety Audits. Institute of Transportation Engineers and U.S. Department of Transportation, Federal Highway Administration, www.roadwaysafetyaudits.org.

FHWA Road Safety Audit Guidelines. U.S. Department of Transportation, Federal Highway Administration, 2006.

Road Safety Audit, 2nd edition. Austroads, 2000.

Road Safety Audits. ITE Technical Council Committee 4S-7. Institute of Transportation Engineers, February 1995.

Appendix E

Crash Data

Lunenburg Road @ Old Union Turnpike
Crash History 2013-2015

Crash Number	Crash Date	Crash Time	Crash Severity	Manner of Collision	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition	Number of NonFatal Injuries	Number of Vehicles
3392970	3/10/2013	4:38 PM	Property damage only (none injured)	Angle	V1:S / V2:E	Dry	Daylight	Clear	0	2
3393110	1/21/2013	12:14 PM	Property damage only (none injured)	Angle	V1:N / V2:E	Dry	Daylight	Cloudy	0	2
3753007	3/24/2013	8:06 AM	Property damage only (none injured)	Angle	V1:S / V2:E	Dry	Daylight	Clear	0	2
3753562	3/17/2013	9:38 AM	Property damage only (none injured)	Angle	V1:S / V2:E	Dry	Daylight	Clear	0	2
3753581	1/30/2014	4:06 PM	Property damage only (none injured)	Angle	V1:E / V2:S	Dry	Daylight	Clear	0	2
4121405	10/22/2015	2:09 AM	Property damage only (none injured)	Single vehicle crash	V1:N	Dry	Dark - lighted roadway	Clear	0	1
4144203	12/24/2014	6:37 PM	Property damage only (none injured)	Single vehicle crash	V1:E	Wet	Dark - lighted roadway	Cloudy/Rain	0	1
4244498	6/24/2015	6:14 PM	Property damage only (none injured)	Rear-end	V1:S / V2:S	Dry	Daylight	Clear	0	2
4244504	5/18/2015	5:47 PM	Property damage only (none injured)	Unknown	V1:W / V2:W	Dry	Daylight	Clear/Other	0	2

Lunenburg Road @ Fort Pond Road / Woods Lane
Crash History 2013-2016

Crash Number	Crash Date	Crash Time	Crash Severity	Manner of Collision	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition	Number of NonFatal Injuries	Number of Vehicles
3753011	4/7/2013	3:36 PM	Property damage only (none injured)	Rear-end	V1:W / V2:W	Dry	Daylight	Clear/Unknown	0	2
3893588	12/21/2013	1:39 PM	Property damage only (none injured)	Angle	V1:S / V2:W	Dry	Daylight	Clear	0	2
3954486	8/12/2014	8:47 AM	Property damage only (none injured)	Rear-end	V1:S / V2:S	Dry	Daylight	Clear/Unknown	0	2
4244505	5/23/2015	10:19 AM	Property damage only (none injured)	Angle	V1:W / V2:S	Dry	Daylight	Clear	0	2
4246376	7/17/2015	5:49 PM	Property damage only (none injured)	Rear-end	V1:W / V2:W	Dry	Daylight	Cloudy	0	2
4277345	10/24/2016	6:26 PM	Non-fatal injury	Angle	V1:W / V2:N	Dry	Dark - lighted roadway	Clear	4	2
4266938	9/24/2016	1:50 PM	Non-fatal injury	Head-on	V1:S / V2:N	Dry	Daylight	Clear/Other	1	2

Route 2 EB Interchange 35
Crash History 2013-2016

Crash Number	Crash Date	Crash Time	Crash Severity	Number of NonFatal Injuries	Number of Vehicles	Manner of Collision	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition
4144631	1/18/2016	8:40 PM	Non-fatal injury	1	1	Single vehicle crash	V1:S	Dry	Dark - roadway not lighted	Clear
4315685	11/30/2016	8:10 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Clear
4312114	12/17/2016	3:14 PM	Property damage only (none injured)	0	1	Single vehicle crash	V1:W	Wet	Daylight	Clear
4270556	10/19/2016	6:01 AM	Property damage only (none injured)	0	3	Rear-end	V1:E / V2:E / V3:E	Dry	Dark - roadway not lighted	Clear
4227784	7/26/2016	7:05 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Clear
4202386	6/5/2016	1:00 PM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Not Reported
4202315	5/17/2016	7:15 AM	Property damage only (none injured)	0	1	Single vehicle crash	V1:E	Dry	Daylight	Clear
4189258	5/8/2016	2:16 PM	Property damage only (none injured)	0	1	Single vehicle crash	V1:E	Dry	Daylight	Cloudy
4156508	2/21/2016	6:40 PM	Property damage only (none injured)	0	2	Sideswipe, same direction	V1:E / V2:E	Dry	Dark - roadway not lighted	Clear
4134193	1/8/2016	7:13 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Clear
4108565	11/2/2015	6:25 AM	Property damage only (none injured)	0	3	Rear-end	V1:E / V2:E / V3:E	Dry	Daylight	Clear
4102112	10/17/2015	3:26 PM	Non-fatal injury	1	2	Angle	V1:S / V2:W	Dry	Daylight	Clear
4100945	10/20/2015	6:40 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Dawn	Not Reported
4067174	7/20/2015	6:58 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Clear
4024137	3/3/2015	8:15 AM	Non-fatal injury	3	2	Rear-end	V1:E / V2:E	Dry	Daylight	Clear
4017927	3/3/2015	8:10 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Sand, mud, dirt, oil, gravel	Daylight	Clear
3950088	9/18/2014	6:45 AM	Property damage only (none injured)	0	3	Rear-end	V1:E / V2:E / V3:E	Dry	Daylight	Clear/Other
3950087	9/18/2014	6:40 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Clear
3949346	9/4/2014	7:20 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Clear/Other
3898351	7/31/2014	10:12 AM	Non-fatal injury	2	2	Rear-end	V1:E / V2:E	Dry	Daylight	Not Reported
3753010	4/4/2013	2:19 PM	Non-fatal injury	1	2	Rear-end	V1:E / V2:E	Dry	Daylight	Cloudy/Unknown
3753008	3/27/2013	2:27 PM	Property damage only (none injured)	0	2	Angle	V1:W / V2:S	Dry	Daylight	Clear/Unknown
3718391	12/7/2013	6:30 AM	Property damage only (none injured)	0	1	Single vehicle crash	V1:E	Dry	Dark - roadway not lighted	Clear
3660135	11/7/2013	9:15 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Not Reported
3641404	9/20/2013	4:45 PM	Property damage only (none injured)	0	2	Angle	V1:W / V2:S	Dry	Daylight	Clear
3641127	10/28/2013	7:55 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Clear/Other
3588445	9/9/2013	8:05 AM	Non-fatal injury	1	5	Rear-end	V1:E / V2:E / V3:E / V4:E / V5:E	Dry	Daylight	Not Reported
3576739	8/25/2013	9:00 PM	Property damage only (none injured)	0	1	Single vehicle crash	V1:E	Dry	Dark - roadway not lighted	Clear
3557038	8/7/2013	7:59 AM	Property damage only (none injured)	0	1	Single vehicle crash	V1:E	Dry	Daylight	Clear
3498390	7/2/2013	8:30 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Daylight	Cloudy
3414296	4/24/2013	8:14 PM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:E	Dry	Dark - roadway not lighted	Clear
3396250	4/12/2013	3:10 PM	Property damage only (none injured)	0	2	Angle	V1:E / V2:E	Dry	Daylight	Clear
3388257	3/27/2013	5:53 PM	Non-fatal injury	1	1	Single vehicle crash	V1:E	Dry	Daylight	Clear
3363232	2/20/2013	6:10 PM	Property damage only (none injured)	0	1	Single vehicle crash	V1:E	Dry	Dark - roadway not lighted	Clear

Route 2 WB Interchange 35
Crash History 2013-2016

Crash Number	Crash Date	Crash Time	Crash Severity	Number of NonFatal Injuries	Number of Vehicles	Manner of Collision	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition
4144199	3/20/2014	8:10 AM	Non-fatal injury	1	1	Single vehicle crash	V1:E	Ice	Dawn	Cloudy/Rain
4133859	1/6/2016	5:45 PM	Property damage only (none injured)	0	2	Sideswipe, same direction	V1:W / V2:W	Dry	Dark - roadway not lighted	Clear
4432272	11/4/2016	4:40 PM	Property damage only (none injured)	0	2	Rear-end	V1:S / V2:S	Dry	Daylight	Cloudy
4267660	10/17/2016	7:30 AM	Property damage only (none injured)	0	3	Sideswipe, same direction	V1:W / V2:W / V3:W	Dry	Daylight	Clear
4014423	2/8/2015	9:27 AM	Property damage only (none injured)	0	2	Angle	V1:W / V2:W	Snow	Daylight	Cloudy/Snow
3975795	11/13/2014	11:07 AM	Property damage only (none injured)	0	3	Rear-end	V1:W / V2:W / V3:W	Dry	Daylight	Clear
3949347	9/11/2014	2:45 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Clear
3868090	6/14/2014	2:30 AM	Property damage only (none injured)	0	1	Single vehicle crash	V1:W	Dry	Dark - lighted roadway	Clear
3834444	5/28/2014	3:21 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Not Reported
3699067	12/11/2013	2:20 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:E	Dry	Daylight	Not Reported
3694817	12/8/2013	1:40 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Not Reported
3600116	9/17/2013	12:45 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Not Reported
3491254	6/10/2013	9:25 AM	Property damage only (none injured)	0	1	Single vehicle crash	V1:W	Dry	Daylight	Cloudy
3455652	5/26/2013	3:37 PM	Property damage only (none injured)	0	1	Single vehicle crash	V1:N	Dry	Daylight	Clear
3389777	4/6/2013	12:20 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Not Reported
4044519	5/18/2015	9:10 AM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Clear
4008624	2/8/2015	7:40 AM	Property damage only (none injured)	0	1	Single vehicle crash	V1:W	Snow	Daylight	Snow
4293238	11/26/2016	8:04 AM	Non-fatal injury	1	1	Single vehicle crash	V1:W	Dry	Daylight	Cloudy
4289178	11/17/2016	11:00 PM	Property damage only (none injured)	0	2	Sideswipe, same direction	V1:W / V2:W	Dry	Dark - roadway not lighted	Clear
4239086	8/9/2016	2:15 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Clear
4222078	6/24/2016	1:10 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Clear
4196504	5/25/2016	9:15 AM	Property damage only (none injured)	0	1	Single vehicle crash	V1:W	Dry	Daylight	Clear
4059540	6/22/2015	3:30 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Clear
4044512	5/8/2015	2:55 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Clear
3997833	1/12/2015	3:57 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Clear
3629136	9/30/2013	1:40 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Not Reported
4204009	5/30/2016	9:30 PM	Non-fatal injury	1	3	Single vehicle crash	V1:W / V2:W / V3:W	Dry	Dark - roadway not lighted	Clear

Mechanic Street @ White Pond Road
Crash History 2013-2015

Crash Number	Crash Date	Crash Time	Crash Severity	Manner of Collision	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition	Number of NonFatal Injuries	Number of Vehicles
3919349	8/13/2014	6:41 PM	Property damage only (none injured)	Rear-end	V1:W / V2:W	Wet	Daylight	Rain/Cloudy	0	2
3991212	1/5/2015	2:18 PM	Non-fatal injury	Angle	V1:E / V2:N	Dry	Daylight	Clear/Cloudy	1	2

Mechanic Street @ Johnny Appleseed Lane
Crash History 2013-2016

Crash Number	Crash Date	Crash Time	Crash Severity	Number of NonFatal Injuries	Number of Vehicles	Manner of Collision	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition
4135386	1/12/2016	7:15 PM	Non-fatal injury	2	2	Rear-end	V1:E / V2:E	Snow	Dark - lighted roadway	Snow/Rain
4089524	9/28/2015	3:54 AM	Property damage only (none injured)	0	2	Rear-end	V1:E / V2:W	Dry	Dark - lighted roadway	Clear
4046114	5/27/2015	4:21 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Daylight	Clear
4021163	3/13/2015	11:23 PM	Property damage only (none injured)	0	2	Rear-end	V1:W / V2:W	Dry	Dark - lighted roadway	Clear
3989157	12/12/2014	6:39 PM	Property damage only (none injured)	0	2	Sideswipe, same direction	V1:W / V2:W	Dry	Dark - lighted roadway	Cloudy

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Lancaster COUNT DATE : Dec-18

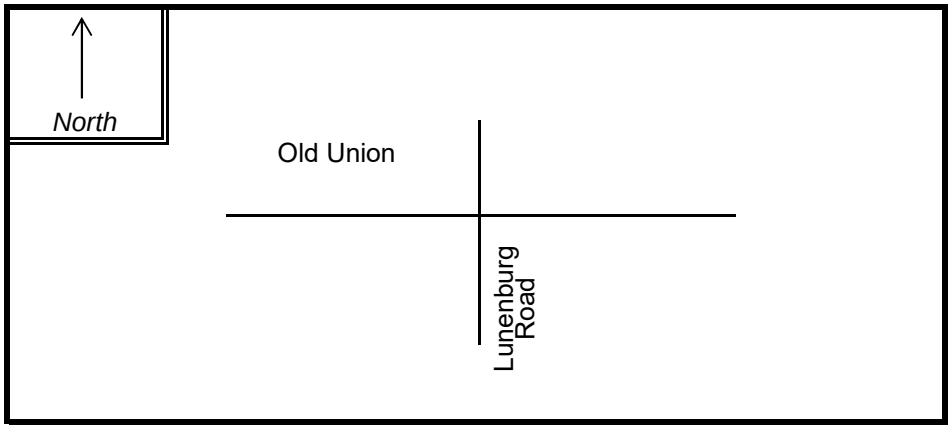
DISTRICT : 3 UNSIGNALIZED : **YES** SIGNALIZED : NO

~ INTERSECTION DATA ~

MAJOR STREET : Lunenburg Road (Route 70)

MINOR STREET(S) : Old Union Turnpike

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	264	310	591	465		**1,630**

" K " FACTOR : **0.093** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **17,527**

TOTAL # OF CRASHES : 9 # OF YEARS : 4 AVERAGE # OF CRASHES PER YEAR (**A**) : **2.25**

CRASH RATE CALCULATION : 0.35

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

Comments : K Factor based on ATR counts along Lunenburg Road

Project Title & Date: Capital Commerce Center - Lancaster, MA

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Lancaster COUNT DATE : Dec-18

DISTRICT : 3 UNSIGNALIZED : **YES** SIGNALIZED : NO

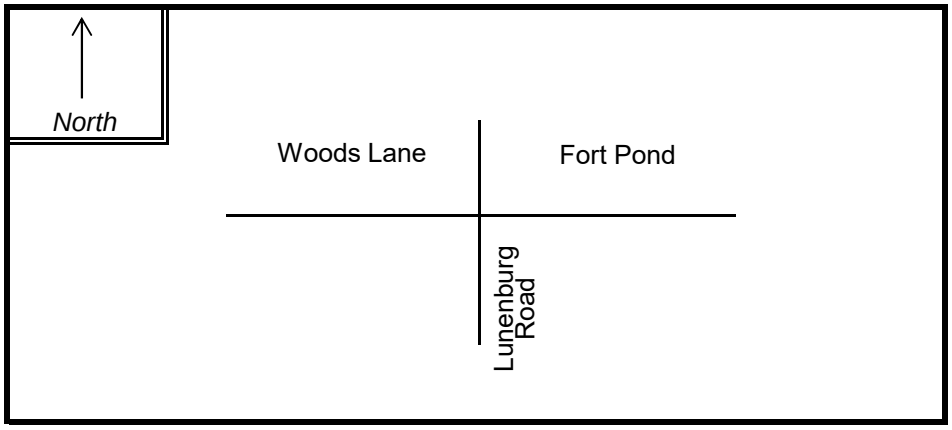
~ INTERSECTION DATA ~

MAJOR STREET : Lunenburg Road (Route 70)

MINOR STREET(S) : Fort Pond Road

Woods Lane

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	4	606	541	200		**1,351**

" K " FACTOR : **0.093** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **14,527**

TOTAL # OF CRASHES : 7 # OF YEARS : 4 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.75**

CRASH RATE CALCULATION : 0.33

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

Comments : K Factor based on ATR counts along Lunenburg Road

Project Title & Date: Capital Commerce Center - Lancaster, MA

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Leominster COUNT DATE : Dec-18

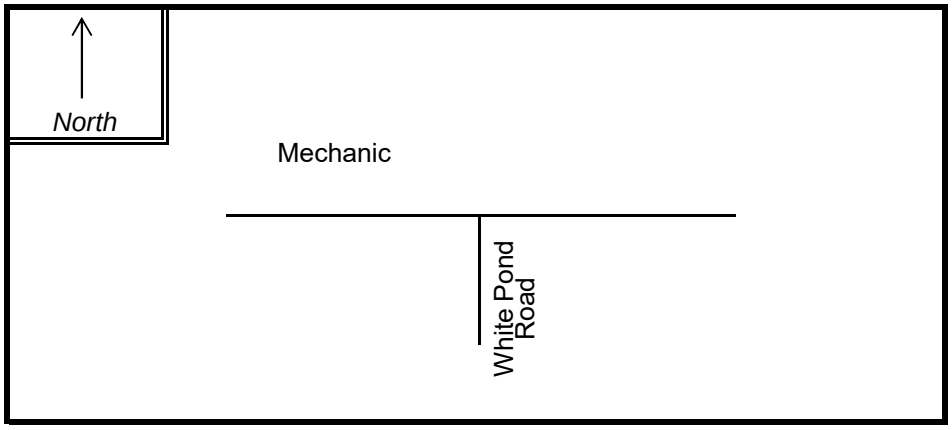
DISTRICT : 3 UNSIGNALIZED : **YES** SIGNALIZED : NO

~ INTERSECTION DATA ~

MAJOR STREET : Mechanic Street

MINOR STREET(S) : White Pond Road

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	297	492	17			**806**

" K " FACTOR : **0.093** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **8,667**

TOTAL # OF CRASHES : 2 # OF YEARS : 4 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.50**

CRASH RATE CALCULATION : 0.16

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

Comments : K Factor based on ATR counts along Lunenburg Road

Project Title & Date: Capital Commerce Center - Lancaster, MA

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Leominster COUNT DATE : Dec-18

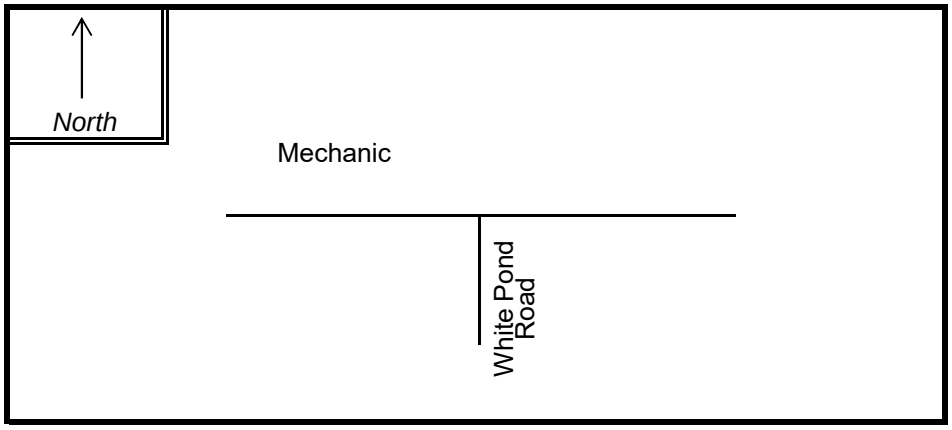
DISTRICT : 3 UNSIGNALIZED : **YES** SIGNALIZED : NO

~ INTERSECTION DATA ~

MAJOR STREET : Mechanic Street

MINOR STREET(S) : Johnny Appleseed Lane

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	307	492	33	1		**833**

" K " FACTOR : **0.093** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **8,957**

TOTAL # OF CRASHES : 5 # OF YEARS : 4 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.25**

CRASH RATE CALCULATION : **0.38**

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

Comments : K Factor based on ATR counts along Lunenburg Road

Project Title & Date: Capital Commerce Center - Lancaster, MA

Appendix F

Ambient Growth Rate Data

Average Daily Traffic Summary Table

Project: T0852- Capital Commerce Center - Lunenburg Road
Date: Janurary 7,2019
Analyst: TEC, Inc. / Danah Hamzeh
Source: MassDOT Permanent & Temporary Count Stations

STA.	TOWN	ROUTE/STREET	LOCATION	2015	2016	2017	Amb. Growth
3081	LANCASTER	MAIN STREET (ROUTE 117 & 70)	EAST OF OTIS ST.	19,025	19,272	20,631	4.17%
253426	LANCASTER	MAIN STREET (ROUTE 117 & 70)	SOUTH OF ROUTE 117	6744	6832	6907	1.20%
253425	LANCASTER	LUNENBURG ROAD	NORTH OF ROUTE 117	8227	8737	7571	-3.57%
							0.6%

Appendix G

Exiting Uncounted Soccer Field Trip Generation

Trip Generation Estimate - Existing

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 488 Soccer Complex

Average Vehicle Trips Ends vs:	Fields
Independent Variable (X):	3
Curve Method:	Average

AVERAGE WEEKDAY DAILY

T = 71.33 * (X)
T = 71.33 * 3.00
T = **214** vehicle trips
with 50% entering (107 vpd) and with 50% exiting (107 vpd)

WEEKDAY MORNING PEAK HOUR

T = 0.99 * (X)
T = 0.99 * 3.00
T = **2** vehicle trips
with 61% entering (1 vpd) and with 39% exiting (1 vpd)

WEEKDAY EVENING PEAK HOUR

T = 16.43 * (X)
T = 16.43 * 3.00
T = **50** vehicle trips
with 66% entering (33 vpd) and with 34% exiting (17 vpd)

AVERAGE SATURDAY DAILY

T = 404.88 * (X)
T = 404.88 * 3.00
T = **1,214** vehicle trips
with 50% entering (607 vpd) and with 50% exiting (607 vpd)

SATURDAY MIDDAY PEAK HOUR

T = 30.34 * (X)
T = 30.34 * 3.00
T = **92** vehicle trips
with 48% entering (44 vpd) and with 52% exiting (48 vpd)

Trip Generation Estimate - Existing

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 488 Soccer Complex

Average Vehicle Trips Ends vs:	Fields
Independent Variable (X):	3
Curve Method:	Fitted

WEEKDAY EVENING PEAK HOUR

T =	13.92	*	(X)	+	35.13					
T =	13.92	*	3.00	+	35.13					
T =	**76**	vehicle trips								
with	66%	entering (	50	vpd) and with		34%	exiting (		26	vpd)

SATURDAY MIDDAY PEAK HOUR

Ln T =	0.96	*	Ln(X)	+	3.72					
Ln T =	0.96	*	1.10	+	3.72					
T =	**118**	vehicle trips								
with	48%	entering (	57	vpd) and with		52%	exiting (		61	vpd)

Appendix H

Site Trip Generation

Existing Land Uses

Trip Generation Estimate - Existing Use

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 110 General Light Industrial

Average Vehicle Trips Ends vs:	1000 SF Gross Floor Area
Independent Variable (X):	11.8
Curve Method:	Average

AVERAGE WEEKDAY DAILY

T = 4.96 * (X)
T = 4.96 * 11.80
T = **58** vehicle trips
with 50% entering (29 vpd) and with 50% exiting (29 vpd)

WEEKDAY MORNING PEAK HOUR

T = 0.70 * (X)
T = 0.70 * 11.80
T = **8** vehicle trips
with 88% entering (7 vpd) and with 12% exiting (1 vpd)

WEEKDAY EVENING PEAK HOUR

T = 0.63 * (X)
T = 0.63 * 11.80
T = **8** vehicle trips
with 13% entering (1 vpd) and with 87% exiting (7 vpd)

AVERAGE SATURDAY DAILY

T = 1.99 * (X)
T = 1.99 * 11.80
T = **24** vehicle trips
with 50% entering (12 vpd) and with 50% exiting (12 vpd)

SATURDAY MIDDAY PEAK HOUR

T = 0.41 * (X)
T = 0.41 * 11.80
T = **4** vehicle trips
with 47% entering (2 vpd) and with 53% exiting (2 vpd)

Trip Generation Estimate - Existing Use

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 937 Coffee/Donut Shop with Drive-Through Window

Average Vehicle Trips Ends vs:	1000 SF Gross Floor Area
Independent Variable (X):	2.3
Curve Method:	Average

AVERAGE WEEKDAY DAILY

T = 820.38 * (X)
T = 820.38 * 2.30
T = **1,886** vehicle trips
with 50% entering (943 vpd) and with 50% exiting (943 vpd)

WEEKDAY MORNING PEAK HOUR

T = 88.99 * (X)
T = 88.99 * 2.30
T = **204** vehicle trips
with 51% entering (104 vpd) and with 49% exiting (100 vpd)

WEEKDAY EVENING PEAK HOUR

T = 43.38 * (X)
T = 43.38 * 2.30
T = **100** vehicle trips
with 50% entering (50 vpd) and with 50% exiting (50 vpd)

AVERAGE SATURDAY DAILY (Interpolated from LUC 936)

T = 1001.16 * (X)
T = 1001.16 * 2.30
T = **2,302** vehicle trips
with 50% entering (1,151 vpd) and with 50% exiting (1,151 vpd)

SATURDAY MIDDAY PEAK HOUR

T = 87.70 * (X)
T = 87.70 * 2.30
T = **202** vehicle trips
with 50% entering (101 vpd) and with 50% exiting (101 vpd)

Trip Generation Estimate - Existing Use

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 960 Super Convenience Market / Gas Stati

Average Vehicle Trips Ends vs:	1000 SF Gross Floor Area
Independent Variable (X):	5
Curve Method:	Average

AVERAGE WEEKDAY DAILY

T = 837.58 * (X)
T = 837.58 * 5.00
T = **4,188** vehicle trips
with 50% entering (2,094 vpd) and with 50% exiting (2,094 vpd)

WEEKDAY MORNING PEAK HOUR

T = 83.14 * (X)
T = 83.14 * 5.00
T = **416** vehicle trips
with 50% entering (208 vpd) and with 50% exiting (208 vpd)

WEEKDAY EVENING PEAK HOUR

T = 69.28 * (X)
T = 69.28 * 5.00
T = **346** vehicle trips
with 50% entering (173 vpd) and with 50% exiting (173 vpd)

AVERAGE SATURDAY DAILY

T = 700.00 * (X)
T = 700.00 * 5.00
T = **3,500** vehicle trips
with 50% entering (1,750 vpd) and with 50% exiting (1,750 vpd)

SATURDAY MIDDAY PEAK HOUR

T = 63.80 * (X)
T = 63.80 * 5.00
T = **320** vehicle trips
with 50% entering (160 vpd) and with 50% exiting (160 vpd)

Trip Generation Estimate - Existing Use

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 960 Super Convenience Market / Gas Stati

Average Vehicle Trips Ends vs:	1000 SF Gross Floor Area
Independent Variable (X):	5
Curve Method:	Fitted

WEEKDAY MORNING PEAK HOUR

T =	137.38	*	(X)	+	-264.53					
T =	137.38	*	5.00	+	-264.53					
T =	**422**	vehicle trips								
with	50%	entering (	211	vpd) and with		50%	exiting (		211	vpd)

SATURDAY MIDDAY PEAK HOUR

T =	104.71	*	(X)	+	-204.23					
T =	104.71	*	5.00	+	-204.23					
T =	**320**	vehicle trips								
with	50%	entering (	160	vpd) and with		50%	exiting (		160	vpd)

Proposed Land Uses

Trip Generation Assessment - Build Condition

Project: Capital Commerce Center - Lancaster, MA
Date: May 10, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Trip Generation - 10th Ed.*

Proposed Development "East"

Single Family Housing (ITE LUC 210)

Units: 117 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1104	1202	**1202**	50%	50%	601	601	0	0	0	**1202**	0	0	601	601
Weekday AM PH	86	88	**88**	25%	75%	22	66	0	0	0	**88**	0	0	22	66
Weekday PM PH	116	118	**118**	63%	37%	74	44	0	0	0	**118**	0	0	74	44
Saturday Daily	1116	1138	**1138**	50%	50%	569	569	0	0	0	**1138**	0	0	569	569
Sat Midday PH	108	116	**116**	54%	46%	63	53	0	0	0	**116**	0	0	63	53

Proposed Development "West"

Industrial Park (ITE LUC 130)

Units: 1567 kSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	5280	3926	**3926**	50%	50%	1963	1963	84	89	0	**3753**	0	0	1879	1874
Weekday AM PH	470	N/A	**470**	79%	21%	371	99	20	13	0	**437**	0	0	351	86
Weekday PM PH	408	N/A	**408**	22%	78%	90	318	6	15	0	**387**	0	0	84	303
Saturday Daily	3980	N/A	**3980**	50%	50%	1990	1990	84	90	0	**3806**	0	0	1906	1900
Sat Midday PH	690	N/A	**690**	32%	68%	221	469	8	6	0	**676**	0	0	213	463

Multifamily Housing (ITE LUC 221)

Units: 500 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2720	2723	**2724**	50%	50%	1362	1362	175	139	0	**2410**	0	0	1187	1223
Weekday AM PH	180	166	**166**	26%	74%	43	123	1	3	0	**162**	0	0	42	120
Weekday PM PH	220	208	**208**	61%	39%	127	81	39	17	0	**152**	0	0	88	64
Saturday Daily	2456	1937	**1938**	50%	50%	969	969	196	155	0	**1587**	0	0	773	814
Sat Midday PH	220	217	**217**	49%	51%	106	111	10	10	0	**197**	0	0	96	101

Hotel (ITE LUC 310)

Units: 120 Rooms

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1004	928	**928**	50%	50%	464	464	23	45	0	**860**	0	0	441	419
Weekday AM PH	56	54	**54**	59%	41%	32	22	0	13	0	**41**	0	0	32	9
Weekday PM PH	72	64	**64**	51%	49%	33	31	8	2	0	**54**	0	0	25	29
Saturday Daily	982	860	**860**	50%	50%	430	430	22	50	0	**788**	0	0	408	380
Sat Midday PH	86	88	**88**	56%	44%	49	39	2	5	0	**81**	0	0	47	34

Soccer Complex (ITE LUC 488)

Units: 1 Field

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	72	N/A	**72**	50%	50%	36	36	0	0	0	**72**	0	0	36	36
Weekday AM PH	2	N/A	**2**	61%	39%	1	1	0	0	0	**2**	0	0	1	1
Weekday PM PH	16	14	**14**	66%	34%	9	5	0	0	0	**14**	0	0	9	5
Saturday Daily	406	N/A	**406**	50%	50%	203	203	0	0	0	**406**	0	0	203	203
Sat Midday PH	30	38	**38**	48%	52%	18	20	0	0	0	**38**	0	0	18	20

Shopping Center (ITE LUC 820)

Units: 65.7 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2480	N/A	**2480**	50%	50%	1240	1240	187	196	**546**	**1551**	273	273	780	771
Weekday AM PH	64	N/A	**64**	62%	38%	40	24	16	8	**10**	**30**	5	5	19	11
Weekday PM PH	250	N/A	**250**	48%	52%	120	130	24	43	**62**	**121**	31	31	65	56
Saturday Daily	3030	N/A	**3030**	50%	50%	1515	1515	227	234	**668**	**1901**	334	334	954	947
Sat Midday PH	296	N/A	**296**	52%	48%	154	142	17	16	**68**	**195**	34	34	103	92

Assumed 34% pass-by rate for weekday PM and 26% pass-by rate for all others (Trip Generation Handbook, 3rd Edition).

TOTAL NEW DEVELOPMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**11332**			**5666**	**5666**	**469**	**469**	**546**	**9848**	**273**	**273**	**4924**	**4924**
Weekday AM Peak Hour	**844**			**509**	**335**	**37**	**37**	**10**	**760**	**5**	**5**	**467**	**293**
Weekday PM Peak Hour	**1062**			**453**	**609**	**77**	**77**	**62**	**846**	**31**	**31**	**345**	**501**
Saturday Daily	**11352**			**5676**	**5676**	**529**	**529**	**668**	**9626**	**334**	**334**	**4813**	**4813**
Sat Midday Peak Hour	**1445**			**611**	**834**	**37**	**37**	**68**	**1303**	**34**	**34**	**540**	**763**

Existing Development

Light Industrial (ITE LUC 110)

Units: 11.8 kSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	58	N/A	**58**	50%	50%	29	29	0	0	0	**58**	0	0	29	29
Weekday AM PH	8	N/A	**8**	88%	12%	7	1	0	0	0	**8**	0	0	7	1
Weekday PM PH	8	N/A	**8**	13%	87%	1	7	0	0	0	**8**	0	0	1	7
Saturday Daily	24	N/A	**24**	50%	50%	12	12	0	0	0	**24**	0	0	12	12
Sat Midday PH	4	N/A	**4**	47%	53%	2	2	0	0	0	**4**	0	0	2	2

Soccer Complex (ITE LUC 488)

Units: 3 Fields

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	214	N/A	**214**	50%	50%	107	107	0	0	0	**214**	0	0	107	107
Weekday AM PH	2	N/A	**2**	61%	39%	1	1	0	0	0	**2**	0	0	1	1
Weekday PM PH	50	76	**76**	66%	34%	50	26	0	0	0	**76**	0	0	50	26
Saturday Daily	1214	N/A	**1214**	50%	50%	607	607	0	0	0	**1214**	0	0	607	607
Sat Midday PH	92	118	**118**	48%	52%	57	61	0	0	0	**118**	0	0	57	61

Coffee/Donut Shop with DT (ITE LUC 937)

Units: 2.3 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1886	N/A	**1886**	50%	50%	943	943	244	174	734	**734**	367	367	332	402
Weekday AM PH	204	N/A	**204**	51%	49%	104	100	13	8	90	**93**	45	45	46	47
Weekday PM PH	100	N/A	**100**	50%	50%	50	50	13	19	34	**34**	17	17	20	14
Saturday Daily	2302	N/A	**2302**	50%	50%	1151	1151	250	213	920	**919**	460	460	441	478
Sat Midday PH	202	N/A	**202**	50%	50%	101	101	16	19	84	**83**	42	42	43	40

Assumed 49% pass-by rate for weekday AM and 50% pass-by rate for all others (Trip Generation Handbook, 3rd Edition - LUC 934).

Convenience Market & Gas Station (ITE LUC 960)

Units: 5 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	4188	N/A	**4188**	50%	50%	2094	2094	174	244	2112	**1658**	1056	1056	864	794
Weekday AM PH	416	422	**422**	50%	50%	211	211	8	13	248	**153**	124	124	79	74
Weekday PM PH	346	N/A	**346**	50%	50%	173	173	19	13	176	**138**	88	88	66	72
Saturday Daily	3500	N/A	**3500**	50%	50%	1750	1750	213	250	1700	**1337**	850	850	687	650
Sat Midday PH	320	320	**320**	50%	50%	160	160	19	16	160	**125**	80	80	61	64

Assumed 62% pass-by rate for weekday AM, 56% pass-by rate for all others (Trip Generation Handbook, 3rd Edition).

EXISTING DEVELOPMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**6346**			**3173**	**3173**	**418**	**418**	**2846**	**2664**	**1423**	**1423**	**1332**	**1332**
Weekday AM Peak Hour	**636**			**323**	**313**	**21**	**21**	**338**	**256**	**169**	**169**	**133**	**123**
Weekday PM Peak Hour	**530**			**274**	**256**	**32**	**32**	**210**	**256**	**105**	**105**	**137**	**119**
Saturday Daily	**7040**			**3520**	**3520**	**463**	**463**	**2620**	**3494**	**1310**	**1310**	**1747**	**1747**
Sat Midday Peak Hour	**644**			**320**	**324**	**35**	**35**	**244**	**330**	**122**	**122**	**163**	**167**

POST SITE TRIPS	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**17620**			**8810**	**8810**	**887**	**887**	**3392**	**12454**	**1696**	**1696**	**6227**	**6227**
Weekday AM Peak Hour	**1472**			**825**	**647**	**58**	**58**	**348**	**1008**	**174**	**174**	**593**	**415**
Weekday PM Peak Hour	**1584**			**726**	**858**	**109**	**109**	**272**	**1094**	**136**	**136**	**481**	**613**
Saturday Daily	**18368**			**9184**	**9184**	**992**	**992**	**3288**	**13096**	**1644**	**1644**	**6548**	**6548**
Sat Midday Peak Hour	**2085**			**929**	**1156**	**72**	**72**	**312**	**1629**	**156**	**156**	**701**	**928**

NET TRIP ASSESSMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**11274**			**5637**	**5637**	**469**	**469**	**546**	**9790**	**273**	**273**	**4895**	**4895**
Weekday AM Peak Hour	**836**			**502**	**334**	**37**	**37**	**10**	**752**	**5**	**5**	**460**	**292**
Weekday PM Peak Hour	**1054**			**452**	**602**	**77**	**77**	**62**	**838**	**31**	**31**	**344**	**494**
Saturday Daily	**11328**			**5664**	**5664**	**529**	**529**	**668**	**9602**	**334**	**334**	**4801**	**4801**
Sat Midday Peak Hour	**1441**			**609**	**832**	**37**	**37**	**68**	**1299**	**34**	**34**	**538**	**761**

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 130 Industrial Park

Average Vehicle Trips Ends vs:	1000 SF Gross Floor Area
Independent Variable (X):	1567
Curve Method:	Average

AVERAGE WEEKDAY DAILY

T = 3.37 * (X)
T = 3.37 * 1567.00
T = **5,280** vehicle trips
with 50% entering (2,640 vpd) and with 50% exiting (2,640 vpd)

WEEKDAY MORNING PEAK HOUR

T = 0.30 * (X)
T = 0.30 * 1567.00
T = **470** vehicle trips
with 79% entering (371 vpd) and with 21% exiting (99 vpd)

WEEKDAY EVENING PEAK HOUR

T = 0.26 * (X)
T = 0.26 * 1567.00
T = **408** vehicle trips
with 22% entering (90 vpd) and with 78% exiting (318 vpd)

AVERAGE SATURDAY DAILY

T = 2.54 * (X)
T = 2.54 * 1567.00
T = **3,980** vehicle trips
with 50% entering (1,990 vpd) and with 50% exiting (1,990 vpd)

SATURDAY MIDDAY PEAK HOUR

T = 0.44 * (X)
T = 0.44 * 1567.00
T = **690** vehicle trips
with 32% entering (221 vpd) and with 68% exiting (469 vpd)

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 130 Industrial Park

Average Vehicle Trips Ends vs:	1000 SF Gross	Floor Area
Independent Variable (X):	1567	
Curve Method:	Fitted	

AVERAGE WEEKDAY DAILY

Ln(T) =	0.52	*	Ln(X)	+	4.45					
Ln(T) =	0.52	*	7.36	+	4.45					
T =	**3,926**	vehicle trips								
with	50%	entering (	1,963	vpd) and with		50%	exiting (	1,963	vpd)	

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 210 Single-Family Detached Housing

Average Vehicle Trips Ends vs:	Dwelling Units
Independent Variable (X):	117
Curve Method:	Average

AVERAGE WEEKDAY DAILY

T = 9.44 * (X)
T = 9.44 * 117.00
T = **1,104** vehicle trips
with 50% entering (552 vpd) and with 50% exiting (552 vpd)

WEEKDAY MORNING PEAK HOUR

T = 0.74 * (X)
T = 0.74 * 117.00
T = **86** vehicle trips
with 25% entering (22 vpd) and with 75% exiting (64 vpd)

WEEKDAY EVENING PEAK HOUR

T = 0.99 * (X)
T = 0.99 * 117.00
T = **116** vehicle trips
with 63% entering (73 vpd) and with 37% exiting (43 vpd)

AVERAGE SATURDAY DAILY

T = 9.54 * (X)
T = 9.54 * 117.00
T = **1,116** vehicle trips
with 50% entering (558 vpd) and with 50% exiting (558 vpd)

SATURDAY MIDDAY PEAK HOUR

T = 0.93 * (X)
T = 0.93 * 117.00
T = **108** vehicle trips
with 54% entering (58 vpd) and with 46% exiting (50 vpd)

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 210 Single-Family Detached Housing

Average Vehicle Trips Ends vs:	Dwelling Units
Independent Variable (X):	117
Curve Method:	Fitted

AVERAGE WEEKDAY DAILY

Ln(T) =	0.92	*	Ln(X)	+	2.71					
Ln(T) =	0.92	*	4.76	+	2.71					
T =	**1,202**	vehicle trips								
with	50%	entering (	601	vpd) and with		50%	exiting (	601	vpd)	

WEEKDAY MORNING PEAK HOUR

T =	0.71	*	(X)	+	4.8					
T =	0.71	*	117.00	+	4.8					
T =	**88**	vehicle trips								
with	25%	entering (	22	vpd) and with		75%	exiting (	66	vpd)	

WEEKDAY EVENING PEAK HOUR

Ln(T) =	0.96	*	Ln(X)	+	0.2					
Ln(T) =	0.96	*	4.76	+	0.2					
T =	**118**	vehicle trips								
with	63%	entering (	74	vpd) and with		37%	exiting (	44	vpd)	

AVERAGE SATURDAY DAILY

Ln(T) =	0.94	*	Ln(X)	+	2.56					
Ln(T) =	0.94	*	4.76	+	2.56					
T =	**1,138**	vehicle trips								
with	50%	entering (	569	vpd) and with		50%	exiting (	569	vpd)	

SATURDAY MIDDAY PEAK HOUR

T =	0.84	*	(X)	+	17.99					
T =	0.84	*	117.00	+	17.99					
T =	**116**	vehicle trips								
with	54%	entering (	63	vpd) and with		46%	exiting (	53	vpd)	

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 221 Multifamily Housing (Mid-Rise)

Average Vehicle Trips Ends vs:	Dwelling Units
Independent Variable (X):	500
Curve Method:	Average

Average Weekday Daily

T = 5.44 * (X)
T = 5.44 * 500
T = **2,720** vehicle trips
with 50% entering (1,360 vpd) and with 50% exiting (1,360 vpd)

Weekday Morning Peak Hour

T = 0.36 * (X)
T = 0.36 * 500
T = **180** vehicle trips
with 26% entering (47 vpd) and with 74% exiting (133 vpd)

Weekday Evening Peak Hour

T = 0.44 * (X)
T = 0.44 * 500
T = **220** vehicle trips
with 61% entering (134 vpd) and with 39% exiting (86 vpd)

Average Saturday Daily

T = 4.91 * (X)
T = 4.91 * 500
T = **2,456** vehicle trips
with 50% entering (1,228 vpd) and with 50% exiting (1,228 vpd)

Saturday Midday Peak Hour

T = 0.44 * (X)
T = 0.44 * 500
T = **220** vehicle trips
with 49% entering (108 vpd) and with 51% exiting (112 vpd)

TEC The Engineering Corp

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 221 Multifamily Housing (Mid-Rise)

Average Vehicle Trips Ends vs:	Dwelling Units
Independent Variable (X):	500
Curve Method:	Fitted

Average Weekday Daily

T =	5.45	*	(X)	+	-1.75					
T =	5.45	*	500	+	-1.75					
T =	**2,723**	vehicle trips								
with	50%	entering (	1,362	vpd) and with		50%	exiting (		1,361	vpd)

Weekday Morning Peak Hour

Ln(T) =	0.98	*	Ln(X)	+	-0.98					
Ln(T) =	0.98	*	6.21	+	-0.98					
T =	**166**	vehicle trips								
with	26%	entering (	43	vpd) and with		74%	exiting (		123	vpd)

Weekday Evening Peak Hour

Ln(T) =	0.96	*	Ln(X)	+	-0.63					
Ln(T) =	0.96	*	6.21	+	-0.63					
T =	**208**	vehicle trips								
with	61%	entering (	127	vpd) and with		39%	exiting (		81	vpd)

Average Saturday Daily

T =	3.04	*	(X)	+	417.11					
T =	3.04	*	500	+	417.11					
T =	**1,937**	vehicle trips								
with	50%	entering (	969	vpd) and with		50%	exiting (		968	vpd)

Saturday Midday Peak Hour

T =	0.42	*	(X)	+	6.73					
T =	0.42	*	500	+	6.73					
T =	**217**	vehicle trips								
with	49%	entering (	106	vpd) and with		51%	exiting (		111	vpd)

TEC The Engineering Corp

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 310 Hotel

Average Vehicle Trips Ends vs:	Rooms
Independent Variable (X):	120
Curve Method:	Average

Average Weekday Daily

T = 8.36 * (X)
T = 8.36 * 120.00
T = **1,004** vehicle trips
with 50% entering (502 vpd) and with 50% exiting (502 vpd)

Weekday Morning Peak Hour

T = 0.47 * (X)
T = 0.47 * 120.00
T = **56** vehicle trips
with 59% entering (33 vpd) and with 41% exiting (23 vpd)

Weekday Evening Peak Hour

T = 0.60 * (X)
T = 0.60 * 120.00
T = **72** vehicle trips
with 51% entering (37 vpd) and with 49% exiting (35 vpd)

Average Saturday Daily

T = 8.19 * (X)
T = 8.19 * 120.00
T = **982** vehicle trips
with 50% entering (491 vpd) and with 50% exiting (491 vpd)

Saturday Midday Peak Hour

T = 0.72 * (X)
T = 0.72 * 120.00
T = **86** vehicle trips
with 56% entering (48 vpd) and with 44% exiting (38 vpd)

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 310 Hotel

Average Vehicle Trips Ends vs:	Rooms
Independent Variable (X):	120
Curve Method:	Fitted

Average Weekday Daily

T =	11.29	*	(X)	+	-426.97					
T =	11.29	*	120.00	+	-426.97					
T =	**928**	vehicle trips								
with	50%	entering (	464	vpd) and with		50%	exiting (	464	vpd)	

Weekday Morning Peak Hour

T =	0.50	*	(X)	+	-5.34					
T =	0.50	*	120.00	+	-5.34					
T =	**54**	vehicle trips								
with	59%	entering (	32	vpd) and with		41%	exiting (	22	vpd)	

Weekday Evening Peak Hour

T =	0.75	*	(X)	+	-26.02					
T =	0.75	*	120.00	+	-26.02					
T =	**64**	vehicle trips								
with	51%	entering (	33	vpd) and with		49%	exiting (	31	vpd)	

Average Saturday Daily

T =	9.62	*	(X)	+	-294.56					
T =	9.62	*	120.00	+	-294.56					
T =	**860**	vehicle trips								
with	50%	entering (	430	vpd) and with		50%	exiting (	430	vpd)	

Saturday Midday Peak Hour

T =	0.69	*	(X)	+	4.32					
T =	0.69	*	120.00	+	4.32					
T =	**88**	vehicle trips								
with	56%	entering (	49	vpd) and with		44%	exiting (	39	vpd)	

TEC The Engineering Corp

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 488 Soccer Complex

Average Vehicle Trips Ends vs:	Fields
Independent Variable (X):	4
Curve Method:	Average

AVERAGE WEEKDAY DAILY

T = 71.33 * (X)
T = 71.33 * 4.00
T = **286** vehicle trips
with 50% entering (143 vpd) and with 50% exiting (143 vpd)

WEEKDAY MORNING PEAK HOUR

T = 0.99 * (X)
T = 0.99 * 4.00
T = **4** vehicle trips
with 61% entering (2 vpd) and with 39% exiting (2 vpd)

WEEKDAY EVENING PEAK HOUR

T = 16.43 * (X)
T = 16.43 * 4.00
T = **66** vehicle trips
with 66% entering (44 vpd) and with 34% exiting (22 vpd)

AVERAGE SATURDAY DAILY

T = 404.88 * (X)
T = 404.88 * 4.00
T = **1,620** vehicle trips
with 50% entering (810 vpd) and with 50% exiting (810 vpd)

SATURDAY MIDDAY PEAK HOUR

T = 30.34 * (X)
T = 30.34 * 4.00
T = **122** vehicle trips
with 48% entering (59 vpd) and with 52% exiting (63 vpd)

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 488 Soccer Complex

Average Vehicle Trips Ends vs:	Fields
Independent Variable (X):	4
Curve Method:	Fitted

WEEKDAY EVENING PEAK HOUR

T =	13.92	*	(X)	+	35.13					
T =	13.92	*	4.00	+	35.13					
T =	**90**	vehicle trips								
with	66%	entering (	59	vpd) and with		34%	exiting (	31	vpd)	

SATURDAY MIDDAY PEAK HOUR

Ln T =	0.96	*	Ln(X)	+	3.72					
Ln T =	0.96	*	1.39	+	3.72					
T =	**156**	vehicle trips								
with	48%	entering (	75	vpd) and with		52%	exiting (	81	vpd)	

Trip Generation Estimate

Project:	T0852 - Capital Commerce Center - Lancaster, MA
Date:	April 5, 2019
Analyst:	TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source:	Institute of Transportation Engineers - Trip Generation, 10th Edition

ITE Land Use Code (LUC): 820 Shopping Center

Average Vehicle Trips Ends vs:	1000 SF Gross Leasable Area
Independent Variable (X):	65.7
Curve Method:	Average

AVERAGE WEEKDAY DAILY

T = 37.75 * (X)
T = 37.75 * 65.70
T = **2,480** vehicle trips
with 50% entering (1,240 vpd) and with 50% exiting (1,240 vpd)

WEEKDAY MORNING PEAK HOUR

T = 0.96 * (X)
T = 0.96 * 65.70
T = **64** vehicle trips
with 62% entering (40 vpd) and with 38% exiting (24 vpd)

WEEKDAY EVENING PEAK HOUR

T = 3.81 * (X)
T = 3.81 * 65.70
T = **250** vehicle trips
with 48% entering (120 vpd) and with 52% exiting (130 vpd)

AVERAGE SATURDAY DAILY

T = 46.12 * (X)
T = 46.12 * 65.70
T = **3,030** vehicle trips
with 50% entering (1,515 vpd) and with 50% exiting (1,515 vpd)

SATURDAY MIDDAY PEAK HOUR

T = 4.50 * (X)
T = 4.50 * 65.70
T = **296** vehicle trips
with 52% entering (154 vpd) and with 48% exiting (142 vpd)

Industrial Park – ITE Adjustment Data

Industrial Park
(130)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	9 out of 31
Avg. 1000 Sq. Ft. GFA:	1665
Directional Distribution:	79% entering , 21% exiting

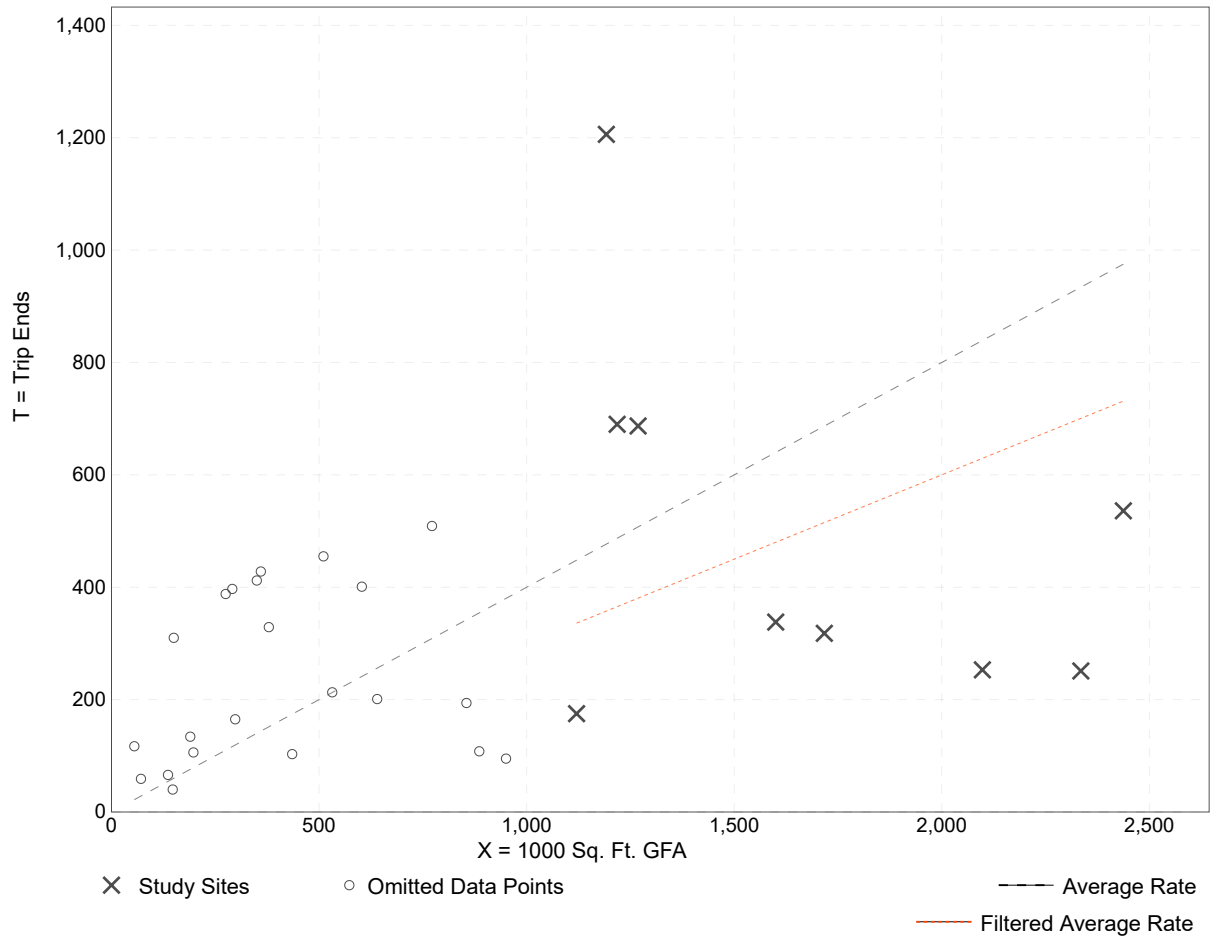
Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.30	0.11 - 1.01	0.27

Data Filtered By: [IV Value: 1000-2437.44]

Data Plot and Equation

Caution – Filtered Data Set



Fitted Curve Equation: Not Given **R^2= ******

Filtered Fitted Curve Equation: Insufficient data to display filtered fitted curve equation

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Industrial Park
(130)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	8 out of 32
Avg. 1000 Sq. Ft. GFA:	1721
Directional Distribution:	22% entering , 78% exiting

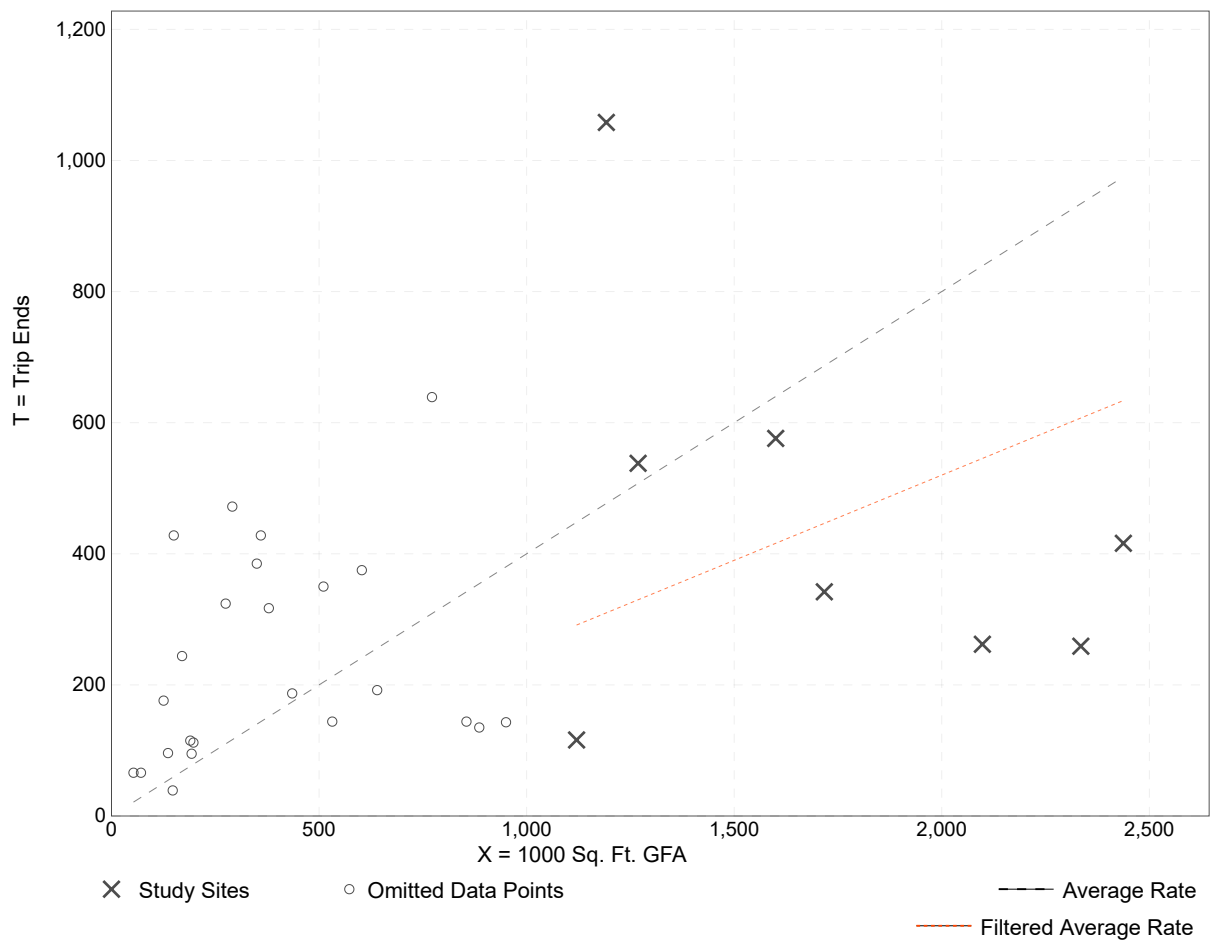
Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.26	0.10 - 0.89	0.23

Data Filtered By: [IV Value: 1000-2437.44]

Data Plot and Equation

Caution – Filtered Data Set



Fitted Curve Equation: Not Given **R^2= ******

Filtered Fitted Curve Equation: Insufficient data to display filtered fitted curve equation

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Shared Trip Calculations

	Land Use	A	B	C	D
Land Use Description	Land Use Name	Indust	Hotel	Multifamily	Retail
	Land Use Type	Office	Hotel	Residential	Retail
	ITE LUC	130	310	221	820
	Size	1,567.5 kSF	120 rooms	500 units	54.7 kSF
New Trips	*Weekday Daily*				
	Enter	1963	464	1362	1240
	Exit	1963	464	1362	1240
	Weekday AM				
	Enter	371	32	43	40
	Exit	99	22	123	24
	Weekday PM				
	Enter	90	33	127	120
	Exit	318	31	81	130
	Saturday Daily				
	Enter	1990	430	969	1515
	Exit	1990	430	969	1515
	Saturday Midday				
	Enter	221	49	106	154
	Exit	469	39	111	142

Project Name: Capital Commerce Center - BUILD
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Date: 4/5/2019

KEY: Entry Cells

INSTRUCTIONS:

1.) Enter the Land Use Name for each land use in table above.
2.) Select from the drop down menu in the table above which Land Use Type to use.
3.) Enter the ITE LUC for each land use in the table above.
4.) Enter the Size of each land use in the table above.
5.) Fill in the NEW TRIPS for each land use in the table above (Note: This is the total of primary and pass-by trips).
6.) Enter the Project Name above.
7.) Enter you initials for the Analyst above.
8.) Enter the Date above.
9.) Print the Multi-Use Trip Generation Calculation Sheet for each time period.

Multi-Use Trip Generation Calculation

Analyst: TEC, Inc. / Samuel W. G
Date: 4/5/2019

Project Name: Capital Commerce Center - BUILD
Time Period: Weekday Daily

Land Use A	Indust		
ITE LUC	130		
Size	1,567.5 kSF		
Land Use Type	Office		
	Total	Internal	External
Enter	1963	84	1879
Exit	1963	89	1874
Total	3926	173	3753
%	100%	4%	96%

Land Use B	Hotel		
ITE LUC	310		
Size	120 rooms		
Land Use Type	Hotel		
	Total	Internal	External
Enter	464	23	441
Exit	464	45	419
Total	928	68	860
%	100%	7%	93%

Land Use C	Multifamily		
ITE LUC	221		
Size	500 units		
Land Use Type	Residential		
	Total	Internal	External
Enter	1362	175	1187
Exit	1362	139	1223
Total	2724	314	2410
%	100%	12%	88%

Land Use D	Retail		
ITE LUC	820		
Size	54.7 kSF		
Land Use Type	Retail		
	Total	Internal	External
Enter	1240	187	1053
Exit	1240	196	1044
Total	2480	383	2097
%	100%	15%	85%

	Demand	Balanced	Demand
A → B	1% 20	20	20% 93
B → A	0% 0	0	0% 0
A → C	2% 39	39	3% 41
C → A	10% 196	27	2% 27
A → D	22% 432	50	4% 50
D → A	15% 70	25	2% 25
B → C	0% 0	0	0% 0
C → B	0% 0	0	0% 0
B → D	15% 294	37	3% 37
D → B	5% 23	23	2% 25
C → D	33% 449	136	11% 136
D → C	38% 518	112	9% 112

Net External Trips for Multi-Use Development						
Land Use	A	B	C	D	Total	
Enter	1879	441	1187	1053	4560	
Exit	1874	419	1223	1044	4560	
Total External Trips	**3753**	**860**	**2410**	**2097**	**9120**	***Internal Capture***
Single-Use Trip Gen. Est.	3926	928	2724	2480	10058	**9%**
Net Internal Trips	**173**	**68**	**314**	**383**	**938**	

Multi-Use Trip Generation Calculation

Analyst: TEC, Inc. / Samuel W. G
Date: 4/5/2019

Project Name: Capital Commerce Center - BUILD
Time Period: Weekday AM Peak Hour

Land Use A	Indust		
ITE LUC	130		
Size	1,567.5 kSF		
Land Use Type	Office		
	Total	Internal	External
Enter	371	20	351
Exit	99	13	86
Total	470	33	437
%	100%	7%	93%

Land Use B	Hotel		
ITE LUC	310		
Size	120 rooms		
Land Use Type	Hotel		
	Total	Internal	External
Enter	32	0	32
Exit	22	13	9
Total	54	13	41
%	100%	24%	76%

Land Use C	Multifamily		
ITE LUC	221		
Size	500 units		
Land Use Type	Residential		
	Total	Internal	External
Enter	43	1	42
Exit	123	3	120
Total	166	4	162
%	100%	2%	98%

Land Use D	Retail		
ITE LUC	820		
Size	54.7 kSF		
Land Use Type	Retail		
	Total	Internal	External
Enter	40	16	24
Exit	24	8	16
Total	64	24	40
%	100%	38%	63%

Demand	3%	11	Balanced	11
Demand	75%	17		
Demand	0%	0	Balanced	0
Demand	0%	0		
Demand	0%	0		
Balanced	0			
Demand	0%	0		
Demand	1%	1		
Demand	3%	11		
Demand	14%	3		
Demand	0%	0		
Demand	28%	28		
Balanced	13			
Balanced	0			
Balanced	2			
Balanced	2			
Balanced	0			
Demand	32%	13		
Demand	4%	15		
Demand	0%	0		
Demand	2%	2		
Demand	4%	2		
Demand	0%	0		
Balanced	7			
Demand	29%	7		
Demand	0%	0		
Balanced	0			
Demand	0%	0		
Demand	2%	1	Balanced	1
Demand	14%	3		
Demand	1%	1	Balanced	1
Demand	17%	7		

Net External Trips for Multi-Use Development						
Land Use	A	B	C	D	Total	
Enter	351	32	42	24	449	
Exit	86	9	120	16	231	
Total External Trips	**437**	**41**	**162**	**40**	**680**	***Internal Capture***
Single-Use Trip Gen. Est.	470	54	166	64	754	**10%**
Net Internal Trips	**33**	**13**	**4**	**24**	**74**	

Multi-Use Trip Generation Calculation

Analyst: TEC, Inc. / Samuel W. G
Date: 4/5/2019

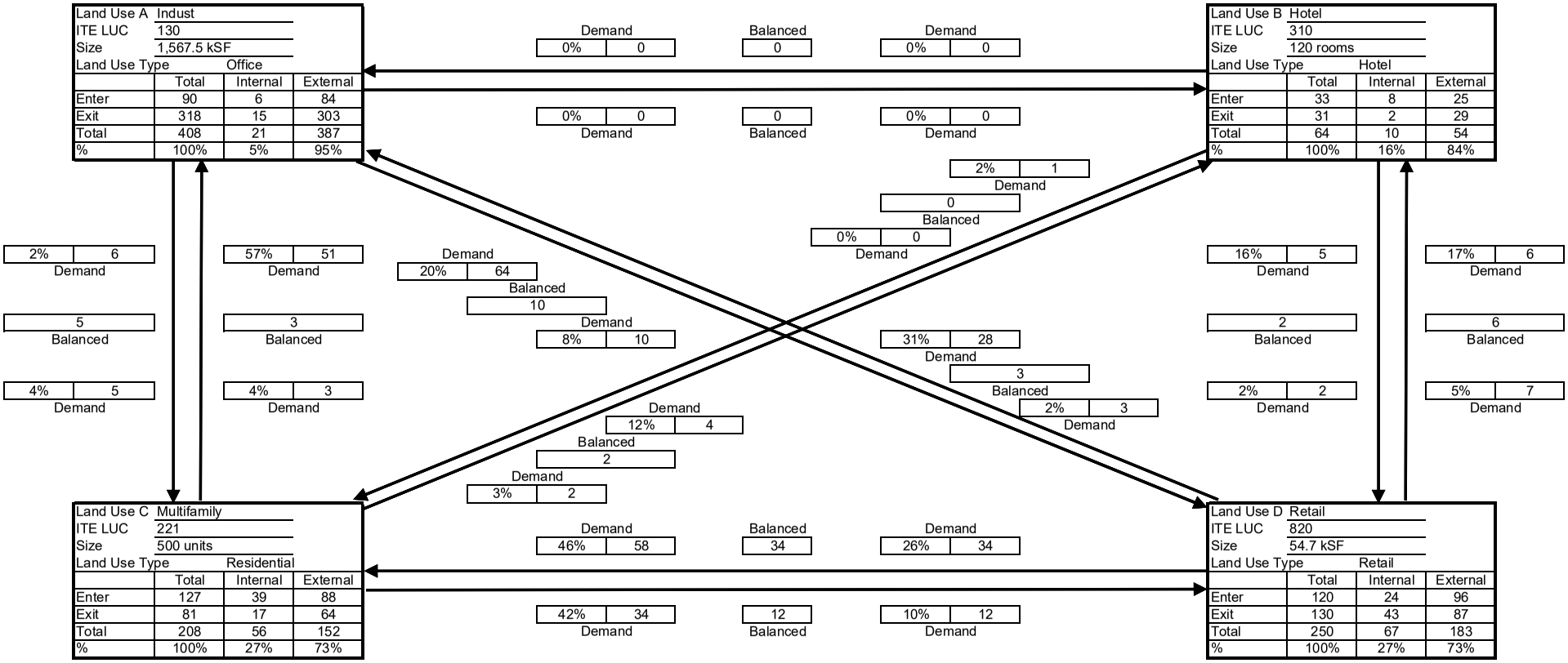
Project Name: Capital Commerce Center - BUILD
Time Period: Weekday PM Peak Hour

Land Use A	Indust		
ITE LUC	130		
Size	1,567.5 kSF		
Land Use Type	Office		
	Total	Internal	External
Enter	90	6	84
Exit	318	15	303
Total	408	21	387
%	100%	5%	95%

Land Use B	Hotel		
ITE LUC	310		
Size	120 rooms		
Land Use Type	Hotel		
	Total	Internal	External
Enter	33	8	25
Exit	31	2	29
Total	64	10	54
%	100%	16%	84%

Land Use C	Multifamily		
ITE LUC	221		
Size	500 units		
Land Use Type	Residential		
	Total	Internal	External
Enter	127	39	88
Exit	81	17	64
Total	208	56	152
%	100%	27%	73%

Land Use D	Retail		
ITE LUC	820		
Size	54.7 kSF		
Land Use Type	Retail		
	Total	Internal	External
Enter	120	24	96
Exit	130	43	87
Total	250	67	183
%	100%	27%	73%



Net External Trips for Multi-Use Development						
Land Use	A	B	C	D	Total	
Enter	84	25	88	96	293	
Exit	303	29	64	87	483	
Total External Trips	**387**	**54**	**152**	**183**	**776**	***Internal Capture***
Single-Use Trip Gen. Est.	408	64	208	250	930	**17%**
Net Internal Trips	**21**	**10**	**56**	**67**	**154**	

Multi-Use Trip Generation Calculation

Analyst: TEC, Inc. / Samuel W. G
Date: 4/5/2019

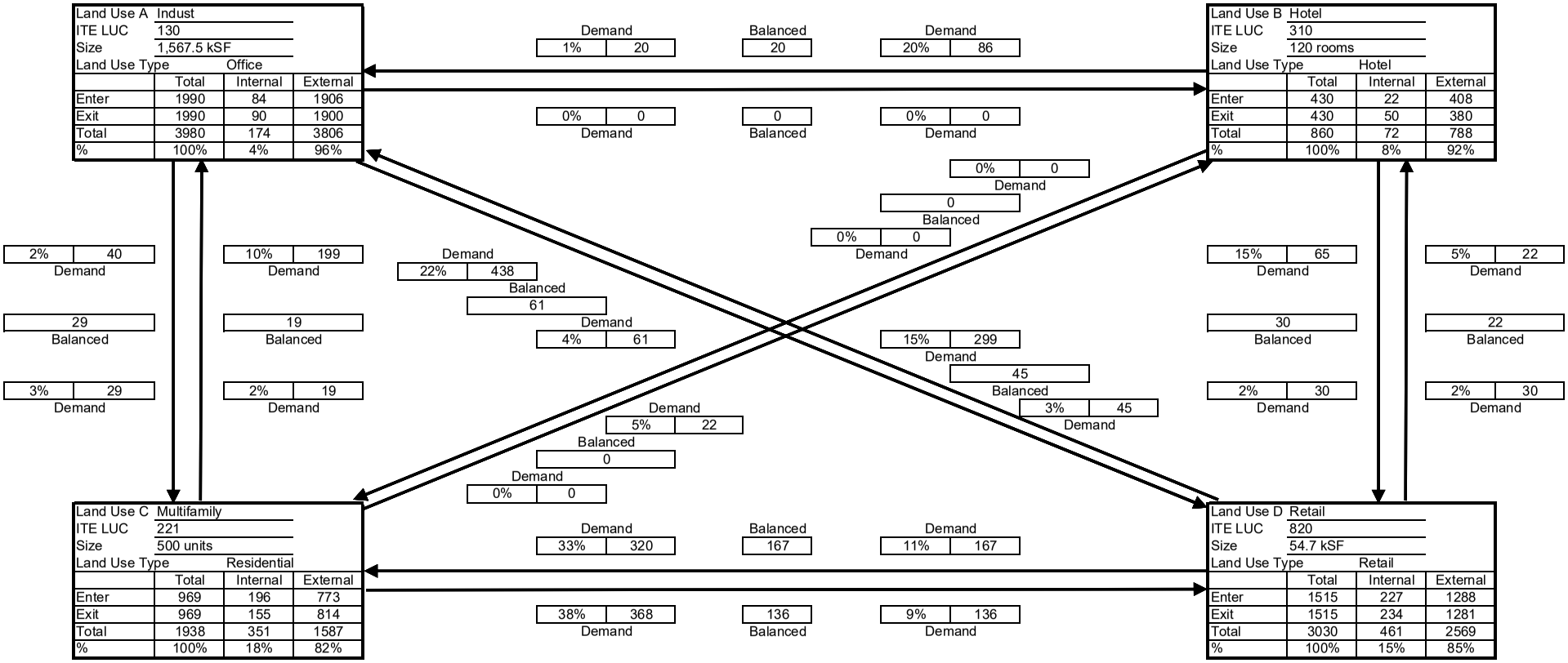
Project Name: Capital Commerce Center - BUILD
Time Period: Saturday Daily

Land Use A	Indust		
ITE LUC	130		
Size	1,567.5 kSF		
Land Use Type	Office		
	Total	Internal	External
Enter	1990	84	1906
Exit	1990	90	1900
Total	3980	174	3806
%	100%	4%	96%

Land Use B	Hotel		
ITE LUC	310		
Size	120 rooms		
Land Use Type	Hotel		
	Total	Internal	External
Enter	430	22	408
Exit	430	50	380
Total	860	72	788
%	100%	8%	92%

Land Use C	Multifamily		
ITE LUC	221		
Size	500 units		
Land Use Type	Residential		
	Total	Internal	External
Enter	969	196	773
Exit	969	155	814
Total	1938	351	1587
%	100%	18%	82%

Land Use D	Retail		
ITE LUC	820		
Size	54.7 kSF		
Land Use Type	Retail		
	Total	Internal	External
Enter	1515	227	1288
Exit	1515	234	1281
Total	3030	461	2569
%	100%	15%	85%



Net External Trips for Multi-Use Development						
Land Use	A	B	C	D	Total	
Enter	1906	408	773	1288	4375	
Exit	1900	380	814	1281	4375	
Total External Trips	**3806**	**788**	**1587**	**2569**	**8750**	***Internal Capture***
Single-Use Trip Gen. Est.	3980	860	1938	3030	9808	**11%**
Net Internal Trips	**174**	**72**	**351**	**461**	**1058**	

Multi-Use Trip Generation Calculation

Analyst: TEC, Inc. / Samuel W. G
Date: 4/5/2019

Project Name: Capital Commerce Center - BUILD
Time Period: Saturday Midday

Land Use A	Indust		
ITE LUC	130		
Size	1,567.5 kSF		
Land Use Type	Office		
	Total	Internal	External
Enter	221	8	213
Exit	469	6	463
Total	690	14	676
%	100%	2%	98%

Land Use B	Hotel		
ITE LUC	310		
Size	120 rooms		
Land Use Type	Hotel		
	Total	Internal	External
Enter	49	2	47
Exit	39	5	34
Total	88	7	81
%	100%	8%	92%

Land Use C	Multifamily		
ITE LUC	221		
Size	500 units		
Land Use Type	Residential		
	Total	Internal	External
Enter	106	10	96
Exit	111	10	101
Total	217	20	197
%	100%	9%	91%

Land Use D	Retail		
ITE LUC	820		
Size	54.7 kSF		
Land Use Type	Retail		
	Total	Internal	External
Enter	154	17	137
Exit	142	16	126
Total	296	33	263
%	100%	11%	89%

	Demand	Balanced	Demand
A → B	1% 2	2	20% 8
B → A	0% 0	0	0% 0
A → C	0% 0	0	0% 0
C → A	10% 22	6	20% 94
A → D	2% 2	0	5% 2
D → A	0% 0	0	0% 0
B → C	4% 6	2	38% 84
C → B	0% 0	0	0% 0
B → D	15% 6	3	2% 3
D → B	5% 2	2	3% 4
C → D	37% 39	10	7% 10
D → C	34% 38	8	5% 8

Net External Trips for Multi-Use Development						
Land Use	A	B	C	D	Total	
Enter	213	47	96	137	493	
Exit	463	34	101	126	724	
Total External Trips	**676**	**81**	**197**	**263**	**1217**	***Internal Capture***
Single-Use Trip Gen. Est.	690	88	217	296	1291	**6%**
Net Internal Trips	**14**	**7**	**20**	**33**	**74**	

Appendix I

Site Trip Distribution

Trip Distribution Gravity Model - Soccer Complex

Project: T0852 - Capital Commerce Center - Lancaster, MA
Date: April 8, 2019
Analyst: TEC, Inc / Danah Hamzeh
Source: U.S. Census Data - 2017, Estimated Population by Residence State-County

Surrounding Community State-County-MCD Name	Population	MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA- 70 from south	TOTAL
Lancaster town Middlesex Co. MA	8,055				5%	5%	10%	20%	10%	50%	100%
Lunenburg town Worcester Co. MA	11,312								100%		100%
Shirley town Middlesex Co. MA	7,672								100%		100%
Leominster town Worcester Co. MA	41,615		67%	33%							100%
Harvard town Worcester Co. MA	22,947	50%					50%				100%
Bolton town Worcester Co. MA	5,283						100%				100%
Berlin town Hartford Co. CT	2,866						50%			50%	100%
Boylston town Worcester Co. MA	4,634									100%	100%
Sterling town Worcester Co. MA	7,808		80%					10%		10%	100%
Clinton town Worcester Co. MA	13,435									100%	100%
Boxborough town Middlesex Co. MA	6,401	50%					50%				100%
Use											

Surrounding Community State-County-MCD Name	MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA- 70 from south	Total
Lancaster town Middlesex Co. MA	0	0	0	403	403	806	1611	806	4028	8055
Lunenburg town Worcester Co. MA	0	0	0	0	0	0	0	11312	0	11312
Shirley town Middlesex Co. MA	0	0	0	0	0	0	0	7672	0	7672
Leominster town Worcester Co. MA	0	27882	13733	0	0	0	0	0	0	41615
Harvard town Worcester Co. MA	11474	0	0	0	0	11474	0	0	0	22947
Bolton town Worcester Co. MA	0	0	0	0	0	5283	0	0	0	5283
Berlin town Hartford Co. CT	0	0	0	0	0	1433	0	0	1433	2866
Boylston town Worcester Co. MA	0	0	0	0	0	0	0	0	4634	4634
Sterling town Worcester Co. MA	0	6246	0	0	0	0	781	0	781	7808
Clinton town Worcester Co. MA	0	0	0	0	0	0	0	0	13435	13435
Boxborough town Middlesex Co. MA	3201	0	0	0	0	3201	0	0	0	6401
Total	**14674**	**34128**	**13733**	**403**	**403**	**22196**	**2392**	**19790**	**24310**	**132028**
Percentage	**11.1%**	**25.8%**	**10.4%**	**0.3%**	**0.3%**	**16.8%**	**1.8%**	**15.0%**	**18.4%**	**100%**
Use	**11%**	**25%**	**10%**	**1%**	**1%**	**17%**	**2%**	**15%**	**18%**	**100%**

Trip Distribution Gravity Model - Retail/Restaurant

Project: T0852 - Capital Commerce Center - Lancaster, MA
Date: April 8, 2019
Analyst: TEC, Inc / Danah Hamzeh
Source: U.S. Census Data - 2017, Estimated Population by Residence State-County

Surrounding Community State-County-MCD Name	Population	Distance (Travel Time)	Competing Opportunity	Adjusted Population	MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA- 70 from south	TOTAL
Lancaster town Middlesex Co. MA	8,055	1	1	8,055				5%	5%	10%	20%	10%	50%	100%
Lunenburg town Worcester Co. MA	11,312	0.5	0.5	2,828								100%		100%
Shirley town Middlesex Co. MA	7,672	1	1	7,672								100%		100%
Leominster town Worcester Co. MA	41,615	0.5	0.1	2,081		67%	33%							100%
Harvard town Worcester Co. MA	22,947	0.5	1	11,474	50%					50%				100%
Bolton town Worcester Co. MA	5,283	0.5	0.5	1,321						100%				100%
Berlin town Hartford Co. CT	2,866	0.5	0.1	143						50%			50%	100%
Boylston town Worcester Co. MA	4,634	0.5	0.1	232									100%	100%
Sterling town Worcester Co. MA	7,808	0.5	0.5	1,952		80%					10%		10%	100%
Clinton town Worcester Co. MA	13,435	1	0.1	1,344									100%	100%
Boxborough town Middlesex Co. MA	6,401	0.5	1	3,201	50%					50%				100%
Use														

Notes:
1.) 7.5-mile gravity model
2.) Distance Factors: 0-15 min. = 1.0; 15-30 min = 0.5; +30min = 0.25
3.) Competing Opportunities Factors: Little-No Competition = 1.0; Same distance to competition = 0.5; Closer to competion = 0.1

Surrounding Community State-County-MCD Name		MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA- 70 from south	Total
Lancaster town Middlesex Co. MA		0	0	0	403	403	806	1611	806	4028	8055
Lunenburg town Worcester Co. MA		0	0	0	0	0	0	0	2828	0	2828
Shirley town Middlesex Co. MA		0	0	0	0	0	0	0	7672	0	7672
Leominster town Worcester Co. MA		0	1394	687	0	0	0	0	0	0	2081
Harvard town Worcester Co. MA		5737	0	0	0	0	5737	0	0	0	11474
Bolton town Worcester Co. MA		0	0	0	0	0	1321	0	0	0	1321
Berlin town Hartford Co. CT		0	0	0	0	0	72	0	0	72	143
Boylston town Worcester Co. MA		0	0	0	0	0	0	0	0	232	232
Sterling town Worcester Co. MA		0	1562	0	0	0	0	195	0	195	1952
Clinton town Worcester Co. MA		0	0	0	0	0	0	0	0	1344	1344
Boxborough town Middlesex Co. MA		1600	0	0	0	0	1600	0	0	0	3201
Total		**7337**	**2956**	**687**	**403**	**403**	**9535**	**1806**	**11306**	**5870**	**40301**
Percentage		**18.2%**	**7.3%**	**1.7%**	**1.0%**	**1.0%**	**23.7%**	**4.5%**	**28.1%**	**14.6%**	**100%**
Use		**18%**	**7%**	**2%**	**1%**	**1%**	**23%**	**5%**	**28%**	**15%**	**100%**

Trip Distribution Gravity Model

Project: T0852 - Capital Commerce Center - lancaster, MA
Date: April 12, 2019
Analyst: TEC, Inc. / Danah Hamzeh
Source: United States Census Bureau, 5-Year ACS, 2009-2013

					Major Route Entering / Exiting										Major Route Entering / Exiting									
Residence State -County-MCD Name	**Workplace State -County-MCD Name**	**Count**	**% of Total Lancaster Workers**	**% of Distributed Workforce**	MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA- 70 from south	Check	MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA- 70 from south	Check
Lancaster Town Worcester Co. MA	Pittsfield City Berkshire Co. MA	27	0.75%	0.83%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Andover Town Essex Co. MA	31	0.86%	0.95%	75%					25%				100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Danvers Town Essex Co. MA	29	0.80%	0.89%	100%									100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Holyoke City Hampden Co. MA	48	1.33%	1.47%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Acton Town Middlesex Co. MA	72	2.00%	2.21%	50%					50%				100%	1%	0%	0%	0%	0%	1%	0%	0%	0%	2%
Lancaster Town Worcester Co. MA	Ayer Town Middlesex Co. MA	29	0.80%	0.89%								100%		100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%
Lancaster Town Worcester Co. MA	Concord Town Middlesex Co. MA	42	1.16%	1.29%	100%									100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Framingham Town Middlesex Co. MA	56	1.55%	1.72%						100%				100%	0%	0%	0%	0%	0%	2%	0%	0%	0%	2%
Lancaster Town Worcester Co. MA	Hudson Town Middlesex Co. MA	39	1.08%	1.20%						100%				100%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Marlborough City Middlesex Co. MA	202	5.60%	6.20%						67%			33%	100%	0%	0%	0%	0%	0%	4%	0%	0%	2%	6%
Lancaster Town Worcester Co. MA	Shirley Town Middlesex Co. MA	30	0.83%	0.92%								100%		100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%
Lancaster Town Worcester Co. MA	Stow Town Middlsex Co. MA	57	1.58%	1.75%	50%					50%				100%	1%	0%	0%	0%	0%	1%	0%	0%	0%	2%
Lancaster Town Worcester Co. MA	Waltham City Middlsex Co. MA	37	1.03%	1.14%	50%					50%				100%	1%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Westford Town Middlesex Co. MA	32	0.89%	0.98%	75%					25%				100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Bellingham Town Norfolk Co. MA	38	1.05%	1.17%						100%				100%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Franklin Town City Norfolk Co. MA	29	0.80%	0.89%						100%				100%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Weilsely Town Norfolk Co. MA	41	1.14%	1.26%	50%					50%				100%	1%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Boston City Suffolk Co. MA	113	3.13%	3.47%	100%									100%	3%	0%	0%	0%	0%	0%	0%	0%	0%	3%
Lancaster Town Worcester Co. MA	Auburn Town Worcester Co. MA	62	1.72%	1.90%		100%								100%	0%	2%	0%	0%	0%	0%	0%	0%	0%	2%
Lancaster Town Worcester Co. MA	Bolton Town Worcester Co. MA	264	7.32%	8.11%						100%				100%	0%	0%	0%	0%	0%	8%	0%	0%	0%	8%
Lancaster Town Worcester Co. MA	Boylston Town Worcester Co. MA	44	1.22%	1.35%									100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Lancaster Town Worcester Co. MA	Clinton Town Worcester Co. MA	530	14.69%	16.27%									100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	16%	16%
Lancaster Town Worcester Co. MA	Fitchburg City Worcester Co. MA	85	2.36%	2.61%		100%								100%	0%	3%	0%	0%	0%	0%	0%	0%	0%	3%
Lancaster Town Worcester Co. MA	Harvard Town Worcester Co. MA	117	3.24%	3.59%	50%					50%				100%	2%	0%	0%	0%	0%	2%	0%	0%	0%	4%
Lancaster Town Worcester Co. MA	Lancaster Town Woecester Co. MA	351	9.73%	10.78%				5%	5%	10%	20%	10%	50%	100%	0%	0%	0%	1%	1%	1%	2%	1%	5%	11%
Lancaster Town Worcester Co. MA	Leominster City Worcester Co. MA	217	6.01%	6.66%		67%	33%							100%	0%	4%	2%	0%	0%	0%	0%	0%	0%	7%
Lancaster Town Worcester Co. MA	Northborough Town Worcester Co. MA	46	1.27%	1.41%						50%			50%	100%	0%	0%	0%	0%	0%	1%	0%	0%	1%	1%
Lancaster Town Worcester Co. MA	Oxford Town Worcester Co. MA	29	0.80%	0.89%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Shrewsbury Town Worcester Co. MA	44	1.22%	1.35%		33%				34%			33%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Sterling Town Worcester Co. MA	34	0.94%	1.04%		80%					10%		10%	100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Westborough Town Worcester Co. MA	131	3.63%	4.02%						75%			25%	100%	0%	0%	0%	0%	0%	3%	0%	0%	1%	4%
Lancaster Town Worcester Co. MA	West Boylston Town Worcester Co. MA	32	0.89%	0.98%		50%					50%			100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Worcester City Worcester Co. MA	319	8.84%	9.79%		100%								100%	0%	10%	0%	0%	0%	0%	0%	0%	0%	10%
TOTAL		**3609**	**90.25%**	**100.00%**											**12.1%**	**23.7%**	**2.2%**	**0.5%**	**0.5%**	**28.0%**	**2.8%**	**2.9%**	**27.3%**	**100.0%**
														Say	**12%**	**23%**	**2%**	**1%**	**1%**	**28%**	**3%**	**3%**	**27%**	**100%**

Trip Distribution Gravity Model

Project: T0852 - Capital Commerce Center - lancaster, MA
Date: April 12, 2019
Analyst: TEC, Inc. / Danah Hamzeh
Source: United States Census Bureau, 5-Year ACS, 2009-2013

					Major Route Entering / Exiting										Major Route Entering / Exiting									
Workplace State -County-MCD Name	**Residence State -County-MCD Name**	**Count**	**% of Total Lancaster Workers**	**% of Distributed Workforce**	MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA- 70 from south	Check	MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA-70 from south	Check
Lancaster Town Worcester Co. !	Andover Town Essex Co. MA	17	0.71%	0.82%	75%					25%				100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Ware Town Hampsire Co. MA	23	0.96%	1.11%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Acton Middlesex Co. MA	42	1.76%	2.02%	75%					25%				100%	2%	0%	0%	0%	0%	1%	0%	0%	0%	2%
Lancaster Town Worcester Co. !	Ashby Town Middlsex Co. MA	21	0.88%	1.01%		67%						33%		100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Billerica Town Middlesex Co. MA	17	0.71%	0.82%	75%					25%				100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Groton Town Middlesex Co. MA	21	0.88%	1.01%	100%									100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Hudson Town Middlesex Co. MA	36	1.51%	1.73%	25%					75%				100%	0%	0%	0%	0%	0%	1%	0%	0%	0%	2%
Lancaster Town Worcester Co. !	Lowell City Middlsex Co. MA	28	1.17%	1.35%	75%					25%				100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Stow Town Middlsex Co. MA	18	0.75%	0.87%	50%					50%				100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Westford Town Middlesex Co. MA	22	0.92%	1.06%	75%					25%				100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Ashburnham Town Worcester Co. MA	20	0.84%	0.96%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Barre Town Worcester Co. MA	40	1.67%	1.92%		100%								100%	0%	2%	0%	0%	0%	0%	0%	0%	0%	2%
Lancaster Town Worcester Co. !	Boylston Town Worcester Co. MA	27	1.13%	1.30%									100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Lancaster Town Worcester Co. !	Clinton Town Worcester Co. MA	293	12.26%	14.10%									100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	14%	14%
Lancaster Town Worcester Co. !	Fitchburg City Worcester Co. MA	289	12.10%	13.91%		100%								100%	0%	14%	0%	0%	0%	0%	0%	0%	0%	14%
Lancaster Town Worcester Co. !	Gardner City Worcester Co. MA	40	1.67%	1.92%		100%								100%	0%	2%	0%	0%	0%	0%	0%	0%	0%	2%
Lancaster Town Worcester Co. !	Holden Town Worcester Co. MA	43	1.80%	2.07%		75%							25%	100%	0%	2%	0%	0%	0%	0%	0%	0%	1%	2%
Lancaster Town Worcester Co. !	Lancaster Town Worcester Co. MA	351	14.69%	16.89%				5%	5%	10%	20%	10%	50%	100%	0%	0%	0%	1%	1%	2%	3%	2%	8%	17%
Lancaster Town Worcester Co. !	Leicester Town Worcester Co. MA	26	1.09%	1.25%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Leominster City Worcester Co. MA	472	19.76%	22.71%		67%	33%							100%	0%	15%	7%	0%	0%	0%	0%	0%	0%	23%
Lancaster Town Worcester Co. !	Lunenburg Town Worcester Co. MA	87	3.64%	4.19%								100%		100%	0%	0%	0%	0%	0%	0%	0%	4%	0%	4%
Lancaster Town Worcester Co. !	Shrewbury Town Worcester Co. MA	24	1.00%	1.15%		33%				34%			33%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. !	Sterling Town Worcester Co. MA	66	2.76%	3.18%		80%					10%		10%	100%	0%	3%	0%	0%	0%	0%	0%	0%	0%	3%
Lancaster Town Worcester Co. !	Westborough Town Worcester Co. MA	38	1.59%	1.83%						75%			25%	100%	0%	0%	0%	0%	0%	1%	0%	0%	0%	2%
Lancaster Town Worcester Co. !	Winchendon Town Worcester Co. MA	17	0.71%	0.82%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
TOTAL		**2389**	**86.98%**	**100.00%**										**SAY**	**6.4%**	**42.3%**	**7.5%**	**0.8%**	**0.8%**	**6.7%**	**3.7%**	**6.2%**	**25.5%**	**100.0%**
														SAY	**6%**	**42%**	**8%**	**1%**	**1%**	**7%**	**4%**	**6%**	**25%**	**100%**

Trip Distribution Gravity Model

Project: T0852
Date: November 30, 2018
Analyst: TEC, Inc. /Danah Hamzeh
Source: United States Census Bureau, 5-Year ACS, 2009-2013

					Major Route Entering / Exiting										Major Route Entering / Exiting									
Residence State -County-MCD Name	Workplace State -County-MCD Name	Count	% of Total Lancaster Workers	% of Distributed Workforce	MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA- 70 from south	Check	MA-2 from east	MA-2 from west	Mechanic Street from West	Fort Pond Road from East	Old Union Trpk from East	MA-117 from east	MA-117 from west	MA-70 from north	MA- 70 from south	Check
Lancaster Town Worcester Co. MA	Pittsfield City Berkshire Co. MA	27	0.75%	0.83%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Andover Town Essex Co. MA	31	0.86%	0.95%	100%									100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Danvers Town Essex Co. MA	29	0.80%	0.89%	100%									100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Holyoke City Hampden Co. MA	48	1.33%	1.47%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Acton Town Middlesex Co. MA	72	2.00%	2.21%	100%									100%	2%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Lancaster Town Worcester Co. MA	Ayer Town Middlesex Co. MA	29	0.80%	0.89%	50%							50%		100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Concord Town Middlesex Co. MA	42	1.16%	1.29%	100%									100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Framingham Town Middlesex Co. MA	56	1.55%	1.72%						100%				100%	0%	0%	0%	0%	0%	2%	0%	0%	0%	2%
Lancaster Town Worcester Co. MA	Hudson Town Middlesex Co. MA	39	1.08%	1.20%						100%				100%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Marlborough City Middlesex Co. MA	202	5.60%	6.20%	50%					50%				100%	3%	0%	0%	0%	0%	3%	0%	0%	0%	6%
Lancaster Town Worcester Co. MA	Shirley Town Middlesex Co. MA	30	0.83%	0.92%	50%							50%		100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Stow Town Middlsex Co. MA	57	1.58%	1.75%	50%					50%				100%	1%	0%	0%	0%	0%	1%	0%	0%	0%	2%
Lancaster Town Worcester Co. MA	Waltham City Middlsex Co. MA	37	1.03%	1.14%	100%									100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Westford Town Middlesex Co. MA	32	0.89%	0.98%	100%									100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Bellingham Town Norfolk Co. MA	38	1.05%	1.17%						100%				100%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Franklin Town City Norfolk Co. MA	29	0.80%	0.89%						100%				100%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Weilsely Town Norfolk Co. MA	41	1.14%	1.26%	100%									100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Boston City Suffolk Co. MA	113	3.13%	3.47%	100%									100%	3%	0%	0%	0%	0%	0%	0%	0%	0%	3%
Lancaster Town Worcester Co. MA	Auburn Town Worcester Co. MA	62	1.72%	1.90%		100%								100%	0%	2%	0%	0%	0%	0%	0%	0%	0%	2%
Lancaster Town Worcester Co. MA	Bolton Town Worcester Co. MA	264	7.32%	8.11%						100%				100%	0%	0%	0%	0%	0%	8%	0%	0%	0%	8%
Lancaster Town Worcester Co. MA	Boylston Town Worcester Co. MA	44	1.22%	1.35%		50%				50%				100%	0%	1%	0%	0%	0%	1%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Clinton Town Worcester Co. MA	530	14.69%	16.27%		50%							50%	50%	0%	8%	0%	0%	0%	0%	0%	0%	8%	16%
Lancaster Town Worcester Co. MA	Fitchburg City Worcester Co. MA	85	2.36%	2.61%		50%	50%							100%	0%	1%	1%	0%	0%	0%	0%	0%	0%	3%
Lancaster Town Worcester Co. MA	Harvard Town Worcester Co. MA	117	3.24%	3.59%	100%									100%	4%	0%	0%	0%	0%	0%	0%	0%	0%	4%
Lancaster Town Worcester Co. MA	Lancaster Town Woecester Co. MA	351	9.73%	10.78%		20%		5%	5%	10%		10%	50%	100%	0%	2%	0%	1%	1%	1%	0%	1%	5%	11%
Lancaster Town Worcester Co. MA	Leominster City Worcester Co. MA	217	6.01%	6.66%			100%							100%	0%	0%	7%	0%	0%	0%	0%	0%	0%	7%
Lancaster Town Worcester Co. MA	Northborough Town Worcester Co. MA	46	1.27%	1.41%	33%	33%				34%				100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Oxford Town Worcester Co. MA	29	0.80%	0.89%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Shrewsbury Town Worcester Co. MA	44	1.22%	1.35%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Sterling Town Worcester Co. MA	34	0.94%	1.04%		50%	50%							100%	0%	1%	1%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Westborough Town Worcester Co. MA	131	3.63%	4.02%	50%					50%				100%	2%	0%	0%	0%	0%	2%	0%	0%	0%	4%
Lancaster Town Worcester Co. MA	West Boylston Town Worcester Co. MA	32	0.89%	0.98%		100%								100%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Lancaster Town Worcester Co. MA	Worcester City Worcester Co. MA	319	8.84%	9.79%		100%								100%	0%	10%	0%	0%	0%	0%	0%	0%	0%	10%
TOTAL		**3609**	**90.25%**	**100.00%**											**23.1%**	**30.5%**	**8.5%**	**0.5%**	**0.5%**	**21.3%**	**0.0%**	**2.0%**	**13.5%**	**100.0%**
														Say	**23%**	**30%**	**9%**	**1%**	**1%**	**21%**	**0%**	**2%**	**13%**	**100%**

Appendix J

MassDOT Left-turn Lane Warrant Analysis

Left-Turn Lane Volume Warrants

Project: T0852 - Capital Commerce Center - Lancaster, Massachsuetts
Date: April 25, 2019
Analyst: TEC Inc. / Samuel W. Gregorio, PE, PTOE

Operating Speed	Opposing Volume	Advancing Motor Vehicle Volumes (veh/hr)			
		5% LT	10% LT	20% LT	30% LT
30 mph or less	800	370	265	195	185
	600	460	345	250	225
	400	570	430	305	275
	200	720	530	390	335
40 mph	800	330	240	180	160
	600	410	305	225	200
	400	510	380	275	245
	200	640	470	350	305
	100	720	515	390	340
50 mph	800	280	210	165	135
	600	350	260	195	170
	400	430	320	240	210
	200	550	400	300	270
	100	615	445	335	295
60 mph	800	230	170	125	115
	600	290	210	160	140
	400	365	270	200	175
	200	450	330	250	215
	100	505	370	275	240

Signalized Intersections:

Left-Turn Lane Configuration	Minimum Turn Volume
Single exclusive left-turn lane	100 veh/hr
Dual exclusive left-turn lane	300 veh/hr

Source: Massachusetts Highway Department Design Manual, 2006 Edition, Exhibit 6-23
Source: AASHTO A Policy on Geometric Design of Highways and Streets, 2011 6th Edition, Table 9-23

Lunenburg Road at McGovern Boulevard

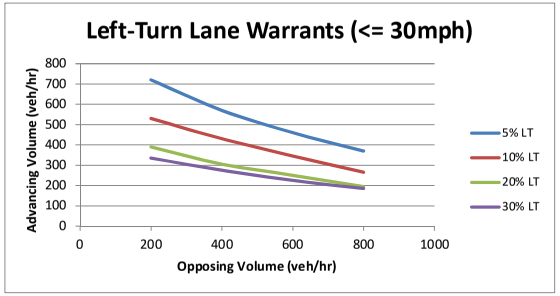
Left-Turn Lane Warranted?

Signalized	YES
Unsignalized	YES

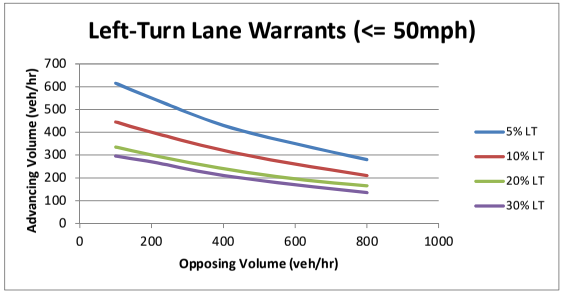
Roadway Speed = 50

Lunenburg Road at McGovern Boulevard
2026 FUTURE YEAR w/ TRIP GEN DATA INPUT

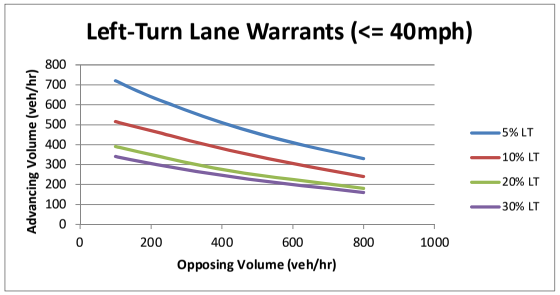
Time	Advancing Route 70 NBL	Advancing Route 70 NB	% Left Turns	Opposing Route 70 SB	Warranted
6-7 AM			#DIV/0!		#DIV/0!
7-8 AM			#DIV/0!		#DIV/0!
8-9 AM	189	522	36.2%	682	YES
9-10 AM			#DIV/0!		#DIV/0!
10-11 AM			#DIV/0!		#DIV/0!
11-12 PM			#DIV/0!		#DIV/0!
12-1 PM			#DIV/0!		#DIV/0!
1-2 PM			#DIV/0!		#DIV/0!
2-3 PM			#DIV/0!		#DIV/0!
3-4 PM			#DIV/0!		#DIV/0!
4-5 PM	167	863	19.4%	590	YES
5-6 PM			#DIV/0!		#DIV/0!



5% LT y = 0.0004x^2 - 0.955x + 895
10% LT y = 0.0001x^2 - 0.565x + 637.5
20% LT y = 0.0002x^2 - 0.5075x + 482.5
30% LT y = 0.0001x^2 - 0.375x + 405



5% LT y = 0.0003x^2 - 0.7581x + 687.65
10% LT y = 0.0002x^2 - 0.5068x + 493.54
20% LT y = 0.0002x^2 - 0.4095x + 374.26
30% LT y = 0.0001x^2 - 0.3425x + 329.9



5% LT y = 0.0003x^2 - 0.8622x + 800.98
10% LT y = 0.0001x^2 - 0.5196x +566.57
20% LT y = 0.0002x^2 - 0.4669x + 434.85
30% LT y = 0.0001x^2 - 0.3784x + 375.77

Appendix K

MUTCD Traffic Signal Warrant Analysis

Project: Capital Commerce Center
Town: Lancaster, MA
TEC # T0852
Analyst: TEC / Samuel W. Gregorio, PE, PTOE

RAW DATA INPUT

Time	Minor EBL	Minor WB	Major NB	Major SB
6-7 AM			180	352
7-8 AM	16		343	346
8-9 AM	20		336	335
9-10 AM			275	295
10-11 AM			264	281
11-12 PM			235	307
12-1 PM			250	273
1-2 PM			277	318
2-3 PM			358	314
3-4 PM			504	343
4-5 PM	43		528	287
5-6 PM	24		527	261
6-7 PM			346	226

SEASONALLY ADJUSTED DATA

Time	Minor EBL	Minor WB	Major NB	Major SB
6-7 AM	0	0	190	372
7-8 AM	17	0	362	365
8-9 AM	21	0	355	354
9-10 AM	0	0	290	312
10-11 AM	0	0	279	297
11-12 PM	0	0	248	324
12-1 PM	0	0	264	288
1-2 PM	0	0	293	336
2-3 PM	0	0	378	332
3-4 PM	0	0	532	362
4-5 PM	45	0	558	303
5-6 PM	25	0	557	276
6-7 PM	0	0	365	239

Seasonal Adjustment: 5.6%

SITE-GENERATED DATA

Time	Minor EBL	Minor WB	Major NB	Major SB
6-7 AM	61		83	138
7-8 AM	116		160	281
8-9 AM	117		163	286
9-10 AM	76		57	90
10-11 AM	84		62	97
11-12 PM	91		67	103
12-1 PM	91		76	112
1-2 PM	108		114	168
2-3 PM	163		69	99
3-4 PM	163		69	99
4-5 PM	279		111	149
5-6 PM	280		112	151
6-7 PM	102		65	76

Assumptions:

EXISTING YEAR BUILD DATA

Time	Minor EBL	Minor WB	Major NB	Major SB
6-7 AM	61	0	273	510
7-8 AM	133	0	522	646
8-9 AM	138	0	518	640
9-10 AM	76	0	347	402
10-11 AM	84	0	341	394
11-12 PM	91	0	315	427
12-1 PM	91	0	340	400
1-2 PM	108	0	407	504
2-3 PM	163	0	447	431
3-4 PM	163	0	601	461
4-5 PM	324	0	669	452
5-6 PM	305	0	669	427
6-7 PM	102	0	430	315

PERCENTAGE OF PEAK HOUR FOR SITE TRIPS (LUC 221)

Time	Entering Traffic	Exiting Traffic	EBL Minor Exiting	NB Major Entering	SB Major Entering
6-7 AM	50.0%	50.0%	21.0%	29.0%	21.0%
7-8 AM	100.0%	100.0%	42.0%	58.0%	42.0%
8-9 AM	100.0%	100.0%	42.0%	58.0%	42.0%
9-10 AM	25.0%	25.0%	10.5%	14.5%	10.5%
10-11 AM	25.0%	25.0%	10.5%	14.5%	10.5%
11-12 PM	25.0%	25.0%	10.5%	14.5%	10.5%
12-1 PM	50.0%	50.0%	21.0%	29.0%	21.0%
1-2 PM	50.0%	50.0%	21.0%	29.0%	21.0%
2-3 PM	25.0%	25.0%	10.5%	14.5%	10.5%
3-4 PM	25.0%	25.0%	10.5%	14.5%	10.5%
4-5 PM	100.0%	100.0%	42.0%	58.0%	42.0%
5-6 PM	100.0%	100.0%	42.0%	58.0%	42.0%
6-7 PM	50.0%	50.0%	21.0%	29.0%	21.0%

AM Trip Generation Housing
Total Trips (in) = 42
Total Trips (out) = 120
162

PM Trip Generation Housing
Total Trips (in) = 88
Total Trips (out) = 64
152

Lunenburg Road @ McGovern Blvd
42% Exiting Eastbound Left
58% Entering Northbound Left
42% Exiting Southbound Right

HOUSING TRIPS

Time	Minor EBL	Minor WB	Major NB	Major SB
6-7 AM	25		12	9
7-8 AM	50		24	18
8-9 AM	50		24	18
9-10 AM	13		6	4
10-11 AM	13		6	4
11-12 PM	13		6	4
12-1 PM	25		12	9
1-2 PM	13		26	18
2-3 PM	7		13	9
3-4 PM	7		13	9
4-5 PM	27		51	37
5-6 PM	27		51	37
6-7 PM	13		26	18

PERCENTAGE OF PEAK HOUR FOR SITE TRIPS (LUC 310)

Time	Entering Traffic	Exiting Traffic	EBL Minor Exiting	NB Major Entering	SB Major Entering
6-7 AM	25.0%	25.0%	22.5%	2.5%	22.5%
7-8 AM	100.0%	100.0%	90.0%	10.0%	90.0%
8-9 AM	100.0%	100.0%	90.0%	10.0%	90.0%
9-10 AM	10.0%	10.0%	9.0%	1.0%	9.0%
10-11 AM	10.0%	10.0%	9.0%	1.0%	9.0%
11-12 PM	10.0%	10.0%	9.0%	1.0%	9.0%
12-1 PM	10.0%	25.0%	22.5%	1.0%	9.0%
1-2 PM	25.0%	10.0%	9.0%	2.5%	22.5%
2-3 PM	10.0%	10.0%	9.0%	1.0%	9.0%
3-4 PM	10.0%	10.0%	9.0%	1.0%	9.0%
4-5 PM	100.0%	100.0%	90.0%	10.0%	90.0%
5-6 PM	100.0%	100.0%	90.0%	10.0%	90.0%
6-7 PM	5.0%	5.0%	4.5%	0.5%	4.5%

AM Trip Generation Hotel
Total Trips (in) = 32
Total Trips (out) = 9
41

PM Trip Generation Hotel
Total Trips (in) = 25
Total Trips (out) = 29
54

Lunenburg Road @ McGovern Blvd
90% Exiting Eastbound Left
10% Entering Northbound Left
90% Exiting Southbound Right

HOTEL TRIPS

Time	Minor EBL	Minor WB	Major NB	Major SB
6-7 AM	2		1	7
7-8 AM	8		3	29
8-9 AM	8		3	29
9-10 AM	1		0	3
10-11 AM	1		0	3
11-12 PM	1		0	3
12-1 PM	2		0	3
1-2 PM	3		1	6
2-3 PM	3		0	2
3-4 PM	3		0	2
4-5 PM	26		3	23
5-6 PM	26		3	23
6-7 PM	1		0	1

PERCENTAGE OF PEAK HOUR FOR SITE TRIPS (LUC 130)

Time	Entering Traffic	Exiting Traffic	EBL Minor Exiting	NB Major Entering	SB Major Entering
6-7 AM	10.0%	3.0%	38.4%	18.9%	33.7%
7-8 AM	19.0%	5.0%	64.0%	36.0%	64.0%
8-9 AM	19.0%	5.0%	64.0%	36.0%	64.0%
9-10 AM	5.0%	5.0%	64.0%	9.5%	16.8%
10-11 AM	5.0%	5.0%	64.0%	9.5%	16.8%
11-12 PM	5.0%	5.0%	64.0%	9.5%	16.8%
12-1 PM	5.0%	10.0%	40.0%	9.5%	16.8%
1-2 PM	10.0%	5.0%	20.0%	72.0%	128.0%
2-3 PM	5.0%	10.0%	40.0%	36.0%	64.0%
3-4 PM	5.0%	10.0%	40.0%	36.0%	64.0%
4-5 PM	5.0%	16.0%	64.0%	36.0%	64.0%
5-6 PM	5.0%	16.0%	64.0%	36.0%	64.0%
6-7 PM	2.0%	5.0%	20.0%	14.4%	25.6%

AM Trip Generation Industrial
Total Trips (in) = 351
Total Trips (out) = 86
437

PM Trip Generation Industrial
Total Trips (in) = 84
Total Trips (out) = 303
387

Lunenburg Road @ McGovern Blvd
64% Exiting Eastbound Left
36% Entering Northbound Left
64% Exiting Southbound Right

INDUSTRIAL PARK TRIPS

Time	Minor EBL	Minor WB	Major NB	Major SB
6-7 AM	33		67	118
7-8 AM	55		126	225
8-9 AM	55		126	225
9-10 AM	55		33	59
10-11 AM	55		33	59
11-12 PM	55		33	59
12-1 PM	34		33	59
1-2 PM	61		60	108
2-3 PM	121		30	54
3-4 PM	121		30	54
4-5 PM	194		30	54
5-6 PM	194		30	54
6-7 PM	61		12	22

PERCENTAGE OF PEAK HOUR FOR SITE TRIPS (LUC 820)

Time	Entering Traffic	Exiting Traffic	EBL Minor Exiting	NB Major Entering	SB Major Entering
6-7 AM	0.8%	0.3%	1.9%	4.1%	5.4%
7-8 AM	2.0%	0.9%	5.8%	10.2%	13.6%
8-9 AM	3.1%	1.2%	7.7%	15.9%	21.0%
9-10 AM	5.5%	2.0%	12.8%	28.2%	37.3%
10-11 AM	7.0%	4.3%	27.5%	35.8%	47.5%
11-12 PM	8.4%	6.2%	39.7%	43.0%	57.0%
12-1 PM	9.4%	8.3%	53.2%	48.1%	63.8%
1-2 PM	8.2%	8.6%	55.1%	42.0%	55.6%
2-3 PM	7.7%	8.9%	57.0%	39.4%	52.3%
3-4 PM	7.8%	8.8%	56.4%	39.9%	52.9%
4-5 PM	8.0%	8.9%	57.0%	41.0%	54.3%
5-6 PM	8.4%	9.2%	58.9%	43.0%	57.0%
6-7 PM	8.0%	7.5%	48.0%	41.0%	54.3%

Source: *ITE Trip Generation, 9th Edition* , LUC 820: Shopping Center [Table 1]

AM Trip Generation Industrial
Total Trips (in) = 19
Total Trips (out) = 11
30

PM Trip Generation Industrial
Total Trips (in) = 65
Total Trips (out) = 56
121

Lunenburg Road @ McGovern Blvd
57% Exiting Eastbound Left
43% Entering Northbound Left
57% Exiting Southbound Right

INDUSTRIAL PARK TRIPS

Time				
6-7 AM	1		3	4
7-8 AM	3		7	9
8-9 AM	4		10	14
9-10 AM	7		18	24
10-11 AM	15		23	31
11-12 PM	22		28	37
12-1 PM	30		31	41
1-2 PM	31		27	36
2-3 PM	32		26	34
3-4 PM	32		26	34
4-5 PM	32		27	35
5-6 PM	33		28	37
6-7 PM	27		27	35

Project: Capital Commerce Center
Town: Lancaster, MA
TEC # T0852
Analyst: TEC / Samuel W. Gregorio, PE, PTOE

85th Percentile > 40 mph? **OR** Population <10,000 people? Y

Warrant 1 - One of the Following Conditions Must Be Met for any 8 hours of an average day (Table 4C-1)

Individual Option:

Condition A: Minimum Vehicular Volume

70%

Street	Lanes	Minimum Volume	ATR Data												
			6-7 AM	7-8 AM	8-9 AM	9-10 AM	10-11 AM	11-12 PM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	6-7 PM
Major	1	350	783	1168	1158	749	735	742	740	911	878	1062	1121	1096	745
Minor	1	105	61	133	138	76	84	91	91	108	163	163	324	305	102
		Met?	NO	YES	YES	NO	NO	NO	NO	YES	YES	YES	YES	YES	NO

OR

Condition B: Interruption of Continuous Traffic

70%

Street	Lanes	Minimum Volume	ATR Data												
			6-7 AM	7-8 AM	8-9 AM	9-10 AM	10-11 AM	11-12 PM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	6-7 PM
Major	1	525	783	1168	1158	749	735	742	740	911	878	1062	1121	1096	745
Minor	1	53	61	133	138	76	84	91	91	108	163	163	324	305	102
		Met?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Result:	YES

Combination Option:

Condition A: Minimum Vehicular Volume

56%

Street	Lanes	Minimum Volume	ATR Data												
			6-7 AM	7-8 AM	8-9 AM	9-10 AM	10-11 AM	11-12 PM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	6-7 PM
Major	1	280	783	1168	1158	749	735	742	740	911	878	1062	1121	1096	745
Minor	1	84	61	133	138	76	84	91	91	108	163	163	324	305	102
		Met?	NO	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES

AND

Condition B: Interruption of Continuous Traffic

56%

Street	Lanes	Minimum Volume	ATR Data												
			6-7 AM	7-8 AM	8-9 AM	9-10 AM	10-11 AM	11-12 PM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	6-7 PM
Major	1	420	783	1168	1158	749	735	742	740	911	878	1062	1121	1096	745
Minor	1	42	61	133	138	76	84	91	91	108	163	163	324	305	102
		Met?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Result:	YES

Project: Capital Commerce Center
Town: Lancaster, MA
TEC # T0852
Analyst: TEC / Samuel W. Gregorio, PE, PTOE

Warrant 2 - Four-Hour Vehicular Volume (must be met for any 4 hours of an average day)

Street	Lanes	Minimum Volume	ATR Data												
			6-7 AM	7-8 AM	8-9 AM	9-10 AM	10-11 AM	11-12 PM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	6-7 PM
Major	1	Figure 4C-2	783	1168	1158	749	735	742	740	911	878	1062	1121	1096	745
Minor	1	Figure 4C-2	61	133	138	76	84	91	91	108	163	163	324	305	102
		Met?	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Result:	YES

Warrant 3 - Peak Hour Volume (must be met for 1 hour of an average day)

Street	Lanes	Minimum Volume	ATR Data												
			6-7 AM	7-8 AM	8-9 AM	9-10 AM	10-11 AM	11-12 PM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	6-7 PM
Major	1	Figure 4C-4	783	1168	1158	749	735	742	740	911	878	1062	1121	1096	745
Minor	2	Figure 4C-4	61	133	138	76	84	91	91	108	163	163	324	305	102
		Met?	NO	YES	YES	NO	NO	NO	NO	YES	YES	YES	YES	YES	NO

Result:	YES

Warrants 4 to 8: Not Evaluated

Appendix L

Intersection Capacity and Queue Analysis

2019 Base Year

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	730	338	15	455	0	184	0	7	0	0	0
Future Volume (vph)	0	730	338	15	455	0	184	0	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	14	14	14	12	13	12	13	12	12	12
Link Speed (mph)		35			35			35			30	
Link Distance (ft)		1450			1000			1000			200	
Travel Time (s)		28.2			19.5			19.5			4.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	3%	0%	6%	0%	7%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	62.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	730	338	15	455	0	184	0	7	0	0	0
Future Vol, veh/h	0	730	338	15	455	0	184	0	7	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	6	3	0	6	0	7	0	0	0	0	0
Mvmt Flow	0	785	363	16	489	0	198	0	8	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	489	0	0	785	0	0	1488	1488	967	1310	1306	489
Stage 1	-	-	-	-	-	-	967	967	-	521	521	-
Stage 2	-	-	-	-	-	-	521	521	-	789	785	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1085	-	-	843	-	-	~ 100	125	311	137	161	583
Stage 1	-	-	-	-	-	-	299	335	-	542	535	-
Stage 2	-	-	-	-	-	-	529	535	-	387	407	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1085	-	-	843	-	-	~ 98	122	311	131	157	583
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 98	122	-	131	157	-
Stage 1	-	-	-	-	-	-	299	335	-	542	521	-
Stage 2	-	-	-	-	-	-	515	521	-	378	407	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	$ 567.6	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	101	1085	-	-	843	-	-	-
HCM Lane V/C Ratio	2.033	-	-	-	0.019	-	-	-
HCM Control Delay (s)	$ 567.6	0	-	-	9.4	0	-	0
HCM Lane LOS	F	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	17.5	0	-	-	0.1	-	-	-

Notes

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	49	751	369	277	312	38
Future Volume (vph)	49	751	369	277	312	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	15	15
Storage Length (ft)	0			0	0	80
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		35	35		45	
Link Distance (ft)		1000	1450		1000	
Travel Time (s)		19.5	28.2		15.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	4%	6%	6%	8%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh	149.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	751	369	277	312	38
Future Vol, veh/h	49	751	369	277	312	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	80
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	4	6	6	8	3
Mvmt Flow	53	808	397	298	335	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	695	0	-	0	1460	546
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	914	-
Critical Hdwy	4.12	-	-	-	6.48	6.23
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	2.218	-	-	-	3.572	3.327
Pot Cap-1 Maneuver	901	-	-	-	~ 138	536
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	381	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	901	-	-	-	~ 123	536
Mov Cap-2 Maneuver	-	-	-	-	~ 123	-
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	381	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	$ 763.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	901	-	-	-	123	536
HCM Lane V/C Ratio	0.058	-	-	-	2.728	0.076
HCM Control Delay (s)	9.2	0	-	-	$ 855.4	12.3
HCM Lane LOS	A	A	-	-	F	B
HCM 95th %tile Q(veh)	0.2	-	-	-	30.7	0.2

Notes

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

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	28	27	304	339	18
Future Volume (vph)	18	28	27	304	339	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	12	12
Link Speed (mph)	30			50	50	
Link Distance (ft)	1000			1000	4300	
Travel Time (s)	22.7			13.6	58.6	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	33%	18%	7%	10%	6%	17%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	28	27	304	339	18
Future Vol, veh/h	18	28	27	304	339	18
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	93	93	93	93	93	93
Heavy Vehicles, %	33	18	7	10	6	17
Mvmt Flow	19	30	29	327	365	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	760	375	384	0	-	0
Stage 1	375	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Critical Hdwy	6.73	6.38	4.17	-	-	-
Critical Hdwy Stg 1	5.73	-	-	-	-	-
Critical Hdwy Stg 2	5.73	-	-	-	-	-
Follow-up Hdwy	3.797	3.462	2.263	-	-	-
Pot Cap-1 Maneuver	333	637	1148	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	323	637	1148	-	-	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	625	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1148	-	461	-	-
HCM Lane V/C Ratio	0.025	-	0.107	-	-
HCM Control Delay (s)	8.2	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	137	93	72	26	61	73	170	104	270	216	42
Future Volume (vph)	34	137	93	72	26	61	73	170	104	270	216	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	16	16	16	14	14	14	15	15	15
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		999			500			4300			875	
Travel Time (s)		22.7			11.4			97.7			19.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	6%	2%	3%	9%	0%	16%	6%	7%	21%	4%	4%	10%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type: Other
Control Type: Roundabout

ROUNDABOUT ANALYSIS

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam ft	Circ Width ft	Insc Diam ft	Entry Radius ft	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width ft	Appr Dist ft	Prop Queued Upstr Signal	Extra Bunching %
South	Lunenburg Road	70.00*	17.50*	105.0*	65.0*	30.0*	1	1	13.50*	1500.0	NA[5]	0.0[1]
East	Old Union Turnpike	70.00*	17.50*	105.0*	100.0*	30.0*	1	1	17.00*	1500.0	NA[5]	0.0[1]
North	Lunenburg Road	70.00*	17.50*	105.0*	50.0*	30.0*	1	1	13.00*	1500.0	NA[5]	0.0[1]
West	Old Union Turnpike	70.00*	17.50*	105.0*	75.0*	30.0*	1	1	14.00*	1500.0	NA[5]	0.0[1]

Roundabout Capacity Model: US HCM 6

* These parameters do not affect estimated capacity values in the HCM 6 Capacity Model.
1 Program option resulted in zero value (single Site analysis or unconnected Site in Network analysis).
5 Not Applicable (single Site analysis or unconnected Site in Network analysis).

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	OD Mov	Lane No	Lane Type	Opng Flow pcu/h	In-Bunch Headway sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	HVE for Entry	Critical Gap sec	Follow-up Headway sec
South: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
West	L2	1	Dominant	471	0.00	0.000	No	No	–	1.06	4.98	2.61
North	T1	1	Dominant	471	0.00	0.000	No	No	–	1.07	4.98	2.61
East	R2	1	Dominant	471	0.00	0.000	No	No	–	1.21	4.98	2.61
East: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
South	L2	1	Dominant	304	0.00	0.000	No	No	–	1.09	4.98	2.61
West	T1	1	Dominant	304	0.00	0.000	No	No	–	1.00	4.98	2.61
North	R2	1	Dominant	304	0.00	0.000	No	No	–	1.16	4.98	2.61
North: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
East	L2	1	Dominant	187	0.00	0.000	No	No	–	1.04	4.98	2.61
South	T1	1	Dominant	187	0.00	0.000	No	No	–	1.04	4.98	2.61
West	R2	1	Dominant	187	0.00	0.000	No	No	–	1.10	4.98	2.61
West: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
North	L2	1	Dominant	602	0.00	0.000	No	No	–	1.06	4.98	2.61
East	T1	1	Dominant	602	0.00	0.000	No	No	–	1.02	4.98	2.61
South	R2	1	Dominant	602	0.00	0.000	No	No	–	1.03	4.98	2.61

Roundabout Capacity Model: US HCM 6

Circulating Lane Flow Rates			
Lane No	Circulating Flow Rate veh/h	pcu/h	Percent
South: Lunenburg Road			
Lane 1	455	471	100.0
Approach	455	471	
East: Old Union Turnpike			
Lane 1	286	304	100.0
Approach	286	304	
North: Lunenburg Road			
Lane 1	176	187	100.0
Approach	176	187	
West: Old Union Turnpike			
Lane 1	575	602	100.0
Approach	575	602	

Roundabout Capacity Model: The US HCM 6 roundabout capacity model option is in use.
This model considers only the total circulating flow and not the flow rates in individual circulating lanes.
To model the effects of flow distribution in circulating lanes on the entry capacity results, you should use the SIDRA Standard roundabout capacity model.

MOVEMENT SUMMARY

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Lunenburg Road											
3	L2	75	6.0	0.465	10.8	LOS B	2.7	74.5	0.66	0.72	28.2
8	T1	175	7.0	0.465	10.8	LOS B	2.7	74.5	0.66	0.72	28.2
18	R2	107	21.0	0.465	11.4	LOS B	2.7	74.5	0.66	0.72	27.4
Approach		358	11.0	0.465	11.0	LOS B	2.7	74.5	0.66	0.72	27.9
East: Old Union Turnpike											
1	L2	74	9.0	0.179	5.6	LOS A	0.7	19.9	0.45	0.34	29.9
6	T1	27	0.0	0.179	5.3	LOS A	0.7	19.9	0.45	0.34	29.9
16	R2	63	16.0	0.179	5.9	LOS A	0.7	19.9	0.45	0.34	29.0
Approach		164	10.2	0.179	5.7	LOS A	0.7	19.9	0.45	0.34	29.6
North: Lunenburg Road											
7	L2	278	4.0	0.499	9.0	LOS A	3.2	83.3	0.51	0.36	28.5
4	T1	223	4.0	0.499	9.0	LOS A	3.2	83.3	0.51	0.36	28.5
14	R2	43	10.0	0.499	9.2	LOS A	3.2	83.3	0.51	0.36	27.8
Approach		544	4.5	0.499	9.0	LOS A	3.2	83.3	0.51	0.36	28.4
West: Old Union Turnpike											
5	L2	35	6.0	0.375	9.9	LOS A	1.9	48.1	0.67	0.71	28.8
2	T1	141	2.0	0.375	9.7	LOS A	1.9	48.1	0.67	0.71	28.9
12	R2	96	3.0	0.375	9.8	LOS A	1.9	48.1	0.67	0.71	28.2
Approach		272	2.9	0.375	9.8	LOS A	1.9	48.1	0.67	0.71	28.6
All Vehicles		1338	6.6	0.499	9.3	LOS A	3.2	83.3	0.58	0.52	28.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	3	42	0	41	0	144	121	68	483	0
Future Volume (vph)	0	5	3	42	0	41	0	144	121	68	483	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Storage Length (ft)	0		0	65		0	0		55	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			35			35			35	
Link Distance (ft)		500			420			875			1000	
Travel Time (s)		11.4			8.2			17.0			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	10%	0%	11%	0%	10%	8%	2%	4%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	2.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	5	3	42	0	41	0	144	121	68	483	0
Future Vol, veh/h	0	5	3	42	0	41	0	144	121	68	483	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	65	-	-	-	-	55	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	10	0	11	0	10	8	2	4	0
Mvmt Flow	0	5	3	44	0	43	0	150	126	71	503	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	817	795	503	799	795	150	503	0	0	150	0	0
Stage 1	645	645	-	150	150	-	-	-	-	-	-	-
Stage 2	172	150	-	649	645	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.2	6.5	6.31	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.59	4	3.399	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	298	323	573	294	323	873	1072	-	-	1431	-	-
Stage 1	464	471	-	834	777	-	-	-	-	-	-	-
Stage 2	835	777	-	445	471	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	268	301	573	273	301	873	1072	-	-	1431	-	-
Mov Cap-2 Maneuver	268	301	-	273	301	-	-	-	-	-	-	-
Stage 1	464	439	-	834	777	-	-	-	-	-	-	-
Stage 2	794	777	-	407	439	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	15.1	0	0.9
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1072	-	-	366	273	873	1431	-	-
HCM Lane V/C Ratio	-	-	-	0.023	0.16	0.049	0.049	-	-
HCM Control Delay (s)	0	-	-	15.1	20.7	9.3	7.6	0	-
HCM Lane LOS	A	-	-	C	C	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.6	0.2	0.2	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	384	127	65	0	12	94
Future Volume (vph)	384	127	65	0	12	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	16	16	16
Storage Length (ft)	0			60	0	75
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		40	40		30	
Link Distance (ft)		500	500		300	
Travel Time (s)		8.5	8.5		6.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	8%	4%	2%	0%	0%	17%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	384	127	65	0	12	94
Future Vol, veh/h	384	127	65	0	12	94
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	Yield
Storage Length	-	-	-	60	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	4	2	0	0	17
Mvmt Flow	409	135	69	0	13	100

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	69	0	-	0	1022	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	953	-
Critical Hdwy	4.18	-	-	-	6.4	6.37
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.272	-	-	-	3.5	3.453
Pot Cap-1 Maneuver	1495	-	-	-	264	954
Stage 1	-	-	-	-	959	-
Stage 2	-	-	-	-	378	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1495	-	-	-	186	954
Mov Cap-2 Maneuver	-	-	-	-	186	-
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	378	-

Approach	EB	WB	SB
HCM Control Delay, s	6.2	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1495	-	-	-	186	954
HCM Lane V/C Ratio	0.273	-	-	-	0.069	0.105
HCM Control Delay (s)	8.3	0	-	-	25.8	9.2
HCM Lane LOS	A	A	-	-	D	A
HCM 95th %tile Q(veh)	1.1	-	-	-	0.2	0.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	60	134	14	26	57	0
Future Volume (vph)	60	134	14	26	57	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	16	13	13	16	16
Storage Length (ft)		75	0		0	60
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Link Speed (mph)	35			35	30	
Link Distance (ft)	420			500	300	
Travel Time (s)	8.2			9.7	6.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	13%	2%	0%	12%	8%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	134	14	26	57	0
Future Vol, veh/h	60	134	14	26	57	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Stop
Storage Length	-	75	-	-	0	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	13	2	0	12	8	0
Mvmt Flow	67	151	16	29	64	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	67	0	128	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	61	-
Critical Hdwy	-	-	4.1	-	6.48	6.2
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	-	-	2.2	-	3.572	3.3
Pot Cap-1 Maneuver	-	-	1547	-	852	1002
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	947	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1547	-	843	1002
Mov Cap-2 Maneuver	-	-	-	-	843	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	937	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	843	-	-	-	1547	-
HCM Lane V/C Ratio	0.076	-	-	-	0.01	-
HCM Control Delay (s)	9.6	0	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	487	2	5	149	1	20
Future Volume (vph)	487	2	5	149	1	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	2350			500	500	
Travel Time (s)	45.8			9.7	11.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	0%	60%	6%	0%	10%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	487	2	5	149	1	20
Future Vol, veh/h	487	2	5	149	1	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	60	6	0	10
Mvmt Flow	535	2	5	164	1	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	537	0	710	536
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	174	-
Critical Hdwy	-	-	4.7	-	6.4	6.3
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.74	-	3.5	3.39
Pot Cap-1 Maneuver	-	-	794	-	403	529
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	861	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	794	-	400	529
Mov Cap-2 Maneuver	-	-	-	-	400	-
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	855	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	521	-	-	794	-
HCM Lane V/C Ratio	0.044	-	-	0.007	-
HCM Control Delay (s)	12.2	-	-	9.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	474	8	2	150	0	24	0	16	0	0	1
Future Volume (vph)	1	474	8	2	150	0	24	0	16	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			2350			500			200	
Travel Time (s)		9.7			45.8			11.4			4.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	2%	13%	50%	6%	0%	4%	0%	6%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	0.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	474	8	2	150	0	24	0	16	0	0	1
Future Vol, veh/h	1	474	8	2	150	0	24	0	16	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	2	13	50	6	0	4	0	6	0	0	0
Mvmt Flow	1	510	9	2	161	0	26	0	17	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	161	0	0	519	0	0	683	682	515	690	686	161
Stage 1	-	-	-	-	-	-	517	517	-	165	165	-
Stage 2	-	-	-	-	-	-	166	165	-	525	521	-
Critical Hdwy	4.1	-	-	4.6	-	-	7.14	6.5	6.26	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.65	-	-	3.536	4	3.354	3.5	4	3.3
Pot Cap-1 Maneuver	1430	-	-	842	-	-	361	375	552	362	373	889
Stage 1	-	-	-	-	-	-	538	537	-	842	766	-
Stage 2	-	-	-	-	-	-	831	766	-	540	535	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1430	-	-	842	-	-	360	374	552	350	372	889
Mov Cap-2 Maneuver	-	-	-	-	-	-	360	374	-	350	372	-
Stage 1	-	-	-	-	-	-	537	536	-	841	764	-
Stage 2	-	-	-	-	-	-	828	764	-	523	534	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	14.6	9.1
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	418	1430	-	-	842	-	-	889
HCM Lane V/C Ratio	0.103	0.001	-	-	0.003	-	-	0.001
HCM Control Delay (s)	14.6	7.5	0	-	9.3	0	-	9.1
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	477	223	4	1146	0	196	0	3	0	0	0
Future Volume (vph)	0	477	223	4	1146	0	196	0	3	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	14	14	14	12	13	12	13	12	12	12
Link Speed (mph)		35			35			35			30	
Link Distance (ft)		1450			1000			1000			200	
Travel Time (s)		28.2			19.5			19.5			4.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	122.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	477	223	4	1146	0	196	0	3	0	0	0
Future Vol, veh/h	0	477	223	4	1146	0	196	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	2	0	2	0	2	0	0	0	0	0
Mvmt Flow	0	502	235	4	1206	0	206	0	3	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1206	0	0	502	0	0	1834	1834	620	1718	1716	1206
Stage 1	-	-	-	-	-	-	620	620	-	1214	1214	-
Stage 2	-	-	-	-	-	-	1214	1214	-	504	502	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.12	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.518	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	586	-	-	1073	-	-	~ 59	77	492	71	91	226
Stage 1	-	-	-	-	-	-	476	483	-	224	257	-
Stage 2	-	-	-	-	-	-	222	257	-	554	545	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	586	-	-	1073	-	-	~ 59	76	492	70	90	226
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 59	76	-	70	90	-
Stage 1	-	-	-	-	-	-	476	483	-	224	254	-
Stage 2	-	-	-	-	-	-	220	254	-	550	545	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	$ 1264.6	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	586	-	-	1073	-	-	-
HCM Lane V/C Ratio	3.491	-	-	-	0.004	-	-	-
HCM Control Delay (s)	$ 1264.6	0	-	-	8.4	0	-	0
HCM Lane LOS	F	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	22.2	0	-	-	0	-	-	-

Notes

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	48	465	762	573	233	65
Future Volume (vph)	48	465	762	573	233	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	15	15
Storage Length (ft)	0			0	0	80
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		35	35		45	
Link Distance (ft)		1000	1450		1000	
Travel Time (s)		19.5	28.2		15.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	3%	1%	2%	0%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	99.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	48	465	762	573	233	65
Future Vol, veh/h	48	465	762	573	233	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	80
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	3	3	1	2	0
Mvmt Flow	51	489	802	603	245	68

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1405	0	-	0	1695	1104
Stage 1	-	-	-	-	1104	-
Stage 2	-	-	-	-	591	-
Critical Hdwy	4.1	-	-	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.3
Pot Cap-1 Maneuver	492	-	-	-	~ 102	259
Stage 1	-	-	-	-	317	-
Stage 2	-	-	-	-	553	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	492	-	-	-	~ 88	259
Mov Cap-2 Maneuver	-	-	-	-	~ 88	-
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	553	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	$ 716.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	492	-	-	-	88	259
HCM Lane V/C Ratio	0.103	-	-	-	2.787	0.264
HCM Control Delay (s)	13.2	0	-	-	$ 909.5	23.8
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q(veh)	0.3	-	-	-	23.6	1

Notes

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

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	40	13	24	630	298	58
Future Volume (vph)	40	13	24	630	298	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	12	12
Link Speed (mph)	30			50	50	
Link Distance (ft)	1000			1000	4300	
Travel Time (s)	22.7			13.6	58.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	2%	6%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	13	24	630	298	58
Future Vol, veh/h	40	13	24	630	298	58
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	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	2	6	0
Mvmt Flow	42	14	25	656	310	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1046	340	370	0	-	0
Stage 1	340	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	255	707	1200	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	247	707	1200	-	-	-
Mov Cap-2 Maneuver	247	-	-	-	-	-
Stage 1	701	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.1	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1200	-	294	-	-
HCM Lane V/C Ratio	0.021	-	0.188	-	-
HCM Control Delay (s)	8.1	0	20.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	43	146	95	78	137	211	329	51	54	163	248
Future Volume (vph)	75	43	146	95	78	137	211	329	51	54	163	248
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	16	16	16	14	14	14	15	15	15
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		999			500			4300			875	
Travel Time (s)		22.7			11.4			97.7			19.9	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	1%	1%	7%	1%	1%	4%	2%	9%	1%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type: Other
Control Type: Roundabout

ROUNDABOUT ANALYSIS

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam ft	Circ Width ft	Insc Diam ft	Entry Radius ft	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width ft	Appr Dist ft	Prop Queued Upstr Signal	Extra Bunching %
South	Lunenburg Road	70.00*	17.50*	105.0*	65.0*	30.0*	1	1	13.50*	1500.0	NA[5]	0.0[1]
East	Old Union Turnpike	70.00*	17.50*	105.0*	100.0*	30.0*	1	1	17.00*	1500.0	NA[5]	0.0[1]
North	Lunenburg Road	70.00*	17.50*	105.0*	50.0*	30.0*	1	1	13.00*	1500.0	NA[5]	0.0[1]
West	Old Union Turnpike	70.00*	17.50*	105.0*	75.0*	30.0*	1	1	14.00*	1500.0	NA[5]	0.0[1]

Roundabout Capacity Model: US HCM 6

* These parameters do not affect estimated capacity values in the HCM 6 Capacity Model.
1 Program option resulted in zero value (single Site analysis or unconnected Site in Network analysis).
5 Not Applicable (single Site analysis or unconnected Site in Network analysis).

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	OD Mov	Lane No	Lane Type	Opng Flow pcu/h	In-Bunch Headway sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	HVE for Entry	Critical Gap sec	Follow-up Headway sec
South: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
West	L2	1	Dominant	175	0.00	0.000	No	No	–	1.01	4.98	2.61
North	T1	1	Dominant	175	0.00	0.000	No	No	–	1.01	4.98	2.61
East	R2	1	Dominant	175	0.00	0.000	No	No	–	1.04	4.98	2.61
East: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
South	L2	1	Dominant	627	0.00	0.000	No	No	–	1.01	4.98	2.61
West	T1	1	Dominant	627	0.00	0.000	No	No	–	1.01	4.98	2.61
North	R2	1	Dominant	627	0.00	0.000	No	No	–	1.07	4.98	2.61
North: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
East	L2	1	Dominant	392	0.00	0.000	No	No	–	1.02	4.98	2.61
South	T1	1	Dominant	392	0.00	0.000	No	No	–	1.09	4.98	2.61
West	R2	1	Dominant	392	0.00	0.000	No	No	–	1.01	4.98	2.61
West: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
North	L2	1	Dominant	332	0.00	0.000	No	No	–	1.00	4.98	2.61
East	T1	1	Dominant	332	0.00	0.000	No	No	–	1.00	4.98	2.61
South	R2	1	Dominant	332	0.00	0.000	No	No	–	1.00	4.98	2.61

Roundabout Capacity Model: US HCM 6

Circulating Lane Flow Rates			
Lane No	Circulating Flow Rate veh/h	pcu/h	Percent
South: Lunenburg Road			
Lane 1	174	175	100.0
Approach	174	175	
East: Old Union Turnpike			
Lane 1	621	627	100.0
Approach	621	627	
North: Lunenburg Road			
Lane 1	388	392	100.0
Approach	388	392	
West: Old Union Turnpike			
Lane 1	315	332	100.0
Approach	315	332	

Roundabout Capacity Model: The US HCM 6 roundabout capacity model option is in use.
This model considers only the total circulating flow and not the flow rates in individual circulating lanes.
To model the effects of flow distribution in circulating lanes on the entry capacity results, you should use the SIDRA Standard roundabout capacity model.

MOVEMENT SUMMARY

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Lunenburg Road											
3	L2	213	1.0	0.524	9.2	LOS A	3.7	94.1	0.53	0.36	28.7
8	T1	332	1.0	0.524	9.2	LOS A	3.7	94.1	0.53	0.36	28.7
18	R2	52	4.0	0.524	9.3	LOS A	3.7	94.1	0.53	0.36	28.0
Approach		597	1.3	0.524	9.2	LOS A	3.7	94.1	0.53	0.36	28.7
East: Old Union Turnpike											
1	L2	96	1.0	0.446	11.3	LOS B	2.6	66.6	0.71	0.80	27.9
6	T1	79	1.0	0.446	11.3	LOS B	2.6	66.6	0.71	0.80	27.9
16	R2	138	7.0	0.446	11.6	LOS B	2.6	66.6	0.71	0.80	27.2
Approach		313	3.7	0.446	11.4	LOS B	2.6	66.6	0.71	0.80	27.6
North: Lunenburg Road											
7	L2	55	2.0	0.527	11.0	LOS B	4.1	106.0	0.68	0.73	28.3
4	T1	165	9.0	0.527	11.3	LOS B	4.1	106.0	0.68	0.73	28.3
14	R2	251	1.0	0.527	11.0	LOS B	4.1	106.0	0.68	0.73	27.7
Approach		470	3.9	0.527	11.1	LOS B	4.1	106.0	0.68	0.73	28.0
West: Old Union Turnpike											
5	L2	76	0.0	0.271	6.4	LOS A	1.3	33.5	0.51	0.42	30.0
2	T1	43	0.0	0.271	6.4	LOS A	1.3	33.5	0.51	0.42	29.9
12	R2	147	0.0	0.271	6.4	LOS A	1.3	33.5	0.51	0.42	29.3
Approach		267	0.0	0.271	6.4	LOS A	1.3	33.5	0.51	0.42	29.6
All Vehicles		1646	2.3	0.527	9.7	LOS A	4.1	106.0	0.60	0.56	28.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	4	292	0	314	2	435	104	30	169	1
Future Volume (vph)	0	0	4	292	0	314	2	435	104	30	169	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Storage Length (ft)	0		0	65		0	0		55	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			35			35			35	
Link Distance (ft)		500			420			875			1000	
Travel Time (s)		11.4			8.2			17.0			19.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	5%	0%	1%	0%	1%	2%	14%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	29.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	4	292	0	314	2	435	104	30	169	1
Future Vol, veh/h	0	0	4	292	0	314	2	435	104	30	169	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	65	-	-	-	-	55	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	5	0	1	0	1	2	14	1	0
Mvmt Flow	0	0	5	332	0	357	2	494	118	34	192	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	938	759	193	761	759	494	193	0	0	494	0	0
Stage 1	261	261	-	498	498	-	-	-	-	-	-	-
Stage 2	677	498	-	263	261	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.15	6.5	6.21	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.545	4	3.309	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	247	338	854	~ 318	338	577	1392	-	-	1010	-	-
Stage 1	748	696	-	549	548	-	-	-	-	-	-	-
Stage 2	446	548	-	736	696	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	91	324	854	~ 307	324	577	1392	-	-	1010	-	-
Mov Cap-2 Maneuver	91	324	-	~ 307	324	-	-	-	-	-	-	-
Stage 1	747	670	-	548	547	-	-	-	-	-	-	-
Stage 2	170	547	-	704	670	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	65	0	1.3
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1392	-	-	854	307	577	1010	-	-
HCM Lane V/C Ratio	0.002	-	-	0.005	1.081	0.618	0.034	-	-
HCM Control Delay (s)	7.6	0	-	9.2	112.6	20.8	8.7	0	-
HCM Lane LOS	A	A	-	A	F	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	12.8	4.2	0.1	-	-

Notes

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	76	72	97	1	12	213
Future Volume (vph)	76	72	97	1	12	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	16	16	16
Storage Length (ft)	0			60	0	75
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		40	40		30	
Link Distance (ft)		500	500		300	
Travel Time (s)		8.5	8.5		6.8	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	5%	1%	0%	0%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	76	72	97	1	12	213
Future Vol, veh/h	76	72	97	1	12	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	Yield
Storage Length	-	-	-	60	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	5	1	0	0	3
Mvmt Flow	90	86	115	1	14	254

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	115	0	-	0	381	115
Stage 1	-	-	-	-	115	-
Stage 2	-	-	-	-	266	-
Critical Hdwy	4.13	-	-	-	6.4	6.23
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.327
Pot Cap-1 Maneuver	1468	-	-	-	625	935
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	783	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1468	-	-	-	585	935
Mov Cap-2 Maneuver	-	-	-	-	585	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	783	-

Approach	EB	WB	SB
HCM Control Delay, s	3.9	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1468	-	-	-	585	935
HCM Lane V/C Ratio	0.062	-	-	-	0.024	0.271
HCM Control Delay (s)	7.6	0	-	-	11.3	10.3
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	1.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	14	120	27	231	375	0
Future Volume (vph)	14	120	27	231	375	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	16	13	13	16	16
Storage Length (ft)		75	0		0	60
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Link Speed (mph)	35			35	30	
Link Distance (ft)	420			500	300	
Travel Time (s)	8.2			9.7	6.8	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles (%)	8%	4%	8%	2%	3%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	20.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	14	120	27	231	375	0
Future Vol, veh/h	14	120	27	231	375	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Stop
Storage Length	-	75	-	-	0	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	8	4	8	2	3	0
Mvmt Flow	19	164	37	316	514	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	19	0	409	19
Stage 1	-	-	-	-	19	-
Stage 2	-	-	-	-	390	-
Critical Hdwy	-	-	4.18	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.272	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1559	-	597	1065
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	682	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1559	-	580	1065
Mov Cap-2 Maneuver	-	-	-	-	580	-
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	662	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	41.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	580	-	-	-	1559	-
HCM Lane V/C Ratio	0.886	-	-	-	0.024	-
HCM Control Delay (s)	41.5	0	-	-	7.4	0
HCM Lane LOS	E	A	-	-	A	A
HCM 95th %tile Q(veh)	10.3	-	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	289	8	13	479	9	8
Future Volume (vph)	289	8	13	479	9	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	2350			500	500	
Travel Time (s)	45.8			9.7	11.4	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	13%	0%	1%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	289	8	13	479	9	8
Future Vol, veh/h	289	8	13	479	9	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	13	0	1	0	0
Mvmt Flow	352	10	16	584	11	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	362	0	973	357
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	616	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1208	-	282	692
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	543	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1208	-	276	692
Mov Cap-2 Maneuver	-	-	-	-	276	-
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	532	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	385	-	-	1208	-
HCM Lane V/C Ratio	0.054	-	-	0.013	-
HCM Control Delay (s)	14.9	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	286	20	20	470	2	23	0	10	0	0	1
Future Volume (vph)	1	286	20	20	470	2	23	0	10	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			2350			500			200	
Travel Time (s)		9.7			45.8			11.4			4.5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	2%	5%	0%	1%	0%	4%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	286	20	20	470	2	23	0	10	0	0	1
Future Vol, veh/h	1	286	20	20	470	2	23	0	10	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	2	5	0	1	0	4	0	0	0	0	0
Mvmt Flow	1	349	24	24	573	2	28	0	12	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	575	0	0	373	0	0	986	986	361	991	997	574
Stage 1	-	-	-	-	-	-	363	363	-	622	622	-
Stage 2	-	-	-	-	-	-	623	623	-	369	375	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1008	-	-	1197	-	-	225	250	688	227	246	522
Stage 1	-	-	-	-	-	-	652	628	-	478	482	-
Stage 2	-	-	-	-	-	-	470	481	-	655	621	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1008	-	-	1197	-	-	219	243	688	218	239	522
Mov Cap-2 Maneuver	-	-	-	-	-	-	219	243	-	218	239	-
Stage 1	-	-	-	-	-	-	651	627	-	478	468	-
Stage 2	-	-	-	-	-	-	455	467	-	643	620	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	20.3	11.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	276	1008	-	-	1197	-	-	522
HCM Lane V/C Ratio	0.146	0.001	-	-	0.02	-	-	0.002
HCM Control Delay (s)	20.3	8.6	0	-	8.1	0	-	11.9
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0

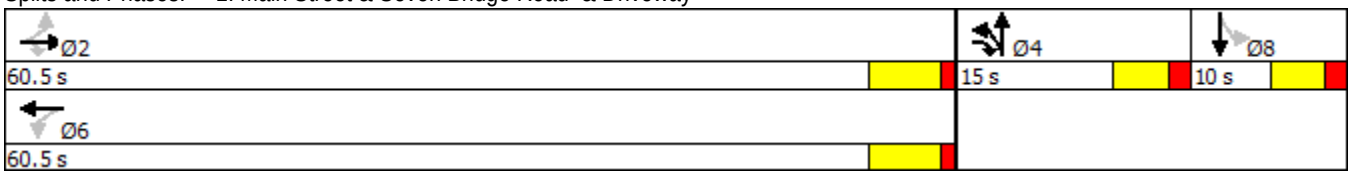
2026 No-Build Condition

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	783	363	16	488	0	198	0	8	0	0	0
Future Volume (vph)	0	783	363	16	488	0	198	0	8	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	11	11	13	13	13	12	12	12
Storage Length (ft)	0		115	50		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			30	
Link Distance (ft)		1450			1000			1000			200	
Travel Time (s)		28.2			19.5			19.5			4.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	3%	0%	6%	0%	7%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov	Perm	NA		Split	NA				
Protected Phases		2	4		6		4	4			8	
Permitted Phases	2		2	6						8		
Detector Phase	2	2	4	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		5.0	5.0	
Minimum Split (s)	15.5	15.5	15.0	15.5	15.5		15.0	15.0		10.0	10.0	
Total Split (s)	60.5	60.5	15.0	60.5	60.5		15.0	15.0		10.0	10.0	
Total Split (%)	70.8%	70.8%	17.5%	70.8%	70.8%		17.5%	17.5%		11.7%	11.7%	
Maximum Green (s)	55.0	55.0	10.0	55.0	55.0		10.0	10.0		5.0	5.0	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.5	1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.0	5.5	5.5			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	2.0	3.0	3.0		2.0	2.0		0.2	0.2	
Recall Mode	Min	Min	None	Min	Min		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 85.5
Actuated Cycle Length: 51.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Main Street & Seven Bridge Road & Driveway



Lane Group	EBT	EBR	WBL	WBT	NBT
Lane Group Flow (vph)	842	390	17	525	222
v/c Ratio	0.82	0.26	0.08	0.51	0.52
Control Delay	15.6	0.4	4.6	7.6	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	0.4	4.6	7.6	19.2
Queue Length 50th (ft)	165	0	2	76	33
Queue Length 95th (ft)	282	0	7	124	#133
Internal Link Dist (ft)	1370			920	920
Turn Bay Length (ft)		115	50		
Base Capacity (vph)	1657	1516	344	1657	425
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.26	0.05	0.32	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	783	363	16	488	0	198	0	8	0	0	0
Future Volume (veh/h)	0	783	363	16	488	0	198	0	8	0	0	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1845	1900	1792	1900	1976	1852	1976	1900	1900	1900
Adj Flow Rate, veh/h	0	842	390	17	525	0	213	0	9	0	0	0
Adj No. of Lanes	0	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	6	6	3	0	6	6	0	0	0	0	0	0
Cap, veh/h	0	1152	1277	277	1152	0	289	0	12	0	3	0
Arrive On Green	0.00	0.64	0.64	0.64	0.64	0.00	0.17	0.00	0.17	0.00	0.00	0.00
Sat Flow, veh/h	0	1792	1568	459	1792	0	1684	0	71	0	1900	0
Grp Volume(v), veh/h	0	842	390	17	525	0	222	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1792	1568	459	1792	0	1755	0	0	0	1900	0
Q Serve(g_s), s	0.0	17.9	3.5	1.5	8.4	0.0	6.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	17.9	3.5	19.4	8.4	0.0	6.8	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00	0.96		0.04	0.00		0.00
Lane Grp Cap(c), veh/h	0	1152	1277	277	1152	0	301	0	0	0	3	0
V/C Ratio(X)	0.00	0.73	0.31	0.06	0.46	0.00	0.74	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1744	1794	429	1744	0	310	0	0	0	168	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	6.8	1.3	13.3	5.1	0.0	22.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.1	0.1	0.3	0.0	7.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.9	2.9	0.2	4.2	0.0	3.9	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	7.7	1.4	13.4	5.4	0.0	29.7	0.0	0.0	0.0	0.0	0.0
LnGrp LOS		A	A	B	A		C					
Approach Vol, veh/h		1232			542			222			0	
Approach Delay, s/veh		5.7			5.6			29.7			0.0	
Approach LOS		A			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		41.8		14.7		41.8		0.0
Change Period (Y+Rc), s		5.5		5.0		5.5		5.0
Max Green Setting (Gmax), s		55.0		10.0		55.0		5.0
Max Q Clear Time (g_c+I1), s		19.9		8.8		21.4		0.0
Green Ext Time (p_c), s		15.2		0.1		15.0		0.0

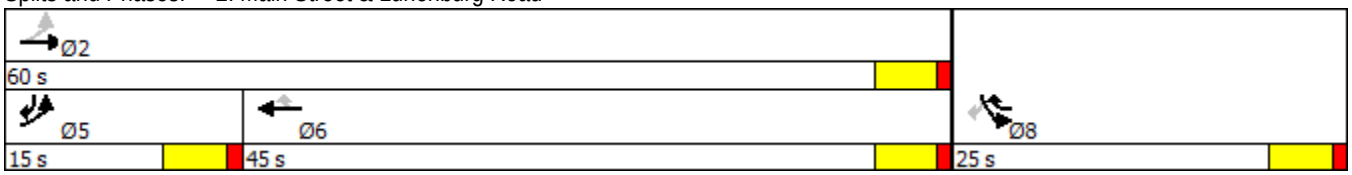
Intersection Summary	
HCM 2010 Ctrl Delay	8.4
HCM 2010 LOS	A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	53	805	396	298	336	41
Future Volume (vph)	53	805	396	298	336	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	100			160	0	240
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		No
Link Speed (mph)		35	35		45	
Link Distance (ft)		1000	1450		1000	
Travel Time (s)		19.5	28.2		15.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	4%	6%	6%	8%	3%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	8	8	5
Permitted Phases	2			6		8
Detector Phase	5	2	6	8	8	5
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	11.0	15.0	15.0	15.0	15.0	11.0
Total Split (s)	15.0	60.0	45.0	25.0	25.0	15.0
Total Split (%)	17.6%	70.6%	52.9%	29.4%	29.4%	17.6%
Maximum Green (s)	10.0	55.0	40.0	20.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	Min	Min	None	None	None

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 68.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Main Street & Lunenburg Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	57	866	426	320	361	44
v/c Ratio	0.13	0.86	0.55	0.25	0.80	0.06
Control Delay	6.7	22.5	17.8	0.7	41.4	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	22.5	17.8	0.7	41.4	15.0
Queue Length 50th (ft)	10	284	137	0	141	10
Queue Length 95th (ft)	22	446	217	12	#358	37
Internal Link Dist (ft)		920	1370		920	
Turn Bay Length (ft)	100			160		240
Base Capacity (vph)	513	1422	1064	1268	489	770
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.61	0.40	0.25	0.74	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	53	805	396	298	336	41
Future Volume (veh/h)	53	805	396	298	336	41
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1827	1792	1792	1759	1845
Adj Flow Rate, veh/h	57	866	426	320	361	44
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	4	6	6	8	3
Cap, veh/h	426	1091	821	1069	409	477
Arrive On Green	0.06	0.60	0.46	0.46	0.24	0.24
Sat Flow, veh/h	1774	1827	1792	1524	1675	1568
Grp Volume(v), veh/h	57	866	426	320	361	44
Grp Sat Flow(s),veh/h/ln	1774	1827	1792	1524	1675	1568
Q Serve(g_s), s	0.9	22.9	10.7	5.0	13.1	1.3
Cycle Q Clear(g_c), s	0.9	22.9	10.7	5.0	13.1	1.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	426	1091	821	1069	409	477
V/C Ratio(X)	0.13	0.79	0.52	0.30	0.88	0.09
Avail Cap(c_a), veh/h	601	1594	1138	1339	532	592
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.0	9.7	12.2	3.5	22.9	15.7
Incr Delay (d2), s/veh	0.1	1.8	0.5	0.2	11.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	11.8	5.3	3.9	7.3	0.6
LnGrp Delay(d),s/veh	8.0	11.5	12.7	3.7	34.1	15.7
LnGrp LOS	A	B	B	A	C	B
Approach Vol, veh/h		923	746		405	
Approach Delay, s/veh		11.3	8.8		32.1	
Approach LOS		B	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		42.6			8.8	33.9		20.4
Change Period (Y+Rc), s		5.0			5.0	5.0		5.0
Max Green Setting (Gmax), s		55.0			10.0	40.0		20.0
Max Q Clear Time (g_c+I1), s		24.9			2.9	12.7		15.1
Green Ext Time (p_c), s		12.8			0.0	12.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.5
HCM 2010 LOS	B

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	30	29	325	362	19
Future Volume (vph)	19	30	29	325	362	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	12	12
Link Speed (mph)	30			50	50	
Link Distance (ft)	1000			1000	4300	
Travel Time (s)	22.7			13.6	58.6	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	33%	18%	7%	10%	6%	17%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	30	29	325	362	19
Future Vol, veh/h	19	30	29	325	362	19
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	93	93	93	93	93	93
Heavy Vehicles, %	33	18	7	10	6	17
Mvmt Flow	20	32	31	349	389	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	810	399	409	0	-	0
Stage 1	399	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Critical Hdwy	6.73	6.38	4.17	-	-	-
Critical Hdwy Stg 1	5.73	-	-	-	-	-
Critical Hdwy Stg 2	5.73	-	-	-	-	-
Follow-up Hdwy	3.797	3.462	2.263	-	-	-
Pot Cap-1 Maneuver	310	617	1123	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	299	617	1123	-	-	-
Mov Cap-2 Maneuver	299	-	-	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	607	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1123	-	437	-	-
HCM Lane V/C Ratio	0.028	-	0.121	-	-
HCM Control Delay (s)	8.3	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	147	100	77	28	66	78	182	112	289	232	45
Future Volume (vph)	36	147	100	77	28	66	78	182	112	289	232	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	16	16	16	14	14	14	15	15	15
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		999			500			4300			875	
Travel Time (s)		22.7			11.4			97.7			19.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	6%	2%	3%	9%	0%	16%	6%	7%	21%	4%	4%	10%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type: Other
Control Type: Roundabout

ROUNDABOUT ANALYSIS

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam ft	Circ Width ft	Insc Diam ft	Entry Radius ft	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width ft	Appr Dist ft	Prop Queued Upstr Signal	Extra Bunching %
South	Lunenburg Road	70.00*	17.50*	105.0*	65.0*	30.0*	1	1	13.50*	1500.0	NA[5]	0.0[1]
East	Old Union Turnpike	70.00*	17.50*	105.0*	100.0*	30.0*	1	1	17.00*	1500.0	NA[5]	0.0[1]
North	Lunenburg Road	70.00*	17.50*	105.0*	50.0*	30.0*	1	1	13.00*	1500.0	NA[5]	0.0[1]
West	Old Union Turnpike	70.00*	17.50*	105.0*	75.0*	30.0*	1	1	14.00*	1500.0	NA[5]	0.0[1]

Roundabout Capacity Model: US HCM 6

* These parameters do not affect estimated capacity values in the HCM 6 Capacity Model.
1 Program option resulted in zero value (single Site analysis or unconnected Site in Network analysis).
5 Not Applicable (single Site analysis or unconnected Site in Network analysis).

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	OD Mov	Lane No	Lane Type	Opng Flow pcu/h	In-Bunch Headway sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	HVE for Entry	Critical Gap sec	Follow-up Headway sec
South: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
West	L2	1	Dominant	504	0.00	0.000	No	No	–	1.06	4.98	2.61
North	T1	1	Dominant	504	0.00	0.000	No	No	–	1.07	4.98	2.61
East	R2	1	Dominant	504	0.00	0.000	No	No	–	1.21	4.98	2.61
East: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
South	L2	1	Dominant	325	0.00	0.000	No	No	–	1.09	4.98	2.61
West	T1	1	Dominant	325	0.00	0.000	No	No	–	1.00	4.98	2.61
North	R2	1	Dominant	325	0.00	0.000	No	No	–	1.16	4.98	2.61
North: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
East	L2	1	Dominant	201	0.00	0.000	No	No	–	1.04	4.98	2.61
South	T1	1	Dominant	201	0.00	0.000	No	No	–	1.04	4.98	2.61
West	R2	1	Dominant	201	0.00	0.000	No	No	–	1.10	4.98	2.61
West: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
North	L2	1	Dominant	645	0.00	0.000	No	No	–	1.06	4.98	2.61
East	T1	1	Dominant	645	0.00	0.000	No	No	–	1.02	4.98	2.61
South	R2	1	Dominant	645	0.00	0.000	No	No	–	1.03	4.98	2.61

Roundabout Capacity Model: US HCM 6

Circulating Lane Flow Rates			
Lane No	Circulating Flow Rate veh/h	pcu/h	Percent
South: Lunenburg Road			
Lane 1	487	504	100.0
Approach	487	504	
East: Old Union Turnpike			
Lane 1	305	325	100.0
Approach	305	325	
North: Lunenburg Road			
Lane 1	189	201	100.0
Approach	189	201	
West: Old Union Turnpike			
Lane 1	616	645	100.0
Approach	616	645	

Roundabout Capacity Model: The US HCM 6 roundabout capacity model option is in use.
This model considers only the total circulating flow and not the flow rates in individual circulating lanes.
To model the effects of flow distribution in circulating lanes on the entry capacity results, you should use the SIDRA Standard roundabout capacity model.

MOVEMENT SUMMARY

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Lunenburg Road											
3	L2	80	6.0	0.516	12.2	LOS B	3.5	94.0	0.69	0.83	27.6
8	T1	188	7.0	0.516	12.3	LOS B	3.5	94.0	0.69	0.83	27.6
18	R2	115	21.0	0.516	12.9	LOS B	3.5	94.0	0.69	0.83	26.9
Approach		384	11.0	0.516	12.5	LOS B	3.5	94.0	0.69	0.83	27.4
East: Old Union Turnpike											
1	L2	79	9.0	0.196	5.9	LOS A	0.8	22.0	0.47	0.37	29.8
6	T1	29	0.0	0.196	5.6	LOS A	0.8	22.0	0.47	0.37	29.8
16	R2	68	16.0	0.196	6.2	LOS A	0.8	22.0	0.47	0.37	28.9
Approach		176	10.2	0.196	6.0	LOS A	0.8	22.0	0.47	0.37	29.4
North: Lunenburg Road											
7	L2	298	4.0	0.542	9.9	LOS A	3.7	94.8	0.56	0.40	28.1
4	T1	239	4.0	0.542	9.9	LOS A	3.7	94.8	0.56	0.40	28.2
14	R2	46	10.0	0.542	10.1	LOS B	3.7	94.8	0.56	0.40	27.5
Approach		584	4.5	0.542	9.9	LOS A	3.7	94.8	0.56	0.40	28.1
West: Old Union Turnpike											
5	L2	37	6.0	0.420	11.1	LOS B	2.3	59.2	0.70	0.78	28.3
2	T1	152	2.0	0.420	10.9	LOS B	2.3	59.2	0.70	0.78	28.4
12	R2	103	3.0	0.420	11.0	LOS B	2.3	59.2	0.70	0.78	27.8
Approach		292	2.9	0.420	11.0	LOS B	2.3	59.2	0.70	0.78	28.2
All Vehicles		1435	6.6	0.542	10.3	LOS B	3.7	94.8	0.61	0.59	28.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	3	45	0	44	0	154	130	73	518	0
Future Volume (vph)	0	5	3	45	0	44	0	154	130	73	518	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Storage Length (ft)	0		0	65		0	0		55	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			35			35			35	
Link Distance (ft)		500			420			875			1000	
Travel Time (s)		11.4			8.2			17.0			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	10%	0%	11%	0%	10%	8%	2%	4%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	2.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	5	3	45	0	44	0	154	130	73	518	0
Future Vol, veh/h	0	5	3	45	0	44	0	154	130	73	518	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	65	-	-	-	-	55	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	10	0	11	0	10	8	2	4	0
Mvmt Flow	0	5	3	47	0	46	0	160	135	76	540	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	875	852	540	856	852	160	540	0	0	160	0	0
Stage 1	692	692	-	160	160	-	-	-	-	-	-	-
Stage 2	183	160	-	696	692	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.2	6.5	6.31	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.59	4	3.399	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	272	299	546	269	299	862	1039	-	-	1419	-	-
Stage 1	437	448	-	824	769	-	-	-	-	-	-	-
Stage 2	823	769	-	419	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	243	276	546	248	276	862	1039	-	-	1419	-	-
Mov Cap-2 Maneuver	243	276	-	248	276	-	-	-	-	-	-	-
Stage 1	437	414	-	824	769	-	-	-	-	-	-	-
Stage 2	779	769	-	380	414	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.9	16.2	0	0.9
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1039	-	-	339	248	862	1419	-	-
HCM Lane V/C Ratio	-	-	-	0.025	0.189	0.053	0.054	-	-
HCM Control Delay (s)	0	-	-	15.9	22.9	9.4	7.7	0	-
HCM Lane LOS	A	-	-	C	C	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.7	0.2	0.2	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	412	136	70	0	13	101
Future Volume (vph)	412	136	70	0	13	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	16	16	16
Storage Length (ft)	0			60	0	75
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		40	40		30	
Link Distance (ft)		500	500		300	
Travel Time (s)		8.5	8.5		6.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	8%	4%	2%	0%	0%	17%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	412	136	70	0	13	101
Future Vol, veh/h	412	136	70	0	13	101
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	Yield
Storage Length	-	-	-	60	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	4	2	0	0	17
Mvmt Flow	438	145	74	0	14	107

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	74	0	-	0	1095	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	1021	-
Critical Hdwy	4.18	-	-	-	6.4	6.37
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.272	-	-	-	3.5	3.453
Pot Cap-1 Maneuver	1488	-	-	-	239	947
Stage 1	-	-	-	-	954	-
Stage 2	-	-	-	-	351	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1488	-	-	-	163	947
Mov Cap-2 Maneuver	-	-	-	-	163	-
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	351	-

Approach	EB	WB	SB
HCM Control Delay, s	6.3	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1488	-	-	-	163	947
HCM Lane V/C Ratio	0.295	-	-	-	0.085	0.113
HCM Control Delay (s)	8.4	0	-	-	29.1	9.3
HCM Lane LOS	A	A	-	-	D	A
HCM 95th %tile Q(veh)	1.2	-	-	-	0.3	0.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	64	144	15	28	61	0
Future Volume (vph)	64	144	15	28	61	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	16	13	13	16	16
Storage Length (ft)		75	0		0	60
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Link Speed (mph)	35			35	30	
Link Distance (ft)	420			500	300	
Travel Time (s)	8.2			9.7	6.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	13%	2%	0%	12%	8%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	64	144	15	28	61	0
Future Vol, veh/h	64	144	15	28	61	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Stop
Storage Length	-	75	-	-	0	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	13	2	0	12	8	0
Mvmt Flow	72	162	17	31	69	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	72	0	137	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	65	-
Critical Hdwy	-	-	4.1	-	6.48	6.2
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	-	-	2.2	-	3.572	3.3
Pot Cap-1 Maneuver	-	-	1541	-	842	996
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	943	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1541	-	833	996
Mov Cap-2 Maneuver	-	-	-	-	833	-
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	933	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	833	-	-	-	1541	-
HCM Lane V/C Ratio	0.082	-	-	-	0.011	-
HCM Control Delay (s)	9.7	0	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	522	2	5	160	1	20
Future Volume (vph)	522	2	5	160	1	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	2350			500	500	
Travel Time (s)	45.8			9.7	11.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	0%	60%	6%	0%	10%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	522	2	5	160	1	20
Future Vol, veh/h	522	2	5	160	1	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	60	6	0	10
Mvmt Flow	574	2	5	176	1	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	576	0	761	575
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	186	-
Critical Hdwy	-	-	4.7	-	6.4	6.3
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.74	-	3.5	3.39
Pot Cap-1 Maneuver	-	-	765	-	376	503
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	851	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	765	-	373	503
Mov Cap-2 Maneuver	-	-	-	-	373	-
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	845	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	495	-	-	765	-
HCM Lane V/C Ratio	0.047	-	-	0.007	-
HCM Control Delay (s)	12.6	-	-	9.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	508	8	2	161	0	24	0	16	0	0	1
Future Volume (vph)	1	508	8	2	161	0	24	0	16	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			2350			500			200	
Travel Time (s)		9.7			45.8			11.4			4.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	2%	13%	50%	6%	0%	4%	0%	6%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	0.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	508	8	2	161	0	24	0	16	0	0	1
Future Vol, veh/h	1	508	8	2	161	0	24	0	16	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	2	13	50	6	0	4	0	6	0	0	0
Mvmt Flow	1	546	9	2	173	0	26	0	17	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	173	0	0	555	0	0	731	730	551	738	734	173
Stage 1	-	-	-	-	-	-	553	553	-	177	177	-
Stage 2	-	-	-	-	-	-	178	177	-	561	557	-
Critical Hdwy	4.1	-	-	4.6	-	-	7.14	6.5	6.26	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.65	-	-	3.536	4	3.354	3.5	4	3.3
Pot Cap-1 Maneuver	1416	-	-	814	-	-	335	352	526	336	350	876
Stage 1	-	-	-	-	-	-	514	518	-	829	756	-
Stage 2	-	-	-	-	-	-	819	756	-	516	515	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1416	-	-	814	-	-	334	351	526	324	349	876
Mov Cap-2 Maneuver	-	-	-	-	-	-	334	351	-	324	349	-
Stage 1	-	-	-	-	-	-	513	517	-	828	754	-
Stage 2	-	-	-	-	-	-	816	754	-	499	514	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	15.3	9.1
HCM LOS			C	A

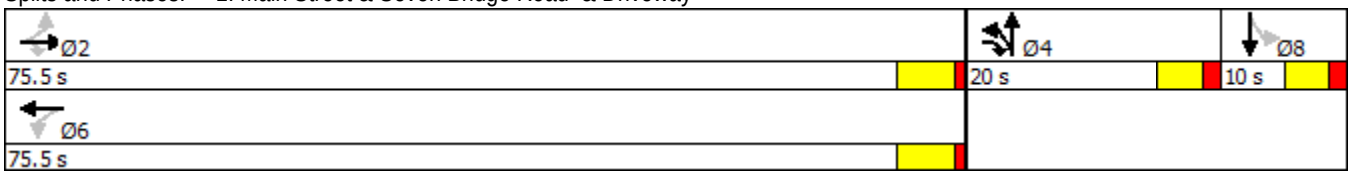
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	391	1416	-	-	814	-	-	876
HCM Lane V/C Ratio	0.11	0.001	-	-	0.003	-	-	0.001
HCM Control Delay (s)	15.3	7.5	0	-	9.4	0	-	9.1
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	515	244	4	1237	0	219	0	3	0	0	0
Future Volume (vph)	0	515	244	4	1237	0	219	0	3	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	11	11	15	15	15	12	12	12
Storage Length (ft)	0		115	50		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			30	
Link Distance (ft)		1450			1000			1000			200	
Travel Time (s)		28.2			19.5			19.5			4.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov	Perm	NA		Split	NA				
Protected Phases		2	4		6		4	4			8	
Permitted Phases	2		2	6						8		
Detector Phase	2	2	4	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		5.0	5.0	
Minimum Split (s)	15.5	15.5	15.0	15.5	15.5		15.0	15.0		10.0	10.0	
Total Split (s)	75.5	75.5	20.0	75.5	75.5		20.0	20.0		10.0	10.0	
Total Split (%)	71.6%	71.6%	19.0%	71.6%	71.6%		19.0%	19.0%		9.5%	9.5%	
Maximum Green (s)	70.0	70.0	15.0	70.0	70.0		15.0	15.0		5.0	5.0	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.5	1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.0	5.5	5.5			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	2.0	3.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min	None	Min	Min		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 105.5
Actuated Cycle Length: 92.8
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Main Street & Seven Bridge Road & Driveway



Lane Group	EBT	EBR	WBL	WBT	NBT
Lane Group Flow (vph)	542	257	4	1302	234
v/c Ratio	0.40	0.17	0.01	0.96	0.72
Control Delay	5.3	0.2	3.5	28.8	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	0.2	3.5	28.8	38.6
Queue Length 50th (ft)	90	0	0	544	88
Queue Length 95th (ft)	156	0	3	#1067	167
Internal Link Dist (ft)	1370			920	920
Turn Bay Length (ft)		115	50		
Base Capacity (vph)	1345	1513	579	1358	380
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	0.17	0.01	0.96	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	515	244	4	1237	0	219	0	3	0	0	0
Future Volume (veh/h)	0	515	244	4	1237	0	219	0	3	0	0	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1863	1900	1863	1900	1976	1938	1976	1900	1900	1900
Adj Flow Rate, veh/h	0	542	257	4	1302	0	231	0	3	0	0	0
Adj No. of Lanes	0	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	2	0	2	2	0	0	0	0	0	0
Cap, veh/h	0	1363	1403	514	1377	0	267	0	3	0	2	0
Arrive On Green	0.00	0.74	0.74	0.74	0.74	0.00	0.15	0.00	0.15	0.00	0.00	0.00
Sat Flow, veh/h	0	1845	1583	691	1863	0	1819	0	24	0	1900	0
Grp Volume(v), veh/h	0	542	257	4	1302	0	234	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1845	1583	691	1863	0	1843	0	0	0	1900	0
Q Serve(g_s), s	0.0	10.0	2.0	0.2	55.8	0.0	11.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.0	2.0	10.2	55.8	0.0	11.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00	0.99		0.01	0.00		0.00
Lane Grp Cap(c), veh/h	0	1363	1403	514	1377	0	271	0	0	0	2	0
V/C Ratio(X)	0.00	0.40	0.18	0.01	0.95	0.00	0.86	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1402	1436	528	1415	0	300	0	0	0	103	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.4	0.7	6.3	10.4	0.0	38.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	13.0	0.0	19.2	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.0	2.0	0.0	32.8	0.0	7.2	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	4.6	0.8	6.3	23.4	0.0	57.6	0.0	0.0	0.0	0.0	0.0
LnGrp LOS		A	A	A	C		E					
Approach Vol, veh/h		799			1306			234			0	
Approach Delay, s/veh		3.4			23.3			57.6			0.0	
Approach LOS		A			C			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		73.6		18.5		73.6		0.0
Change Period (Y+Rc), s		5.5		5.0		5.5		5.0
Max Green Setting (Gmax), s		70.0		15.0		70.0		5.0
Max Q Clear Time (g_c+I1), s		12.0		13.4		57.8		0.0
Green Ext Time (p_c), s		32.7		0.1		10.3		0.0

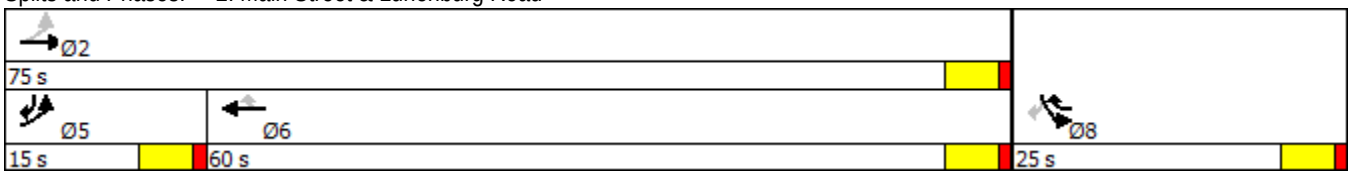
Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	52	499	817	631	259	71
Future Volume (vph)	52	499	817	631	259	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	100			160	0	240
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		No
Link Speed (mph)		35	35		45	
Link Distance (ft)		1000	1450		1000	
Travel Time (s)		19.5	28.2		15.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	3%	1%	2%	0%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	8	8	5
Permitted Phases	2			6		8
Detector Phase	5	2	6	8	8	5
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	11.0	15.0	15.0	15.0	15.0	11.0
Total Split (s)	15.0	75.0	60.0	25.0	25.0	15.0
Total Split (%)	15.0%	75.0%	60.0%	25.0%	25.0%	15.0%
Maximum Green (s)	10.0	70.0	55.0	20.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	Min	Min	None	None	None

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 82.3
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Main Street & Lunenburg Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	55	525	860	664	273	75
v/c Ratio	0.20	0.45	0.88	0.47	0.76	0.13
Control Delay	6.5	7.9	30.0	1.3	49.5	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	7.9	30.0	1.3	49.5	22.6
Queue Length 50th (ft)	10	124	415	0	153	31
Queue Length 95th (ft)	21	182	#715	17	#291	66
Internal Link Dist (ft)		920	1370		920	
Turn Bay Length (ft)	100			160		240
Base Capacity (vph)	336	1450	1215	1421	459	643
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.36	0.71	0.47	0.59	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	52	499	817	631	259	71
Future Volume (veh/h)	52	499	817	631	259	71
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1881	1863	1900
Adj Flow Rate, veh/h	55	525	860	664	273	75
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	1	2	0
Cap, veh/h	260	1280	1063	1207	317	375
Arrive On Green	0.05	0.69	0.58	0.58	0.18	0.18
Sat Flow, veh/h	1810	1845	1845	1599	1774	1615
Grp Volume(v), veh/h	55	525	860	664	273	75
Grp Sat Flow(s),veh/h/ln	1810	1845	1845	1599	1774	1615
Q Serve(g_s), s	0.8	9.5	29.0	13.6	11.7	2.9
Cycle Q Clear(g_c), s	0.8	9.5	29.0	13.6	11.7	2.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	260	1280	1063	1207	317	375
V/C Ratio(X)	0.21	0.41	0.81	0.55	0.86	0.20
Avail Cap(c_a), veh/h	395	1648	1295	1408	453	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.1	5.1	13.2	4.0	31.2	24.2
Incr Delay (d2), s/veh	0.1	0.2	3.3	0.4	8.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.9	15.5	10.5	6.4	1.3
LnGrp Delay(d),s/veh	12.2	5.3	16.4	4.4	39.6	24.3
LnGrp LOS	B	A	B	A	D	C
Approach Vol, veh/h		580	1524		348	
Approach Delay, s/veh		6.0	11.2		36.3	
Approach LOS		A	B		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		59.4			9.2	50.2		19.0
Change Period (Y+Rc), s		5.0			5.0	5.0		5.0
Max Green Setting (Gmax), s		70.0			10.0	55.0		20.0
Max Q Clear Time (g_c+I1), s		11.5			2.8	31.0		13.7
Green Ext Time (p_c), s		21.1			0.0	14.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	27	49	668	315	94
Future Volume (vph)	63	27	49	668	315	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	12	12
Link Speed (mph)	30			50	50	
Link Distance (ft)	1000			1000	4300	
Travel Time (s)	22.7			13.6	58.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	2%	6%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	27	49	668	315	94
Future Vol, veh/h	63	27	49	668	315	94
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	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	2	6	0
Mvmt Flow	66	28	51	696	328	98

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1175	377	426	0	-	0
Stage 1	377	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	214	674	1144	-	-	-
Stage 1	698	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	198	674	1144	-	-	-
Mov Cap-2 Maneuver	198	-	-	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	447	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.6	0.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1144	-	251	-	-
HCM Lane V/C Ratio	0.045	-	0.374	-	-
HCM Control Delay (s)	8.3	0	27.6	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.7	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	45	161	115	84	147	228	364	58	58	189	265
Future Volume (vph)	80	45	161	115	84	147	228	364	58	58	189	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	16	16	16	14	14	14	15	15	15
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		999			500			4300			875	
Travel Time (s)		22.7			11.4			97.7			19.9	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	1%	1%	7%	1%	1%	4%	2%	9%	1%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type: Other
Control Type: Roundabout

ROUNDABOUT ANALYSIS

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam ft	Circ Width ft	Insc Diam ft	Entry Radius ft	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width ft	Appr Dist ft	Prop Queued Upstr Signal	Extra Bunching %
South	Lunenburg Road	70.00*	17.50*	105.0*	65.0*	30.0*	1	1	13.50*	1500.0	NA[5]	0.0[1]
East	Old Union Turnpike	70.00*	17.50*	105.0*	100.0*	30.0*	1	1	17.00*	1500.0	NA[5]	0.0[1]
North	Lunenburg Road	70.00*	17.50*	105.0*	50.0*	30.0*	1	1	13.00*	14.5	NA[5]	0.0[1]
West	Old Union Turnpike	70.00*	17.50*	105.0*	75.0*	30.0*	1	1	14.00*	1500.0	NA[5]	0.0[1]

Roundabout Capacity Model: US HCM 6

* These parameters do not affect estimated capacity values in the HCM 6 Capacity Model.
1 Program option resulted in zero value (single Site analysis or unconnected Site in Network analysis).
5 Not Applicable (single Site analysis or unconnected Site in Network analysis).

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	OD Mov	Lane No	Lane Type	Opng Flow pcu/h	In-Bunch Headway sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	HVE for Entry	Critical Gap sec	Follow-up Headway sec
South: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
West	L2	1	Dominant	186	0.00	0.000	No	No	–	1.01	4.98	2.61
North	T1	1	Dominant	186	0.00	0.000	No	No	–	1.01	4.98	2.61
East	R2	1	Dominant	186	0.00	0.000	No	No	–	1.04	4.98	2.61
East: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
South	L2	1	Dominant	583	0.00	0.000	No	No	–	1.01	4.98	2.61
West	T1	1	Dominant	583	0.00	0.000	No	No	–	1.01	4.98	2.61
North	R2	1	Dominant	583	0.00	0.000	No	No	–	1.07	4.98	2.61
North: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
East	L2	1	Dominant	436	0.00	0.000	No	No	–	1.02	4.98	2.61
South	T1	1	Dominant	436	0.00	0.000	No	No	–	1.09	4.98	2.61
West	R2	1	Dominant	436	0.00	0.000	No	No	–	1.01	4.98	2.61
West: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
North	L2	1	Dominant	385	0.00	0.000	No	No	–	1.00	4.98	2.61
East	T1	1	Dominant	385	0.00	0.000	No	No	–	1.00	4.98	2.61
South	R2	1	Dominant	385	0.00	0.000	No	No	–	1.00	4.98	2.61

Roundabout Capacity Model: US HCM 6

Circulating Lane Flow Rates			
Lane No	Circulating Flow Rate veh/h	pcu/h	Percent
South: Lunenburg Road			
Lane 1	185	186	100.0
Approach	185	186	
East: Old Union Turnpike			
Lane 1	578	583	100.0
Approach	578	583	
North: Lunenburg Road			
Lane 1	431	436	100.0
Approach	431	436	
West: Old Union Turnpike			
Lane 1	366	385	100.0
Approach	366	385	

Roundabout Capacity Model: The US HCM 6 roundabout capacity model option is in use.
This model considers only the total circulating flow and not the flow rates in individual circulating lanes.
To model the effects of flow distribution in circulating lanes on the entry capacity results, you should use the SIDRA Standard roundabout capacity model.

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MOVEMENT SUMMARY

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Lunenburg Road											
3	L2	230	1.0	0.493	8.7	LOS A	3.3	84.0	0.52	0.36	28.8
8	T1	267	1.0	0.493	8.7	LOS A	3.3	84.0	0.52	0.36	18.1
18	R2	59	4.0	0.493	8.8	LOS A	3.3	84.0	0.52	0.36	28.1
Approach		556	1.3	0.493	8.7	LOS A	3.3	84.0	0.52	0.36	24.1
East: Old Union Turnpike											
1	L2	116	1.0	0.475	11.5	LOS B	3.0	77.2	0.71	0.82	27.8
6	T1	85	1.0	0.475	11.5	LOS B	3.0	77.2	0.71	0.82	27.8
16	R2	148	7.0	0.475	11.8	LOS B	3.0	77.2	0.71	0.82	16.8
Approach		349	3.5	0.475	11.6	LOS B	3.0	77.2	0.71	0.82	23.5
North: Lunenburg Road											
7	L2	59	2.0	0.608	13.5	LOS B	5.9	152.3	0.75	0.93	24.0
4	T1	191	9.0	0.608	13.8	LOS B	5.9	152.3	0.75	0.93	24.0
14	R2	268	1.0	0.608	13.5	LOS B	5.9	152.3	0.75	0.93	23.2
Approach		517	4.1	0.608	13.6	LOS B	5.9	152.3	0.75	0.93	23.6
West: Old Union Turnpike											
5	L2	81	0.0	0.310	7.1	LOS A	1.6	38.8	0.56	0.49	16.3
2	T1	45	0.0	0.310	7.1	LOS A	1.6	38.8	0.56	0.49	29.6
12	R2	163	0.0	0.310	7.1	LOS A	1.6	38.8	0.56	0.49	28.9
Approach		289	0.0	0.310	7.1	LOS A	1.6	38.8	0.56	0.49	25.7
All Vehicles		1711	2.4	0.608	10.5	LOS B	5.9	152.3	0.64	0.65	24.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	4	319	0	337	2	470	119	32	189	1
Future Volume (vph)	0	0	4	319	0	337	2	470	119	32	189	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Storage Length (ft)	0		0	65		0	0		55	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			35			35			35	
Link Distance (ft)		500			420			875			1000	
Travel Time (s)		11.4			8.2			17.0			19.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	5%	0%	1%	0%	1%	2%	14%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	49.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	4	319	0	337	2	470	119	32	189	1
Future Vol, veh/h	0	0	4	319	0	337	2	470	119	32	189	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	65	-	-	-	-	55	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	5	0	1	0	1	2	14	1	0
Mvmt Flow	0	0	5	363	0	383	2	534	135	36	215	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1018	826	216	828	826	534	216	0	0	534	0	0
Stage 1	288	288	-	538	538	-	-	-	-	-	-	-
Stage 2	730	538	-	290	288	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.15	6.5	6.21	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.545	4	3.309	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	218	310	829	~ 287	310	548	1366	-	-	976	-	-
Stage 1	724	677	-	522	526	-	-	-	-	-	-	-
Stage 2	417	526	-	711	677	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	63	296	829	~ 276	296	548	1366	-	-	976	-	-
Mov Cap-2 Maneuver	63	296	-	~ 276	296	-	-	-	-	-	-	-
Stage 1	723	649	-	521	525	-	-	-	-	-	-	-
Stage 2	125	525	-	677	649	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	110.9	0	1.3
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1366	-	-	829	276	548	976	-	-
HCM Lane V/C Ratio	0.002	-	-	0.005	1.313	0.699	0.037	-	-
HCM Control Delay (s)	7.6	0	-	9.4	201.2	25.4	8.8	0	-
HCM Lane LOS	A	A	-	A	F	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	18.3	5.5	0.1	-	-

Notes

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	84	77	105	1	13	241
Future Volume (vph)	84	77	105	1	13	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	16	16	16
Storage Length (ft)	0			60	0	75
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		40	40		30	
Link Distance (ft)		500	500		300	
Travel Time (s)		8.5	8.5		6.8	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	5%	1%	0%	0%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	84	77	105	1	13	241
Future Vol, veh/h	84	77	105	1	13	241
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	Yield
Storage Length	-	-	-	60	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	5	1	0	0	3
Mvmt Flow	100	92	125	1	15	287

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	125	0	-	0	417	125
Stage 1	-	-	-	-	125	-
Stage 2	-	-	-	-	292	-
Critical Hdwy	4.13	-	-	-	6.4	6.23
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.327
Pot Cap-1 Maneuver	1455	-	-	-	596	923
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1455	-	-	-	553	923
Mov Cap-2 Maneuver	-	-	-	-	553	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	762	-

Approach	EB	WB	SB
HCM Control Delay, s	4	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1455	-	-	-	553	923
HCM Lane V/C Ratio	0.069	-	-	-	0.028	0.311
HCM Control Delay (s)	7.7	0	-	-	11.7	10.7
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	1.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	15	136	29	249	407	0
Future Volume (vph)	15	136	29	249	407	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	16	13	13	16	16
Storage Length (ft)		75	0		0	60
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Link Speed (mph)	35			35	30	
Link Distance (ft)	420			500	300	
Travel Time (s)	8.2			9.7	6.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	8%	4%	8%	2%	3%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	14.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	15	136	29	249	407	0
Future Vol, veh/h	15	136	29	249	407	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Stop
Storage Length	-	75	-	-	0	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	8	4	8	2	3	0
Mvmt Flow	18	160	34	293	479	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	18	0	379	18
Stage 1	-	-	-	-	18	-
Stage 2	-	-	-	-	361	-
Critical Hdwy	-	-	4.18	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.272	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1561	-	621	1066
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	703	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1561	-	605	1066
Mov Cap-2 Maneuver	-	-	-	-	605	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	685	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	29.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	605	-	-	-	1561	-
HCM Lane V/C Ratio	0.791	-	-	-	0.022	-
HCM Control Delay (s)	29.8	0	-	-	7.4	0
HCM Lane LOS	D	A	-	-	A	A
HCM 95th %tile Q(veh)	7.7	-	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	314	8	13	516	9	8
Future Volume (vph)	314	8	13	516	9	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	2350			500	500	
Travel Time (s)	45.8			9.7	11.4	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	13%	0%	1%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	314	8	13	516	9	8
Future Vol, veh/h	314	8	13	516	9	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	13	0	1	0	0
Mvmt Flow	383	10	16	629	11	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	393	0	1049	388
Stage 1	-	-	-	-	388	-
Stage 2	-	-	-	-	661	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1177	-	254	665
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	517	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1177	-	249	665
Mov Cap-2 Maneuver	-	-	-	-	249	-
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	506	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	353	-	-	1177	-
HCM Lane V/C Ratio	0.059	-	-	0.013	-
HCM Control Delay (s)	15.8	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	311	20	20	506	2	23	0	10	0	0	1
Future Volume (vph)	1	311	20	20	506	2	23	0	10	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			2350			500			200	
Travel Time (s)		9.7			45.8			11.4			4.5	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	0%	2%	5%	0%	1%	0%	4%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	311	20	20	506	2	23	0	10	0	0	1
Future Vol, veh/h	1	311	20	20	506	2	23	0	10	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	2	5	0	1	0	4	0	0	0	0	0
Mvmt Flow	1	384	25	25	625	2	28	0	12	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	627	0	0	409	0	0	1076	1076	397	1081	1087	626
Stage 1	-	-	-	-	-	-	399	399	-	676	676	-
Stage 2	-	-	-	-	-	-	677	677	-	405	411	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	965	-	-	1161	-	-	195	221	657	197	218	488
Stage 1	-	-	-	-	-	-	623	606	-	446	456	-
Stage 2	-	-	-	-	-	-	439	455	-	626	598	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	965	-	-	1161	-	-	190	213	657	188	211	488
Mov Cap-2 Maneuver	-	-	-	-	-	-	190	213	-	188	211	-
Stage 1	-	-	-	-	-	-	622	605	-	446	441	-
Stage 2	-	-	-	-	-	-	423	440	-	614	597	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	22.9	12.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	242	965	-	-	1161	-	-	488
HCM Lane V/C Ratio	0.168	0.001	-	-	0.021	-	-	0.003
HCM Control Delay (s)	22.9	8.7	0	-	8.2	0	-	12.4
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0

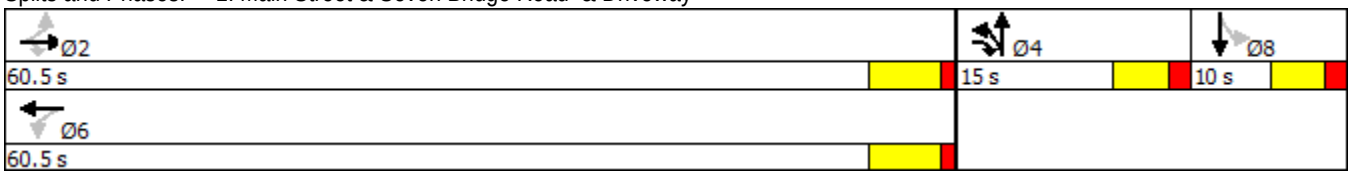
2026 Build Condition

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	840	427	16	535	0	303	0	8	0	0	0
Future Volume (vph)	0	840	427	16	535	0	303	0	8	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	11	11	15	15	15	12	12	12
Storage Length (ft)	0		115	50		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			30	
Link Distance (ft)		1450			1000			1000			200	
Travel Time (s)		28.2			19.5			19.5			4.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	3%	0%	6%	0%	7%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov	Perm	NA		Split	NA				
Protected Phases		2	4		6		4	4			8	
Permitted Phases	2		2	6						8		
Detector Phase	2	2	4	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		5.0	5.0	
Minimum Split (s)	15.5	15.5	15.0	15.5	15.5		15.0	15.0		10.0	10.0	
Total Split (s)	60.5	60.5	15.0	60.5	60.5		15.0	15.0		10.0	10.0	
Total Split (%)	70.8%	70.8%	17.5%	70.8%	70.8%		17.5%	17.5%		11.7%	11.7%	
Maximum Green (s)	55.0	55.0	10.0	55.0	55.0		10.0	10.0		5.0	5.0	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.5	1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.0	5.5	5.5			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	2.0	3.0	3.0		2.0	2.0		0.2	0.2	
Recall Mode	Min	Min	None	Min	Min		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 85.5
Actuated Cycle Length: 56.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Main Street & Seven Bridge Road & Driveway



Lane Group	EBT	EBR	WBL	WBT	NBT
Lane Group Flow (vph)	903	459	17	575	335
v/c Ratio	0.84	0.30	0.08	0.53	0.80
Control Delay	15.8	0.5	4.4	7.4	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	0.5	4.4	7.4	36.4
Queue Length 50th (ft)	190	0	2	87	74
Queue Length 95th (ft)	320	0	7	137	#283
Internal Link Dist (ft)	1370			920	920
Turn Bay Length (ft)		115	50		
Base Capacity (vph)	1596	1516	302	1596	420
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.30	0.06	0.36	0.80

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	840	427	16	535	0	303	0	8	0	0	0
Future Volume (veh/h)	0	840	427	16	535	0	303	0	8	0	0	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1845	1900	1792	1900	1976	1850	1976	1900	1900	1900
Adj Flow Rate, veh/h	0	903	459	17	575	0	326	0	9	0	0	0
Adj No. of Lanes	0	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	6	6	3	0	6	6	0	0	0	0	0	0
Cap, veh/h	0	1195	1300	250	1195	0	278	0	8	0	3	0
Arrive On Green	0.00	0.67	0.67	0.67	0.67	0.00	0.16	0.00	0.16	0.00	0.00	0.00
Sat Flow, veh/h	0	1792	1568	406	1792	0	1709	0	47	0	1900	0
Grp Volume(v), veh/h	0	903	459	17	575	0	335	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1792	1568	406	1792	0	1756	0	0	0	1900	0
Q Serve(g_s), s	0.0	20.8	4.3	1.8	9.7	0.0	10.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	20.8	4.3	22.6	9.7	0.0	10.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00	0.97		0.03	0.00		0.00
Lane Grp Cap(c), veh/h	0	1195	1300	250	1195	0	286	0	0	0	3	0
V/C Ratio(X)	0.00	0.76	0.35	0.07	0.48	0.00	1.17	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1604	1658	343	1604	0	286	0	0	0	155	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	6.9	1.3	14.5	5.0	0.0	25.7	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.2	0.1	0.3	0.0	108.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.5	3.6	0.2	4.7	0.0	13.4	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	8.3	1.4	14.6	5.3	0.0	134.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS		A	A	B	A		F					
Approach Vol, veh/h		1362			592			335			0	
Approach Delay, s/veh		6.0			5.6			134.0			0.0	
Approach LOS		A			A			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		46.5		15.0		46.5		0.0
Change Period (Y+Rc), s		5.5		5.0		5.5		5.0
Max Green Setting (Gmax), s		55.0		10.0		55.0		5.0
Max Q Clear Time (g_c+I1), s		22.8		12.0		24.6		0.0
Green Ext Time (p_c), s		16.8		0.0		16.3		0.0

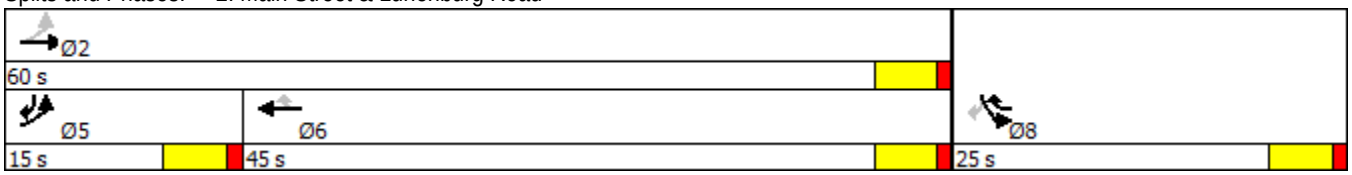
Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	69	805	396	450	457	49
Future Volume (vph)	69	805	396	450	457	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	100			160	0	240
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		No
Link Speed (mph)		35	35		45	
Link Distance (ft)		1000	1450		1000	
Travel Time (s)		19.5	28.2		15.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	4%	6%	6%	8%	3%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	8	8	5
Permitted Phases	2			6		8
Detector Phase	5	2	6	8	8	5
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	11.0	15.0	15.0	15.0	15.0	11.0
Total Split (s)	15.0	60.0	45.0	25.0	25.0	15.0
Total Split (%)	17.6%	70.6%	52.9%	29.4%	29.4%	17.6%
Maximum Green (s)	10.0	55.0	40.0	20.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	Min	Min	None	None	None

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 69.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Main Street & Lunenburg Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	74	866	426	484	491	53
v/c Ratio	0.17	0.88	0.57	0.37	1.03	0.08
Control Delay	7.1	24.0	18.4	1.1	80.8	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	24.0	18.4	1.1	80.8	14.9
Queue Length 50th (ft)	13	284	137	0	~237	13
Queue Length 95th (ft)	27	446	221	14	#523	42
Internal Link Dist (ft)		920	1370		920	
Turn Bay Length (ft)	100			160		240
Base Capacity (vph)	497	1422	1030	1295	475	780
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.61	0.41	0.37	1.03	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	805	396	450	457	49
Future Volume (veh/h)	69	805	396	450	457	49
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1827	1792	1792	1759	1845
Adj Flow Rate, veh/h	74	866	426	484	491	53
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	4	6	6	8	3
Cap, veh/h	384	1065	805	1108	466	537
Arrive On Green	0.06	0.58	0.45	0.45	0.28	0.28
Sat Flow, veh/h	1774	1827	1792	1524	1675	1568
Grp Volume(v), veh/h	74	866	426	484	491	53
Grp Sat Flow(s),veh/h/ln	1774	1827	1792	1524	1675	1568
Q Serve(g_s), s	1.4	27.0	12.4	9.1	20.0	1.7
Cycle Q Clear(g_c), s	1.4	27.0	12.4	9.1	20.0	1.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	384	1065	805	1108	466	537
V/C Ratio(X)	0.19	0.81	0.53	0.44	1.05	0.10
Avail Cap(c_a), veh/h	516	1397	997	1271	466	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.5	11.9	14.3	3.9	26.0	16.1
Incr Delay (d2), s/veh	0.1	2.9	0.5	0.3	56.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	14.3	6.2	7.7	16.5	0.7
LnGrp Delay(d),s/veh	9.6	14.8	14.9	4.2	82.7	16.1
LnGrp LOS	A	B	B	A	F	B
Approach Vol, veh/h		940	910		544	
Approach Delay, s/veh		14.4	9.2		76.2	
Approach LOS		B	A		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		46.9			9.6	37.3		25.0
Change Period (Y+Rc), s		5.0			5.0	5.0		5.0
Max Green Setting (Gmax), s		55.0			10.0	40.0		20.0
Max Q Clear Time (g_c+I1), s		29.0			3.4	14.4		22.0
Green Ext Time (p_c), s		12.9			0.0	12.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.4
HCM 2010 LOS	C

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	139	136	189	333	385	297
Future Volume (vph)	139	136	189	333	385	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	12	12
Link Speed (mph)	30			50	50	
Link Distance (ft)	1000			1000	4300	
Travel Time (s)	22.7			13.6	58.6	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	33%	18%	7%	10%	6%	17%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection						
Int Delay, s/veh	78					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	139	136	189	333	385	297
Future Vol, veh/h	139	136	189	333	385	297
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	93	93	93	93	93	93
Heavy Vehicles, %	33	18	7	10	6	17
Mvmt Flow	149	146	203	358	414	319

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1338	574	733	0	-	0
Stage 1	574	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Critical Hdwy	6.73	6.38	4.17	-	-	-
Critical Hdwy Stg 1	5.73	-	-	-	-	-
Critical Hdwy Stg 2	5.73	-	-	-	-	-
Follow-up Hdwy	3.797	3.462	2.263	-	-	-
Pot Cap-1 Maneuver	~ 145	489	849	-	-	-
Stage 1	507	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 102	489	849	-	-	-
Mov Cap-2 Maneuver	~ 102	-	-	-	-	-
Stage 1	356	-	-	-	-	-
Stage 2	409	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 412.4	3.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	849	-	168	-	-
HCM Lane V/C Ratio	0.239	-	1.76	-	-
HCM Control Delay (s)	10.6	0	$ 412.4	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.9	-	21.2	-	-

Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	148	157	247	28	66	98	263	139	289	306	45
Future Volume (vph)	38	148	157	247	28	66	98	263	139	289	306	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	16	16	16	14	14	14	15	15	15
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		999			500			4300			875	
Travel Time (s)		22.7			11.4			97.7			19.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	6%	2%	3%	9%	0%	16%	6%	7%	21%	4%	4%	10%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type: Other
Control Type: Roundabout

ROUNDABOUT ANALYSIS

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam ft	Circ Width ft	Insc Diam ft	Entry Radius ft	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width ft	Appr Dist ft	Prop Queued Upstr Signal	Extra Bunching %
South	Lunenburg Road	70.00*	17.50*	105.0*	65.0*	30.0*	1	1	13.50*	1500.0	NA[5]	0.0[1]
East	Old Union Turnpike	70.00*	17.50*	105.0*	100.0*	30.0*	1	1	17.00*	1500.0	NA[5]	0.0[1]
North	Lunenburg Road	70.00*	17.50*	105.0*	50.0*	30.0*	1	1	13.00*	1500.0	NA[5]	0.0[1]
West	Old Union Turnpike	70.00*	17.50*	105.0*	75.0*	30.0*	1	1	14.00*	1500.0	NA[5]	0.0[1]

Roundabout Capacity Model: US HCM 6

* These parameters do not affect estimated capacity values in the HCM 6 Capacity Model.
1 Program option resulted in zero value (single Site analysis or unconnected Site in Network analysis).
5 Not Applicable (single Site analysis or unconnected Site in Network analysis).

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	OD Mov	Lane No	Lane Type	Opng Flow pcu/h	In-Bunch Headway sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	HVE for Entry	Critical Gap sec	Follow-up Headway sec
South: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
West	L2	1	Dominant	507	0.00	0.000	No	No	–	1.06	4.98	2.61
North	T1	1	Dominant	507	0.00	0.000	No	No	–	1.07	4.98	2.61
East	R2	1	Dominant	507	0.00	0.000	No	No	–	1.21	4.98	2.61
East: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
South	L2	1	Dominant	439	0.00	0.000	No	No	–	1.09	4.98	2.61
West	T1	1	Dominant	439	0.00	0.000	No	No	–	1.00	4.98	2.61
North	R2	1	Dominant	439	0.00	0.000	No	No	–	1.16	4.98	2.61
North: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
East	L2	1	Dominant	414	0.00	0.000	No	No	–	1.04	4.98	2.61
South	T1	1	Dominant	414	0.00	0.000	No	No	–	1.04	4.98	2.61
West	R2	1	Dominant	414	0.00	0.000	No	No	–	1.10	4.98	2.61
West: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
North	L2	1	Dominant	915	0.00	0.000	No	No	–	1.06	4.98	2.61
East	T1	1	Dominant	915	0.00	0.000	No	No	–	1.02	4.98	2.61
South	R2	1	Dominant	915	0.00	0.000	No	No	–	1.03	4.98	2.61

Roundabout Capacity Model: US HCM 6

Circulating Lane Flow Rates			
Lane No	Circulating Flow Rate veh/h	pcu/h	Percent
South: Lunenburg Road			
Lane 1	490	507	100.0
Approach	490	507	
East: Old Union Turnpike			
Lane 1	411	439	100.0
Approach	411	439	
North: Lunenburg Road			
Lane 1	385	414	100.0
Approach	385	414	
West: Old Union Turnpike			
Lane 1	868	915	100.0
Approach	868	915	

Roundabout Capacity Model: The US HCM 6 roundabout capacity model option is in use.
This model considers only the total circulating flow and not the flow rates in individual circulating lanes.
To model the effects of flow distribution in circulating lanes on the entry capacity results, you should use the SIDRA Standard roundabout capacity model.

MOVEMENT SUMMARY

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Lunenburg Road											
3	L2	101	6.0	0.694	18.3	LOS C	7.4	201.4	0.80	1.13	25.6
8	T1	271	7.0	0.694	18.4	LOS C	7.4	201.4	0.80	1.13	25.6
18	R2	143	21.0	0.694	19.0	LOS C	7.4	201.4	0.80	1.13	25.0
Approach		515	10.7	0.694	18.5	LOS C	7.4	201.4	0.80	1.13	25.5
East: Old Union Turnpike											
1	L2	255	9.0	0.437	10.1	LOS B	2.4	64.1	0.63	0.64	27.7
6	T1	29	0.0	0.437	9.7	LOS A	2.4	64.1	0.63	0.64	27.7
16	R2	68	16.0	0.437	10.3	LOS B	2.4	64.1	0.63	0.64	27.0
Approach		352	9.6	0.437	10.1	LOS B	2.4	64.1	0.63	0.64	27.6
North: Lunenburg Road											
7	L2	298	4.0	0.761	19.9	LOS C	12.1	313.4	0.88	1.27	25.0
4	T1	315	4.0	0.761	19.9	LOS C	12.1	313.4	0.88	1.27	25.0
14	R2	46	10.0	0.761	20.1	LOS C	12.1	313.4	0.88	1.27	24.4
Approach		660	4.4	0.761	19.9	LOS C	12.1	313.4	0.88	1.27	24.9
West: Old Union Turnpike											
5	L2	39	6.0	0.671	23.2	LOS C	5.0	127.2	0.84	1.11	24.4
2	T1	153	2.0	0.671	22.9	LOS C	5.0	127.2	0.84	1.11	24.4
12	R2	162	3.0	0.671	23.0	LOS C	5.0	127.2	0.84	1.11	24.0
Approach		354	2.9	0.671	23.0	LOS C	5.0	127.2	0.84	1.11	24.2
All Vehicles		1880	6.8	0.761	18.3	LOS C	12.1	313.4	0.81	1.09	25.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	3	90	0	44	0	166	201	73	547	0
Future Volume (vph)	0	5	3	90	0	44	0	166	201	73	547	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Storage Length (ft)	0		0	65		0	0		55	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			35			35			35	
Link Distance (ft)		500			420			875			1000	
Travel Time (s)		11.4			8.2			17.0			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	10%	0%	11%	0%	10%	8%	2%	4%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	3.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	5	3	90	0	44	0	166	201	73	547	0
Future Vol, veh/h	0	5	3	90	0	44	0	166	201	73	547	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	65	-	-	-	-	55	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	10	0	11	0	10	8	2	4	0
Mvmt Flow	0	5	3	94	0	46	0	173	209	76	570	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	918	895	570	899	895	173	570	0	0	173	0	0
Stage 1	722	722	-	173	173	-	-	-	-	-	-	-
Stage 2	196	173	-	726	722	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.2	6.5	6.31	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.59	4	3.399	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	254	282	525	252	282	848	1013	-	-	1404	-	-
Stage 1	421	434	-	810	760	-	-	-	-	-	-	-
Stage 2	810	760	-	404	434	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	226	260	525	232	260	848	1013	-	-	1404	-	-
Mov Cap-2 Maneuver	226	260	-	232	260	-	-	-	-	-	-	-
Stage 1	421	400	-	810	760	-	-	-	-	-	-	-
Stage 2	766	760	-	365	400	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.5	23.7	0	0.9
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1013	-	-	321	232	848	1404	-	-
HCM Lane V/C Ratio	-	-	-	0.026	0.404	0.054	0.054	-	-
HCM Control Delay (s)	0	-	-	16.5	30.7	9.5	7.7	0	-
HCM Lane LOS	A	-	-	C	D	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.8	0.2	0.2	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	437	139	73	0	13	268
Future Volume (vph)	437	139	73	0	13	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	16	16	16
Storage Length (ft)	0			60	0	75
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		40	40		30	
Link Distance (ft)		500	500		300	
Travel Time (s)		8.5	8.5		6.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	8%	4%	2%	0%	0%	17%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	437	139	73	0	13	268
Future Vol, veh/h	437	139	73	0	13	268
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	Yield
Storage Length	-	-	-	60	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	8	4	2	0	0	17
Mvmt Flow	465	148	78	0	14	285

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	78	0	-	0	1156	78
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	1078	-
Critical Hdwy	4.18	-	-	-	6.4	6.37
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.272	-	-	-	3.5	3.453
Pot Cap-1 Maneuver	1483	-	-	-	219	943
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	330	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1483	-	-	-	144	943
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	330	-

Approach	EB	WB	SB
HCM Control Delay, s	6.5	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1483	-	-	-	144	943
HCM Lane V/C Ratio	0.313	-	-	-	0.096	0.302
HCM Control Delay (s)	8.5	0	-	-	32.6	10.5
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	1.4	-	-	-	0.3	1.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	67	212	15	31	103	0
Future Volume (vph)	67	212	15	31	103	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	16	13	13	16	16
Storage Length (ft)		75	0		0	60
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Link Speed (mph)	35			35	30	
Link Distance (ft)	420			500	300	
Travel Time (s)	8.2			9.7	6.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	13%	2%	0%	12%	8%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱		↰	↰	↱
Traffic Vol, veh/h	67	212	15	31	103	0
Future Vol, veh/h	67	212	15	31	103	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Stop
Storage Length	-	75	-	-	0	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	13	2	0	12	8	0
Mvmt Flow	75	238	17	35	116	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	75	0	144	75
Stage 1	-	-	-	-	75	-
Stage 2	-	-	-	-	69	-
Critical Hdwy	-	-	4.1	-	6.48	6.2
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	-	-	2.2	-	3.572	3.3
Pot Cap-1 Maneuver	-	-	1537	-	835	992
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	939	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1537	-	826	992
Mov Cap-2 Maneuver	-	-	-	-	826	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	929	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	826	-	-	-	1537	-
HCM Lane V/C Ratio	0.14	-	-	-	0.011	-
HCM Control Delay (s)	10.1	0	-	-	7.4	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	562	2	23	174	2	74
Future Volume (vph)	562	2	23	174	2	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	2350			500	500	
Travel Time (s)	45.8			9.7	11.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	0%	2%	6%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	562	2	23	174	2	74
Future Vol, veh/h	562	2	23	174	2	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	0	2	6	2	2
Mvmt Flow	604	2	25	187	2	80

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	606	0	842	605
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	237	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	972	-	334	498
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	972	-	324	498
Mov Cap-2 Maneuver	-	-	-	-	324	-
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	779	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	491	-	-	972	-
HCM Lane V/C Ratio	0.166	-	-	0.025	-
HCM Control Delay (s)	13.8	-	-	8.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

9: Johnny Appleseed Lane /Memorial Park & Mechanic Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	542	10	4	174	0	29	0	22	0	0	1
Future Volume (vph)	1	542	10	4	174	0	29	0	22	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			2350			500			200	
Travel Time (s)		9.7			45.8			11.4			4.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	2%	13%	25%	6%	0%	4%	0%	6%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	1.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	542	10	4	174	0	29	0	22	0	0	1
Future Vol, veh/h	1	542	10	4	174	0	29	0	22	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	2	13	25	6	0	4	0	6	0	0	0
Mvmt Flow	1	583	11	4	187	0	31	0	24	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	187	0	0	594	0	0	787	786	589	798	791	187
Stage 1	-	-	-	-	-	-	591	591	-	195	195	-
Stage 2	-	-	-	-	-	-	196	195	-	603	596	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.14	6.5	6.26	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.536	4	3.354	3.5	4	3.3
Pot Cap-1 Maneuver	1399	-	-	879	-	-	307	326	501	306	324	860
Stage 1	-	-	-	-	-	-	490	498	-	811	743	-
Stage 2	-	-	-	-	-	-	801	743	-	489	495	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1399	-	-	879	-	-	305	324	501	290	322	860
Mov Cap-2 Maneuver	-	-	-	-	-	-	305	324	-	290	322	-
Stage 1	-	-	-	-	-	-	490	498	-	810	739	-
Stage 2	-	-	-	-	-	-	796	739	-	465	495	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	16.5	9.2
HCM LOS			C	A

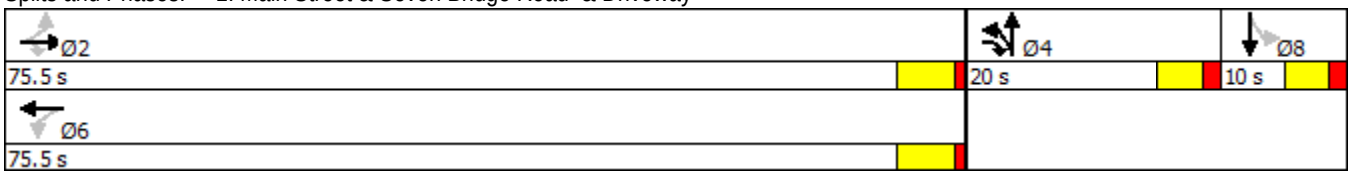
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	367	1399	-	-	879	-	-	860
HCM Lane V/C Ratio	0.149	0.001	-	-	0.005	-	-	0.001
HCM Control Delay (s)	16.5	7.6	0	-	9.1	0	-	9.2
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	585	359	4	1304	0	288	0	3	0	0	0
Future Volume (vph)	0	585	359	4	1304	0	288	0	3	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	11	11	15	15	15	12	12	12
Storage Length (ft)	0		115	50		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			30	
Link Distance (ft)		1450			1000			1000			200	
Travel Time (s)		28.2			19.5			19.5			4.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov	Perm	NA		Split	NA				
Protected Phases		2	4		6		4	4			8	
Permitted Phases	2		2	6						8		
Detector Phase	2	2	4	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		5.0	5.0	
Minimum Split (s)	15.5	15.5	15.0	15.5	15.5		15.0	15.0		10.0	10.0	
Total Split (s)	75.5	75.5	20.0	75.5	75.5		20.0	20.0		10.0	10.0	
Total Split (%)	71.6%	71.6%	19.0%	71.6%	71.6%		19.0%	19.0%		9.5%	9.5%	
Maximum Green (s)	70.0	70.0	15.0	70.0	70.0		15.0	15.0		5.0	5.0	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.5	1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.0	5.5	5.5			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	2.0	3.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min	None	Min	Min		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 105.5
Actuated Cycle Length: 94.7
Natural Cycle: 140
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Main Street & Seven Bridge Road & Driveway



Lane Group	EBT	EBR	WBL	WBT	NBT
Lane Group Flow (vph)	616	378	4	1373	306
v/c Ratio	0.47	0.25	0.01	1.03	0.85
Control Delay	6.4	0.4	3.5	48.0	52.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	0.4	3.5	48.0	52.1
Queue Length 50th (ft)	128	0	1	~907	136
Queue Length 95th (ft)	188	0	3	#1160	#275
Internal Link Dist (ft)	1370			920	920
Turn Bay Length (ft)		115	50		
Base Capacity (vph)	1317	1528	506	1331	374
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.25	0.01	1.03	0.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	585	359	4	1304	0	288	0	3	0	0	0
Future Volume (veh/h)	0	585	359	4	1304	0	288	0	3	0	0	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1863	1900	1863	1900	1976	1938	1976	1900	1900	1900
Adj Flow Rate, veh/h	0	616	378	4	1373	0	303	0	3	0	0	0
Adj No. of Lanes	0	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	2	0	2	2	0	0	0	0	0	0
Cap, veh/h	0	1352	1409	420	1365	0	287	0	3	0	2	0
Arrive On Green	0.00	0.73	0.73	0.73	0.73	0.00	0.16	0.00	0.16	0.00	0.00	0.00
Sat Flow, veh/h	0	1845	1583	576	1863	0	1825	0	18	0	1900	0
Grp Volume(v), veh/h	0	616	378	4	1373	0	306	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1845	1583	576	1863	0	1843	0	0	0	1900	0
Q Serve(g_s), s	0.0	12.8	3.3	0.3	70.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	12.8	3.3	13.1	70.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00	0.99		0.01	0.00		0.00
Lane Grp Cap(c), veh/h	0	1352	1409	420	1365	0	290	0	0	0	2	0
V/C Ratio(X)	0.00	0.46	0.27	0.01	1.01	0.00	1.06	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1352	1409	420	1365	0	290	0	0	0	99	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	5.1	0.8	7.7	12.8	0.0	40.3	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	25.7	0.0	68.7	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.4	3.5	0.0	44.6	0.0	13.1	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	5.4	0.9	7.7	38.5	0.0	108.9	0.0	0.0	0.0	0.0	0.0
LnGrp LOS		A	A	A	F		F					
Approach Vol, veh/h		994			1377			306			0	
Approach Delay, s/veh		3.6			38.4			108.9			0.0	
Approach LOS		A			D			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		75.5		20.0		75.5		0.0
Change Period (Y+Rc), s		5.5		5.0		5.5		5.0
Max Green Setting (Gmax), s		70.0		15.0		70.0		5.0
Max Q Clear Time (g_c+I1), s		14.8		17.0		72.0		0.0
Green Ext Time (p_c), s		37.6		0.0		0.0		0.0

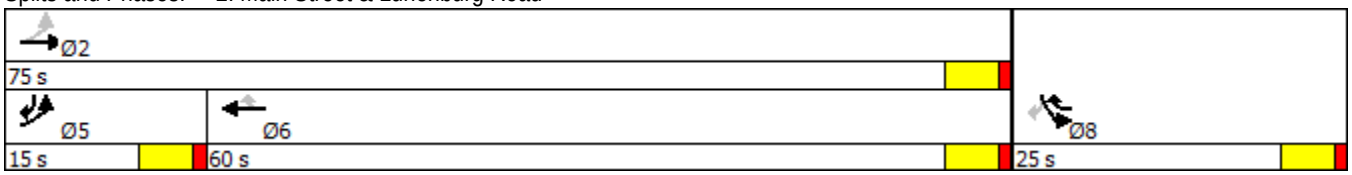
Intersection Summary	
HCM 2010 Ctrl Delay	33.5
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	62	499	817	767	444	89
Future Volume (vph)	62	499	817	767	444	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	100			160	0	240
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		No
Link Speed (mph)		35	35		45	
Link Distance (ft)		1000	1450		1000	
Travel Time (s)		19.5	28.2		15.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	3%	1%	2%	0%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	8	8	5
Permitted Phases	2			6		8
Detector Phase	5	2	6	8	8	5
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	11.0	15.0	15.0	15.0	15.0	11.0
Total Split (s)	15.0	75.0	60.0	25.0	25.0	15.0
Total Split (%)	15.0%	75.0%	60.0%	25.0%	25.0%	15.0%
Maximum Green (s)	10.0	70.0	55.0	20.0	20.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	Min	Min	None	None	None

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 86.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Main Street & Lunenburg Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	65	525	860	807	467	94
v/c Ratio	0.27	0.46	0.91	0.57	1.13	0.15
Control Delay	7.7	8.7	34.4	2.3	121.5	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	8.7	34.4	2.3	121.5	22.8
Queue Length 50th (ft)	11	124	421	15	~358	39
Queue Length 95th (ft)	24	182	#724	42	#588	79
Internal Link Dist (ft)		920	1370		920	
Turn Bay Length (ft)	100			160		240
Base Capacity (vph)	292	1422	1182	1407	412	659
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.37	0.73	0.57	1.13	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	499	817	767	444	89
Future Volume (veh/h)	62	499	817	767	444	89
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1881	1863	1900
Adj Flow Rate, veh/h	65	525	860	807	467	94
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	1	2	0
Cap, veh/h	228	1223	1021	1244	398	450
Arrive On Green	0.05	0.66	0.55	0.55	0.22	0.22
Sat Flow, veh/h	1810	1845	1845	1599	1774	1615
Grp Volume(v), veh/h	65	525	860	807	467	94
Grp Sat Flow(s),veh/h/ln	1810	1845	1845	1599	1774	1615
Q Serve(g_s), s	1.2	11.9	34.8	20.2	20.0	4.0
Cycle Q Clear(g_c), s	1.2	11.9	34.8	20.2	20.0	4.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	228	1223	1021	1244	398	450
V/C Ratio(X)	0.29	0.43	0.84	0.65	1.17	0.21
Avail Cap(c_a), veh/h	333	1450	1139	1346	398	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	7.1	16.7	4.4	34.5	24.6
Incr Delay (d2), s/veh	0.3	0.2	5.4	1.0	101.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.1	19.0	18.1	20.9	1.8
LnGrp Delay(d),s/veh	16.3	7.3	22.1	5.4	135.7	24.7
LnGrp LOS	B	A	C	A	F	C
Approach Vol, veh/h		590	1667		561	
Approach Delay, s/veh		8.3	14.0		117.1	
Approach LOS		A	B		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		64.1			9.8	54.3		25.0
Change Period (Y+Rc), s		5.0			5.0	5.0		5.0
Max Green Setting (Gmax), s		70.0			10.0	55.0		20.0
Max Q Clear Time (g_c+I1), s		13.9			3.2	36.8		22.0
Green Ext Time (p_c), s		23.1			0.0	12.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	364	214	167	696	331	259
Future Volume (vph)	364	214	167	696	331	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	12	12	12
Link Speed (mph)	30			50	50	
Link Distance (ft)	1000			1000	4300	
Travel Time (s)	22.7			13.6	58.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	2%	6%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	494.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	364	214	167	696	331	259
Future Vol, veh/h	364	214	167	696	331	259
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	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	2	6	0
Mvmt Flow	379	223	174	725	345	270

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1553	480	615	0	-	0
Stage 1	480	-	-	-	-	-
Stage 2	1073	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 126	590	974	-	-	-
Stage 1	627	-	-	-	-	-
Stage 2	~ 331	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 88	590	974	-	-	-
Mov Cap-2 Maneuver	~ 88	-	-	-	-	-
Stage 1	440	-	-	-	-	-
Stage 2	~ 331	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 1734.8	1.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	974	-	128	-	-
HCM Lane V/C Ratio	0.179	-	4.704	-	-
HCM Control Delay (s)	9.5	$	$ 1734.8	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.6	-	62.9	-	-

Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	45	190	191	85	147	284	577	118	58	265	267
Future Volume (vph)	81	45	190	191	85	147	284	577	118	58	265	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	16	16	16	14	14	14	15	15	15
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		999			500			4300			875	
Travel Time (s)		22.7			11.4			97.7			19.9	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	1%	1%	7%	1%	1%	4%	2%	9%	1%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type: Other
Control Type: Roundabout

ROUNDABOUT ANALYSIS

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam ft	Circ Width ft	Insc Diam ft	Entry Radius ft	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width ft	Appr Dist ft	Prop Queued Upstr Signal	Extra Bunching %
South	Lunenburg Road	70.00*	17.50*	105.0*	65.0*	30.0*	1	1	13.50*	1500.0	NA[5]	0.0[1]
East	Old Union Turnpike	70.00*	17.50*	105.0*	100.0*	30.0*	1	1	17.00*	1500.0	NA[5]	0.0[1]
North	Lunenburg Road	70.00*	17.50*	105.0*	50.0*	30.0*	1	1	13.00*	14.5	NA[5]	0.0[1]
West	Old Union Turnpike	70.00*	17.50*	105.0*	75.0*	30.0*	1	1	14.00*	1500.0	NA[5]	0.0[1]

Roundabout Capacity Model: US HCM 6

* These parameters do not affect estimated capacity values in the HCM 6 Capacity Model.
1 Program option resulted in zero value (single Site analysis or unconnected Site in Network analysis).
5 Not Applicable (single Site analysis or unconnected Site in Network analysis).

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	OD Mov	Lane No	Lane Type	Opng Flow pcu/h	In-Bunch Headway sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	HVE for Entry	Critical Gap sec	Follow-up Headway sec
South: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
West	L2	1	Dominant	187	0.00	0.000	No	No	–	1.01	4.98	2.61
North	T1	1	Dominant	187	0.00	0.000	No	No	–	1.01	4.98	2.61
East	R2	1	Dominant	187	0.00	0.000	No	No	–	1.04	4.98	2.61
East: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
South	L2	1	Dominant	960	0.00	0.000	No	No	–	1.01	4.98	2.61
West	T1	1	Dominant	960	0.00	0.000	No	No	–	1.01	4.98	2.61
North	R2	1	Dominant	960	0.00	0.000	No	No	–	1.07	4.98	2.61
North: Lunenburg Road Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
East	L2	1	Dominant	571	0.00	0.000	No	No	–	1.02	4.98	2.61
South	T1	1	Dominant	571	0.00	0.000	No	No	–	1.09	4.98	2.61
West	R2	1	Dominant	571	0.00	0.000	No	No	–	1.01	4.98	2.61
West: Old Union Turnpike Model Calibration Factor (HCM 6): 1.00 Entry/Circ Flow Adj (HCM 6): None												
North	L2	1	Dominant	546	0.00	0.000	No	No	–	1.00	4.98	2.61
East	T1	1	Dominant	546	0.00	0.000	No	No	–	1.00	4.98	2.61
South	R2	1	Dominant	546	0.00	0.000	No	No	–	1.00	4.98	2.61

Roundabout Capacity Model: US HCM 6

Circulating Lane Flow Rates			
Lane No	Circulating Flow Rate veh/h	pcu/h	Percent
South: Lunenburg Road			
Lane 1	186	187	100.0
Approach	186	187	
East: Old Union Turnpike			
Lane 1	952	960	100.0
Approach	952	960	
North: Lunenburg Road			
Lane 1	566	571	100.0
Approach	566	571	
West: Old Union Turnpike			
Lane 1	519	546	100.0
Approach	519	546	

Roundabout Capacity Model: The US HCM 6 roundabout capacity model option is in use.
This model considers only the total circulating flow and not the flow rates in individual circulating lanes.
To model the effects of flow distribution in circulating lanes on the entry capacity results, you should use the SIDRA Standard roundabout capacity model.

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MOVEMENT SUMMARY

Site: 4 [Lunenburg Road at Old Union Turnpike]

Lunenburg Road at Old Union Turnpike
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Lunenburg Road											
3	L2	287	1.0	0.879	25.2	LOS D	34.4	870.6	1.00	1.32	23.7
8	T1	583	1.0	0.879	25.2	LOS D	34.4	870.6	1.00	1.32	14.4
18	R2	119	4.0	0.879	25.3	LOS D	34.4	870.6	1.00	1.32	23.2
Approach		989	1.4	0.879	25.2	LOS D	34.4	870.6	1.00	1.32	18.5
East: Old Union Turnpike											
1	L2	193	1.0	0.850	39.8	LOS E	9.3	238.9	0.92	1.46	20.2
6	T1	86	1.0	0.850	39.8	LOS E	9.3	238.9	0.92	1.46	20.2
16	R2	148	7.0	0.850	40.2	LOS E	9.3	238.9	0.92	1.46	11.7
Approach		427	3.1	0.850	39.9	LOS E	9.3	238.9	0.92	1.46	17.4
North: Lunenburg Road											
7	L2	59	2.0	0.810	26.1	LOS D	12.0	310.9	0.93	1.44	18.8
4	T1	268	9.0	0.810	26.5	LOS D	12.0	310.9	0.93	1.44	18.8
14	R2	270	1.0	0.810	26.1	LOS D	12.0	310.9	0.93	1.44	18.3
Approach		596	4.7	0.810	26.3	LOS D	12.0	310.9	0.93	1.44	18.5
West: Old Union Turnpike											
5	L2	82	0.0	0.404	9.6	LOS A	2.3	56.5	0.68	0.72	15.7
2	T1	45	0.0	0.404	9.6	LOS A	2.3	56.5	0.68	0.72	28.7
12	R2	192	0.0	0.404	9.6	LOS A	2.3	56.5	0.68	0.72	28.0
Approach		319	0.0	0.404	9.6	LOS A	2.3	56.5	0.68	0.72	25.1
All Vehicles		2331	2.3	0.879	26.0	LOS D	34.4	870.6	0.92	1.30	19.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	4	364	0	337	2	518	285	32	222	1
Future Volume (vph)	0	0	4	364	0	337	2	518	285	32	222	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Storage Length (ft)	0		0	65		0	0		55	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			35			35			35	
Link Distance (ft)		500			420			875			1000	
Travel Time (s)		11.4			8.2			17.0			19.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	5%	0%	1%	0%	1%	2%	14%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	85.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	4	364	0	337	2	518	285	32	222	1
Future Vol, veh/h	0	0	4	364	0	337	2	518	285	32	222	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	65	-	-	-	-	55	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	5	0	1	0	1	2	14	1	0
Mvmt Flow	0	0	5	414	0	383	2	589	324	36	252	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1110	918	253	920	918	589	253	0	0	589	0	0
Stage 1	325	325	-	593	593	-	-	-	-	-	-	-
Stage 2	785	593	-	327	325	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.15	6.5	6.21	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.545	4	3.309	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	188	274	791	~ 248	274	510	1324	-	-	930	-	-
Stage 1	692	653	-	487	497	-	-	-	-	-	-	-
Stage 2	389	497	-	679	653	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	45	261	791	~ 238	261	510	1324	-	-	930	-	-
Mov Cap-2 Maneuver	45	261	-	~ 238	261	-	-	-	-	-	-	-
Stage 1	690	624	-	486	496	-	-	-	-	-	-	-
Stage 2	97	496	-	645	624	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	214.4	0	1.1
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1324	-	-	791	238	510	930	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	1.738	0.751	0.039	-	-
HCM Control Delay (s)	7.7	0	-	9.6	$ 384.7	30.4	9	0	-
HCM Lane LOS	A	A	-	A	F	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	27.6	6.4	0.1	-	-

Notes

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	139	82	109	1	13	314
Future Volume (vph)	139	82	109	1	13	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	16	16	16
Storage Length (ft)	0			60	0	75
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		40	40		30	
Link Distance (ft)		500	500		300	
Travel Time (s)		8.5	8.5		6.8	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	5%	1%	0%	0%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	139	82	109	1	13	314
Future Vol, veh/h	139	82	109	1	13	314
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	Yield
Storage Length	-	-	-	60	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	5	1	0	0	3
Mvmt Flow	165	98	130	1	15	374

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	130	0	-	0	558	130
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	428	-
Critical Hdwy	4.13	-	-	-	6.4	6.23
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.227	-	-	-	3.5	3.327
Pot Cap-1 Maneuver	1449	-	-	-	494	917
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	662	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1449	-	-	-	435	917
Mov Cap-2 Maneuver	-	-	-	-	435	-
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	662	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1449	-	-	-	435	917
HCM Lane V/C Ratio	0.114	-	-	-	0.036	0.408
HCM Control Delay (s)	7.8	0	-	-	13.6	11.6
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	20	297	29	253	448	0
Future Volume (vph)	20	297	29	253	448	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	16	13	13	16	16
Storage Length (ft)		75	0		0	60
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Link Speed (mph)	35			35	30	
Link Distance (ft)	420			500	300	
Travel Time (s)	8.2			9.7	6.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	8%	4%	8%	2%	3%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	17.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱		⇄	↰	↱
Traffic Vol, veh/h	20	297	29	253	448	0
Future Vol, veh/h	20	297	29	253	448	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Stop
Storage Length	-	75	-	-	0	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	8	4	8	2	3	0
Mvmt Flow	24	349	34	298	527	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	24	0	390	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	366	-
Critical Hdwy	-	-	4.18	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.272	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1553	-	612	1058
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1553	-	596	1058
Mov Cap-2 Maneuver	-	-	-	-	596	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	681	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	40.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	596	-	-	-	1553	-
HCM Lane V/C Ratio	0.884	-	-	-	0.022	-
HCM Control Delay (s)	40.5	0	-	-	7.4	0
HCM Lane LOS	E	A	-	-	A	A
HCM 95th %tile Q(veh)	10.4	-	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	332	9	73	553	9	44
Future Volume (vph)	332	9	73	553	9	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	2350			500	500	
Travel Time (s)	45.8			9.7	11.4	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	13%	2%	1%	0%	2%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	332	9	73	553	9	44
Future Vol, veh/h	332	9	73	553	9	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	13	2	1	0	2
Mvmt Flow	405	11	89	674	11	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	416	0	1263	411
Stage 1	-	-	-	-	411	-
Stage 2	-	-	-	-	852	-
Critical Hdwy	-	-	4.12	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	1143	-	189	641
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	421	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1143	-	165	641
Mov Cap-2 Maneuver	-	-	-	-	165	-
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	368	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	430	-	-	1143	-
HCM Lane V/C Ratio	0.15	-	-	0.078	-
HCM Control Delay (s)	14.8	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.3	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	326	26	27	536	2	27	0	14	0	0	1
Future Volume (vph)	1	326	26	27	536	2	27	0	14	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			2350			500			200	
Travel Time (s)		9.7			45.8			11.4			4.5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	2%	2%	2%	1%	0%	4%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	1.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	326	26	27	536	2	27	0	14	0	0	1
Future Vol, veh/h	1	326	26	27	536	2	27	0	14	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	2	1	0	4	0	0	0	0	0
Mvmt Flow	1	398	32	33	654	2	33	0	17	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	656	0	0	430	0	0	1138	1138	414	1146	1153	655
Stage 1	-	-	-	-	-	-	416	416	-	721	721	-
Stage 2	-	-	-	-	-	-	722	722	-	425	432	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.14	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.536	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	941	-	-	1129	-	-	177	203	643	178	199	470
Stage 1	-	-	-	-	-	-	610	595	-	422	435	-
Stage 2	-	-	-	-	-	-	415	434	-	611	586	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	941	-	-	1129	-	-	170	193	643	167	190	470
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	193	-	167	190	-
Stage 1	-	-	-	-	-	-	609	594	-	422	415	-
Stage 2	-	-	-	-	-	-	395	414	-	594	585	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	25.3	12.7
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	227	941	-	-	1129	-	-	470
HCM Lane V/C Ratio	0.22	0.001	-	-	0.029	-	-	0.003
HCM Control Delay (s)	25.3	8.8	0	-	8.3	0	-	12.7
HCM Lane LOS	D	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0

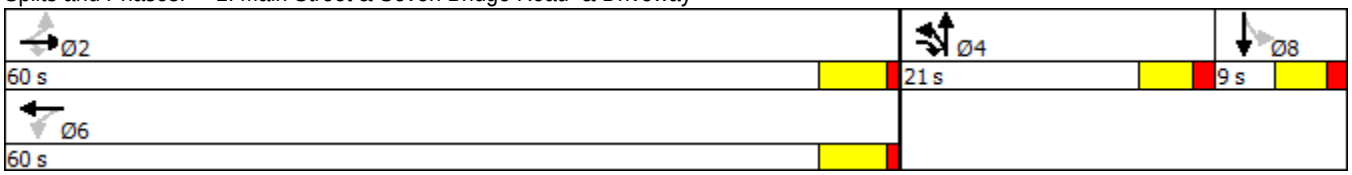
2026 Build with Mitigation Condition

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	840	427	16	535	0	303	0	8	0	0	0
Future Volume (vph)	0	840	427	16	535	0	303	0	8	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	11	11	15	15	15	12	12	12
Storage Length (ft)	0		115	50		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			30	
Link Distance (ft)		1450			1000			1000			200	
Travel Time (s)		28.2			19.5			19.5			4.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	3%	0%	6%	0%	7%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov	Perm	NA		Split	NA				
Protected Phases		2	4		6		4	4			8	
Permitted Phases	2		2	6						8		
Detector Phase	2	2	4	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		4.0	4.0	
Minimum Split (s)	15.5	15.5	15.0	15.5	15.5		15.0	15.0		9.0	9.0	
Total Split (s)	60.0	60.0	21.0	60.0	60.0		21.0	21.0		9.0	9.0	
Total Split (%)	66.7%	66.7%	23.3%	66.7%	66.7%		23.3%	23.3%		10.0%	10.0%	
Maximum Green (s)	54.5	54.5	16.0	54.5	54.5		16.0	16.0		4.0	4.0	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.5	1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.0	5.5	5.5			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	2.0	3.0	3.0		2.0	2.0		0.2	0.2	
Recall Mode	Min	Min	None	Min	Min		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 66.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Main Street & Seven Bridge Road & Driveway



Lane Group	EBT	EBR	WBL	WBT	NBT
Lane Group Flow (vph)	903	459	17	575	335
v/c Ratio	0.85	0.30	0.09	0.54	0.70
Control Delay	18.9	0.5	6.1	9.2	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	0.5	6.1	9.2	29.1
Queue Length 50th (ft)	269	0	3	123	93
Queue Length 95th (ft)	441	0	10	190	#240
Internal Link Dist (ft)	1370			920	920
Turn Bay Length (ft)		115	50		
Base Capacity (vph)	1417	1508	247	1417	542
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.30	0.07	0.41	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	840	427	16	535	0	303	0	8	0	0	0
Future Volume (veh/h)	0	840	427	16	535	0	303	0	8	0	0	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1845	1900	1792	1900	1976	1850	1976	1900	1900	1900
Adj Flow Rate, veh/h	0	903	459	17	575	0	326	0	9	0	0	0
Adj No. of Lanes	0	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	6	6	3	0	6	6	0	0	0	0	0	0
Cap, veh/h	0	1139	1334	210	1139	0	368	0	10	0	3	0
Arrive On Green	0.00	0.64	0.64	0.64	0.64	0.00	0.22	0.00	0.22	0.00	0.00	0.00
Sat Flow, veh/h	0	1792	1568	406	1792	0	1709	0	47	0	1900	0
Grp Volume(v), veh/h	0	903	459	17	575	0	335	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1792	1568	406	1792	0	1756	0	0	0	1900	0
Q Serve(g_s), s	0.0	26.0	4.3	2.3	12.1	0.0	13.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	26.0	4.3	28.3	12.1	0.0	13.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00	0.97		0.03	0.00		0.00
Lane Grp Cap(c), veh/h	0	1139	1334	210	1139	0	378	0	0	0	3	0
V/C Ratio(X)	0.00	0.79	0.34	0.08	0.50	0.00	0.89	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1391	1554	267	1391	0	400	0	0	0	108	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.4	1.1	19.8	6.9	0.0	26.7	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.6	0.2	0.2	0.3	0.0	19.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.4	4.5	0.3	6.0	0.0	8.2	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	12.1	1.3	20.0	7.2	0.0	45.7	0.0	0.0	0.0	0.0	0.0
LnGrp LOS		B	A	B	A		D					
Approach Vol, veh/h		1362			592			335			0	
Approach Delay, s/veh		8.4			7.6			45.7			0.0	
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		50.1		20.1		50.1		0.0
Change Period (Y+Rc), s		5.5		5.0		5.5		5.0
Max Green Setting (Gmax), s		54.5		16.0		54.5		4.0
Max Q Clear Time (g_c+I1), s		28.0		15.0		30.3		0.0
Green Ext Time (p_c), s		15.1		0.1		14.4		0.0

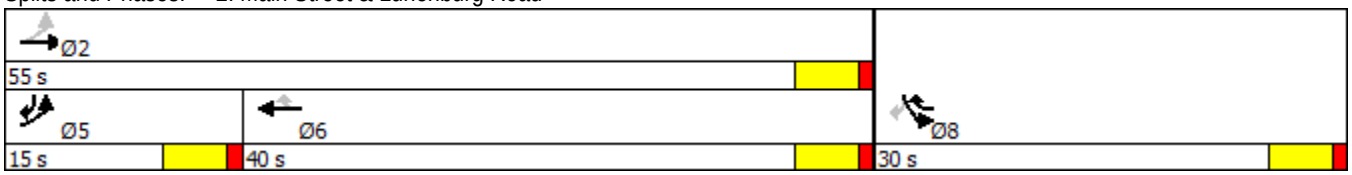
Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	69	805	396	450	457	49
Future Volume (vph)	69	805	396	450	457	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	100			160	0	240
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		No
Link Speed (mph)		35	35		45	
Link Distance (ft)		1000	1450		1000	
Travel Time (s)		19.5	28.2		15.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	4%	6%	6%	8%	3%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	8	8	5
Permitted Phases	2			6		8
Detector Phase	5	2	6	8	8	5
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	11.0	15.0	15.0	15.0	15.0	11.0
Total Split (s)	15.0	55.0	40.0	30.0	30.0	15.0
Total Split (%)	17.6%	64.7%	47.1%	35.3%	35.3%	17.6%
Maximum Green (s)	10.0	50.0	35.0	25.0	25.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	Min	Min	None	None	None

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 77.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Main Street & Lunenburg Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	74	866	426	484	491	53
v/c Ratio	0.18	0.91	0.58	0.37	0.93	0.07
Control Delay	8.8	30.1	21.1	1.0	54.9	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	30.1	21.1	1.0	54.9	13.8
Queue Length 50th (ft)	16	343	157	0	246	15
Queue Length 95th (ft)	33	#571	254	15	#470	37
Internal Link Dist (ft)		920	1370		920	
Turn Bay Length (ft)	100			160		240
Base Capacity (vph)	464	1155	817	1310	528	793
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.75	0.52	0.37	0.93	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	805	396	450	457	49
Future Volume (veh/h)	69	805	396	450	457	49
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1827	1792	1792	1759	1845
Adj Flow Rate, veh/h	74	866	426	484	491	53
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	4	6	6	8	3
Cap, veh/h	358	1018	772	1132	524	587
Arrive On Green	0.06	0.56	0.43	0.43	0.31	0.31
Sat Flow, veh/h	1774	1827	1792	1524	1675	1568
Grp Volume(v), veh/h	74	866	426	484	491	53
Grp Sat Flow(s),veh/h/ln	1774	1827	1792	1524	1675	1568
Q Serve(g_s), s	1.6	30.7	13.7	9.2	21.9	1.7
Cycle Q Clear(g_c), s	1.6	30.7	13.7	9.2	21.9	1.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	358	1018	772	1132	524	587
V/C Ratio(X)	0.21	0.85	0.55	0.43	0.94	0.09
Avail Cap(c_a), veh/h	478	1187	815	1169	544	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	14.3	16.4	3.7	25.7	15.6
Incr Delay (d2), s/veh	0.1	5.4	0.7	0.3	23.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	16.7	6.9	8.6	13.5	0.7
LnGrp Delay(d),s/veh	11.2	19.7	17.1	4.0	48.8	15.6
LnGrp LOS	B	B	B	A	D	B
Approach Vol, veh/h		940	910		544	
Approach Delay, s/veh		19.0	10.1		45.6	
Approach LOS		B	B		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		47.9			9.8	38.1		29.1
Change Period (Y+Rc), s		5.0			5.0	5.0		5.0
Max Green Setting (Gmax), s		50.0			10.0	35.0		25.0
Max Q Clear Time (g_c+I1), s		32.7			3.6	15.7		23.9
Green Ext Time (p_c), s		10.2			0.0	10.9		0.1

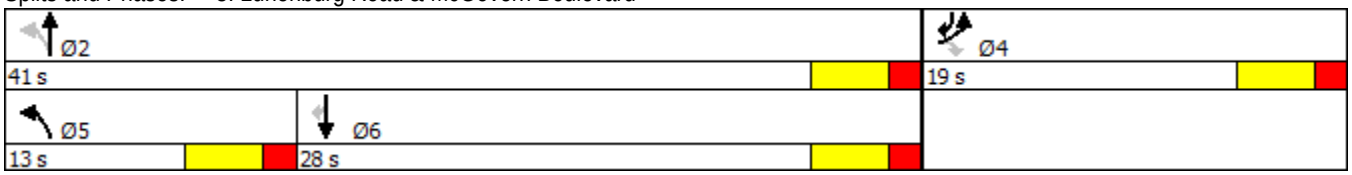
Intersection Summary	
HCM 2010 Ctrl Delay	21.7
HCM 2010 LOS	C

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	139	136	189	333	385	297
Future Volume (vph)	139	136	189	333	385	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	150	0	100			200
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			50	50	
Link Distance (ft)	1000			1000	4300	
Travel Time (s)	22.7			13.6	58.6	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	33%	18%	7%	10%	6%	17%
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	pm+pt	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	10.0	10.0	6.0
Minimum Split (s)	11.0	11.0	11.0	15.0	15.0	11.0
Total Split (s)	19.0	19.0	13.0	41.0	28.0	19.0
Total Split (%)	31.7%	31.7%	21.7%	68.3%	46.7%	31.7%
Maximum Green (s)	14.0	14.0	8.0	36.0	23.0	14.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0	2.0
Recall Mode	None	None	None	Min	Min	None

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 47.3
Natural Cycle: 50
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lunenburg Road & McGovern Boulevard



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	149	146	203	358	414	319
v/c Ratio	0.53	0.37	0.43	0.39	0.67	0.30
Control Delay	27.1	7.3	8.1	7.1	20.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	7.3	8.1	7.1	20.6	1.3
Queue Length 50th (ft)	39	0	23	44	102	0
Queue Length 95th (ft)	97	38	55	100	201	17
Internal Link Dist (ft)	920			920	4220	
Turn Bay Length (ft)	150		100			200
Base Capacity (vph)	425	527	492	1262	922	1102
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.28	0.41	0.28	0.45	0.29

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	139	136	189	333	385	297
Future Volume (veh/h)	139	136	189	333	385	297
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1429	1610	1776	1727	1792	1624
Adj Flow Rate, veh/h	149	146	203	358	414	319
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	33	18	7	10	6	17
Cap, veh/h	211	212	503	1042	629	698
Arrive On Green	0.15	0.15	0.13	0.60	0.35	0.35
Sat Flow, veh/h	1361	1369	1691	1727	1792	1380
Grp Volume(v), veh/h	149	146	203	358	414	319
Grp Sat Flow(s),veh/h/ln	1361	1369	1691	1727	1792	1380
Q Serve(g_s), s	4.3	4.2	2.6	4.3	8.1	6.1
Cycle Q Clear(g_c), s	4.3	4.2	2.6	4.3	8.1	6.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	211	212	503	1042	629	698
V/C Ratio(X)	0.71	0.69	0.40	0.34	0.66	0.46
Avail Cap(c_a), veh/h	461	464	609	1505	998	982
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	16.5	6.9	4.1	11.3	6.6
Incr Delay (d2), s/veh	1.6	1.5	0.2	0.2	1.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	3.2	1.2	2.0	4.1	3.1
LnGrp Delay(d),s/veh	18.2	18.0	7.1	4.3	12.5	7.0
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	295			561	733	
Approach Delay, s/veh	18.1			5.3	10.1	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		29.9		11.4	10.4	19.5		
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		
Max Green Setting (Gmax), s		36.0		14.0	8.0	23.0		
Max Q Clear Time (g_c+I1), s		6.3		6.3	4.6	10.1		
Green Ext Time (p_c), s		5.8		0.3	0.1	4.5		

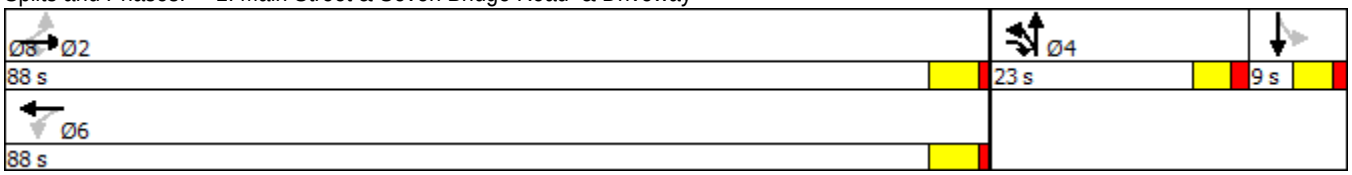
Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	585	359	4	1304	0	288	0	3	0	0	0
Future Volume (vph)	0	585	359	4	1304	0	288	0	3	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	10	11	11	15	15	15	12	12	12
Storage Length (ft)	0		115	50		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			30	
Link Distance (ft)		1450			1000			1000			200	
Travel Time (s)		28.2			19.5			19.5			4.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov	Perm	NA		Split	NA				
Protected Phases		2	4		6		4	4			8	
Permitted Phases	2		2	6						8		
Detector Phase	2	2	4	6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		4.0	4.0	
Minimum Split (s)	15.5	15.5	15.0	15.5	15.5		15.0	15.0		9.0	9.0	
Total Split (s)	88.0	88.0	23.0	88.0	88.0		23.0	23.0		9.0	9.0	
Total Split (%)	73.3%	73.3%	19.2%	73.3%	73.3%		19.2%	19.2%		7.5%	7.5%	
Maximum Green (s)	82.5	82.5	18.0	82.5	82.5		18.0	18.0		4.0	4.0	
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.5	1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.0	5.5	5.5			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	2.0	3.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min	None	Min	Min		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 109.7
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Main Street & Seven Bridge Road & Driveway



Lane Group	EBT	EBR	WBL	WBT	NBT
Lane Group Flow (vph)	616	378	4	1373	306
v/c Ratio	0.46	0.25	0.01	1.01	0.86
Control Delay	6.6	0.4	3.8	43.5	59.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	0.4	3.8	43.5	59.1
Queue Length 50th (ft)	147	0	1	~1046	167
Queue Length 95th (ft)	209	0	3	#1306	#309
Internal Link Dist (ft)	1370			920	920
Turn Bay Length (ft)		115	50		
Base Capacity (vph)	1341	1523	515	1354	377
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.25	0.01	1.01	0.81

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	585	359	4	1304	0	288	0	3	0	0	0
Future Volume (veh/h)	0	585	359	4	1304	0	288	0	3	0	0	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1863	1900	1863	1900	1976	1938	1976	1900	1900	1900
Adj Flow Rate, veh/h	0	616	378	4	1373	0	303	0	3	0	0	0
Adj No. of Lanes	0	1	1	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	2	0	2	2	0	0	0	0	0	0
Cap, veh/h	0	1371	1434	418	1384	0	296	0	3	0	2	0
Arrive On Green	0.00	0.74	0.74	0.74	0.74	0.00	0.16	0.00	0.16	0.00	0.00	0.00
Sat Flow, veh/h	0	1845	1583	576	1863	0	1825	0	18	0	1900	0
Grp Volume(v), veh/h	0	616	378	4	1373	0	306	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1845	1583	576	1863	0	1843	0	0	0	1900	0
Q Serve(g_s), s	0.0	14.3	3.3	0.3	79.9	0.0	18.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.3	3.3	14.6	79.9	0.0	18.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00	0.99		0.01	0.00		0.00
Lane Grp Cap(c), veh/h	0	1371	1434	418	1384	0	299	0	0	0	2	0
V/C Ratio(X)	0.00	0.45	0.26	0.01	0.99	0.00	1.02	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1371	1434	419	1385	0	299	0	0	0	68	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	5.5	0.7	8.3	13.9	0.0	46.5	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	22.1	0.0	58.2	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.3	3.9	0.0	48.6	0.0	14.0	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	5.7	0.7	8.3	36.1	0.0	104.8	0.0	0.0	0.0	0.0	0.0
LnGrp LOS		A	A	A	D		F					
Approach Vol, veh/h		994			1377			306			0	
Approach Delay, s/veh		3.8			36.0			104.8			0.0	
Approach LOS		A			D			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		88.0		23.0		88.0		0.0
Change Period (Y+Rc), s		5.5		5.0		5.5		5.0
Max Green Setting (Gmax), s		82.5		18.0		82.5		4.0
Max Q Clear Time (g_c+I1), s		16.3		20.0		81.9		0.0
Green Ext Time (p_c), s		42.2		0.0		0.6		0.0

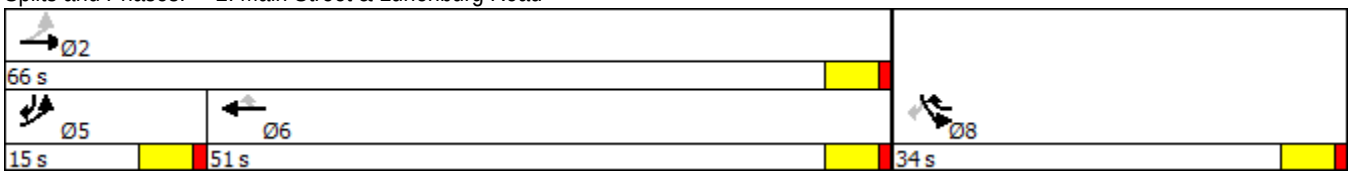
Intersection Summary	
HCM 2010 Ctrl Delay	31.9
HCM 2010 LOS	C

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	62	499	817	767	444	89
Future Volume (vph)	62	499	817	767	444	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	100			160	0	240
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Right Turn on Red				Yes		No
Link Speed (mph)		35	35		45	
Link Distance (ft)		1000	1450		1000	
Travel Time (s)		19.5	28.2		15.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	3%	1%	2%	0%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	8	8	5
Permitted Phases	2			6		8
Detector Phase	5	2	6	8	8	5
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	11.0	15.0	15.0	15.0	15.0	11.0
Total Split (s)	15.0	66.0	51.0	34.0	34.0	15.0
Total Split (%)	15.0%	66.0%	51.0%	34.0%	34.0%	15.0%
Maximum Green (s)	10.0	61.0	46.0	29.0	29.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	2.0	3.0	3.0	2.0	2.0	2.0
Recall Mode	None	Min	Min	None	None	None

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 93.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Main Street & Lunenburg Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	65	525	860	807	467	94
v/c Ratio	0.31	0.49	0.98	0.57	0.93	0.14
Control Delay	11.9	12.8	51.6	2.4	60.1	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	12.8	51.6	2.4	60.1	17.7
Queue Length 50th (ft)	16	170	~541	18	277	35
Queue Length 95th (ft)	32	250	#825	46	#482	67
Internal Link Dist (ft)		920	1370		920	
Turn Bay Length (ft)	100			160		240
Base Capacity (vph)	257	1168	881	1409	533	710
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.45	0.98	0.57	0.88	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	499	817	767	444	89
Future Volume (veh/h)	62	499	817	767	444	89
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1881	1863	1900
Adj Flow Rate, veh/h	65	525	860	807	467	94
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	1	2	0
Cap, veh/h	194	1120	921	1250	502	542
Arrive On Green	0.05	0.61	0.50	0.50	0.28	0.28
Sat Flow, veh/h	1810	1845	1845	1599	1774	1615
Grp Volume(v), veh/h	65	525	860	807	467	94
Grp Sat Flow(s),veh/h/ln	1810	1845	1845	1599	1774	1615
Q Serve(g_s), s	1.4	14.2	39.8	20.2	23.3	3.7
Cycle Q Clear(g_c), s	1.4	14.2	39.8	20.2	23.3	3.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	194	1120	921	1250	502	542
V/C Ratio(X)	0.33	0.47	0.93	0.65	0.93	0.17
Avail Cap(c_a), veh/h	297	1237	933	1261	566	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	9.8	21.4	4.4	31.8	21.3
Incr Delay (d2), s/veh	0.4	0.3	15.8	1.1	20.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	7.2	24.1	20.6	14.2	1.7
LnGrp Delay(d),s/veh	20.5	10.1	37.2	5.5	51.8	21.4
LnGrp LOS	C	B	D	A	D	C
Approach Vol, veh/h		590	1667		561	
Approach Delay, s/veh		11.2	21.9		46.7	
Approach LOS		B	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		60.2			9.8	50.4		30.7
Change Period (Y+Rc), s		5.0			5.0	5.0		5.0
Max Green Setting (Gmax), s		61.0			10.0	46.0		29.0
Max Q Clear Time (g_c+I1), s		16.2			3.4	41.8		25.3
Green Ext Time (p_c), s		21.2			0.0	3.6		0.4

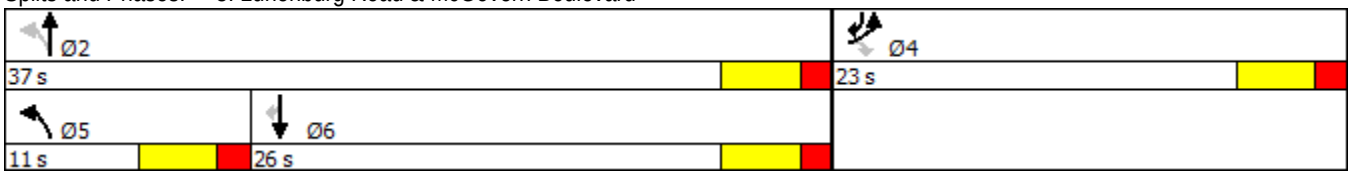
Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	364	214	167	696	331	259
Future Volume (vph)	364	214	167	696	331	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	150	0	100			200
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			50	50	
Link Distance (ft)	1000			1000	4300	
Travel Time (s)	22.7			13.6	58.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	2%	6%	0%
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	pm+pt	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	10.0	10.0	6.0
Minimum Split (s)	11.0	11.0	11.0	15.0	15.0	11.0
Total Split (s)	23.0	23.0	11.0	37.0	26.0	23.0
Total Split (%)	38.3%	38.3%	18.3%	61.7%	43.3%	38.3%
Maximum Green (s)	18.0	18.0	6.0	32.0	21.0	18.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	2.0	3.0	3.0	2.0
Recall Mode	None	None	None	Min	Min	None

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 50.2
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Lunenburg Road & McGovern Boulevard



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	379	223	174	725	345	270
v/c Ratio	0.76	0.37	0.38	0.80	0.59	0.22
Control Delay	29.1	4.9	9.6	19.0	20.2	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	4.9	9.6	19.0	20.2	0.8
Queue Length 50th (ft)	104	0	27	169	93	0
Queue Length 95th (ft)	#235	41	57	#316	172	13
Internal Link Dist (ft)	920			920	4220	
Turn Bay Length (ft)	150		100			200
Base Capacity (vph)	661	730	462	1212	766	1295
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.31	0.38	0.60	0.45	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	364	214	167	696	331	259
Future Volume (veh/h)	364	214	167	696	331	259
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1792	1900
Adj Flow Rate, veh/h	379	223	174	725	345	270
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	2	6	0
Cap, veh/h	459	410	484	1000	571	924
Arrive On Green	0.25	0.25	0.11	0.54	0.32	0.32
Sat Flow, veh/h	1810	1615	1810	1863	1792	1615
Grp Volume(v), veh/h	379	223	174	725	345	270
Grp Sat Flow(s),veh/h/ln	1810	1615	1810	1863	1792	1615
Q Serve(g_s), s	9.4	5.7	2.7	14.1	7.7	4.1
Cycle Q Clear(g_c), s	9.4	5.7	2.7	14.1	7.7	4.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	459	410	484	1000	571	924
V/C Ratio(X)	0.83	0.54	0.36	0.73	0.60	0.29
Avail Cap(c_a), veh/h	683	609	507	1250	789	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	15.4	8.6	8.4	13.7	5.2
Incr Delay (d2), s/veh	3.2	0.4	0.2	1.6	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	5.2	1.3	7.5	4.0	2.9
LnGrp Delay(d),s/veh	20.0	15.8	8.7	10.0	14.7	5.4
LnGrp LOS	C	B	A	A	B	A
Approach Vol, veh/h	602			899	615	
Approach Delay, s/veh	18.5			9.7	10.6	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		30.6		17.1	10.4	20.2		
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		
Max Green Setting (Gmax), s		32.0		18.0	6.0	21.0		
Max Q Clear Time (g_c+I1), s		16.1		11.4	4.7	9.7		
Green Ext Time (p_c), s		6.6		0.7	0.0	5.5		

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

Appendix M

Parking Demand Calculations

Parking Demand Assessment

Project: Capital Commerce Center
Date: April 10, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Parking Generation - 5th Ed.*

Land Use: Industrial Park
LUC: 130
Size 1,567,000 SF

Average Percentile Peak Period Parking Demand:

Weekday:	1.20	vehicles per kSF	x	1567	kSF =	**1880**	**vehicles**
Saturday*:	0.80	vehicles per kSF	x	1567	kSF =	**1260**	**vehicles**

Parking Demand - Time of Day Distribution

Time	Weekday		Saturday	
	Percent of Peak	Demand	Percent of Peak	Demand
12:00-4:00 AM	30%	564	30%	378
5:00 AM	30%	564	30%	378
6:00 AM	30%	564	30%	378
7:00 AM	59%	1109	59%	743
8:00 AM	89%	1673	89%	1121
9:00 AM	99%	1861	99%	1247
10:00 AM	99%	1861	99%	1247
11:00 AM	99%	1861	99%	1247
12:00 PM	95%	1786	95%	1197
1:00 PM	98%	1842	98%	1235
2:00 PM	100%	1880	100%	1260
3:00 PM	94%	1767	94%	1184
4:00 PM	66%	1241	66%	832
5:00 PM	47%	884	47%	592
6:00 PM	30%	564	30%	378
7:00 PM	30%	564	30%	378
8:00 PM	30%	564	30%	378
9:00 PM	30%	564	30%	378
10:00 PM	30%	564	30%	378
11:00 PM	30%	564	30%	378

TEC The Engineering Corp

Parking Demand Assessment

Project: Capital Commerce Center
Date: April 10, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Parking Generation - 5th Ed.*

Land Use: Multifamily Housing (Mid-Rise)
LUC: 221
Size 500 Dwelling Units

GENERAL URBAN / SUBURBAN

Avg Percentile Peak Period Parking Demand:

Weekday:	1.21	vehicles per units	x	500	units =	**605**	**vehicles**
Saturday*:	1.31	vehicles per units	x	500	units =	**655**	**vehicles**

Parking Demand - Time of Day Distribution

Time	Weekday		Saturday	
	Percent of Peak	Demand	Percent of Peak	Demand
12:00-4:00 AM	100%	605	100%	655
5:00 AM	94%	569	99%	648
6:00 AM	83%	502	97%	635
7:00 AM	71%	430	95%	622
8:00 AM	61%	369	88%	576
9:00 AM	55%	333	83%	544
10:00 AM	54%	327	75%	491
11:00 AM	53%	321	71%	465
12:00 PM	50%	303	68%	445
1:00 PM	49%	296	66%	432
2:00 PM	49%	296	70%	459
3:00 PM	50%	303	69%	452
4:00 PM	58%	351	72%	472
5:00 PM	64%	387	74%	485
6:00 PM	67%	405	74%	485
7:00 PM	70%	424	73%	478
8:00 PM	76%	460	75%	491
9:00 PM	83%	502	78%	511
10:00 PM	90%	545	82%	537
11:00 PM	93%	563	88%	576

TEC The Engineering Corp

Parking Demand Assessment

Project: Capital Commerce Center
Date: April 10, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Parking Generation - 5th Ed.*

Land Use: Hotel
LUC: 310
Size 120 rooms

GENERAL URBAN / SUBURBAN

Avg Percentile Peak Period Parking Demand:

Weekday:	0.74	vehicles per room	x	120	rooms =	**89**	**vehicles**
Saturday*:	1.15	vehicles per room	x	120	rooms =	**138**	**vehicles**

Parking Demand - Time of Day Distribution

Time	Weekday		Saturday	
	Percent of Peak	Demand	Percent of Peak	Demand
12:00-4:00 AM	96%	85	93%	128
5:00 AM	96%	85	93%	128
6:00 AM	91%	81	97%	134
7:00 AM	89%	79	100%	138
8:00 AM	90%	80	93%	128
9:00 AM	100%	89	72%	99
10:00 AM	98%	87	69%	95
11:00 AM	89%	79	65%	90
12:00 PM	85%	76	78%	108
1:00 PM	75%	67	78%	108
2:00 PM	81%	72	63%	87
3:00 PM	70%	62	59%	81
4:00 PM	74%	66	58%	80
5:00 PM	65%	58	52%	72
6:00 PM	73%	65	63%	87
7:00 PM	78%	69	74%	102
8:00 PM	93%	83	78%	108
9:00 PM	96%	85	72%	99
10:00 PM	95%	85	84%	116
11:00 PM	95%	85	92%	127
Assumed based on 12:00 AM & 4:00 AM percentages				

TEC The Engineering Corp

Parking Demand Assessment

Project: Capital Commerce Center
Date: April 10, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Parking Generation - 5th Ed.*

Land Use: Soccer Complex
LUC: 488
Size 4 Fields

GENERAL URBAN / SUBURBAN

Avg Percentile Peak Period Parking Demand:

Friday:	59.63	vehicles per Field	X	4 Field =	**239**	**vehicles**
Saturday*:	62.12	vehicles per Field	X	4 Field =	**248**	**vehicles**

Parking Demand - Time of Day Distribution

Time	Weekday		Saturday	
	Percent of Peak	Demand	Percent of Peak	Demand
12:00-4:00 AM	5%	12	5%	12
5:00 AM	5%	12	5%	12
6:00 AM	5%	12	5%	12
7:00 AM	5%	12	50%	124
8:00 AM	5%	12	75%	186
9:00 AM	5%	12	75%	186
10:00 AM	5%	12	75%	186
11:00 AM	5%	12	75%	186
12:00 PM	10%	24	100%	248
1:00 PM	10%	24	100%	248
2:00 PM	10%	24	100%	248
3:00 PM	50%	120	75%	186
4:00 PM	100%	239	50%	124
5:00 PM	100%	239	50%	124
6:00 PM	100%	239	50%	124
7:00 PM	100%	239	50%	124
8:00 PM	50%	120	5%	12
9:00 PM	5%	12	5%	12
10:00 PM	5%	12	5%	12
11:00 PM	5%	12	5%	12
Assumed based on limited data provided				

TEC The Engineering Corp

Parking Demand Assessment

Project: Capital Commerce Center
Date: April 10, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Parking Generation - 5th Ed.*

Land Use: Shopping Center
LUC: 820
Size 65,700 SF

GENERAL URBAN / SUBURBAN

Avg Percentile Peak Period Parking Demand:

Weekday:	3.68	vehicles per kSF	X	65,700 SF =	**242**	**vehicles**
Saturday:	3.74	vehicles per kSF	X	65,700 SF =	**246**	**vehicles**

Parking Demand - Time of Day Distribution

Time	Weekday		Saturday	
	Percent of Peak	Demand	Percent of Peak	Demand
12:00-4:00 AM	1%	2	1%	2
5:00 AM	1%	2	1%	2
6:00 AM	1%	2	1%	2
7:00 AM	5%	12	5%	12
8:00 AM	15%	36	27%	66
9:00 AM	32%	77	46%	113
10:00 AM	54%	131	67%	165
11:00 AM	71%	172	85%	209
12:00 PM	99%	240	95%	234
1:00 PM	100%	242	100%	246
2:00 PM	90%	218	98%	241
3:00 PM	83%	201	92%	226
4:00 PM	81%	196	86%	212
5:00 PM	84%	203	79%	194
6:00 PM	86%	208	71%	175
7:00 PM	80%	194	69%	170
8:00 PM	63%	152	60%	148
9:00 PM	42%	102	51%	125
10:00 PM	15%	36	38%	93
11:00 PM	1%	2	1%	2
Assumed based on minor staff committments overnight				

TEC The Engineering Corp

Trip Generation Assessment - Alternative Comparison

Project: Capital Commerce Center - Lancaster, MA
Date: May 22, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Trip Generation - 10th Ed.*

PREFERED ALTERNATIVE [NET]	***Total Trips***							***Total New Pass-by Trips***	***Total New Primary Trips***	***Total Pass-by Trips***		***Total Primary Trips***	
										In	***Out***	***In***	***Out***
Weekday Daily	**11274**							546	9790	273	273	**4895**	**4895**
Weekday AM Peak Hour	**836**							10	752	5	5	**460**	**292**
Weekday PM Peak Hour	**1054**							62	838	31	31	**344**	**494**
Saturday Daily	**11328**							668	9602	334	334	**4801**	**4801**
Sat Midday Peak Hour	**1441**							68	1299	34	34	**538**	**761**

ALTERNATIVES

FULL SCALE INDUSTRIAL ALTERNATIVE [NET]	***Total Trips***							***Total New Pass-by Trips***	***Total New Primary Trips***	***Total Pass-by Trips***		***Total Primary Trips***	
										In	***Out***	***In***	***Out***
Weekday Daily	**12254**							546	10756	273	273	**5378**	**5378**
Weekday AM Peak Hour	**1088**							10	992	5	5	**653**	**339**
Weekday PM Peak Hour	**1270**							62	1054	31	31	**391**	**663**
Saturday Daily	**13452**							668	11704	334	334	**5852**	**5852**
Sat Midday Peak Hour	**1809**							68	1665	34	34	**655**	**1010**

FULL SCALE RESIDENTIAL ALTERNATIVE [NET]	***Total Trips***							***Total New Pass-by Trips***	***Total New Primary Trips***	***Total Pass-by Trips***		***Total Primary Trips***	
										In	***Out***	***In***	***Out***
Weekday Daily	**13284**							580	12208	290	290	**6104**	**6104**
Weekday AM Peak Hour	**770**							14	742	7	7	**218**	**524**
Weekday PM Peak Hour	**1156**							70	994	35	35	**601**	**393**
Saturday Daily	**14856**							710	13540	355	355	**6770**	**6770**
Sat Midday Peak Hour	**1387**							72	1279	36	36	**660**	**619**

EQUESTRIAN ALTERNATIVE [NET]	***Total Trips***							***Total New Pass-by Trips***	***Total New Primary Trips***	***Total Pass-by Trips***		***Total Primary Trips***	
										In	***Out***	***In***	***Out***
Weekday Daily	**13640**							1582	10424	791	791	**5212**	**5212**
Weekday AM Peak Hour	**564**							44	508	22	22	**215**	**293**
Weekday PM Peak Hour	**1232**							196	790	98	98	**433**	**357**
Saturday Daily	**14202**							1964	10472	982	982	**5236**	**5236**
Sat Midday Peak Hour	**1401**							198	1077	99	99	**568**	**509**

Trip Generation Assessment - Residential Alternative

Project: Madison Mixed-Use Redevelopment - Worcester, Massachusetts
Date: May 22, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Trip Generation - 10th Ed.*

Proposed Development "East"

Single Family Housing (ITE LUC 210)

Units: 117 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1104	1202	**1202**	50%	50%	601	601	0	0	0	**1202**	0	0	601	601
Weekday AM PH	86	88	**88**	25%	75%	22	66	0	0	0	**88**	0	0	22	66
Weekday PM PH	116	118	**118**	63%	37%	74	44	0	0	0	**118**	0	0	74	44
Saturday Daily	1116	1138	**1138**	50%	50%	569	569	0	0	0	**1138**	0	0	569	569
Sat Midday PH	108	116	**116**	54%	46%	63	53	0	0	0	**116**	0	0	63	53

Proposed Development "West"

Single Family Housing (ITE LUC 210)

Units: 235 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2218	2282	**2282**	50%	50%	1141	1141	0	0	0	**2282**	0	0	1141	1141
Weekday AM PH	174	172	**172**	25%	75%	43	129	0	0	0	**172**	0	0	43	129
Weekday PM PH	232	230	**230**	63%	37%	145	85	0	0	0	**230**	0	0	145	85
Saturday Daily	2242	2190	**2190**	50%	50%	1095	1095	0	0	0	**2190**	0	0	1095	1095
Sat Midday PH	218	216	**216**	54%	46%	117	99	0	0	0	**216**	0	0	117	99

Multifamily Housing (ITE LUC 220)

Units: 390 kSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2854	2908	**2908**	50%	50%	1454	1454	0	0	0	**2908**	0	0	1454	1454
Weekday AM PH	180	174	**180**	23%	77%	41	139	0	0	0	**180**	0	0	41	139
Weekday PM PH	218	198	**218**	63%	37%	137	81	0	0	0	**218**	0	0	137	81
Saturday Daily	3174	4942	**4942**	50%	50%	2471	2471	0	0	0	**4942**	0	0	2471	2471
Sat Midday PH	274	388	**388**	50%	50%	194	194	0	0	0	**388**	0	0	194	194

Multifamily Housing (ITE LUC 221)

Units: 500 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2720	2723	**2724**	50%	50%	1362	1362	136	112	0	**2476**	0	0	1226	1250
Weekday AM PH	180	166	**166**	26%	74%	43	123	3	4	0	**159**	0	0	40	119
Weekday PM PH	220	208	**208**	61%	39%	127	81	34	12	0	**162**	0	0	93	69
Saturday Daily	2456	1937	**1938**	50%	50%	969	969	167	136	0	**1635**	0	0	802	833
Sat Midday PH	220	217	**217**	49%	51%	106	111	10	8	0	**199**	0	0	96	103

Age Restricted Housing (ITE LUC 251)

Units: 138 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	590	746	**746**	50%	50%	373	373	0	0	0	**746**	0	0	373	373
Weekday AM PH	34	52	**52**	33%	67%	17	35	0	0	0	**52**	0	0	17	35
Weekday PM PH	42	62	**62**	61%	39%	38	24	0	0	0	**62**	0	0	38	24
Saturday Daily	376	N/A	**376**	50%	50%	188	188	0	0	0	**376**	0	0	188	188
Sat Midday PH	32	N/A	**32**	48%	52%	15	17	0	0	0	**32**	0	0	15	17

Hotel (ITE LUC 310)

Units: 120 Rooms

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1004	928	**928**	50%	50%	464	464	0	0	0	**928**	0	0	464	464
Weekday AM PH	56	54	**54**	59%	41%	32	22	0	0	0	**54**	0	0	32	22
Weekday PM PH	72	64	**64**	51%	49%	33	31	0	0	0	**64**	0	0	33	31
Saturday Daily	982	860	**860**	50%	50%	430	430	0	0	0	**860**	0	0	430	430
Sat Midday PH	86	88	**88**	56%	44%	49	39	0	0	0	**88**	0	0	49	39

Soccer Complex (ITE LUC 488)

Units: 1 Field

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	72	N/A	**72**	50%	50%	36	36	0	0	0	**72**	0	0	36	36
Weekday AM PH	2	N/A	**2**	61%	39%	1	1	0	0	0	**2**	0	0	1	1
Weekday PM PH	16	14	**14**	66%	34%	9	5	0	0	0	**14**	0	0	9	5
Saturday Daily	406	N/A	**406**	50%	50%	203	203	0	0	0	**406**	0	0	203	203
Sat Midday PH	30	38	**38**	48%	52%	18	20	0	0	0	**38**	0	0	18	20

Shopping Center (ITE LUC 820)

Units: 65.7 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2480	N/A	**2480**	50%	50%	1240	1240	112	136	**580**	**1662**	290	290	838	814
Weekday AM PH	64	N/A	**64**	62%	38%	40	24	4	3	**14**	**43**	7	7	29	14
Weekday PM PH	250	N/A	**250**	48%	52%	120	130	12	34	**70**	**134**	35	35	73	61
Saturday Daily	3030	N/A	**3030**	50%	50%	1515	1515	136	167	**710**	**2017**	355	355	1024	993
Sat Midday PH	296	N/A	**296**	52%	48%	154	142	8	10	**72**	**206**	36	36	110	96

Assumed 34% pass-by rate for weekday PM and 26% pass-by rate for all others (Trip Generation Handbook, 3rd Edition).

TOTAL NEW DEVELOPMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**13342**			**6671**	**6671**	**248**	**248**	**580**	**12266**	**290**	**290**	**6133**	**6133**
Weekday AM Peak Hour	**778**			**239**	**539**	**7**	**7**	**14**	**750**	**7**	**7**	**225**	**525**
Weekday PM Peak Hour	**1164**			**683**	**481**	**46**	**46**	**70**	**1002**	**35**	**35**	**602**	**400**
Saturday Daily	**14880**			**7440**	**7440**	**303**	**303**	**710**	**13564**	**355**	**355**	**6782**	**6782**
Sat Midday Peak Hour	**1391**			**716**	**675**	**18**	**18**	**72**	**1263**	**36**	**36**	**662**	**621**

Existing Development

Light Industrial (ITE LUC 110)

Units: 11.8 kSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	58	N/A	**58**	50%	50%	29	29	0	0	0	**58**	0	0	29	29
Weekday AM PH	8	N/A	**8**	88%	12%	7	1	0	0	0	**8**	0	0	7	1
Weekday PM PH	8	N/A	**8**	13%	87%	1	7	0	0	0	**8**	0	0	1	7
Saturday Daily	24	N/A	**24**	50%	50%	12	12	0	0	0	**24**	0	0	12	12
Sat Midday PH	4	N/A	**4**	47%	53%	2	2	0	0	0	**4**	0	0	2	2

Soccer Complex (ITE LUC 488)

Units: 3 Fields

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	214	N/A	**214**	50%	50%	107	107	0	0	0	**214**	0	0	107	107
Weekday AM PH	2	N/A	**2**	61%	39%	1	1	0	0	0	**2**	0	0	1	1
Weekday PM PH	50	76	**76**	66%	34%	50	26	0	0	0	**76**	0	0	50	26
Saturday Daily	1214	N/A	**1214**	50%	50%	607	607	0	0	0	**1214**	0	0	607	607
Sat Midday PH	92	118	**118**	48%	52%	57	61	0	0	0	**118**	0	0	57	61

Coffee/Donut Shop with DT (ITE LUC 937)

Units: 2.3 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1886	N/A	**1886**	50%	50%	943	943	244	174	734	**734**	367	367	332	402
Weekday AM PH	204	N/A	**204**	51%	49%	104	100	13	8	90	**93**	45	45	46	47
Weekday PM PH	100	N/A	**100**	50%	50%	50	50	13	19	34	**34**	17	17	20	14
Saturday Daily	2302	N/A	**2302**	50%	50%	1151	1151	250	213	920	**919**	460	460	441	478
Sat Midday PH	202	N/A	**202**	50%	50%	101	101	16	19	84	**83**	42	42	43	40

Assumed 49% pass-by rate for weekday AM and 50% pass-by rate for all others (Trip Generation Handbook, 3rd Edition - LUC 934).

Convenience Market & Gas Station (ITE LUC 960)

Units: 5 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	4188	N/A	**4188**	50%	50%	2094	2094	174	244	2112	**1658**	1056	1056	864	794
Weekday AM PH	416	422	**422**	50%	50%	211	211	8	13	248	**153**	124	124	79	74
Weekday PM PH	346	N/A	**346**	50%	50%	173	173	19	13	176	**138**	88	88	66	72
Saturday Daily	3500	N/A	**3500**	50%	50%	1750	1750	213	250	1700	**1337**	850	850	687	650
Sat Midday PH	320	320	**320**	50%	50%	160	160	19	16	160	**125**	80	80	61	64

Assumed 62% pass-by rate for weekday AM, 56% pass-by rate for all others (Trip Generation Handbook, 3rd Edition).

EXISTING DEVELOPMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**6346**			**3173**	**3173**	**418**	**418**	**2546**	**2664**	**1423**	**1423**	**1332**	**1332**
Weekday AM Peak Hour	**636**			**323**	**313**	**21**	**21**	**338**	**256**	**169**	**169**	**133**	**123**
Weekday PM Peak Hour	**530**			**274**	**256**	**32**	**32**	**210**	**256**	**105**	**105**	**137**	**119**
Saturday Daily	**7040**			**3520**	**3520**	**463**	**463**	**2620**	**3494**	**1310**	**1310**	**1747**	**1747**
Sat Midday Peak Hour	**644**			**320**	**324**	**35**	**35**	**244**	**330**	**122**	**122**	**163**	**167**

POST SITE TRIPS	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**19630**			**9815**	**9815**	**666**	**666**	**3426**	**14872**	**1713**	**1713**	**7436**	**7436**
Weekday AM Peak Hour	**1406**			**555**	**851**	**28**	**28**	**352**	**998**	**176**	**176**	**351**	**647**
Weekday PM Peak Hour	**1686**			**956**	**730**	**78**	**78**	**280**	**1250**	**140**	**140**	**738**	**512**
Saturday Daily	**21896**			**10948**	**10948**	**766**	**766**	**3330**	**17034**	**1665**	**1665**	**8517**	**8517**
Sat Midday Peak Hour	**2031**			**1034**	**997**	**53**	**53**	**316**	**1609**	**158**	**158**	**823**	**786**

NET TRIP ASSESSMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**13284**			**6642**	**6642**	**248**	**248**	**580**	**12208**	**290**	**290**	**6104**	**6104**
Weekday AM Peak Hour	**770**			**232**	**538**	**7**	**7**	**14**	**742**	**7**	**7**	**218**	**524**
Weekday PM Peak Hour	**1156**			**682**	**474**	**46**	**46**	**70**	**994**	**35**	**35**	**601**	**393**
Saturday Daily	**14856**			**7428**	**7428**	**303**	**303**	**710**	**13540**	**355**	**355**	**6770**	**6770**
Sat Midday Peak Hour	**1387**			**714**	**673**	**18**	**18**	**72**	**1279**	**36**	**36**	**660**	**619**

Trip Generation Assessment - Equestrian Alternative

Project: Capital Commerce Center - Lancaster, MA
Date: May 22, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Trip Generation - 10th Ed.*

Proposed Development "East"

Single Family Housing (ITE LUC 210)
Units: 117 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1104	1202	**1202**	50%	50%	601	601	0	0	0	**1202**	0	0	601	601
Weekday AM PH	86	88	**88**	25%	75%	22	66	0	0	0	**88**	0	0	22	66
Weekday PM PH	116	118	**118**	63%	37%	74	44	0	0	0	**118**	0	0	74	44
Saturday Daily	1116	1138	**1138**	50%	50%	569	569	0	0	0	**1138**	0	0	569	569
Sat Midday PH	108	116	**116**	54%	46%	63	53	0	0	0	**116**	0	0	63	53

Proposed Development "West"

Single Family Housing (ITE LUC 210)
Units: 28 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	264	322	**322**	50%	50%	161	161	0	0	0	**322**	0	0	161	161
Weekday AM PH	20	24	**24**	25%	75%	6	18	0	0	0	**24**	0	0	6	18
Weekday PM PH	28	30	**30**	63%	37%	19	11	0	0	0	**30**	0	0	19	11
Saturday Daily	268	296	**296**	50%	50%	148	148	0	0	0	**296**	0	0	148	148
Sat Midday PH	26	42	**42**	54%	46%	23	19	0	0	0	**42**	0	0	23	19

Multifamily Housing (ITE LUC 221)
Units: 500 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2720	2723	**2724**	50%	50%	1362	1362	380	311	0	**2033**	0	0	982	1051
Weekday AM PH	180	166	**166**	26%	74%	43	123	1	1	0	**164**	0	0	42	122
Weekday PM PH	220	208	**208**	61%	39%	127	81	67	36	0	**105**	0	0	60	45
Saturday Daily	2456	1937	**1938**	50%	50%	969	969	369	380	0	**1189**	0	0	600	589
Sat Midday PH	220	217	**217**	49%	51%	106	111	28	21	0	**168**	0	0	78	90

Hotel (ITE LUC 310)
Units: 240 Rooms

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2006	2282	**2282**	50%	50%	1141	1141	57	69	0	**2156**	0	0	1084	1072
Weekday AM PH	112	114	**114**	59%	41%	67	47	0	4	0	**110**	0	0	67	43
Weekday PM PH	144	154	**154**	51%	49%	79	75	16	7	0	**131**	0	0	63	68
Saturday Daily	1966	2014	**2014**	50%	50%	1007	1007	50	84	0	**1880**	0	0	957	923
Sat Midday PH	172	170	**170**	56%	44%	95	75	5	9	0	**156**	0	0	90	66

Horse Racetrack (ITE LUC 452)
Units: 108 Employees

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	192	N/A	**192**	50%	50%	96	96	0	0	0	**192**	0	0	96	96
Weekday AM PH	2	N/A	**2**	91%	9%	2	0	0	0	0	**2**	0	0	2	0
Weekday PM PH	20	N/A	**20**	66%	34%	13	7	0	0	0	**20**	0	0	13	7
Saturday Daily	0	N/A	**0**	50%	50%	0	0	0	0	0	**0**	0	0	0	0
Sat Midday PH	0	N/A	**0**	50%	50%	0	0	0	0	0	**0**	0	0	0	0

Soccer Complex (ITE LUC 488)
Units: 1 Field

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	72	N/A	**72**	50%	50%	36	36	0	0	0	**72**	0	0	36	36
Weekday AM PH	2	N/A	**2**	61%	39%	1	1	0	0	0	**2**	0	0	1	1
Weekday PM PH	16	14	**14**	66%	34%	9	5	0	0	0	**14**	0	0	9	5
Saturday Daily	406	N/A	**406**	50%	50%	203	203	0	0	0	**406**	0	0	203	203
Sat Midday PH	30	38	**38**	48%	52%	18	20	0	0	0	**38**	0	0	18	20

Shopping Center (ITE LUC 820)
Units: 182.88 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	6904	N/A	**6904**	50%	50%	3452	3452	380	437	**1582**	**4505**	791	791	2281	2224
Weekday AM PH	176	N/A	**176**	62%	38%	109	67	5	1	**44**	**126**	22	22	82	44
Weekday PM PH	696	N/A	**696**	48%	52%	334	362	40	80	**196**	**380**	98	98	196	184
Saturday Daily	8434	N/A	**8434**	50%	50%	4217	4217	464	419	**1964**	**5587**	982	982	2771	2816
Sat Midday PH	822	N/A	**822**	52%	48%	427	395	30	33	**198**	**561**	99	99	298	263

Assumed 34% pass-by rate for weekday PM and 26% pass-by rate for all others (Trip Generation Handbook, 3rd Edition).

TOTAL NEW DEVELOPMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**13698**			**6849**	**6849**	**817**	**817**	**1582**	**10482**	**791**	**791**	**5241**	**5241**
Weekday AM Peak Hour	**572**			**250**	**322**	**6**	**6**	**44**	**516**	**22**	**22**	**222**	**294**
Weekday PM Peak Hour	**1240**			**655**	**585**	**123**	**123**	**196**	**798**	**98**	**98**	**434**	**364**
Saturday Daily	**14226**			**7113**	**7113**	**883**	**883**	**1964**	**10496**	**982**	**982**	**5248**	**5248**
Sat Midday Peak Hour	**1405**			**732**	**673**	**63**	**63**	**198**	**1081**	**99**	**99**	**570**	**511**

Existing Development

Light Industrial (ITE LUC 110)
Units: 11.8 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	58	N/A	**58**	50%	50%	29	29	0	0	0	**58**	0	0	29	29
Weekday AM PH	8	N/A	**8**	88%	12%	7	1	0	0	0	**8**	0	0	7	1
Weekday PM PH	8	N/A	**8**	13%	87%	1	7	0	0	0	**8**	0	0	1	7
Saturday Daily	24	N/A	**24**	50%	50%	12	12	0	0	0	**24**	0	0	12	12
Sat Midday PH	4	N/A	**4**	47%	53%	2	2	0	0	0	**4**	0	0	2	2

Soccer Complex (ITE LUC 488)
Units: 3 Fields

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	214	N/A	**214**	50%	50%	107	107	0	0	0	**214**	0	0	107	107
Weekday AM PH	2	N/A	**2**	61%	39%	1	1	0	0	0	**2**	0	0	1	1
Weekday PM PH	50	76	**76**	66%	34%	50	26	0	0	0	**76**	0	0	50	26
Saturday Daily	1214	N/A	**1214**	50%	50%	607	607	0	0	0	**1214**	0	0	607	607
Sat Midday PH	92	118	**118**	48%	52%	57	61	0	0	0	**118**	0	0	57	61

Coffee/Donut Shop with DT (ITE LUC 937)
Units: 2.3 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1886	N/A	**1886**	50%	50%	943	943	244	174	734	**734**	367	367	332	402
Weekday AM PH	204	N/A	**204**	51%	49%	104	100	13	8	90	**93**	45	45	46	47
Weekday PM PH	100	N/A	**100**	50%	50%	50	50	13	19	34	**34**	17	17	20	14
Saturday Daily	2302	N/A	**2302**	50%	50%	1151	1151	250	213	920	**919**	460	460	441	478
Sat Midday PH	202	N/A	**202**	50%	50%	101	101	16	19	84	**83**	42	42	43	40

Assumed 49% pass-by rate for weekday AM and 50% pass-by rate for all others (Trip Generation Handbook, 3rd Edition - LUC 934).

Convenience Market & Gas Station (ITE LUC 960)
Units: 5 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	4188	N/A	**4188**	50%	50%	2094	2094	174	244	2112	**1658**	1056	1056	864	794
Weekday AM PH	416	422	**422**	50%	50%	211	211	8	13	248	**153**	124	124	79	74
Weekday PM PH	346	N/A	**346**	50%	50%	173	173	19	13	176	**138**	88	88	66	72
Saturday Daily	3500	N/A	**3500**	50%	50%	1750	1750	213	250	1700	**1337**	850	850	687	650
Sat Midday PH	320	320	**320**	50%	50%	160	160	19	16	160	**125**	80	80	61	64

Assumed 62% pass-by rate for weekday AM, 56% pass-by rate for all others (Trip Generation Handbook, 3rd Edition).

EXISTING DEVELOPMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**6346**			**3173**	**3173**	**418**	**418**	**2846**	**2664**	**1423**	**1423**	**1332**	**1332**
Weekday AM Peak Hour	**636**			**323**	**313**	**21**	**21**	**338**	**256**	**169**	**169**	**133**	**123**
Weekday PM Peak Hour	**530**			**274**	**256**	**32**	**32**	**210**	**256**	**105**	**105**	**137**	**119**
Saturday Daily	**7040**			**3520**	**3520**	**463**	**463**	**2620**	**3494**	**1310**	**1310**	**1747**	**1747**
Sat Midday Peak Hour	**644**			**320**	**324**	**35**	**35**	**244**	**330**	**122**	**122**	**163**	**167**

POST SITE TRIPS	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**19986**			**9993**	**9993**	**1235**	**1235**	**4428**	**13088**	**2214**	**2214**	**6544**	**6544**
Weekday AM Peak Hour	**1200**			**566**	**634**	**27**	**27**	**382**	**764**	**191**	**191**	**348**	**416**
Weekday PM Peak Hour	**1762**			**928**	**834**	**155**	**155**	**406**	**1046**	**203**	**203**	**570**	**476**
Saturday Daily	**21242**			**10621**	**10621**	**1346**	**1346**	**4584**	**13966**	**2292**	**2292**	**6983**	**6983**
Sat Midday Peak Hour	**2045**			**1050**	**995**	**98**	**98**	**442**	**1407**	**221**	**221**	**731**	**676**

NET TRIP ASSESSMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**13640**			**6820**	**6820**	**817**	**817**	**1582**	**10424**	**791**	**791**	**5212**	**5212**
Weekday AM Peak Hour	**564**			**243**	**321**	**6**	**6**	**44**	**508**	**22**	**22**	**215**	**293**
Weekday PM Peak Hour	**1232**			**654**	**578**	**123**	**123**	**196**	**790**	**98**	**98**	**433**	**357**
Saturday Daily	**14202**			**7101**	**7101**	**883**	**883**	**1964**	**10472**	**982**	**982**	**5236**	**5236**
Sat Midday Peak Hour	**1401**			**730**	**671**	**63**	**63**	**198**	**1077**	**99**	**99**	**568**	**509**

Trip Generation Assessment - Full Scale Industrial Alternative

Project: Capital Commerce Center - Lancaster, MA
Date: May 22, 2019
Analyst: TEC, Inc. / Samuel W. Gregorio, PE, PTOE
Source: Institute of Transportation Engineers - *Trip Generation - 10th Ed.*

Proposed Development "East"

Single Family Housing (ITE LUC 210)

Units: 117 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1104	1202	**1202**	50%	50%	601	601	0	0	0	**1202**	0	0	601	601
Weekday AM PH	86	88	**88**	25%	75%	22	66	0	0	0	**88**	0	0	22	66
Weekday PM PH	116	118	**118**	63%	37%	74	44	0	0	0	**118**	0	0	74	44
Saturday Daily	1116	1138	**1138**	50%	50%	569	569	0	0	0	**1138**	0	0	569	569
Sat Midday PH	108	116	**116**	54%	46%	63	53	0	0	0	**116**	0	0	63	53

Proposed Development "West"

Industrial Park (ITE LUC 130)

Units: 2403.5 kSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	8100	4906	**4906**	50%	50%	2453	2453	89	91	0	**4726**	0	0	2364	2362
Weekday AM PH	722	N/A	**722**	79%	21%	570	152	26	13	0	**683**	0	0	544	139
Weekday PM PH	624	N/A	**624**	22%	78%	137	487	6	15	0	**603**	0	0	131	472
Saturday Daily	6104	N/A	**6104**	50%	50%	3052	3052	95	90	0	**5919**	0	0	2957	2962
Sat Midday PH	1058	N/A	**1058**	32%	68%	339	719	9	6	0	**1043**	0	0	330	713

Multifamily Housing (ITE LUC 221)

Units: 500 Units

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2720	2723	**2724**	50%	50%	1362	1362	177	139	0	**2408**	0	0	1185	1223
Weekday AM PH	180	166	**166**	26%	74%	43	123	1	3	0	**162**	0	0	42	120
Weekday PM PH	220	208	**208**	61%	39%	127	81	39	17	0	**152**	0	0	88	64
Saturday Daily	2456	1937	**1938**	50%	50%	969	969	196	155	0	**1587**	0	0	773	814
Sat Midday PH	220	217	**217**	49%	51%	106	111	10	10	0	**197**	0	0	96	101

Hotel (ITE LUC 310)

Units: 120 Rooms

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1004	928	**928**	50%	50%	464	464	23	50	0	**855**	0	0	441	414
Weekday AM PH	56	54	**54**	59%	41%	32	22	0	19	0	**35**	0	0	32	3
Weekday PM PH	72	64	**64**	51%	49%	33	31	8	2	0	**54**	0	0	25	29
Saturday Daily	982	860	**860**	50%	50%	430	430	22	61	0	**777**	0	0	408	369
Sat Midday PH	86	88	**88**	56%	44%	49	39	2	6	0	**80**	0	0	47	33

Soccer Complex (ITE LUC 488)

Units: 1 Field

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	72	N/A	**72**	50%	50%	36	36	0	0	0	**72**	0	0	36	36
Weekday AM PH	2	N/A	**2**	61%	39%	1	1	0	0	0	**2**	0	0	1	1
Weekday PM PH	16	14	**14**	66%	34%	9	5	0	0	0	**14**	0	0	9	5
Saturday Daily	406	N/A	**406**	50%	50%	203	203	0	0	0	**406**	0	0	203	203
Sat Midday PH	30	38	**38**	48%	52%	18	20	0	0	0	**38**	0	0	18	20

Shopping Center (ITE LUC 820)

Units: 65.7 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	2480	N/A	**2480**	50%	50%	1240	1240	187	196	**546**	**1551**	273	273	780	771
Weekday AM PH	64	N/A	**64**	62%	38%	40	24	16	8	**10**	**30**	5	5	19	11
Weekday PM PH	250	N/A	**250**	48%	52%	120	130	24	43	**62**	**121**	31	31	65	56
Saturday Daily	3030	N/A	**3030**	50%	50%	1515	1515	227	234	**668**	**1901**	334	334	954	947
Sat Midday PH	296	N/A	**296**	52%	48%	154	142	17	16	**68**	**195**	34	34	103	92

Assumed 34% pass-by rate for weekday PM and 26% pass-by rate for all others (Trip Generation Handbook, 3rd Edition).

TOTAL NEW DEVELOPMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**12312**			**6156**	**6156**	**476**	**476**	**546**	**10814**	**273**	**273**	**5407**	**5407**
Weekday AM Peak Hour	**1096**			**708**	**388**	**43**	**43**	**10**	**1000**	**5**	**5**	**660**	**340**
Weekday PM Peak Hour	**1278**			**500**	**778**	**77**	**77**	**62**	**1062**	**31**	**31**	**392**	**670**
Saturday Daily	**13476**			**6738**	**6738**	**540**	**540**	**668**	**11728**	**334**	**334**	**5864**	**5864**
Sat Midday Peak Hour	**1813**			**729**	**1084**	**38**	**38**	**68**	**1669**	**34**	**34**	**657**	**1012**

Existing Development

Light Industrial (ITE LUC 110)

Units: 11.8 kSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	58	N/A	**58**	50%	50%	29	29	0	0	0	**58**	0	0	29	29
Weekday AM PH	8	N/A	**8**	88%	12%	7	1	0	0	0	**8**	0	0	7	1
Weekday PM PH	8	N/A	**8**	13%	87%	1	7	0	0	0	**8**	0	0	1	7
Saturday Daily	24	N/A	**24**	50%	50%	12	12	0	0	0	**24**	0	0	12	12
Sat Midday PH	4	N/A	**4**	47%	53%	2	2	0	0	0	**4**	0	0	2	2

Soccer Complex (ITE LUC 488)

Units: 3 Fields

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	214	N/A	**214**	50%	50%	107	107	0	0	0	**214**	0	0	107	107
Weekday AM PH	2	N/A	**2**	61%	39%	1	1	0	0	0	**2**	0	0	1	1
Weekday PM PH	50	76	**76**	66%	34%	50	26	0	0	0	**76**	0	0	50	26
Saturday Daily	1214	N/A	**1214**	50%	50%	607	607	0	0	0	**1214**	0	0	607	607
Sat Midday PH	92	118	**118**	48%	52%	57	61	0	0	0	**118**	0	0	57	61

Coffee/Donut Shop with DT (ITE LUC 937)

Units: 2.3 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	1886	N/A	**1886**	50%	50%	943	943	244	174	734	**734**	367	367	332	402
Weekday AM PH	204	N/A	**204**	51%	49%	104	100	13	8	90	**93**	45	45	46	47
Weekday PM PH	100	N/A	**100**	50%	50%	50	50	13	19	34	**34**	17	17	20	14
Saturday Daily	2302	N/A	**2302**	50%	50%	1151	1151	250	213	920	**919**	460	460	441	478
Sat Midday PH	202	N/A	**202**	50%	50%	101	101	16	19	84	**83**	42	42	43	40

Assumed 49% pass-by rate for weekday AM and 50% pass-by rate for all others (Trip Generation Handbook, 3rd Edition - LUC 934).

Convenience Market & Gas Station (ITE LUC 960)

Units: 5 KSF

	Total Trips		Total	% Distribution		# New Trips		Multi-Use Trips		Total New	Total New	# Passby Trips		# Primary Trips	
	Avg. Rates	Fitted Curve	New Trips	IN	OUT	IN	OUT	IN	OUT	Pass-by Trips	Primary Trips	IN	OUT	IN	OUT
Weekday Daily	4188	N/A	**4188**	50%	50%	2094	2094	174	244	2112	**1658**	1056	1056	864	794
Weekday AM PH	416	422	**422**	50%	50%	211	211	8	13	248	**153**	124	124	79	74
Weekday PM PH	346	N/A	**346**	50%	50%	173	173	19	13	176	**138**	88	88	66	72
Saturday Daily	3500	N/A	**3500**	50%	50%	1750	1750	213	250	1700	**1337**	850	850	687	650
Sat Midday PH	320	320	**320**	50%	50%	160	160	19	16	160	**125**	80	80	61	64

Assumed 62% pass-by rate for weekday AM, 56% pass-by rate for all others (Trip Generation Handbook, 3rd Edition).

EXISTING DEVELOPMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**6346**			**3173**	**3173**	**418**	**418**	**2846**	**2664**	**1423**	**1423**	**1332**	**1332**
Weekday AM Peak Hour	**636**			**323**	**313**	**21**	**21**	**338**	**256**	**169**	**169**	**133**	**123**
Weekday PM Peak Hour	**530**			**274**	**256**	**32**	**32**	**210**	**256**	**105**	**105**	**137**	**119**
Saturday Daily	**7040**			**3520**	**3520**	**463**	**463**	**2620**	**3494**	**1310**	**1310**	**1747**	**1747**
Sat Midday Peak Hour	**644**			**320**	**324**	**35**	**35**	**244**	**330**	**122**	**122**	**163**	**167**

POST SITE TRIPS	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**18600**			**9300**	**9300**	**894**	**894**	**3392**	**13420**	**1696**	**1696**	**6710**	**6710**
Weekday AM Peak Hour	**1724**			**1024**	**700**	**64**	**64**	**348**	**1248**	**174**	**174**	**786**	**462**
Weekday PM Peak Hour	**1800**			**773**	**1027**	**109**	**109**	**272**	**1310**	**136**	**136**	**528**	**782**
Saturday Daily	**20492**			**10246**	**10246**	**1003**	**1003**	**3288**	**15198**	**1644**	**1644**	**7599**	**7599**
Sat Midday Peak Hour	**2453**			**1047**	**1406**	**73**	**73**	**312**	**1995**	**156**	**156**	**818**	**1177**

NET TRIP ASSESSMENT	*Total Trips*			*Total New Trips*		*Total Multi-Use Trips*		*Total New Pass-by Trips*	*Total New Primary Trips*	*Total Pass-by Trips*		*Total Primary Trips*	
				In	*Out*	*In*	*Out*			*In*	*Out*	*In*	*Out*
Weekday Daily	**12254**			**6127**	**6127**	**476**	**476**	**546**	**10756**	**273**	**273**	**5378**	**5378**
Weekday AM Peak Hour	**1088**			**701**	**387**	**43**	**43**	**10**	**992**	**5**	**5**	**653**	**339**
Weekday PM Peak Hour	**1270**			**499**	**771**	**77**	**77**	**62**	**1054**	**31**	**31**	**391**	**663**
Saturday Daily	**13452**			**6726**	**6726**	**540**	**540**	**668**	**11704**	**334**	**334**	**5852**	**5852**
Sat Midday Peak Hour	**1809**			**727**	**1082**	**38**	**38**	**68**	**1665**	**34**	**34**	**655**	**1010**

PRELIMINARY ENGINEERING REPORT ON PROPOSED WASTEWATER TREATMENT FACILITIES CAPITAL COMMERCE CENTER STP LANCASTER, MASSACHUSETTS

May 30, 2019

PREPARED FOR:

The Capital Group Properties
259 Turnpike Road, Suite 100
Southborough, Massachusetts 01772

PREPARED BY:

Mount Hope Engineering, Inc.

PO Box 943	1788 GAR Highway
Portsmouth, RI 02871	Swansea, MA 02777
401.683.1934	508.379.1234

Capital grp lancaster report

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APPENDIX A - SOIL EVALUATION FORMS

INTRODUCTION

Capital Group Properties is seeking to permit and construct a small wastewater treatment facility to serve the proposed mixed-use park to be known as Capital Commerce Center off of Lunenburg Road in Lunenburg, Massachusetts, (See Locus Plan, Figure 1). The project as envisioned will consist of mixed residential use in a multi-building complex with auxiliary facilities relative to the modern planned development. It is intended to construct a residential and commercial community of office, hotel, retail, restaurant, and residential housing within the project area. It is estimated that the facility will generate a total daily flow of approximately 166,460 gpd, and being in excess of 10,000 gpd, will therefore require the project to submit an application for a Groundwater Discharge Permit (Appendix A) with the Department of Environmental Protection. The proposed treatment process will provide for primary settling, secondary biological treatment, and tertiary polishing with nitrogen removal and disinfection. The proposed treatment method under consideration for the site is rotating biological contactors with denitrification which could be constructed with a phased development approach. It is anticipated that the project will be built out over several years and this approach will allow for the STP to be constructed and/or operated in phases as the project develops and wastewater needs increase.

It is the proponent's intention to provide the Department with complete final design plans for the selected treatment plant for final review and future issuance of a Final Groundwater Discharge Permit for the facility.

DESIGN FLOWS

The design flow to the wastewater treatment plant is calculated to be 157,385 gallons per day (gpd). The flow for this complex has been determined in accordance with the guidelines from Title 5 of the State Environmental Code., "Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-Site Sewage Disposal Systems and for the Transport of Septage" (310 CMR 15.00). Therefore, the project design flow may be calculated as follows:

Total Design Flow

117 condo with 234 bdrm x 110 gpd/bdrm = 25,740 gpd

500 multifamily units with 750 bdrm x 110 gpd/bdrm = 82,500 gpd

Indoor soccer facility 125 seats x 5 gpd/seat = 625 gpd

Indoor soccer facility 75 participants x 25 gpd/each = 1,875 gpd

120 hotel rooms x 110 gpd/unit = 13,200 gpd

1.5 million sf industrial with 1000 persons x 20 gpd/person = 20,000 gpd

Restaurants with 235 seats at 35 gpd/seat = 8,750 gpd

Retail 54,700 sf at 50 gpd/1000sf = 2,735 gpd

Fast food donuts 23 seats at 20 gpd/seat=460 gpd

Gas station with 12 bays at 125 gpd/bay = 1,500 gpd

Total Daily Flow 157,385 gpd = 109.3 gpm

The average total daily flow represents the average flow and is not representative of the flow variations which may typically occur at this type of development. Flow equalization facilities will be provided to attenuate these variations in hydraulic loading to the plant. The significance of flow equalization typically decreases as the plant size increases. The diverse and variable uses also tend to distribute flows over varying parts of the day and mitigate peak loading flows from single use applications.

The permit application for the proposed treatment facility is seeking a flow of 157,385 gpd which will provide capacity for proposed operations within the project site. The Department's *Guidelines for the Design, Construction, Operation and Maintenance of Small Wastewater Treatment Facilities with Land Disposal* has also been utilized in the design flow calculations.

TREATMENT ALTERNATIVE

RBC TREATMENT

Organic and nutrient removal will be achieved by the use of Rotating Biological Contactors (RBC). The process provides improved secondary treatment of wastewater over conventional extended aeration treatment facilities in the same size range. In addition to providing efficient secondary treatment, the RBC's are capable of nitrification and denitrification.

The process is simple in that biological treatment is achieved by slowly rotating the RBC discs, which provide a medium for the growth of biological organisms. Rotation of the aerobic RBC's alternately exposes the organisms on the discs to the air and wastewater in the RBC tank. In this fashion, the organisms consume and remove biodegradable matter in the wastewater. The process is similar to that used when treating wastewater by trickling filters. However, the RBC system allows the process to operate under more controlled conditions and higher bacterial concentrations, resulting in a higher rate of biodegradation and greater treatment efficiency.

Fluctuations in wastewater flow or organic loading are handled by the RBC with relative ease. This is due to the biological growth being concentrated at the front end of the RBC surface during periods when loading is low; and conversely, growth is distributed over the entire surface area when loading is high. The efficiency of the operation (i.e., complying with final effluent discharge parameters for BOD, suspended solids, total nitrogen, etc.) is maintained throughout periods of variable hydraulic or organic loading to the biological processes.

Another distinct benefit of the RBC treatment process is its ability to provide additional nitrification and denitrification steps. Nitrification is achieved by reducing organic strength of the waste in the aerobic RBC's to such a low level that organisms utilize ammonia compounds as an energy source and convert ammonia to nitrate. Denitrification then occurs in the denite filters where organisms utilize the oxygen from nitrate and produce harmless nitrogen gas. In this way, nitrogen is actually removed from the waste stream.

In addition to the paramount advantage of handling fluctuating organic and hydraulic loads, there are numerous other benefits, including lower operation and maintenance costs. The simplicity of the operation, which is more completely defined in the following section of this report, results in a stable operation that does not require plant operator supervision on a continuous basis. The treatment plant's performance does not depend on the skill of the operator mainly because (1) upsets do not occur due to fluctuating loadings, (2) no complicated sludge recycling system is necessary, and (3) there are no complicated controls.

The only real maintenance requirement is drive system lubrication, with no media cleaning and creates no foaming or odor problems. Operating costs are extremely low because such plants require 10% to 20% as much energy as similarly sized aeration plants (only about 0.4 HP hr per 1000 gallons treated). The components of the facility will be completely contained inside a building. A generator will be located within the building to provide emergency power if necessary.

The Massachusetts Department of Environmental Protection requires that the facility be owned and operated by the users that it serves. To that end, the facility will be owned by Capital Commerce Center and will serve the tenants of the development within the service area of the facility. The owner will have the authority over all plant operations and maintenance. The wastewater facility will be operated by a state-certified operator who will be responsible for daily testing and maintenance of the facility. A consulting engineer will also conduct inspections of the facilities on a monthly basis. A monthly report, including final effluent and groundwater monitor well sample results, will be submitted to State and local Board of Health as required. Final effluent and groundwater quality will be monitored as dictated by the facility's discharge permit.

TREATMENT SYSTEM DESCRIPTION

Upon receiving the wastewater from the development sewer collection system, flow passes first through the pretreatment tanks and then to the proposed flow equalization tank. The pretreatment tanks have been sized for use without garbage grinders and will be used for sludge storage, therefore have been designed at 75% of the total daily flow. The tanks have been sized accordingly and as shown on the design plans, a total of three tanks will be provided. The flow will be split via a sewer manhole directing flow in parallel to the first two tanks and then bringing the flows back together in the third tank. This will provide improved solids capture in the first two tanks and improved effluent in the third tank. This allows for the tanks to be more manageable in size for both construction and future solids removal from the tanks. RBC feed pumps located in the RBC feed tank will pump up into the RBC units for biological treatment. There will be gate valves on the influent feed lines as shown on the plans, which allow flow to be distributed to any and all of the units at any time. This will provide for phasing of use of the

units during build out and also allow for operational flexibility based on the actual flows seen at the facility. The wastewater will pass through the aerobic RBC and then flow into the secondary clarifier. There, in the secondary clarifier biological solids are allowed to settle, and then transferred back to the pretreatment tank. Secondary effluent flows to the denite sand filter which removes any remaining solids and polishes the effluent prior to disinfection and final effluent disposal. Denitrifiers are also present within the filter which serves to convert nitrate to nitrogen gas which effectively removes the nitrogen from the waste stream. The effluent is then subjected to an additional filtration and cleansing step as it proceeds down through a minimum of four feet of soil beneath the leaching system before it enters the water table, completing the groundwater recharge cycle.

As expressed earlier, a high degree of treatment is achieved by this process. The quickly developing biological growth results in excellent treatment over relatively short retention times. The type of solids created affords rapid settling, and therefore, minimizes solids washout problems at peak flows in the clarifier. With the virtual elimination of this type of problem, one has eliminated the most critical operational difficulty apparent in suspended growth systems.

In addition to the conventional secondary treatment described above, the subject treatment facility can achieve nitrification and denitrification of the wastewater as well.

Nitrification can be achieved by providing a suitable environment for nitrifying bacteria on the RBC. To provide such an environment, the carbonaceous BOD must first be reduced to a concentration where nitrifying bacteria dominate the biological population. This is accomplished by furnishing additional surface area on the RBC. Once the nitrifiers are established, ammonia compounds are converted to nitrates which can then be reduced in the denite sand filter.

In order to facilitate denitrification, an anoxic environment (minimal free oxygen) must be available as well as a carbon source to provide food for the denitrifying organisms. The denite sand filter provides such an environment, with the carbon source being methanol addition. The denite filters are fed from the secondary clarifiers and are valved to allow flow from any of the clarifier units to either of the filter units. Similarly, final effluent is used for backwashing of the filters and through the use of mechanical valves and solenoid controls within the control panel, the filters can be independently backwashed as called for by timers in the control panel or the floats within the filters. Backwash water goes out the dirty water trough to the recycle line, and returns to the pretreatment tank at the head of the plant. Under these conditions, denitrifying bacteria will develop on the media. The bacteria utilize oxygen from the nitrates and produce harmless nitrogen gas which is released to the atmosphere. In this process, nitrogen compounds are removed from the waste stream.

Equipment selections and design criteria are presented below:

1. A pretreatment tank(s) for primary sedimentation.

2. RBC feed tank/flow equalization tank (s) to attenuate peak flows and provide a constant flow to the biological processes.

3. Four Aerobic Rotating Biological Contactor (RBC's) for biological secondary treatment and nitrification.

4. Three secondary clarifiers for final sedimentation.

5. Dual deep bed denite filters for nitrogen removal and final effluent polishing.

6. Ultraviolet light for final effluent disinfection.

7. Final effluent disposal via open sand beds, at a loading rate of three gallons per day per square foot.

The specific details and a schematic of the proposed treatment system are included as Figure 2.

RBC SYSTEM DESIGN

The facility design flow has been based on a flow of 157,385 gpd as per Title 5 and DEP Guidelines. The equipment selected in the design has generally been conservatively designed to allow for conservancy in flows and loadings to the facility. Second, it provides for any infiltration or inflow in the large sewer collection system. Finally, it provides for flexibility for a large and varied project with multiple uses incorporated within the development. A project of this size may take several years to be built out and the design provides for any change of use not anticipated at this time. Unforeseen changes in flows or waste strengths could be easily accommodated within the design if necessary. The equipment sizes provided will not be oversized by taking this approach and the multi train design allows for great flexibility in the future operations of the facility to treat the actual flows and loadings to be observed at the facility. Waste strengths are based on references such as Metcalf & Eddy, the DEP Guidelines, and thirty years of experience and observation of raw waste flows from numerous facilities within the area. The varied uses will provide for a homogenous flow stream that we feel is adequately represented in our design approach. The following is a presentation of the design criteria and calculations used for the preliminary sizing of various system components:

A. Design Criteria

1. Total Daily Design Flow: 157,385 GPD

2. Flow Rates:

   (a) Average Flow Rate: 127,385 GPD

   (b) Average Flow Rate: 109.3 GPM

3. Domestic Wastewater Characteristics

(a) Raw BOD_5: 250 mg/l

Soluble BOD_5: 250 - 60%TSS = 100 mg/l

Raw Suspended Solids: 250 mg/l

NHN_4: 60 mg/l

Water Temperature: 55 Degrees F

B. Pretreatment Tank Sizing: 75% X 157,385 gpd = 118,039 gallons

Design Size = 126,000 gallons

C. Flow Equalization Tank: 25% X 157,385 gpd = 39,346 gallons

Design Size = 42,000 gallons

D. Rotating Biological Contactor (RBC) Selection

1. Final Effluent Requirements

Total BOD_5: 15 mg/l

Soluble BOD_5: 10 mg/l

$N\text{-}NH_3$: 3 mg/l

Total N: 10 mg/l

Suspended Solids: 30 mg/l

2. Surface Area Required for BOD Removal:

(a) Allowable Organic Loading: 0.825 lbs/BOD/1000 SF

(b) Design Organic Loading: 100.0 mg/l X 8.34 MGD/l/#/day

X 0.1574 MGD

= 131.27 lbs/BOD/day

(c) Surface Area Required: $\frac{131.27 \text{ lbs/BOD/day}}{0.825 \text{ lbs/BOD/day/1000/SF}}$

= 159,117 SF

Increase 50% for septic pretreatment: 1.5 x 159,117

= 238,675 SF

3. Surface Area Required for Nitrification

(a) Allowable Loading: 0.24 lb/day/1000 SF

(b) Design Ammonia Loading: 60.0 mg/l X 8.34 MGD/l/#/day

X 0.1574 MGD

= 78.8 lb/day

(c) Surface Area Required: $\frac{\text{78.8 lbs/Ammonia/day}}{\text{0.24 lbs/Ammonia/day/1000/SF}}$

= 328,333 SF

4. Total Surface Area Required for Aerobic RBC

238,675 SF from Organic Loading

\+ 328,333 SF from Nitrification Loading

567,008 Total Surface Area Required

5. Total Surface Area Provided for Aerobic RBC as manufactured by Walker Process

Four (4) Model F-89N2 150,000 SF Surface Area Provided

(a) 600,000 Total Surface Area Provided

(b) 567,008 Total Surface Area Required

(c) First Stage Organic Loading =

$$\frac{(100\ \text{mg/l})(8.34)(0.1574\ \text{MGD})}{150{,}000\ \text{sf}/1000}$$

= 0.88 lbs SBOD/day/1000 SF

Maximum Allowable = 4.00 lbs SBOD/day/1000 SF

(d) Overall Loading

1. Overall Organic = 0.22 lbs BOD/day/1000 SF

2. Overall Nitrogen = 0.13 lbs Ammonia/day/1000 SF

3. Total Hydraulic = 0.26 GPD/SF

4. First Stage Hydraulic = 1.11 GPD/SF

E. Secondary Clarifier Sizing

1. Design based on Average Daily Flow

Design Flow = 157,385 GPD

2. Maximum Surface Overflow Rate(2) = 600 GPD/SF

3. Provide three clarifiers, 12.0' diameter and 9.5' deep

(a) Surface Area = $\pi(12.0')^2/4$ = 113 SF x 3

(b) Surface Overflow Rate = $\frac{157{,}385 \text{ GPD}}{339 \text{ SF}}$ = 464 GPD/SF

(c) Detention Time = $\frac{3221 \text{ FT}^3}{21{,}040 \text{ FT}^3/\text{day}}$ = 0.15 days = 3.7 hours

F. Anoxic *Denite* Filter Sizing

1. Design Based on Average Daily Flow

Design Flow = 157,385 GPD

2. Maximum Loading Rate = 2.0 GPM/SF

3. Provide three dual sand filters with two filter cells of 36 SF each

Area Required = $\frac{109.3 \text{ GPM}}{2 \text{ GPM/SF}}$ = 54.7 SF

Loading = $\frac{109.3 \text{ GPM}}{108 \text{ SF}}$ = 1.01 GPM/SF

Organic Loading = 21 lbs = 421 FT3

50 lbs/1000 FT3

G. Effluent Disposal by Open Sand Beds:

1. Percolation Rate = < 5 MPI

   Allowable Effluent Loading = 5.0 GPD/SF

2. Surface Area Required = $\frac{157{,}385 \text{ GPD}}{3.0 \text{ GPD/SF}}$ = 52,461 SF

3. Surface Area Provided = 60,000 SF, six (6) beds, 100' x 100' each

(See Hydrogeological Report for extensive details on sizing, mounding and breakout)

SOILS

Subsurface soil explorations were conducted by this office on November 13, 2018 in the presence of representatives of the Department of Environmental Protection, Central Region. Deep test holes and percolation tests were performed at ten locations on the site. Soil evaluation forms are enclosed as Appendix A.

The site subsurface conditions were predominated by sands and gravels to satisfactory depths. Test holes were excavated to depths ranging from ten to eighteen feet across the site. No holes were aborted due to the presence of ledge or impermeable surfaces within the excavation. The site is predominated by sand and gravel and is an extensive and operational sand and gravel pit. Medium to fine sands were encountered at depths of generally ten feet, with material generally sorted and more coarse with depth. Several excavations also contained gravel with rounded cobbles and fist sized boulders. Mottling was not observed in any of the holes, with the exception of test pit seven, where mottling was observed at a shallow subsoil layer due to a fine silt layer at a depth of three feet. This was not indicative of actual groundwater elevations at the site. This layer of fine sand and silt was observed at a similar depth in several of the excavations and was thought to be the most restrictive layer observed at the site. Percolation tests conducted in these layers indicated that the material was quite permeable, with percolation rates of two minutes per inch at each of the tested sites.

The soils encountered during this testing were very conducive to effluent disposal area from a wastewater treatment facility. Percolation rates were measured to be less than 2 minutes per inch, with less than 5 minutes per inch used for the estimate of area required for subsurface effluent disposal. Additional subsurface explorations in the form of borings were also conducted during the winter of 2019 to further characterize soil conditions and obtain on-site conductivity values for hydrogeological modeling of the site. These logs and additional information will be submitted in the hydrogeological study and BRP WP83 Permit Application

being prepared for the project and to be submitted to DEP in the immediate future. This study further explores subsurface conditions, defines groundwater flow and direction, soil and subsurface characteristics, and depths of the unconsolidated deposits above the impermeable bedrock surface. This investigation will be submitted to the Department upon completion in the immediate future. Within the report was extensive discussion on groundwater flow, estimated seasonal high water tables, mounding elevations and complete groundwater contours and mounded contours. These figures show the proposed subsurface leaching fields in cross section and clearly indicate that breakout is not a concern with the proposed leaching field layout. This is to be submitted in the near future.

WATER SUPPLY

The area is to be served by a 2.5 mile extension of the municipal water supply from the Lunenburg. A review of Massachusetts Geographic Information System Data indicated that there are no wells or public water supplies near the perimeter of the one-half mile radius of the proposed effluent disposal area. There are currently two active PWS wells which serve the existing Dunkin Donuts and the existing Mobil Gas Station properties. These are located outside of the effluent disposal area and will not be impacted. It is also anticipated that the wells will be abandoned upon completion of the water supply connection for this project. The anticipated high quality of the discharge and the horizontal and vertical separation distances from any potential well locations are not expected to have any deleterious impacts on nearby water supplies. This will be further examined during the hydrogeological investigations to be conducted at the site.

The proposed leach field is located in the southern portion of the property. Based on groundwater data from site monitoring wells, groundwater beneath the leach field flows to the southeast toward nearby wetlands and a tributary to the North Nashua River.

The operator will collect samples as required by the Groundwater Discharge Permit and provide monitoring and reporting as applicable. Samples will be collected from the final effluent pump chamber or the UV final effluent discharge line for analysis and reporting. A sampling tap will be available for future sampling at the UV final discharge prior to leaving the building to the final effluent pump chamber.

SUMMARY

This preliminary engineering report has provided pertinent design information and criteria for wastewater treatment at this site. The Permit Application is seeking the Department's approval and issuance of a Groundwater Discharge Permit for the revised project. The BRP WP 83 application is anticipated to be submitted in the near future and this report will accompany design plans for the facility approval with the Groundwater Discharge Permit Application.

REFERENCES

1. Autotrol Corporation Bio-Systems Division: "Wastewater Treatment Systems Design Manual" published by Envirex Corporation, Milwaukee, Wisconsin.

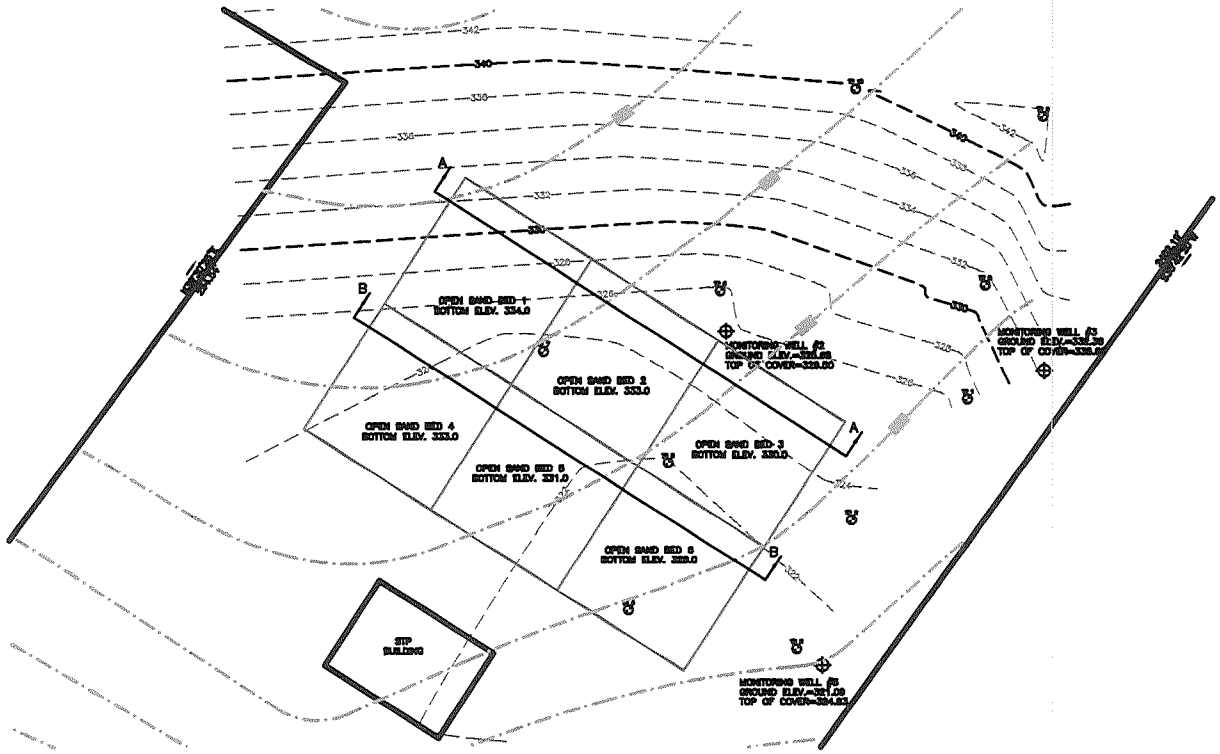
2. Metcalf & Eddy, Inc. "Wastewater Engineering: Treatment, Disposal, Reuse" McGraw Hill Book Company, Revised by George Tchobanoglous, Second Edition, 1979.

3. Commonwealth of Massachusetts, Department of Environmental Quality Engineering, Division of Water Pollution Control "Guidelines for the Design, Construction, Operation and Maintenance of Small Sewage Treatment Facilities with Land Disposal," Latest Revision Edition, November 2014.

4. US Environmental Protection Agency: "Process Design Manual for Nitrogen Control," October 1975.

5. Commonwealth of Massachusetts, "The State Environmental Code, Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade, and Expansion of On-Site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage", 310 CMR 15.00, March 31, 1995.

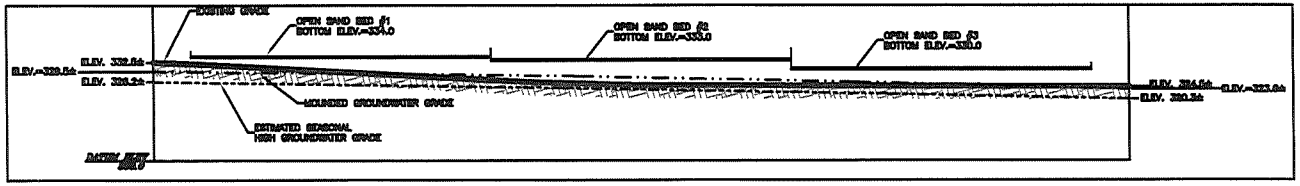
APPENDIX A



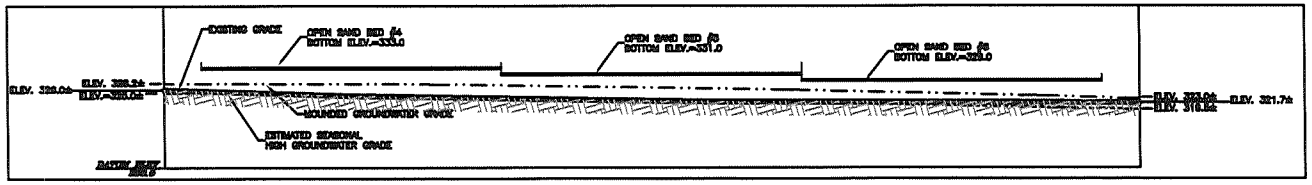
PARTIAL SITE PLAN
SCALE 1" = 40'

LEGEND

- EXISTING CONTOURS
- GROUNDWATER CONTOURS
- TEST PIT LOCATION
- MONITORING WELL LOCATION



CROSS SECTION A-A
SCALE 1" = 20'



CROSS SECTION B-B
SCALE 1" = 20'

SCALE AS NOTED
DATE 02/26/99
DWN. BY AB
REVISED
DWG. NO. 99-253-TEST
JOB NO. 99-253

TITLE EFFLUENT DISPOSAL AREA PLAN

PROJECT CAPITAL GROUP PROPERTIES
LANCASTER, MASSACHUSETTS

Mount Hope ENGINEERING, Inc.
CIVIL/ENVIRONMENTAL SERVICES
1788 G.A.R. Highway
Swansea, MA 02777
ph. (508) 379-2234
Fax (508) 379-0707

DRAWING NO.
1A

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

A. Facility Information

Capital Group Properties
Owner Name

off McGovern Road
Street Address

Map/Lot #

Lancaster
City

MA
State

Zip Code

B. Site Information

1. (Check one) ☒ New Construction ☐ Upgrade ☐ Repair

2. Soil Survey Available? ☒ Yes ☐ No If yes: Soil web (Source) 245E, 255A (Soil Map Unit)

   Hinckley, Windsor (Soil Name) none (Soil Limitations)

   sand (Soil Parent material) outwash (Landform)

3. Surficial Geological Report Available? ☐ Yes ☐ No If yes: Year Published/Source Map Unit

   Description of Geologic Map Unit:

4. Flood Rate Insurance Map Within a regulatory floodway? ☐ Yes ☒ No

5. Within a velocity zone? ☐ Yes ☒ No

6. Within a Mapped Wetland Area? ☐ Yes ☒ No If yes, MassGIS Wetland Data Layer: Wetland Type

7. Current Water Resource Conditions (USGS): Month/Day/ Year Range: ☒ Above Normal ☐ Normal ☐ Below Normal

8. Other references reviewed:

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (*minimum of two holes required at every proposed primary and reserve disposal area*)

Deep Observation Hole Number: 1 (Hole #) | 11-13-18 (Date) | 8:00 (Time) | rain (Weather) | _____ (Latitude) | _____ (Longitude:)

1. Land Use: gravel operations (e.g., woodland, agricultural field, vacant lot, etc.) | none (Vegetation) | none (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | _____ (Slope (%))

   Description of Location: _____

2. Soil Parent Material: sand | outwash (Landform) | _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet | Drainage Way _____ feet | Wetlands _____ feet | Property Line _____ feet | Drinking Water Well _____ feet | Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☐ No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-6	B	sand									
6-84	C1	med sand									
84-156	C2	med/crs sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (*minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 2 (Hole #) _____ (Date) _____ (Time) _____ (Weather) _____ (Latitude) _____ (Longitude:)

1. Land Use: _____ (e.g., woodland, agricultural field, vacant lot, etc.) _____ (Vegetation) _____ (Surface Stones (e.g., cobbles, stones, boulders, etc.)) _____ (Slope (%))

Description of Location: _____

2. Soil Parent Material: _____ _____ (Landform) _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Wetlands _____ feet
Property Line _____ feet Drinking Water Well _____ feet Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☒ Yes ☐ No If yes: 144 Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-8	B	sand									
8-108	C1	fine sand									
108-156	C2	med/crs sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 3 (Hole #) | 11-13-18 (Date) | 8:00 (Time) | rain (Weather) | _____ (Latitude) | _____ (Longitude:)

1. Land Use: gravel operations (e.g., woodland, agricultural field, vacant lot, etc.) | none (Vegetation) | none (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | _____ (Slope (%))

   Description of Location: _____

2. Soil Parent Material: sand | outwash (Landform) | _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet | Drainage Way _____ feet | Wetlands _____ feet | Property Line _____ feet | Drinking Water Well _____ feet | Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☐ No If yes: 108 Depth Weeping from Pit | _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-60	C1	med sand									
60-72	C2	crs sand									
72-156	C3	med/crs sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (*minimum of two holes required at every proposed primary and reserve disposal area*)

Deep Observation Hole Number: 4 (Hole #) _____ (Date) _____ (Time) _____ (Weather) _____ (Latitude) _____ (Longitude:)

1. Land Use: _____ (e.g., woodland, agricultural field, vacant lot, etc.) _____ (Vegetation) _____ (Surface Stones (e.g., cobbles, stones, boulders, etc.)) _____ (Slope (%))

   Description of Location: _____

2. Soil Parent Material: _____ _____ (Landform) _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet; Drainage Way _____ feet; Wetlands _____ feet; Property Line _____ feet; Drinking Water Well _____ feet; Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☒ Yes ☐ No If yes: 60 Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-60	C1	sand									
60-72	C2	crs sand mottles									
72-96	C3	fine/med sand									
96-120	C4	crs sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 5 (Hole #) | 11-13-18 (Date) | 8:00 (Time) | rain (Weather) | _____ (Latitude) | _____ (Longitude:)

1. Land Use: gravel operations (e.g., woodland, agricultural field, vacant lot, etc.) | none (Vegetation) | none (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | _____ (Slope (%))

   Description of Location: _____

2. Soil Parent Material: sand | outwash (Landform) | _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet | Drainage Way _____ feet | Wetlands _____ feet | Property Line _____ feet | Drinking Water Well _____ feet | Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☐ No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-66	C1	med sand									
66-84	C2	crs sand									
84-156	C3	fine/med sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (*minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 6 (Hole #) _____ (Date) _____ (Time) _____ (Weather) _____ (Latitude) _____ (Longitude:)

1. Land Use: _____ (e.g., woodland, agricultural field, vacant lot, etc.) _____ (Vegetation) _____ (Surface Stones (e.g., cobbles, stones, boulders, etc.)) _____ (Slope (%))

   Description of Location: _____

2. Soil Parent Material: _____ _____ (Landform) _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Wetlands _____ feet
   Property Line _____ feet Drinking Water Well _____ feet Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☒ Yes ☐ No If yes: 108 Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-108	C1	med/crs sand									
108-156	C2	crs sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 7 (Hole #) | 11-13-18 (Date) | 8:00 (Time) | rain (Weather) | _____ (Latitude) | _____ (Longitude:)

1. Land Use: gravel operations (e.g., woodland, agricultural field, vacant lot, etc.) | none (Vegetation) | none (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | _____ (Slope (%))

   Description of Location: _____

2. Soil Parent Material: sand | outwash (Landform) | _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet | Drainage Way _____ feet | Wetlands _____ feet | Property Line _____ feet | Drinking Water Well _____ feet | Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☐ No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-60	C1	fine sand									dark organic content
60-120	C2	fine/med sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 8 (Hole #) _____ (Date) _____ (Time) _____ (Weather) _____ (Latitude) _____ (Longitude:)

1. Land Use: _____ (e.g., woodland, agricultural field, vacant lot, etc.) _____ (Vegetation) _____ (Surface Stones (e.g., cobbles, stones, boulders, etc.)) _____ (Slope (%))

   Description of Location: _____

2. Soil Parent Material: _____ _____ (Landform) _____ (Position on Landscape (SU, SH, BS, FS, TS))

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Wetlands _____ feet
   Property Line _____ feet Drinking Water Well _____ feet Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☒ Yes ☐ No If yes: _____ Depth Weeping from Pit NA Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-90	C1	med sand									
90-108	C2	crs sand									
108-156	C3	med sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 9 (Hole #) | 11-13-18 (Date) | 8:00 (Time) | rain (Weather) | Latitude: | Longitude:

1. Land Use: gravel operations (e.g., woodland, agricultural field, vacant lot, etc.) | none (Vegetation) | none (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | Slope (%)

Description of Location:

2. Soil Parent Material: sand | outwash (Landform) | Position on Landscape (SU, SH, BS, FS, TS)

3. Distances from: Open Water Body ____ feet; Drainage Way ____ feet; Wetlands ____ feet; Property Line ____ feet; Drinking Water Well ____ feet; Other ____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: ____ Depth Weeping from Pit; NA Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-180	C1	fine sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 10 (Hole #) _____ Date _____ Time _____ Weather _____ Latitude _____ Longitude:

1. Land Use: _____ (e.g., woodland, agricultural field, vacant lot, etc.) _____ Vegetation _____ Surface Stones (e.g., cobbles, stones, boulders, etc.) _____ Slope (%)

Description of Location: _____

2. Soil Parent Material: _____ Landform _____ Position on Landscape (SU, SH, BS, FS, TS)

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Wetlands _____ feet
Property Line _____ feet Drinking Water Well _____ feet Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil ☐ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: _____ Depth Weeping from Pit NA Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-138	C1	med sand									
138-156	C2	fine sand									
156-216	C3	med/crs sand									

Additional Notes:
site has been stripped of loam/topsoil

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

D. Determination of High Groundwater Elevation

1. Method Used:

	Obs. Hole #_____	Obs. Hole #_____
☐ Depth observed standing water in observation hole	_____ inches	_____ inches
☐ Depth weeping from side of observation hole	_____ inches	_____ inches
☐ Depth to soil redoximorphic features (mottles)	_____ inches	_____ inches
☐ Depth to adjusted seasonal high groundwater (S_h) (USGS methodology)	_____ inches	_____ inches

_____ Index Well Number _____ Reading Date

$S_h = S_c - [S_r \times (OW_c - OW_{max})/OW_r]$

Obs. Hole/Well# _____ S_c _____ S_r _____ OW_c _____ OW_{max} _____ OW_r _____ S_h _____

2. Estimated Depth to High Groundwater: _____ inches

E. Depth of Pervious Material

1. Depth of Naturally Occurring Pervious Material

a. Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?

☒ Yes ☐ No

b. If yes, at what depth was it observed (exclude A and O Horizons)? Upper boundary: _____ inches Lower boundary: _____ inches

c. If no, at what depth was impervious material observed? Upper boundary: _____ inches Lower boundary: _____ inches

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Signature of Soil Evaluator	Date
Todd Chaplin, PE SE 2724	6-30-19
Typed or Printed Name of Soil Evaluator / License #	Expiration Date of License
Joe Cerutti, Deanna Clark	DEP
Name of Approving Authority Witness	Approving Authority

Note: In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with Percolation Test Form 12.

Field Diagrams: Use this area for field diagrams:

Commonwealth of Massachusetts
City/Town of Lancaster

Percolation Test

Form 12

Percolation test results must be submitted with the Soil Suitability Assessment for On-site Sewage Disposal. DEP has provided this form for use by local Boards of Health. Other forms may be used, but the information must be substantially the same as that provided here. Before using this form, check with the local Board of Health to determine the form they use.

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

A. Site Information

Capital Group Properties
Owner Name

off Lunenburg Road, gravel pit
Street Address or Lot #

Lancaster — City/Town
MA — State
Zip Code

Dan Ruiz — Contact Person (if different from Owner)
508-229-1808 — Telephone Number

B. Test Results

	11-13-18 (Date)	8:30 (Time)	11-13-18 (Date)	10:30 (Time)
Observation Hole #	1		9	
Depth of Perc	18-36		20-38	
Start Pre-Soak	8:41		10:31	
End Pre-Soak	8:56		10:46	
Time at 12"	8:56		10:47	
Time at 9"	8:58		10:50	
Time at 6"	9:00		10:52:20	
Time (9"-6")	2		2:20	
Rate (Min./Inch)	<<2		<<2	
	Test Passed: ☒ Test Failed: ☐		Test Passed: ☒ Test Failed: ☐	

Mount Hope Engineering Inc. Todd Chaplin, Robert Peruzzi
Test Performed By:

DEP-Joe Cerutti, Deanna Clark
Board of Health Witness

Comments:

APPENDIX D: LIST OF REQUIRED PERMITS

LIST OF REQUIRED PERMITS

LOCAL PERMITS

Approval of Integrated Plan by Special Permit – Lancaster Planning Board

Site Plan Review – Lancaster Planning Board

Special Permit for proposed uses – Lancaster Planning Board

Special Permit for work within Water Resources Overlay District – Lancaster Planning Board

Order of Conditions – Lancaster Conservation Commission

Order of Conditions – Lunenburg Conservation Commission

STATE PERMITS

Water Distribution System Modification Permits (as needed) - Massachusetts Department of Environmental Protection (MassDEP)

Individual Permit for Sewage Treatment Plant (BRP WP 79) – MassDEP

Hydrogeologic Evaluation Report Approval (WP 83) – MassDEP

FEDERAL PERMITS

National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) - Environmental Protection Agency (EPA)

Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) – Federal Aviation Administration (FAA)

APPENDIX E: PUBLIC NOTICE OF ENVIRONMENTAL REVIEW

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs

MEPA Office

100 Cambridge St., Suite 900
Boston, MA 02114
Telephone 617-626-1020

The following should be completed and submitted to a local newspaper:

A. PUBLIC NOTICE OF ENVIRONMENTAL REVIEW

PROJECT: Capital Commerce Center

LOCATION: McGovern Boulevard & Lunenburg Road

PROPONENT: Capital Group Properties

The undersigned is submitting an Environmental Notification Form ("ENF") to the Secretary of Energy & Environmental Affairs on or before
May 31, 2019 *(date)*

This will initiate review of the above project pursuant to the Massachusetts Environmental Policy Act ("MEPA", M.G.L. c. 30, s.s. 61-621). Copies of the ENF may be obtained from:
Bohler Engineering, Attn: Michael J. Dryden
352 Turnpike Road
Southborough MA 01772
(508) 480-9900: mdryden@bohlereng.com
(Name, address, phone number of proponent or proponent's agent)

Copies of the ENF are also being sent to the Conservation Commission and Planning Board of Lancaster *(Municipality)* where they may be inspected.

The Secretary of Energy & Environmental Affairs will publish notice of the ENF in the Environmental Monitor, will receive public comments on the project for 20 days, and will then decide, within ten days, if an environmental Impact Report is needed. A site visit and consultation session on the project may also be scheduled. All persons wishing to comment on the project, or to be notified of a site visit or consultation session, should write to the Secretary of Energy & Environmental Affairs, 100 Cambridge St., Suite 900, Boston, Massachusetts 02114, Attention: MEPA Office, referencing the above project.

By Capital Group Properties *(Proponent)*

APPENDIX F: CIRCULATION LIST

CIRCULATION LIST

SECRETARY KATHLEEN THEOHARIDES
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
ATTENTION: MEPA OFFICE
100 CAMBRIDGE STREET, SUITE 900 (9TH FLOOR)
BOSTON, MA 02114

DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMISSIONER'S OFFICE
ATTENTION: MEPA COORDINATOR
ONE WINTER STREET
BOSTON, MA 02108

DEPARTMENT OF ENVIRONMENTAL PROTECTION
CENTRAL REGIONAL OFFICE
ATTENTION: MEPA COORDINATOR
8 NEW BOND STREET
WORCESTER, MA 01608

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH
ATTENTION: MEPA COORDINATOR
250 WASHINGTON STREET
BOSTON, MA 02108

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
PUBLIC/PRIVATE DEVELOPMENT UNIT
TEN PARK PLAZA #4150
BOSTON, MA 02116

MASSDOT HIGHWAY DEPARTMENT – DISTRICT 3
ATTENTION: MEPA COORDINATOR
403 BELMONT STREET
WORCESTER, MA 01604

MASSACHUSETTS HISTORICAL COMMISSION
THE MA ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MA 02125

ENERGY FACILITIES SITING BOARD
ATTENTION: MEPA COORDINATOR
ONE SOUTH STATION
BOSTON, MA 02110

MASSACHUSETTS DIVISION OF ENERGY RESOURCES
ATTENTION: MEPA COORDINATOR
100 CAMBRIDGE STREET, SUITE 1020 (10TH FLOOR)
BOSTON, MA 02114

MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION
251 CAUSEWAY STREET – 9TH FLOOR
BOSTON, MA 02114

MONTACHUSETT REGIONAL PLANNING COMMISSION
464 ABBOTT AVENUE
LEOMINSTER, MA 01453

LANCASTER COMMUNITY DEVELOPMENT & PLANNING
PRESCOTT BUILDING
701 MAIN STREET, SUITE 4, LOWER LEVEL
LANCASTER, MA 01523

LANCASTER ADMINISTRATION & BOARD OF SELECTMAN
PRESCOTT BUILDING
701 MAIN STREET, SECOND FLOOR
LANCASTER, MA 01523

LANCASTER PLANNING BOARD
TOWN HALL, SUITE 4
695 MAIN STREET
LANCASTER, MA 01523

LANCASTER CONSERVATION COMMISSION
PRESCOTT BUILDING
701 MAIN STREET, SUITE 4, LOWER LEVEL
LANCASTER, MA 01523

LANCASTER BOARD OF HEALTH
PRESCOTT BUILDING
701 MAIN STREET, SUITE 6, LOWER LEVEL
LANCASTER, MA 01523

LANCASTER PUBLIC LIBRARY
717 MAIN STREET
LANCASTER, MA 01523

"A consultation session will be held by the applicant to receive advice and comments from agencies, officials, and citizens regarding which environmental issues, if any, are significant for this project. Opinions as to the extent and significance of possible environmental impact will be welcome.
The meeting is scheduled as follows:
DATE: Wednesday, June 19th, 2019
TIME: 8:30 AM
LOCATION: Meet at the Dunkin Donuts at the corner of McGovern Boulevard and Lunenburg Road (Route 70) in LANCASTER"