Historic Mill District

Andover, Massachusetts

Circulation and Street Design Study

Prepared For:

Town of Andover

Prepared by:

Design Consultants, Inc.

April 2019

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1. EXECUTIVE SUMMARY

Design Consultants, Inc. (DCI) has been contracted by the Town of Andover to prepare this Circulation and Street Design Study for multiple roadways and intersections in the Historic Mill District in Andover. The purpose of this study is to assess and analyze the existing traffic conditions and operations at nine (9) intersections in the Historic Mill District in an effort to identify and recommend potential improvements at each location. Additionally, DCI assessed the information gathered at each of the study intersections and recommended changes to the traffic circulation and geometric layout of certain roadways. These changes are suggested to optimally configure the roadways and/or intersections for future development while conforming to the Design Guidelines previously developed for the Historic Mill District (Gamble Associates, 2018). The following nine (9) intersections in Andover were examined as part of this study:

- Essex Street at Shawsheen Road and Red Spring Road
- Essex Street at Railroad Street and Pearson Street
- Essex Street at School Street
- Essex Street at Brook Street and Ridge Street
- Pearson Street at Lewis Street
- School Street at Ridge Street and Lupine Road
- North Main Street (Route 28) at Lewis Street
- North Main Street (Route 28) at Pearson Street
- Central Street at Brook Street

Each of the study intersections are highlighted in Figure 1.1. Section 2 contains detailed descriptions of the existing conditions along each of the roadways and at each intersection.

1.1 Pedestrian and Bicycle Accommodations

This study surveyed the project area for the presence of pedestrian, bicycle, and public transit facilities. An inventory was taken of sidewalk conditions in the area, and potential safety hazards have been noted. Bicycle access on the roadway networks approaching and in between each intersection were reviewed, and potential improvements proposed as part of this study. Details are included in Section 3.2. Existing pedestrian and bicycle volumes were collected during the May 2018 count program.

1.2 Safety Analysis

A safety analysis was carried out at each of the study intersections based on crash data from the Massachusetts Department of Transportation (MassDOT) from 2012 to 2016, the most recent five (5) years of data available. This analysis identifies possible existing safety issues that may need to be addressed as part of the intersection assessment.

The data was analyzed to determine trends in location, manner of collision, and weather in order to point out high crash locations and analyze possible contributing factors. It was determined that

there were zero (0) reported fatal crashes on record during the five (5) year period. Seven (7) of the nine (9) intersections have crash rates below both the District 4 and Statewide averages. Two intersections, Essex Street at Brook Street and Ridge Street and Central Street at Brook Street, have crash rates above both the District 4 and Statewide averages. Detailed safety analyses and crash data is contained in Section 2.3.1 of this report.

1.3 Planned Developments and Trip Generation

As part of the redevelopment of the Historic Mill District, nine (9) separate parcels of land have been identified for potential redevelopment, all within approximately 0.25 miles of the Andover commuter rail station. It was determined that seven (7) of the nine (9) parcels could be developed within the next few years. Based on the possible uses of these parcels, the proposed number of trips generated were then calculated. These trips are based on rates provided in the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE) in 2017. A reduction for each of the land uses was determined as well, based on proximity to public transportation, census tract data, and information gathered for similar Transit-Oriented Developments. The planned development parcels and their corresponding trip generation calculations are further detailed in Section 4.

1.4 Intersection Capacity Analysis

Capacity analyses were performed at each of the study intersections to assess traffic operations under multiple scenarios and are detailed in the sections in parentheses:

- 2018 Existing (*Section 2.4.1*)
- 2025 No-Build (*Section 3.2*)
- 2025 Build – No Recommended Changes (*Section 5.1*)
- 2025 Build – Alternative 1 (*Section 6.1*)
- 2025 Build – Alternative 1A (*Section 7.1*)
- 2025 Build – Alternative 2 (*Section 8.1*)
- 2025 Build – Alternative 2A (*Section 9.1*)

The 2018 Existing Conditions analysis is based on current traffic counts carried out in the study area along with existing traffic control. The 2025 No-Build scenario reflects traffic adjustments due to regional growth on a seven year horizon to the year 2025, as well as incorporating existing traffic control. A 7-year planning horizon to the year 2025 was selected in accordance with the MassDOT *Transportation Impact Assessment (TIA) Guidelines*. Each of the 2025 Build scenarios utilizes projected traffic volumes after the construction of multiple parcels of land within the Historic Mill District. The No Recommended Changes scenario incorporates no geometric or signal changes to the network. Alternatives 1, 1A, 2, and 2A incorporate the specified changes detailed in Section 1.5. A comparison table showing the results of these capacity analyses is shown in Table 1-1.

Table 1.1: Level-of-Service Summary

ID	Roadway	Movement	2018 Existing Conditions		2025 No-Build Conditions		2025 Build - No Recommended Changes		2025 Build - Alternative 1		2025 Build - Alternative 1A		2025 Build - Alternative 2		2025 Build - Alternative 2A	
			Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour
1	Shawsheen Road at Essex Street and Red Spring Road	SB TR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		WB LR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		NB LR	B	F	B	F	C	F	B	E	B	D	B	E	B	E
	Overall		--	--	--	--	--	--	--	--	--	--	--	--	--	--
2	Pearson Street at Dundee Park Drive / Railroad Street and Essex Street	WB LTR	B	C	B	C	B	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		NB LTR	C	F	D	F	F	F	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		SB LTR	E	F	F	F	F	F	F	F	E	F	F	F	E	F
		SE LTR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		NW LTR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Overall		--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/4	Essex Street at School Street and Lewis Street Ext.	EB TR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		WB LT	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		NB L(TR)	A	A	A	A	B	B	C	C	A	B	C	C	B	B
		NB R	A	B	A	B	A	B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		SB LTR	N/A	N/A	N/A	N/A	N/A	N/A	B	C	A	A	N/A	N/A	N/A	N/A
	Overall		--	--	--	--	--	--	--	--	--	--	--	--	--	--
5	Pearson Street at Lewis Street	EB LT	A	A	A	A	A	A	A	A	A	A	N/A	N/A	N/A	N/A
		WB TR	A	A	A	A	A	A	A	A	A	A	N/A	N/A	N/A	N/A
		SB LR	A	A	A	A	A	A	A	A	A	A	N/A	N/A	N/A	N/A
	Overall		--	--	--	--	--	--	--	--	--	--	--	--	--	--
6	Essex Street at Brook Street and Ridge Street	EB TR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		WB LT	A	B	A	A	A	A	A	A	A	A	A	A	A	A
		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		NB LR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Overall		--	--	--	--	--	--	--	--	--	--	--	--	--	--
7	Lupine Road at Ridge Street and School Street	NB LTR	B	B	B	C	C	C	C	D	D	C	C	D	D	C
		SB LTR	B	A	B	A	C	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		SE LTR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		NW LTR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Overall		--	--	--	--	--	--	--	--	--	--	--	--	--	--
8*	Lewis Street at North Main Street	EB LR	B	C	B	C	D	D	E	D	C	C	D	D	C	C
		NB LT	A	B	A	B	F	E	B	C	B	C	B	C	A	B
		SB TR	A	A	A	A	B	B	B	B	B	B	B	B	B	B
	Overall		**A**	**B**	**A**	**B**	**E**	**D**	**C**	**C**	**B**	**C**	**C**	**C**	**B**	**B**
9	Pearson Street at North Main Street	EB LR	E	D	E	D	F	F	N/A	N/A	N/A	N/A	D	E	N/A	N/A
		NB LT	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		SB TR	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	Overall		--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	Central Street at Brook Street	NB T	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		SB T	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		SE LR	C	C	C	C	C	D	C	D	C	D	E	E	E	E
	Overall		--	--	--	--	--	--	--	--	--	--	--	--	--	--

LEGEND

	Declines by 1 LOS from No-Build
	Declines by 2 LOS from No-Build
	Declines by 3+ LOS from No-Build
	Improves in LOS from No-Build

*Signalized Intersection

As shown in Table 1-1, the different capacity analyses of the alternatives result in varying levels of service throughout the network. A complete and detailed analyses of each scenario are included in Section D of this report.

1.5 Assumptions and Recommended Changes

The goal of this study was to identify existing deficiencies within the study area, analyze traffic operations, and recommend improvements. Following is a brief outline of recommended improvements at each location. Geometric improvements, such as tightening turning radii, realigning approaches to intersections, and reducing the number of approaches at intersections are included for consideration. Each of these changes are shown in Appendix D.

ASSUMPTIONS

- The MBTA parking lot along School Street will remain on-site. The number of parking spaces will be increased as part of any future development
- There will be no new vehicle or pedestrian connections across the MBTA tracks connecting School Street and Dundee Park Drive

ALL ALTERNATIVES

Intersections

Essex Street at Shawsheen Road and Red Spring Road

- Decrease curb radius between Shawsheen Road and Essex Street
- Decrease curb radius between Shawsheen Road and Red Spring Road
- Add an exclusive left-turn lane and exclusive right-turn lane along Red Spring Road in the northbound direction to improve capacity

Essex Street at Railroad Street/Pearson Street/Dundee Park Drive

- Improve pedestrian facilities across Dundee Park Drive
- Increased pavement markings to define the edge of the roadway
- Increased pavement markings (zebra markings) to better define the railroad tracks
- Make the existing Dundee Park Drive a one-way entrance and create an exit-only along Essex Street west of the intersection
- Remove the Pearson Street connection to form a four-legged intersection with Essex Street, Railroad Street, and Dundee Park Drive

Essex Street at School Street

- Realign School Street to be perpendicular with Essex Street
- Make the approach include an exclusive left-turn lane and an exclusive right-turn lane in the NB direction and have one departure lane in the SB direction
- Add STOP-sign at School Street
- Add crosswalk across the School Street approach

School Street at Lupine Road

- Add sidewalks along Lupine Road to connect to sidewalks along School Street
- Better define parallel parking on the west side of Lupine Road

North Main Street (Route 28) at Lewis Street

- Improved signal timings to increase capacity through the intersection with the increased number of proposed trips due to development

Roadway Segments

Essex Street (Between Central Street and Brook Street)

- Remove parking on the south side of the roadway and better define parking on the north side of the roadway
- Widen sidewalk on the north side of the roadway for better pedestrian circulation
- Add a designated bicycle lane along the parking lane

Essex Street (Between Brook Street and Shawsheen Road/Red Spring Road)

- Add a designated bicycle lane in the eastbound direction that connects to Brook Street
- Better define parking between Shawsheen Road/Red Spring Road and Dundee Park Drive
- Add a designated bicycle lane along the north side of the roadway between Brook Street and Railroad Street
- Add sharrows in the westbound direction between Railroad Street and Shawsheen Road/Red Spring Road

Brook Street (Between Essex Street and Central Street)

- Maintain and better define parking along the north side of the roadway
- Add a designated bicycle lane that connects to the bicycle lane from Essex Street

School Street (between Essex Street and Lupine Road)

- Reconstruct sidewalk along the east side of the roadway for better pedestrian circulation
- Better define parking along the east side of the roadway

Ridge Street

- Make it a one-way street in the northeasterly direction from School Street to Essex Street

ALTERNATIVE 1

Intersections

Essex Street at School Street

- Relocate the existing Depot Pizza building to add a cut-through to Pearson Street to make a four-way intersection ("Lewis Street Extension")
- Add STOP-sign at Lewis Street Extension
- Add crosswalk across the new Lewis Street approach

Pearson Street at Lewis Street

- Tighten the curb radius along the Lewis Street approach, making the approach narrower and more defined
- Make Pearson Street one-way in the southwesterly direction from North Main Street
- Add a designated bicycle lane from N. Main Street to Lewis Street
- Maintain and better define parking along the north side of the roadway

ALTERNATIVE 1A

The geometric layout is proposed to be identical to that of Alternative 1 except for the following changes:

Intersections

School Street at Lupine Road

- Add exclusive right-turn and left-turn lanes along Lupine Road in the northbound direction

Dundee Park Driveway at Lupine Road

- Add a new Dundee Park Entrance/Exit onto Lupine Road

North Main Street (Route 28) at Lewis Street

- Make Lewis Street one-way in the northeasterly direction towards North Main Street
- Make an exclusive right-turn and exclusive left-turn lane along Lewis Street

North Main Street (Route 28) at Pearson Street

- Make an exclusive left-turn lane along N. Main Street in the northbound direction to accommodate increase in turning vehicles

ALTERNATIVE 2

Intersections

Essex Street at School Street

- Retain the existing Depot Pizza building, connecting Pearson Street and Lewis Street, while maintaining Pearson Street as a two-way street
- Multi-use path connection between Pearson Street/Lewis Street and Essex Street

ALTERNATIVE 2A

The geometric layout is proposed to be identical to that of Alternative 2 except for the following changes:

Intersections

School Street at Lupine Road

- Add exclusive right-turn and left-turn lanes along Lupine Road in the northbound direction

Dundee Park Driveway at Lupine Road

- Add a new Dundee Park Entrance/Exit onto Lupine Road

North Main Street (Route 28) at Lewis Street

- Make Lewis Street one-way in the northeasterly direction towards North Main Street
- Make an exclusive right-turn and exclusive left-turn lane along Lewis Street

North Main Street (Route 28) at Pearson Street

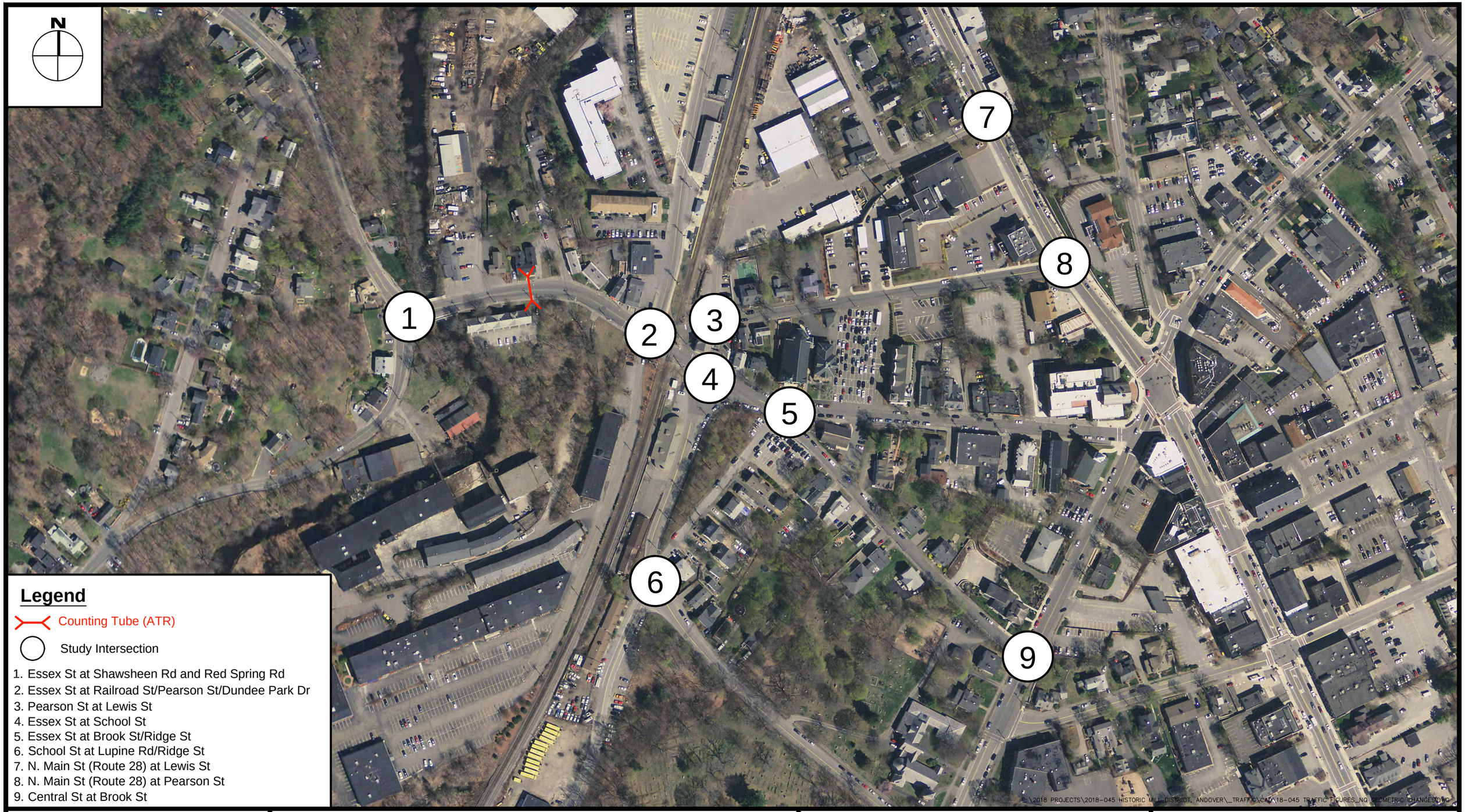
- Make an exclusive left-turn lane along N. Main Street in the northbound direction to accommodate increase in turning vehicles
- Make Pearson Street one-way in the southwesterly direction

1.6 Conclusion

This Circulation and Street Design Study was created to assess and analyze the existing traffic conditions and operations at nine (9) intersections in the Historic Mill District of Andover in an effort to identify and recommend potential improvements at each location. The information gathered at each of the study intersections was used to recommend changes to the traffic circulation and geometric layout of certain roadways.

From a safety perspective, recent data has shown that seven (7) of the nine (9) study intersections have crash rates that are below both the District 4 and Statewide averages. Two intersections have crash rates above both the District 4 and Statewide averages. There were zero (0) reported fatal injuries and approximately 86% of the reported crashes resulted in property damage only.

Capacity analyses were performed for each of the nine (9) study intersections for the Weekday AM and Weekday PM peak hours. Each of the alternatives were analyzed in order to determine how the different geometric layouts would affect traffic operations throughout the network. It was determined that Alternative 1A is the preferred alternative when considering both traffic circulation and traffic impact. The capacity analyses for each alternative is detailed in the respective sections later in this report.



Legend

Counting Tube (ATR)

Study Intersection

1. Essex St at Shawsheen Rd and Red Spring Rd
2. Essex St at Railroad St/Pearson St/Dundee Park Dr
3. Pearson St at Lewis St
4. Essex St at School St
5. Essex St at Brook St/Ridge St
6. School St at Lupine Rd/Ridge St
7. N. Main St (Route 28) at Lewis St
8. N. Main St (Route 28) at Pearson St
9. Central St at Brook St

Design Consultants Inc.
Somerville - Quincy - Newburyport
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ANDOVER CIRCULATION AND
STREET DESIGN STUDY
ANDOVER, MA

Study Intersections

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

Figure 1.1

2. EXISTING CONDITIONS

2.1 Study Area

The study area is located in the Historic Mill District in Andover. The following nine (9) intersections were examined in this traffic study:

- Essex Street at Shawsheen Road and Red Spring Road
- Essex Street at Railroad Street and Pearson Street
- Essex Street at School Street
- Essex Street at Brook Street and Ridge Street
- Pearson Street at Lewis Street
- School Street at Ridge Street and Lupine Road
- North Main Street (Route 28) at Lewis Street
- North Main Street (Route 28) at Pearson Street
- Central Street at Brook Street

This section describes the geometric elements of the intersections, including intersection alignments, lane widths, channelization islands and medians, sidewalk widths, curb treatments, pedestrian curb cut ramps and crosswalks, bicycle lane treatments, and locations of bus stops.

2.1.1 Study Intersections

Essex Street at Shawsheen Road and Red Spring Road

The intersection of Essex Street at Shawsheen Road and Red Spring Road is a three-legged, unsignalized intersection. Essex Street is a two-lane, two-way roadway approaching from the east, Shawsheen Road is a two-lane, two-way roadway approaching from the north, and Red Spring Road two-lane, two-way roadway approaching from the south. Both the Essex Street and Shawsheen Road approaches operate as free movements and the Red Spring Road approach operates under STOP-control. Essex Street, Shawsheen Road, and Red Spring Road are all functionally classified as Urban Minor Arterials and all are under Town of Andover jurisdiction.

Source: ©2018 Google Earth

Approaching the intersection, Essex Street has an approximate curb-to-curb width of 37 feet with parking permitted on both sides of the roadway at various points. At the intersection, Essex Street crosses over a creek, which influences any potential modifications to the intersection. There is a driveway for an automotive shop approximately 65 feet east of the intersection in the westbound direction along Essex Street. At the intersection, Shawsheen Road has an approximate curb-to-curb width of 35 feet. There is a residential driveway along Shawsheen Road southbound approximately 50 feet north of the intersection. At

the intersection, Red Spring Road has an approximate curb-to-curb width of 50 feet (as measured at the STOP line). There are two driveways, one in each direction, located approximately 120 feet south of the intersection.

Sidewalks are provided on both sides of each of the roadways at the intersection. However, the sidewalk along the west side of Shawsheen Road ends approximately 100 feet north of the intersection. There is a marked crosswalk with ADA ramps on both sides across the Essex Street approach.

Essex Street at Railroad Street/Pearson Street/Dundee Park Drive

Essex Street at Railroad Street/Pearson Street/Dundee Park Drive is a five-legged, unsignalized intersection. Essex Street is a two-lane, two-way roadway running from the northwest to southeast through the intersection, Railroad Street is a two-lane, two-way roadway approaching from the north, Pearson Street is a two-lane, two-way roadway approaching from the northeast, and Dundee Park Drive is a two-way, two-lane roadway approaching from the south. Essex Street, Pearson Street, and Dundee Park Drive all operate as free movements, under no traffic control. Railroad Street operates under STOP-control. Essex Street and Railroad Street are functionally classified as Urban Minor Arterials. Pearson Street and Dundee Park Drive are functionally classified as Local Roads. All roadways are under Town of Andover jurisdiction.

Source: ©2018 Google Earth

Approaching the intersection from the west, Essex Street has an approximate curb-to-curb width of 33 feet and approaching from the east has an approximate curb-to-curb width of 30 feet. Essex Street crosses over the railroad tracks just east of the intersection. There is a driveway along Essex Street in the westbound direction just west of the intersection. Railroad Street has an approximately curb-to-curb width of 25 feet, as measured at the crosswalk. There is a driveway in the southbound direction approximately 60 feet north of the intersection. Pearson Street has an approximately curb-to-curb width of 27 feet, as measured at the crosswalk. Dundee Park Drive has an approximately curb-to-curb width of 25 feet.

Sidewalks are provided on both sides of each of the roadways, except for Dundee Park Drive, at the intersection. There is a marked crosswalk with ADA ramps on both sides across the Railroad Street approach, as well as across the Pearson Street approach and across Essex Street on the eastern side of the railroad tracks.

Essex Street at School Street

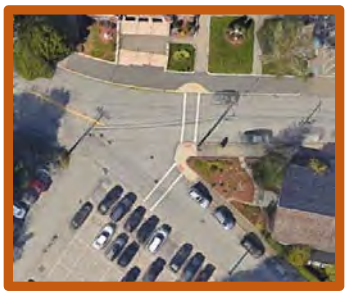
Source: ©2018 Google Earth

Essex Street at School Street is a three-legged, unsignalized intersection approximately 150 east of the intersection of Essex Street at Railroad Street/Pearson Street/Dundee Park Drive. Essex Street is a two-lane, two-way roadway running northwest to southeast through the intersection and School Street is a two-lane, two-way roadway approaching from the south. There is a splitter island along School Street that separates travel lanes, which is approximately 50 feet wide. On both sides of the island, traffic is two-way. Essex Street does not operate under any traffic control. School Street operates under YIELD-control to the west of the splitter island and under no traffic control to the east of the splitter island. Both Essex Street and School Street are functionally classified as an Urban Minor Arterials and both are under Town of Andover jurisdiction.

Approaching the intersection from the west, Essex Street has an approximate curb-to-curb width of 29 feet and approaching from the east has an approximate curb-to-curb width of 49 feet. Essex Street crosses over the railroad tracks just west of the intersection. There are multiple driveways and allowed on-street parking along Essex Street east of the intersection. School Street has an approximate curb-to-curb width of 40 feet west of the splitter island and 49 feet east of the splitter island. There is on-street parking allowed along both sides of School Street and there is a parking area for the building at 100 School Street.

Sidewalks are provided on the northern side of Essex Street as well as on the eastern side of School Street. There is a sidewalk that runs approximately 120 feet along the building on the west side of School Street. There is a marked crosswalk with ADA ramps on both sides across the western leg of the Essex Street approach.

Essex Street at Brook Street and Ridge Street



Source: ©2018 Google Earth

Essex Street at Brook Street and Ridge Street is a four-legged intersection approximately 150 feet east of the intersection of Essex Street and School Street. Essex Street is a two-way street west of the intersection and a one-way street east of the intersection in the westbound direction. Brook Street is a one-way street that departs the intersection in a southeasterly direction. Ridge Street is a two-way street that approaches from the southwest. All approaches at the intersection operate as free movements. Essex Street and Brook Street are functionally classified as Urban Minor Arterials and Ridge Street is classified as a Local Road. All of the roadways are under Town of Andover jurisdiction.

Approaching the intersection from the west, Essex Street has an approximate curb-to-curb width of 42 feet and approaching from the east has an approximate curb-to-curb width of 28 feet. There is a driveway along Essex Street in the westbound direction just west of the intersection. Brook Street has an approximate traveled way width of 28 feet just east of the intersection, as measured at the crosswalk. There is a parking lot along Brook Street at its corner with Ridge Street. On-street parking is allowed on the north side of Brook Street along its entire length from this intersection to its intersection with Central Street. Ridge Street has an approximate paved traveled way of 18 feet. As mentioned, there is a parking area at the intersection and there is additional perpendicular parking on the west side of Ridge Street.

Sidewalks are provided on both sides of each of the roadways, except for Ridge Street, at the intersection. However, the sidewalk along the south side of Brook Street begins approximately 130 feet southeast of the intersection, after the parking lot. There is a marked crosswalk with ADA ramps on both sides across the eastern leg of the Essex Street approach. There is a marked crosswalk across Brook Street with an ADA ramp on the northern side of the street.

Pearson Street at Lewis Street

Pearson Street at Lewis Street is a three-legged, unsignalized intersection. Pearson Street is a two-lane, two-way roadway running southwest to northeast through the intersection and Lewis Street at the intersection approaches from the north and is used only for authorized vehicles of the Andover Highway Maintenance facility. There is a driveway for a parking area that connects to the intersection from the south. All approaches to the intersection operate as free movements, with traffic from Lewis Street yielding to traffic along Pearson Street. Both Pearson Street and Lewis Street are functionally classified as Local Roads and both are under Town of Andover jurisdiction.

Source: ©2018 Google Earth

Approaching the intersection from the west, Pearson Street has an approximate paved traveled way width of 25 feet and approaching from the east has an approximate curb-to-curb width of 25 feet. Pearson Street crosses over the railroad tracks approximately 100 feet west of the intersection. Lewis Street has an approximate traveled way width of 28 feet. There is perpendicular parking on both sides of Lewis Street.

Sidewalks are provided on both sides of Pearson Street, however there are no sidewalks on Lewis Street approaching the intersection. There is a marked crosswalk with ADA ramps on both sides across Pearson Street. There is no marked crosswalk across Lewis Street, however there is an ADA ramp at the end of the sidewalk that approaches from the west on the northern side of Pearson Street.

School Street at Ridge Street and Lupine Road

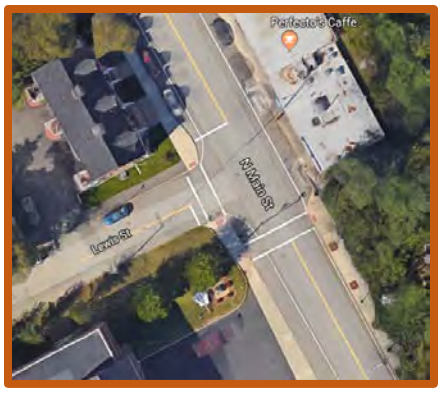
Source: ©2018 Google Earth

School Street at Ridge Street and Lupine Road is a four-legged, unsignalized intersection. School Street is a two-lane, two-way roadway that approaches from the southeast and north. Ridge Street is a two-lane, two-way connecting roadway that approaches from the northeast. Lupine Road is a two-lane, two-way roadway that approaches from the southwest. All four legs of the intersection form acute angles. School Street and Ridge Street operate as free movements. Lupine Road operates under YIELD-control. School Street is functionally classified as an Urban Minor Arterial. Ridge Street is functionally classified as a Local Road. Lupid Road is functionally classified as an Urban Collector. All three roadways are under Town of Andover jurisdiction.

Approaching the intersection from the north, School Street has an approximate curb-to-curb width of 27 feet and approaching from the southeast has an approximate curb-to-curb width of 40 feet. Lupine Road has an approximate traveled way width of 21 feet with an on-street parking lane in both directions. Ridge Street has an approximate traveled way width of 15 feet.

Sidewalks are provided on the eastern side of School Street as well as the eastern side of Ridge Street. There are no marked crosswalks or ADA ramps at this intersection.

North Main Street (Route 28) at Lewis Street



Source: ©2018 Google Earth

The intersection of North Main Street (Route 28) at Lewis Street is a three-legged, signalized intersection. North Main Street is a two-lane, two-way roadway approaching from the north and south. Lewis Street is a two-lane, two-way roadway approaching from the west. The North Main Street movements operate on their own phase and the Lewis Street movement operates on its own phase. There is also an exclusive pedestrian phase that is not on recall, meaning it needs to be activated by the presence of a pedestrian. North Main Street is functionally classified as an Urban Principal Arterial and Lewis Street is functionally classified as a Local Road. Both roadways are under Town of Andover jurisdiction.

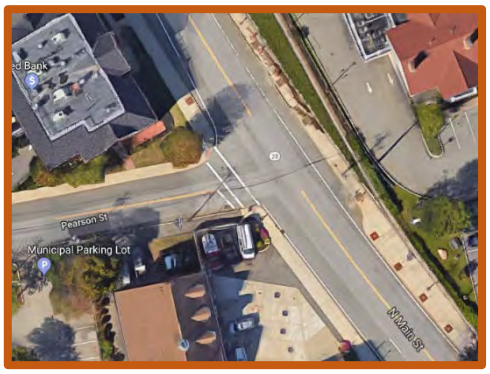
Approaching the intersection from the southeast, North Main Street has an approximate curb-to-curb width of 37 feet with no parking allowed along the roadway on either side. There is a driveway about 35 feet southeast of the intersection on North Main Street for the Andover Public

Safety Center. Approaching from the northwest, North Main Street has a curb-to-curb distance of about 45 feet with parking allowed on both sides of the street. There is a residential driveway about 95 feet northwest of the intersection on the western side of North Main Street. Approaching from the southwest, Lewis Street has a curb-to-curb width of about 27 feet with parking allowed on the northern side of the street.

Sidewalks are provided on both sides of each of the roadways at the intersection. However, Lewis Street does not have a sidewalk on the southern side of the street. There are marked crosswalks across Lewis Street and North Main Street, south of the intersection, and ADA ramps are provided on both sides of the streets.

North Main Street (Route 28) at Pearson Street

The intersection of North Main Street (Route 28) at Pearson Street is a three-legged, unsignalized intersection approximately 375 feet south of the intersection of North Main Street at Lewis Street. North Main Street is a two-lane, two-way roadway approaching from the north and south. Pearson Street is a two-lane, two-way roadway approaching from the west. Both North Main Street approaches operate as free movements and the Pearson Street approach operates under STOP-control. North Main Street is functionally classified as Urban Principal Arterial and Pearson Street is functionally classified as a Local Road. Both roadways are under Town of Andover jurisdiction.



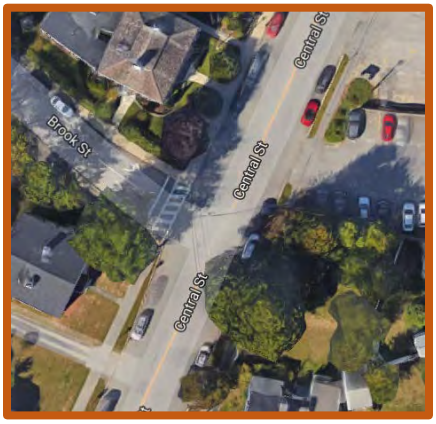
Source: ©2018 Google Earth

Approaching the intersection from the southeast, North Main Street has an approximate curb-to-curb width of 37 feet with parking not allowed on either side of the roadway. There is a driveway about 25 feet southeast of the intersection that allows access to the Mobil gas station. Approaching from the northwest, North Main Street has a curb-to-curb width of about 42 feet with parking allowed on the northern side of the roadway. At the intersection, Pearson Street has a curb-to-curb width of about 30 feet with parking allowed on the northern side of the street about 250 feet west of the intersection.

Sidewalks are provided on both sides of each of the roadways at the intersection. There is a marked crosswalk with ADA ramps on both sides across the Pearson Street approach. There are no marked crosswalks across North Main Street on either approach.

Central Street at Brook Street

The intersection of Central Street at Brook Street is a three-legged, unsignalized intersection. Central Street is a two-lane, two-way roadway approaching from the north and south. Brook Street is a one-lane, one-way roadway approaching from the west. At the intersection, Brook Street opens up to a two-lane roadway, with one exclusive left-turn lane and one exclusive right-turn lane. Central Street operates under no traffic control and Brook Street operates under STOP-control. Central Street is functionally classified as an Urban Minor Arterial and Brook Street is functionally classified as a Local Road. Both roads are under Town of Andover jurisdiction.



Source: ©2018 Google Earth

Approaching the intersection from both the north and south, Central Street has an approximate curb-to-curb width of 45 feet with parking allowed on both sides of the roadway. There is a residential driveway about 60 feet south of the intersection on the western side of Central Street. There are also two parking lots about 25 feet and 85 feet north of the intersection on the eastern side of Central Street. Approaching from the west, Brook Street has a curb-to-curb width of about 30 feet with parking permitted on the northern side of the street. There is a residential driveway about 70 feet west of the intersection on the southern side of Brook Street.

Sidewalks are provided on both sides of each of the roadways at the intersection. There is a marked crosswalk with ADA ramps on both sides across the Brook Street approach. There are no marked crosswalks across Central Street at the intersection.

2.1.2 Roadway Sections

2.1.3 Accessibility and Multi-Modal Transportation

A Complete Street is one that provides safe and accessible options for people of all ages and abilities using all modes of travel, including pedestrians, bicyclists, transit, and vehicles. Providing safer, more accessible and comfortable means of travel contributes towards the health, economic viability, and quality of life in the community. This section briefly describes the existing facilities within the study area.

<u>Pedestrian Facilities</u>

Pedestrian connectivity in the area is facilitated by existing sidewalks and crosswalks. As part of the existing conditions analysis, an inventory of the existing sidewalks and crosswalks was taken. Areas of disconnection were noted and addressed as part of the recommended changes.

Bicycle Facilities

A bike route runs through the study area along Essex Street between the intersection with School Street and Shawsheen Road. The route continues down Shawsheen Road. The bike route is marked by bike route signage.

Massachusetts Bay Transportation Authority (MBTA)

The MBTA, in conjunction with Keolis, operates the Commuter Rail to connect downtown Boston to surrounding cities and towns. The Commuter Rail extends through Andover via the Haverhill Line and the Andover stop is located approximately 300 feet north of Essex Street along Railroad Street. The tracks run parallel to Railroad Street and cross over Essex Street and Pearson Street at their intersection. There are train signals along Essex Street and Pearson Street that are activated when a train approaches the intersection. The MBTA station can be accessed via motor vehicle, with a parking lot located along Railroad Street just north of the station. There are sidewalks connecting the station to the Essex Street corridor. There are two inbound trains and one outbound train between 7am to 9am and one inbound train and two outbound trains between 4pm and 6pm that stop at the Andover station. A detailed schedule and route map is provided in Appendix A.

Merrimack Valley Regional Transit Authority (MVRTA)

The MVRTA services the study area with Route 21 – Andover Shuttle and Route 32 – Andover Shuttle. Route 21 stops along Railroad Street just north of the Andover Train Station and at the intersection of Main Street at Central Street. There is one (1) outbound bus from 7am to 9am and one (1) inbound bus from 4pm to 6pm. Route 32 stops at the Andover MBTA Station along Railroad Street. Route 32 runs along Railroad Street, Essex Street, and School Street through the study area. Route 32 connects Andover to Lawrence via South Broadway and Main Street. Route 32 stops at the Andover Train Station three (3) times between 7am and 9am and four (4) times between 4pm and 6pm. Detailed schedules and route maps are provided in Appendix A.

2.1.4 Existing Traffic Control and Pavement Markings

Throughout the study area, there are pavement markings along the roadways that delineate travel lanes, define on-street parking spaces, and help control traffic movements.

Essex Street at Shawsheen Road and Red Spring Road

- STOP-sign on Red Spring Road
- Crosswalk across Essex Street
- Bike Route sign indicating that the Bike Route continues down Shawsheen Road
- Double Yellow Centerline along Essex Street and Shawsheen Road
- Single Yellow Centerline along Red Spring Road
- Striped shoulder along Shawsheen Road in both directions
- Striped shoulder along Red Spring Road in the southbound direction

Essex Street at Railroad Street and Pearson Street

- STOP-sign at Railroad Street approach
- STOP-sign at Dundee Park Drive approach
- Railroad crossing markings with stop bar:
    - Both Essex Street approaches
    - Pearson Street approach
- Railroad Warning sign on Pearson Street east of the intersection
- Crosswalks:
    - Across Essex Street east of the intersection
    - Across Pearson Street approach
    - Across Railroad Street approach
- Double Yellow Centerline along all streets
- Railroad gates for pedestrians and vehicles across:
    - Pearson Street approach
    - Both Essex Street approaches

Essex Street at School Street

- Yield sign on the island on School Street for those turning left
    - No signage for those turning right onto Essex Street
- Bike Route sign on the island on School Street indicating that the bike route continues left down Essex Street
- Railroad Warning sign on the island on School Street for those turning left
- Double Yellow Centerline along all streets

Essex Street at Brook Street and Ridge Street

- Railroad Warning sign on Essex Street at the intersection
- One Way sign on Brook Street
- Do Not Enter sign on Essex Street east of the intersection
- Crosswalks:
    - Across Essex Street east of the intersection
    - Across Brook Street
- Double Yellow Centerline along Essex Street west of the intersection

Pearson Street at Lewis Street

- Do not enter sign on Lewis Street

School Street at Ridge Street and Lupine Road

- Yield sign on Lupine Road
    - No signage on School Street or on Ridge Street
- Striped shoulder along Lupine Road in both directions
- Double Yellow Centerline along Lupine Road and School Street
    - No Centerline along Ridge Street

North Main Street at Pearson Street

- Stop line and STOP-sign along Pearson Street approach
- Marked crosswalk across the Pearson Street approach
- Double Yellow Centerline along both streets
- Striped shoulder along North Main Street in both directions

North Main Street at Lewis Street

- Signalized intersection with stop lines at every approach
    - No Turn On Red sign for Lewis Street approach
- Second set of signals and stop line on North Main Street to stop traffic in the northbound direction for the fire department
- Crosswalks:
    - Across the Lewis Street approach
    - Across North Main Street, southeast of the intersection
- Not A Thru Street sign on Lewis Street
- Striped Shoulder along North Main Street in both directions
- Double Yellow Centerline along both streets

2.2 Traffic Volumes

2.2.1 Existing Traffic Counts

DCI contracted with Precision Data Industries, LLC (PDI) to collect turning movement counts in May 2018. In order to provide analysis for separate peak hours during the day, PDI collected data during the Weekday AM (7am to 9am) and Weekday PM (4pm to 6pm) peak periods for all study intersections on a typical Wednesday. These counts were taken when all area schools were in session and during a week not containing a holiday. The traffic counts included cars, heavy vehicles, pedestrians, and bicycles.

In order to collect directional distribution data in the area, and in compliance with MassDOT *Transportation Impact Assessment (TIA) Guidelines*, PDI collected Automatic Traffic Recorder (ATR) data through two consecutive days during a Tuesday to Wednesday period in May 2018. The ATR data included traffic volume data, vehicular speed data, and vehicle classification data. The counts are summarized in 15-minute, hourly, and daily intervals. Data was collected at the following location:

- Essex Street between Gradall Lane and Baker Lane

The collected ATR data is summarized in Table B1. As shown, the average weekday daily traffic on Essex Street is approximately 9,523 vehicles and the 85th percentile speed is 28 MPH in both directions. Complete traffic count data is provided in Appendix B.

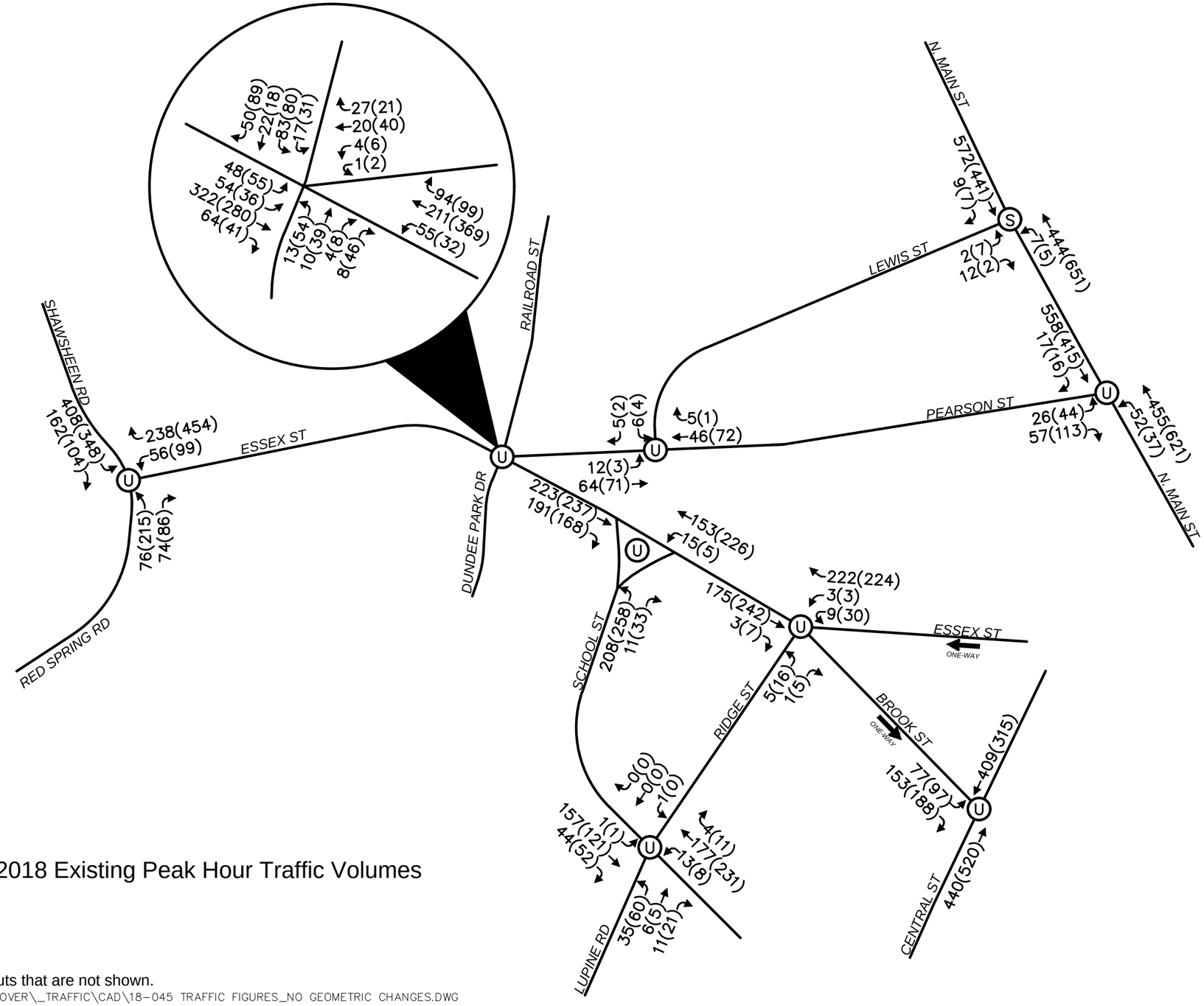
Table 2.1: ATR Volume Summary

Location	85th Percentile Speed	ADT[1]	Weekday AM Peak Hour			Weekday PM Peak Hour		
			Volume[2]	K[3]	Peak Direction	Volume[2]	K[3]	Peak Direction
Essex Street between Gradall Lane and Baker Lane	28 MPH EB & 28 MPH WB	9523	776	8%	58.0% EB	888	9%	55.4% WB

ADT[1]: Average Daily Traffic (in vehicles); Volume[2]: Traffic during the peak hour (in vehicles); K[3]: The percent of Average Daily Traffic occurring during the peak hour

2.2.2 Seasonal Adjustment

In order to reflect average annual daily traffic conditions, a seasonal factor was calculated to determine if the existing traffic counts should be adjusted. Monthly volumes from MassDOT Permanent Counting Station 502 on Route 125 in Andover were analyzed. It was determined that the Average Daily Traffic (ADT) in the vicinity of the Project site are, on average, higher in May when compared to the Annual Average Daily Traffic (AADT). In order to be provide a more conservative analysis, the existing traffic volumes remain unchanged. The unadjusted existing peak hour traffic volumes are shown in Figure 2.1. The detailed seasonal adjustment has been attached in Appendix B.



Legend

XX(XX) → Weekday AM(PM) 2018 Existing Peak Hour Traffic Volumes

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_NO GEOMETRIC CHANGES.DWG

Design Consultants Inc. Somerville - Quincy - Newburyport www.dci-ma.com	ANDOVER CIRCULATION AND STREET DESIGN STUDY ANDOVER, MA	2018 Existing Weekday Peak Hour Traffic Volumes	PROJECT NO: 2018-045
			DATE: APRIL 2019
			SCALE: N.T.S. / Figure 2.1

2.3 Safety Analysis

Intersection safety is one measure is assessing the performance of an intersection and can also have an impact on overall intersection operations. This section reviews historical crash data and lines of sight at each of the study intersections to identify any potential safety concerns.

2.3.1 Existing Crash Data and Analysis

Crash data from MassDOT for years 2012 through 2016 was reviewed for each study intersection. This data represents the most recent five (5) years of data available through the MassDOT crash database. The MassDOT crash records offered the following information:

- Crash Location (General or Specific) / Direction of vehicle(s) involved
- Date / Time
- Roadway surface conditions / Light conditions / Weather conditions
- Crash Severity / Manner of Collision
- Type of non-motorist involved (if applicable)

The compiled data, in conjunction with engineering judgement, yielded a summary of crashes that can be used to identify general crash patterns and potential factors contributing to the predominant type of incidents at each location.

Crash rates can be a useful tool in measuring the safety for an intersection relative to State and/or District averages for comparable intersection types. Crash rates for intersections are calculated based upon the number of crashes at an intersection and the volume of traffic traveling through an intersection on a daily basis, expressed as crashes per million entering vehicles (c/mev). MassDOT average intersection crash rates are published on a statewide basis and by district for signalized and unsignalized intersections.

Intersection crash rates were calculated for each of the study area intersections using available crash data for the 5-year period and the average daily traffic volumes for the May 2018 traffic counts. The average crash rates for MassDOT District 4 are 0.73 c/mev and 0.78 c/mev Statewide for signalized intersections and 0.57 c/mev and 0.57 c/mev Statewide for unsignalized intersections. The summary results of the crash analysis are shown in Table 5-1. Detailed crash analysis worksheets and collision diagrams for each intersection for years 2012 through 2016 are contained in Appendix C. As indicated in Table 2.2, the intersections of Essex Street at Brook Street and Ridge Street and Central Street at Brook Street have crash rates of 0.84 c/mev and 0.62 c/mev respectively, both of which are higher than the District 4 average of 0.57 c/mev and the Statewide average of 0.57 c/mev for unsignalized intersections, indicative of a potential safety concern. The crash rates calculated for the other intersections are below both the District 4 and Statewide averages.

Table 2.2: MassDOT Intersection Crash Summary

	Essex St at Shawsheen Rd/ Red Spring Rd	*Essex St at Railroad St / Pearson St*	*Essex Street at School Street*	*Essex Street at Ridge St / Brook Street*	*School St at Ridge St / Lupine Rd*	*Pearson Street at Lewis Street*	*Central Street at Brook Street*	*N. Main Street at Lewis Street*	*N. Main Street at Pearson Street*
Year									
2012	3	1	2	1	0	0	3	0	2
2013	0	0	1	1	0	0	2	2	2
2014	0	0	1	0	0	0	4	1	2
2015	1	1	1	3	0	0	3	1	1
2016	1	1	2	4	0	0	2	3	6
Total	*5*	*3*	*7*	*9*	*0*	*0*	*14*	*7*	*13*
Crash Severity									
Property Damage Only	5	3	7	7	0	0	13	5	10
Non-fatal Injury	0	0	0	1	0	0	1	2	3
Fatal Injury	0	0	0	0	0	0	0	0	0
Not Reported, Unknown	0	0	0	1	0	0	0	0	0
Total	*5*	*3*	*7*	*9*	*0*	*0*	*14*	*7*	*13*
Manner of Collision									
Sideswipe, Same Direction	0	0	0	1	0	0	2	2	1
Sideswipe, Opposite Direction	2	1	1	1	0	0	0	0	0
Angle	2	1	2	5	0	0	9	2	8
Rear-end	0	0	3	1	0	0	2	1	4
Head-on	0	0	0	0	0	0	0	0	0
Single Vehicle	1	1	1	1	0	0	1	2	0
Other, not reported	0	0	0	0	0	0	0	0	0
Total	*5*	*3*	*7*	*9*	*0*	*0*	*14*	*7*	*13*
Crash Averages									
Avg. Crashes per Year	1.00	0.60	1.40	1.80	0.00	0.00	2.80	1.40	2.60
Avg. Crash Rate (per MEV)	***0.19***	***0.11***	***0.37***	***0.84***	***0.00***	***0.00***	***0.62***	***0.31***	***0.51***
District 4 Average Crash Rate	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.73	0.57
Statewide Average Crash Rate	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.78	0.57

The intersection of **Essex Street at Shawsheen Road and Red Spring Road** had five (5) reported crashes according to the MassDOT crash database during the five year period from 2012 to 2016. All five (5) of the crashes resulted in property damage only. Of the five crashes, two (2) were sideswipes in the opposite direction, two (2) were angled collisions, and one (1) was a single-vehicle crash. The intersection averaged 1.00 crashes per year and had crash rate of 0.19 c/mev, which is below both the District 4 and Statewide averages for unsignalized intersections.

The intersection of **Essex Street at Railroad Street and Pearson Street** had three (3) reported crashes according to the MassDOT crash database during the five year period from 2012 to 2016. All three (3) of the crashes resulted in property damage only. One (1) of the crashes was a sideswipe in the opposite direction, one (1) was an angled collision, and one (1) was a single-vehicle collisions. The three (3) reported crashes resulted in 0.60 crashes per year and a crash rate of 0.11 c/mev, which is below both the District 4 and Statewide averages for unsignalized intersections.

The intersection of **Essex Street at School Street** had seven (7) reported crashes according to the MassDOT crash database during the five year period from 2012 to 2016. All seven (7) crashes resulted in property damage only. Of the seven crashes, one (1) was a sideswipe in the opposite direction, two (2) were angled collisions, three (3) were rear-end collisions, and one (1) was a single-vehicle crash. This results in 1.40 crashes per year and a crash rate of 0.37 c/mev, which is below both the District 4 and Statewide averages for unsignalized intersections.

The intersection of **Essex Street at Ridge Street and Brook Street** had nine (9) reported crashes according to the MassDOT crash database during the five year period from 2012 to 2016. Seven (7) crashes resulted in property damage only, one (1) crash resulted in a non-fatal injury, and one (1) crash resulted in an unreported severity. Of the nine crashes, one (1) was a sideswipe in the same direction, one (1) was a sideswipe in the opposite direction, five (5) were angled collisions, one (1) was a rear-end collision, and one (1) was a single-vehicle crash. This resulted in 1.80 crashes per year and a crash rate of 0.84 c/mev, which is above both the District 4 and Statewide averages for unsignalized intersections.

The intersection of **School Street at Ridge Street and Lupine Road** had zero (0) reported crashes according to the MassDOT crash database during the five year period from 2012 to 2016. This resulted in 0.00 crashes per year and a crash rate of 0.00 c/mev, which is below both the District 4 and Statewide averages for unsignalized intersections.

The intersection of **Pearson Street at Lewis Street** had zero (0) reported crashes according to the MassDOT crash database during the five year period from 2012 to 2016. This resulted in 0.00 crashes per year and a crash rate of 0.00 c/mev, which is below both the District 4 and Statewide averages for unsignalized intersections.

The intersection of **Central Street at Brook Street** had fourteen (14) reported crashes according to the MassDOT crash database during the five year period from 2012 to 2016. Thirteen (13) of

these crashes resulted in property damage only and one (1) resulted in non-fatal injury. Two (2) of the crashes were sideswipes in the same direction, nine (9) were angled collisions, two (2) were rear-end collisions, and one (1) was a single-vehicle crash. This resulted in 2.80 crashes per year and a crash rate of 0.62 c/mev, which is above both the District 4 and Statewide averages for unsignalized intersections.

The intersection of **North Main Street at Lewis Street** had seven (7) reported crashes according to the MassDOT crash database during the five year period from 2012 to 2016. Five (5) of these crashes resulted in property damage only and two (2) resulted in non-fatal injury. Two (2) of the crashes was a sideswipe in the same direction, two (2) were angled collisions, one (1) was a rear-end collision, and two (2) were a single-vehicle crash. This resulted in 1.40 crashes per year and a crash rate of 0.31 c/mev, which is below both the District 4 and Statewide averages for signalized intersections.

The intersection of **North Main Street at Pearson Street** had thirteen (13) reported crashes according to the MassDOT crash database during the five year period from 2012 to 2016. Ten (10) of these crashes resulted in property damage only and three (3) resulted in non-fatal injury. One (1) of the crashes was a sideswipe in the same direction, eight (8) were angled collisions, and four (4) were rear-end collisions. This resulted in 2.60 crashes per year and a crash rate of 0.51 c/mev, which is below both the District 4 and Statewide averages for unsignalized intersections.

Of the nine (9) intersections analyzed as part of this study, two (2) of the intersections had crash rates above both the District 4 and Statewide averages. However, there were no reported fatal crashes and approximately 86% of the reported crashes resulted in property damage only. As part of this study, intersections with safety concerns are proposed to be redesigned to make the intersection as safe as possible for all users. These geometric changes are detailed later in this report.

The intersections of Essex Street at Ridge Street and Brook Street and Central Street at Brook Street, both have crash rates above the District 4 and Statewide averages. With the implementation of geometric changes at both intersections, it is expected that the number of crashes will decrease. Slower vehicle speeds and increased visibility through the intersections will allow for an environment that will increase safety for all users.

2.4 Existing Capacity Analysis

2.4.1 Traffic Analysis Criteria

The Highway Capacity Manual (HCM), published by the Transportation Research Board in 2010, provides methodologies on how to calculate motor vehicle Level of Service (LOS), average delay, and volume-to-capacity (v/c) ratios. Those terms are commonly used to measure performance levels for freeway sections, ramp junctions, weave sections, and intersections, both signalized and unsignalized.

Level of Service (LOS) is a term used to denote different operating conditions that occur under various traffic volume loads. It is a qualitative measure of the effect of a number of factors including geometrics, speed, travel delay, freedom to maneuver, and safety. The LOS is divided into a range of six letter grades, ranging from A to F, with A being the best and F the worst. An LOS of F is generally considered to be inadequate traffic operation in suburban and urban areas. The delay ranges differ slightly between unsignalized and signalized intersections due to driver expectations and behavior for each LOS. Table 2.3 summarizes the LOS criteria.

Table 2.3: Intersection LOS Thresholds

LOS	Signalized	Unsignalized
	Control Delay (seconds/vehicle)	**Control Delay (seconds/vehicle)**
A	0-10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Source: 2010 Highway Capacity Manual

In this study, intersection performance measures were calculated in the form of average intersection delay, 50th and 95th percentile queue lengths, level-of-service (LOS) for each approach/movement, and the LOS of the overall intersection operations. *Synchro 9.0 was the software used to execute the intersection analysis*. *Synchro 9.0*, a software program from Trafficware, uses the methodologies and thresholds outlined within the HCM. This is the preferred/recommended software of MassDOT. Traffic volume represents the travel demand observed and capacity represents the amount of traffic the intersection can accommodate under prevailing conditions. Volume to capacity ratios that approach or exceed 1.0 indicate traffic congestion or poor operating conditions.

Three types of Synchro reports were created to analyze and compare intersection performance in this study:

- Main report – "Int: Lanes, Volumes, Timings",
- Queuing Analysis Report
- HCM Signalized/Unsignalized Report.

For signalized intersections, LOS is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. For unsignalized intersections, the analysis assumes that the traffic on the mainline is not affected by traffic on the side street. The 50th and 95th percentile queue lengths are estimated.

2.4.2 Capacity Analysis

The study intersections were analyzed using existing traffic conditions during the Weekday AM and Weekday PM peak hours. Existing intersection lane configurations, signal timing, and traffic control were modelled the same as the current traffic operations. STOP-controlled intersections were also replicated. The results of the 2018 Existing conditions analysis are shown in Table 2.4. Detailed capacity analysis worksheets are included in Appendix J.

Table 2.4: 2018 Existing Conditions LOS

ID	Roadway	Movement	2018 Existing Conditions					
			Weekday AM Peak Hour			Weekday PM Peak Hour		
			Delay [1]	LOS [2]	Queue [3]	Delay [1]	LOS [2]	Queue [3]
1	Shawsheen Road at Essex Street and Red Spring Road	SB TR	1.0	A	1 / 9	5.9	A	12 / 142
		WB LR	4.3	A	30 / 76	4.4	A	41 / 94
		NB LR	10.7	B	53 / 97	50.8	F	166 / 311
	Overall		--	--		--	--	
2	Pearson Street at Dundee Park Drive / Railroad Street and Essex Street	WB LTR	11.4	B	19 / 45	21.6	C	23 / 51
		NB LTR	23.2	C	25 / 59	81.2	F	113 / 545
		SB LTR	46.7	E	109 / 231	242.1	F	392 / 750
		SE LTR	3.6	A	26 / 75	10.0	B	43 / 168
		NW LTR	2.4	A	28 / 59	2.3	A	28 / 56
	Overall		--	--		--	--	
3/4	Essex Street at School Street	EB TR	1.0	A	1 / 13	1.9	A	6 / 38
		WB LT	1.1	A	0 / 2	0.4	A	0 / 1
		NB L	8.6	A	36 / 58	9.7	A	30 / 44
		NB R	9.7	A	0 / 2	10.2	B	0 / 5
	Overall		--	--		--	--	
5	Pearson Street at Lewis Street	EB LT	1.3	A	0 / 1	0.4	A	0 / 0
		WB TR	0.0	A	0 / 0	0.0	A	0 / 0
		SB LR	9.3	A	0 / 2	9.1	A	0 / 1
	Overall		--	--		--	--	
6	Essex Street at Brook Street and Ridge Street	EB TR	0.3	A	0 / 8	0.4	A	0 / 4
		WB LT	2.4	A	4 / 25	11.4	B	27 / 186
		--	--	--	--	--	--	--
		NB LR	7.4	A	5 / 22	5.2	A	15 / 40
	Overall		--	--		--	--	
7	Lupine Road at Ridge Street and School Street	NB LTR	14.3	B	0 / 18	14.7	B	0 / 27
		SB LTR	13.9	B	0 / 1	0.0	A	0 / 0
		SE LTR	0.1	A	0 / 0	0.2	A	0 / 0
		NW LTR	0.9	A	0 / 2	0.5	A	0 / 1
	Overall		--	--		--	--	
8	Lewis Street at North Main Street	EB LR	18.5	B	1 / 9	21.6	C	2 / 14
		NB LT	7.0	A	0 / 211	12.2	B	86 / 337
		SB TR	7.9	A	0 / 307	9.2	A	57 / 200
	Overall		***7.7***	***A***		***11.0***	***B***	
9	Pearson Street at North Main Street	EB LR	37.1	E	0 / 69	28.0	D	0 / 86
		NB LT	2.5	A	0 / 8	1.0	A	0 / 3
		SB TR	0.0	A	0 / 0	0.0	A	0 / 0
	Overall		--	--		--	--	
10	Central Street at Brook Street	NB T	0.0	A	0 / 0	0.0	A	0 / 0
		SB T	0.0	A	0 / 0	0.0	A	0 / 0
		SE LR	18.1	C	0 / 73	16.7	C	0 / 86
	Overall		--	--		--	--	

1 Delay = average delay in seconds per vehicle; 2 LOS = Level of Service; 3 Queue = 50th/95th percentile queue length (if only one queue length is shown, it is the 95th percentile queue length), # = volume for 95th percentile cycle exceeds capacity. Queue shown is maximum after two cycles; R = right-turn movement, L = left-turn movement, T = through movement; WB = westbound, EB = eastbound, NB = northbound, SB = southbound, NE = northeast-bound, SE = southeast-bound, SW = southwest-bound, NW = northwest-bound

3. FUTURE NO-BUILD CONDITIONS

3.1 2025 No-Build Traffic Volumes

Traffic volumes in the study area were projected to the year 2025, which reflects a seven-year planning horizon from the existing year 2018, consistent with MassDOT's *Traffic Impact Assessment (TIA) Guidelines*. The traffic conditions for the year 2025 were examined under No-Build conditions independent of the proposed Project, including all existing traffic and new traffic.

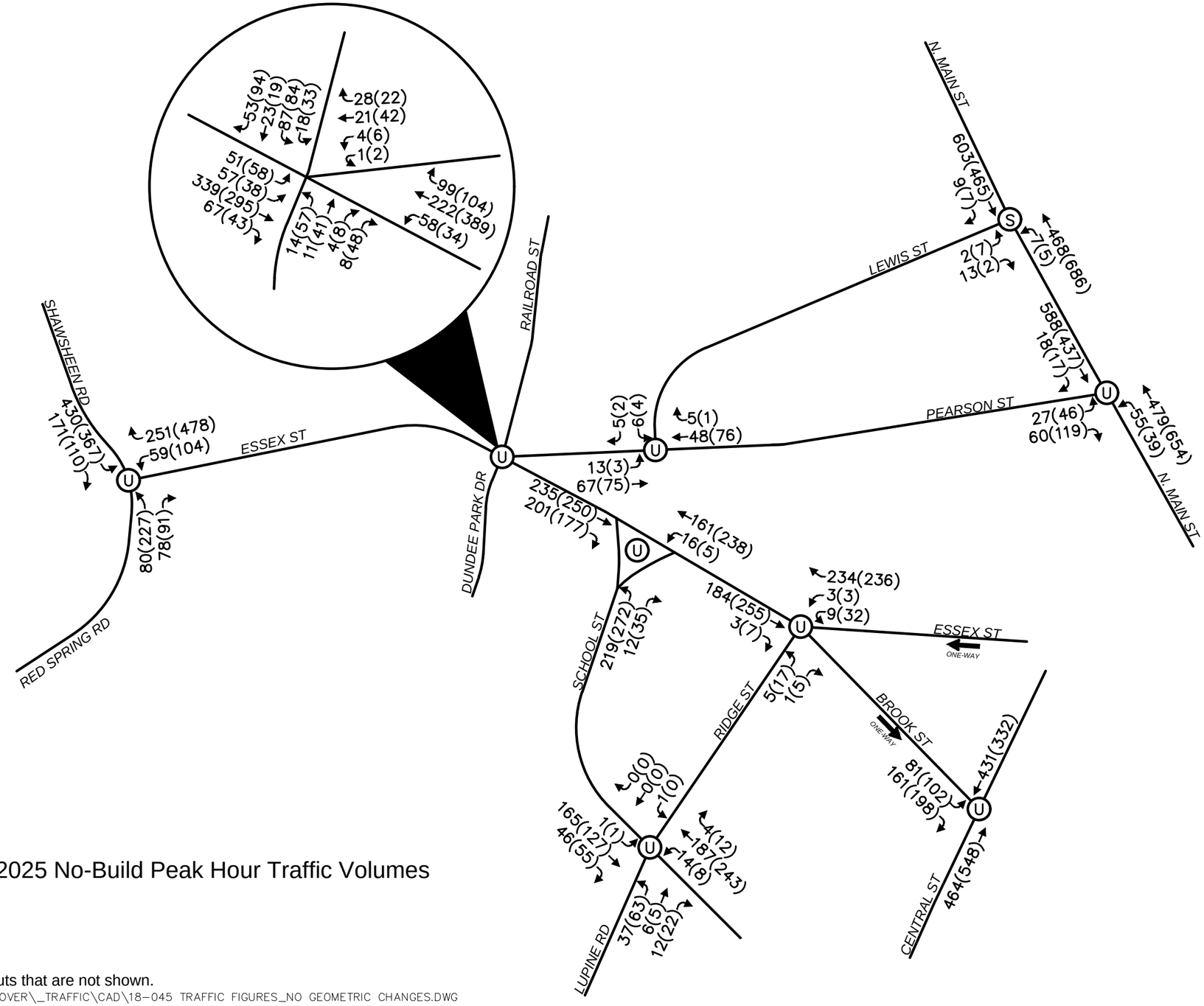
Traffic growth on the local roadway network results from multiple factors, most notably land development in the immediate area and growth in the surrounding region. Two techniques are typically used in combination to estimate this growth. The first method identifies planned and permitted developments in the vicinity of the study area and assigns estimated traffic generated by the proposed developments to the study area network. The second procedure applies an annual percentage increase in traffic growth to all traffic volumes under study. This practice accounts for traffic growth due to regional developments beyond the study area or developments that may be proposed but are not yet permitted. The results of both measures are combined with the existing traffic count data to define the "No-Build" traffic volumes for this study, which are shown in Figure 5.

Background Developments

DCI has contacted the Town of Andover Planning Department and the Central Transportation Planning Staff to determine if there are any upcoming projects in the area will have an impact on the traffic network. It was determined that currently, there are no projects in the immediate area of the study area that will bring additional traffic to the intersections. There are multiple parcels that have the potential to be developed and will be analyzed as part of the 2025 Build scenarios, described later on in this report.

Regional Growth Rate

Based on discussions with the Boston Region Metropolitan Planning Organization known as the Central Transportation Planning Staff (CTPS), and traffic volume data compiled from MassDOT count stations, an annual traffic growth rate for the area of Andover that the Project site is located was provided. A 0.69 percent compounded annual growth rate was provided by the CTPS to account for general background traffic growth and development by others not yet identified. This number is based on the CTPS Long Range Transportation Plan published in 2011, and updated in 2013. After discussions with the Town Planner of Andover, it was determined that a 0.75 percent annual growth rate would be more applicable to account for the potential development in the immediate area. The 0.75 percent annual growth rate was applied to project all existing volumes to a seven year design horizon, to the year 2025.



Legend

XX(XX) → Weekday AM(PM) 2025 No-Build Peak Hour Traffic Volumes

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_NO GEOMETRIC CHANGES.DWG

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ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

2025 No-Build Weekday Peak Hour Traffic Volumes

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

Figure 3.1

3.2 2025 No-Build Capacity Analysis

The study intersections were analyzed for 2025 No-Build peak hour traffic conditions during the Weekday AM and Weekday PM peak hours. For this scenario, the existing lane configurations and existing traffic controls were maintained. The results of this analysis are shown in Table 3.1. Detailed capacity analysis worksheets are included in Appendix J.

The goal of this scenario is to illustrate the increase in delay that the Historic Mill District will experience with no area-specific developments and no recommended geometric changes considered. This provides a basis for comparison when adding area-specific development trips and incorporating the recommended changes.

Table 3.1: 2025 No-Build Conditions LOS

ID	Roadway	Movement	2025 No-Build Conditions					
			Weekday AM Peak Hour			Weekday PM Peak Hour		
			Delay [1]	LOS [2]	Queue [3]	Delay [1]	LOS [2]	Queue [3]
1	Shawsheen Road at Essex Street and Red Spring Road	SB TR	1.7	A	1 / 11	1.2	A	1 / 7
		WB LR	4.7	A	34 / 84	4.7	A	46 / 104
		NB LR	12.2	B	57 / 104	76.1	F	227 / 391
	Overall		--	--		--	--	
2	Pearson Street at Dundee Park Drive / Railroad Street and Essex Street	WB LTR	11.6	B	21 / 49	24.2	C	25 / 53
		NB LTR	29.8	D	26 / 60	113.8	F	114 / 249
		SB LTR	87.0	F	167 / 377	360.7	F	529 / 833
		SE LTR	4.0	A	31 / 87	4.8	A	38 / 98
		NW LTR	2.6	A	30 / 61	2.0	A	28 / 54
	Overall		--	--		--	--	
3/4	Essex Street at School Street	EB TR	1.0	A	1 / 12	0.9	A	3 / 19
		WB LT	1.2	A	0 / 2	0.4	A	0 / 1
		NB L	8.9	A	37 / 59	9.7	A	30 / 44
		NB R	9.8	A	0 / 2	10.3	B	0 / 5
	Overall		--	--		--	--	
5	Pearson Street at Lewis Street	EB LT	1.3	A	0 / 1	0.4	A	0 / 0
		WB TR	0.0	A	0 / 0	0.0	A	0 / 0
		SB LR	9.4	A	0 / 2	9.1	A	0 / 1
	Overall		--	--		--	--	
6	Essex Street at Brook Street and Ridge Street	EB TR	0.3	A	0 / 9	0.4	A	0 / 6
		WB LT	2.6	A	4 / 25	3.2	A	14 / 50
		--	--	--	--	--	--	--
		NB LR	8.1	A	5 / 22	8.5	A	17 / 42
	Overall		--	--		--	--	
7	Lupine Road at Ridge Street and School Street	NB LTR	14.9	B	0 / 20	15.4	C	0 / 30
		SB LTR	14.4	B	0 / 1	0.0	A	0 / 0
		SE LTR	0.1	A	0 / 0	0.2	A	0 / 0
		NW LTR	0.9	A	0 / 2	0.5	A	0 / 1
	Overall		--	--		--	--	
8	Lewis Street at North Main Street	EB LR	18.5	B	1 / 8	22.8	C	2 / 14
		NB LT	7.0	A	0 / 225	12.6	B	94 / 364
		SB TR	7.9	A	0 / 331	9.2	A	61 / 213
	Overall		***7.7***	***A***		***11.3***	***B***	
9	Pearson Street at North Main Street	EB LR	48.4	E	0 / 90	34.8	D	0 / 109
		NB LT	2.8	A	0 / 9	1.1	A	0 / 3
		SB TR	0.0	A	0 / 0	0.0	A	0 / 0
	Overall		--	--		--	--	
10	Central Street at Brook Street	NB T	0.0	A	0 / 0	0.0	A	0 / 0
		SB T	0.0	A	0 / 0	0.0	A	0 / 0
		SE LR	19.7	C	0 / 85	18.1	C	0 / 100
	Overall		--	--		--	--	

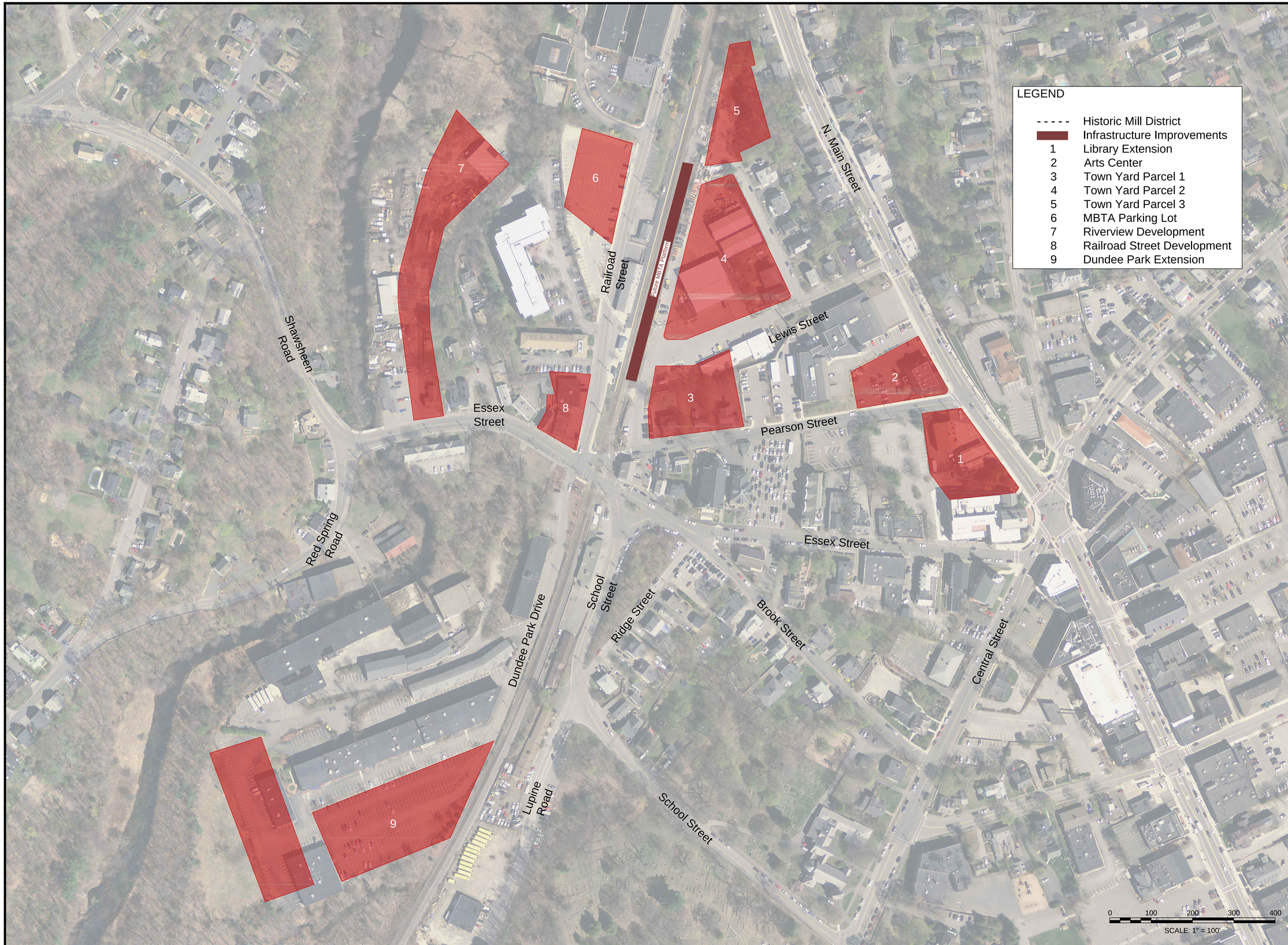
1 Delay = average delay in seconds per vehicle; 2 LOS = Level of Service; 3 Queue = 50th/95th percentile queue length (if only one queue length is shown, it is the 95th percentile queue length), # = volume for 95th percentile cycle exceeds capacity. Queue shown is maximum after two cycles; R = right-turn movement, L = left-turn movement, T = through movement; WB = westbound, EB = eastbound, NB = northbound, SB = southbound, NE = northeast-bound, SE = southeast-bound, SW = southwest-bound, NW = northwest-bound

4. POTENTIAL DEVELOPMENTS

As part of the redevelopment of the Historic Mill District, there are multiple parcels of land that have been identified by Gamble Associates that could potentially be developed.

4.1 Development Parcels

There are nine (9) development parcels identified as part of the Design Guidelines previously developed for the Historic Mill District (Gamble Associates, 2018). Seven (7) of these parcels are slated for development. These parcels have the potential to be developed into retail, office, and residential uses to enhance the area and transform the Historic Mill District into a Transit-Oriented Development (TOD). Figure 4.1 illustrates the development parcels and their corresponding potential land uses. The trip generation for each of the parcels is outlined in the subsequent sections.



NORTH

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcels - Historic Mill District

STAMP:

ANDOVER CIRCULATION AND STREET DESIGN STUDY

SHEET NAME:

Figure 4.1

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'

4.2 Trip Generation

The base trip generation rates for each of the parcels identified in Figure 4.1 were taken from the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE) in 2017. Land Use Code (LUC) 221 – Multifamily (Mid-Rise) and LUC 710 – Office were used for the proposed residential units and the proposed office space, respectively. For the proposed retail spaces, average trip generation rates were calculated for the Weekday AM and Weekday PM peak hours based on potential retail uses. Table 4.1 shows the calculations for the proposed retail spaces. Tables 4.2 to 4.11 show the proposed site-generated trip estimates for the Historic Mill District. Reductions for non-vehicular trips are discussed in Section 4.2.1.

Table 4.1: Trip Generation Average Rates – Proposed Retail Space

Land Use	Weekday AM Peak Hour	Weekday PM Peak Hour
Variety Store	3.18	6.84
Free Standing Discount Store	1.17	4.83
Convenience Market	62.54	49.11
Apparel Store	1.00	4.12
Pharmacy/Drugstore without Drive-Through Window	2.94	8.51
Drive-in Bank	9.50	20.45
Hair Salon	1.21	1.45
Fast Casual Restaurant	2.07	14.13
Quality Restaurant	0.73	7.80
High Turnover (Sit down) Restaurant	9.94	9.77
Coffee/Donut Shop without Drive-Through Window	101.14	36.31
Average	***17.77***	***13.61***

Table 4.2: Trip Generation Calculations – Parcel 3

Land Use Code: 221		Multifamily (Mid-Rise)
Development Parcel 3	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per # of Dwelling Units	75	75
Average Trip Generation Rate	0.36	0.44
Total Trips	27	33
Reduction for Other Modes (25%)	7	8
Adjusted Vehicle-Trips	**20**	**25**
Entering%	26%	61%
Exiting%	74%	39%
Entering Trips	5	15
Exiting Trips	15	10

Table 4.3: Trip Generation Calculations – Parcel 4

Land Use Code: 221		Multifamily (Mid-Rise)
Development Parcel 4	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per # of Dwelling Units	60	60
Average Trip Generation Rate	0.36	0.44
Total Trips	22	26
Reduction for Other Modes (25%)	6	7
Adjusted Vehicle-Trips	**16**	**19**
Entering%	28%	70%
Exiting%	72%	30%
Entering Trips	4	13
Exiting Trips	12	6

Table 4.4: Trip Generation Calculations – Parcel 4

Land Use Code:		Retail
Development Parcel 4	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per 1,000 sf	20.000	20.000
Average Trip Generation Rate	17.77	13.61
Total Trips	355	272
Reduction for Pass-By Trips (40%)	142	108.0
Adjusted Vehicle-Trips	**213**	**164**
Entering%	59%	50%
Exiting%	41%	50%
Entering Trips	126	82
Exiting Trips	87	82

Table 4.5: Trip Generation Calculations – Parcel 5

Land Use Code: 221		Multifamily (Mid-Rise)
Development Parcel 5	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per # of Dwelling Units	35	35
Average Trip Generation Rate	0.36	0.44
Total Trips	13	15
Reduction for Other Modes (25%)	3	4
Adjusted Vehicle-Trips	**10**	**11**
Entering%	26%	61%
Exiting%	74%	39%
Entering Trips	3	7
Exiting Trips	7	4

Table 4.6: Trip Generation Calculations – Parcel 6

Land Use Code: 221		Multifamily (Mid-Rise)
Development Parcel 6	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per # of Dwelling Units	60	60
Average Trip Generation Rate	0.36	0.44
Total Trips	22	26
Reduction for Other Modes (25%)	6	7
Adjusted Vehicle-Trips	**16**	**19**
Entering%	28%	70%
Exiting%	72%	30%
Entering Trips	4	13
Exiting Trips	12	6

Table 4.7: Trip Generation Calculations – Parcel 6

Land Use Code:		Retail
Development Parcel 6	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per 1,000 sf	19.400	19.400
Average Trip Generation Rate	17.77	13.61
Total Trips	345	264
Reduction for Pass-By Trips (40%)	138	106
Adjusted Vehicle-Trips	**207**	**158**
Entering%	59%	50%
Exiting%	41%	50%
Entering Trips	122	79
Exiting Trips	85	79

Table 4.8: Trip Generation Calculations – Parcel 7

Land Use Code: 221		Multifamily (Mid-Rise)
Development Parcel 7	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per # of Dwelling Units	90	90
Average Trip Generation Rate	0.36	0.44
Total Trips	32	40
Reduction for Other Modes (25%)	8	10
Adjusted Vehicle-Trips	**24**	**30**
Entering%	26%	61%
Exiting%	74%	39%
Entering Trips	6	18
Exiting Trips	18	12

Table 4.9: Trip Generation Calculations – Parcel 8

Land Use Code: 221		Multifamily (Mid-Rise)
Development Parcel 8	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per # of Dwelling Units	22	22
Average Trip Generation Rate	0.36	0.44
Total Trips	8	10
Reduction for Other Modes (25%)	2	3
Adjusted Vehicle-Trips	**6**	**7**
Entering%	26%	61%
Exiting%	74%	39%
Entering Trips	2	4
Exiting Trips	4	3

Table 4.10: Trip Generation Calculations – Parcel 9

Land Use Code: 221		Multifamily (Mid-Rise)
Development Parcel 9	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per # of Dwelling Units	90	90
Average Trip Generation Rate	0.36	0.44
Total Trips	32	40
Reduction for Other Modes (25%)	8	10
Adjusted Vehicle-Trips	**24**	**30**
Entering%	26%	61%
Exiting%	74%	39%
Entering Trips	6	18
Exiting Trips	18	12

Table 4.11: Trip Generation Calculations – Parcel 9

Land Use Code: 710		General Office Building
Development Parcel 9	Weekday AM Peak Hour	Weekday PM Peak Hour
Size - per 1,000 square feet	122.000	122.000
Average Trip Generation Rate	1.16	1.15
Total Trips	142	140
Reduction for Other Modes (10%)	14	14
Adjusted Vehicle-Trips	**128**	**126**
Entering%	86%	16%
Exiting%	14%	84%
Entering Trips	110	20
Exiting Trips	18	106

4.2.1 Percent Reduction from ITE Estimates

In a Transit-Oriented Development, a rail station in combination with mixed-use development and a more pedestrian- and bicycle-friendly street network, it is standard to assume a portion of new trips will be made without a vehicle. Trip generation rates were taken from the ITE *Trip Generation Manual 10th Edition*. ITE trip generation is used to determine the number of new vehicle-trips added to a network. The ITE manual does not provide vehicle-trip reductions for other modes depending on land uses within TODs. Percent reduction for other modes was split for residential, retail, and office. The subsequent sections provide descriptions of how the estimates of percent reductions for other modes from ITE vehicle-trip rates were determined. Assumptions for the percent of new trips made by other modes were made based on Transit Oriented Development studies, commute to work census data for the Town of Andover, Haverhill Commuter Line boarding and alighting information, and a previous Traffic Impact and Access Study for a project within the Town of Andover.

Residential

The reduction for other modes for the proposed residential land uses was estimated at 25%. This reduction was made based on a variety of data. First, 2012-2016 American Community Survey 5-Year Estimates for the commute to work mode split for Census Tract 2542 (where the HMD is located) shows that 25.5 % of Andover residents use alternative modes of transportation to commute to work (Public Transit 3.7%, Walk 10%, Bike .5%, Worked at Home 9.6%, Other 1.7%). Second, a Transit Cooperative Research Program (TCRP) study from 2008 compared actual trip generation for residential buildings located within a half mile radius of a transit stop to ITE Trip Generation rates. The study found that, on average, residential developments produced 50.82% of ITE estimates and 51.57% of ITE estimates for the Weekday AM and Weekday PM peak hours, respectively. The study also developed equations for trip generation based on the residential density in a half mile radius of a rail station:

AM Peak Hour:
Vehicle Trip Ends Per Dwelling Unit = .400 - .014(X), where x = # of dwelling units

PM Peak Hour:
Vehicle Trip Ends Per Dwelling Unit = .493 - .019(X), where x = # of dwelling units

New residential developments in the Historic Andover Mill District yield an estimated residential density of 13.5 dwelling units per acre. This yields an estimate of .211 vehicle-trip ends in the Weekday AM peak hour, which is 41% lower than the ITE estimate, and .237 vehicle-trip ends in the Weekday PM peak hour, which is 46% lower than the ITE estimate. In order to be conservative, considering the more suburban nature of the Town of Andover surrounding the development, the reduction was assumed to be equal to the alternative mode split for commute to work for the Town.

Retail

A 40% reduction to the ITE Trip Generation rates was assumed for the proposed retail land use developments. The reduction from ITE trip generation was based on an average pass-by trip rate from a variety of retail land uses. Pass-by trips are typically subtracted from ITE trip generation because they are not new trips to the network. Pass-by trips already pass through the network but will now make a stop along their original route at a new retail development. The retail land uses of the new developments are still to be determined. It is important to note that a portion of trips generated by new retail developments will also be internal trips from residents at the new developments, which would likely be mostly walk or bike trips due to the short trip distance. Table 4.12 shows the average pass-by rates for various retail land uses that could potentially be part of the redeveloped Historic Mill District.

Table 4.12: Average Pass-By Trip Percentages

Land Use	Average Pass-By Rate (%)
Variety Store	34
Free Standing Discount Store	17
Convenience Market	51
Pharmacy/Drugstore without Drive-Through Window	53
Drive-in Bank	32
Quality Restaurant	44
High Turnover (Sit down) Restaurant	43
Average	**39.14**

Office

A separate reduction for offices was calculated since many people will be commuting to these land uses from outside of Andover. The boarding and alighting data for the Andover commuter rail station on the Haverhill line was gathered from the MBTA *Commuter Rail Passenger Count Results Report* by the Boston Region Metropolitan Planning Organization in 2012. During the Weekday AM peak hour, 5% of passengers using the Andover Station alighted the train and during the Weekday PM peak hour, 4% of passengers using the Andover Station boarded the train. In addition to the percentage of commuters getting off at the Andover stop, 3.7% of Andover residents commute to work using transit. A TIAS produced by The Engineering Corp. (TEC) in 2018 for a mixed-use development on Dascomb Road in Andover assumed a 5% reduction of new trips for transit and is approximately 1.5 miles from the nearest commuter rail station at Ballardvale. Additionally, it is reasonable to assume that a percentage of the trips to the newly developed office space would be internal trips. Many of these trips may be made from the proposed residential developments, allowing them to walk or bike to work.

According to the ITE *Trip Generation Handbook, 3rd Edition*, average pass-by rates for some retail land uses include 43% for High-Turnover (Sit-Down) Restaurants, 44% for a Quality Restaurant and 41% for a Convenience Market. Given this information, a 10% reduction for the proposed office land use are reasonable given the surrounding infrastructure, MBTA transit, and information gathered for Transit-Oriented Developments.

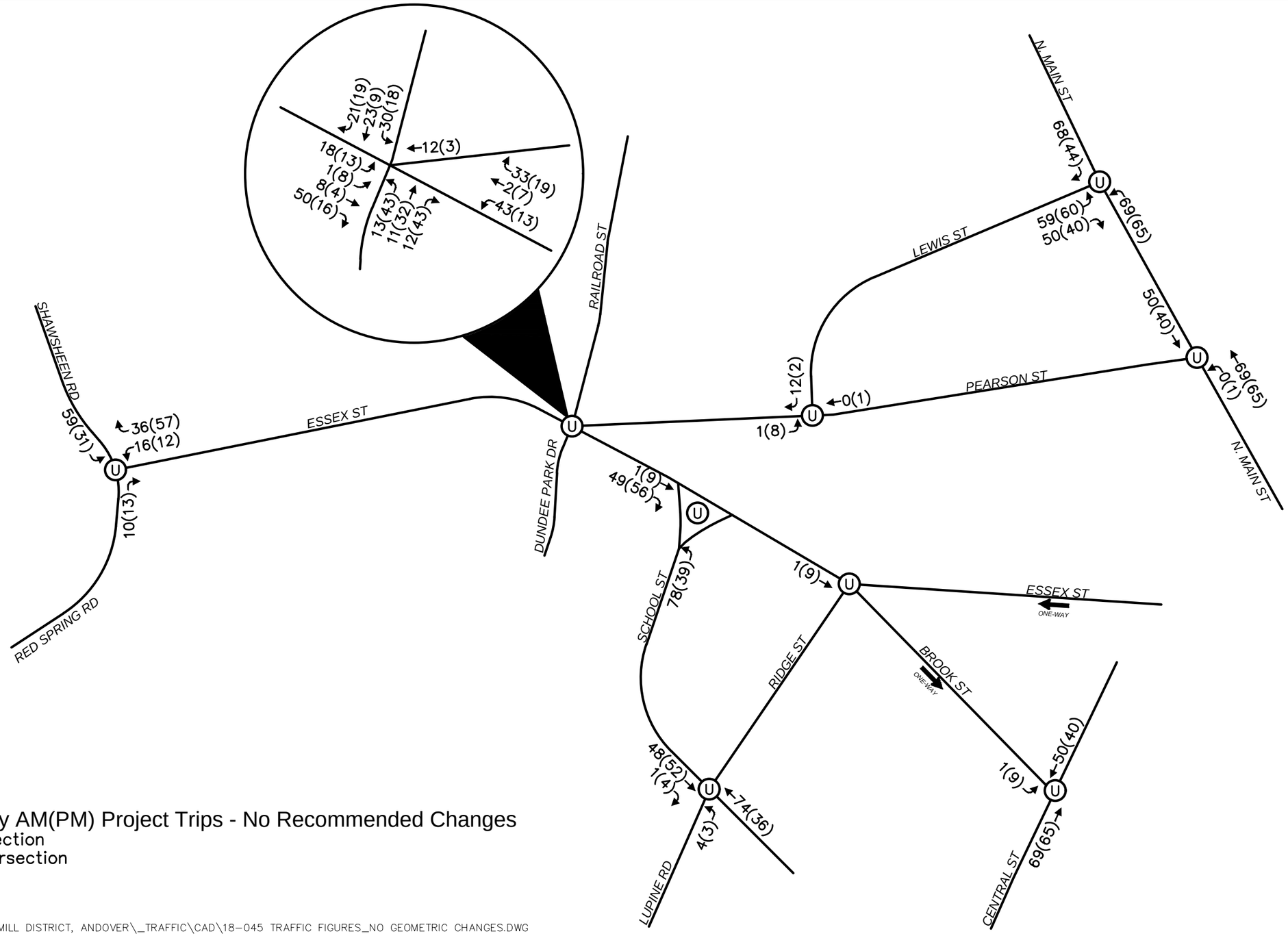
5. FUTURE BUILD CONDITIONS – NO RECOMMENDED CHANGES

The projected trips of the proposed developments were distributed onto the current traffic network with no recommended changes. The trips were distributed based on existing traffic movements along Essex Street and at the study intersections. The trip distribution percentages for each development parcel are attached in Appendix E. The Full Build Out Project Trips for this scenario are shown in Figure 5.1 and the Build volumes, used in the capacity analysis, are shown in Figure 5.2.

5.1 2025 Build with No Recommended Changes - Intersection Analysis

The study intersections were analyzed for 2025 Build with No Recommended Changes traffic conditions during the Weekday AM and Weekday PM peak hours. For this scenario, no recommended changes were incorporated into the traffic model. The existing traffic controls and street geometries were used. The results of this analysis are shown in Table 5.1. Detailed capacity analysis worksheets are included in Appendix J.

Compared with Table 3.1 in the No-Build section, Table 5.1 shows increases in both vehicle delay and level of service. These increases in delay are expected due to the increase in traffic volumes due to the proposed developments. There are 17 movements that decline in level of service as compared to the No-Build scenario. Four (4) of these movements decline to a LOS F and three (3) movements decline by 3+ levels of service. There are no movements that improve in level of service. The subsequent sections detail the changes in vehicle delay and level of service for each of the four (4) alternatives described in Section 1.5.

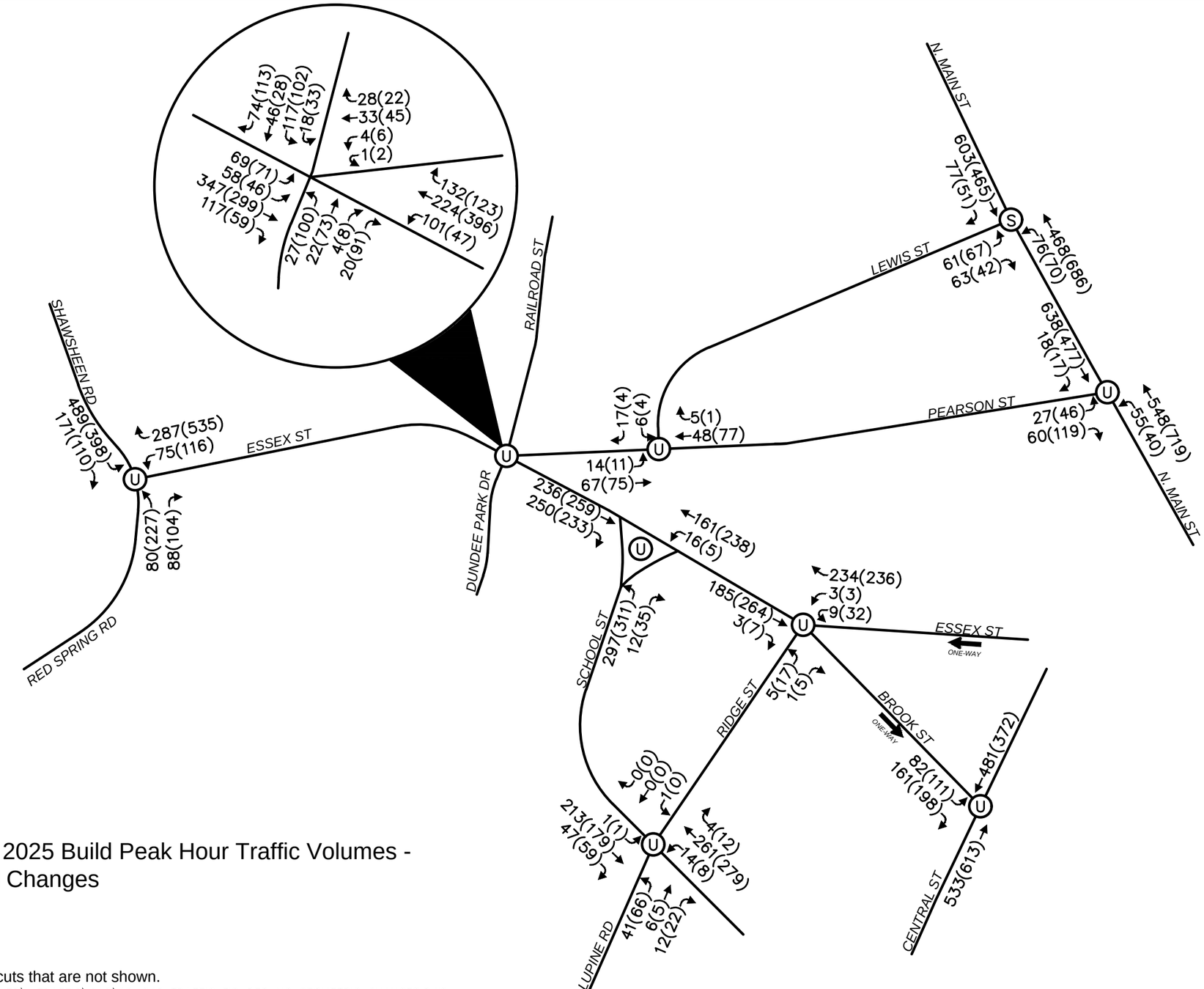


Legend

XX(XX) → Weekday AM(PM) Project Trips - No Recommended Changes
S = Signalized Intersection
U = Unsignalized Intersection

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_NO GEOMETRIC CHANGES.DWG

DCi Design Consultants Inc. Somerville - Quincy - Newburyport www.dci-ma.com	ANDOVER CIRCULATION AND STREET DESIGN STUDY ANDOVER, MA	Full Build Out Project Trips - No Geometric Changes	PROJECT NO: 2018-045
			DATE: APRIL 2019
			SCALE: N.T.S. / Figure 5.1



Legend

XX(XX) → Weekday AM(PM) 2025 Build Peak Hour Traffic Volumes - No Recommended Changes

S = Signalized Intersection

U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_NO GEOMETRIC CHANGES.DWG

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2025 Build Weekday Peak Hour Traffic Volumes - No Geometric Changes

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

Figure 5.2

Table 5.1: 2025 Build with No Recommended Changes - LOS

ID	Roadway	Movement	2025 Build without Mitgation Conditions - Full Build Out					
			Weekday AM Peak Hour			Weekday PM Peak Hour		
			Delay [1]	LOS [2]	Queue [3]	Delay [1]	LOS [2]	Queue [3]
1	Shawsheen Road at Essex Street and Red Spring Road	SB TR	1.8	A	1 / 8	1.1	A	1 / 9
		WB LR	6.2	A	42 / 105	4.4	A	44 / 103
		NB LR	15.1	C	66 / 125	50.0	F	193 / 341
	Overall		--	--		--	--	
2	Pearson Street at Dundee Park Drive / Railroad Street and Essex Street	WB LTR	12.8	B	27 / 54	21.8	C	35 / 69
		NB LTR	56.0	F	64 / 139	130.6	F	200 / 263
		SB LTR	165.4	F	376 / 691	177.6	F	413 / 706
		SE LTR	4.4	A	33 / 105	5.1	A	47 / 111
		NW LTR	3.4	A	38 / 71	2.2	A	31 / 64
	Overall		--	--		--	--	
3/4	Essex Street at School Street	EB TR	1.2	A	2 / 12	1.0	A	5 / 25
		WB LT	1.2	A	0 / 2	0.6	A	0 / 1
		NB L	10.4	B	39 / 66	10.5	B	42 / 72
		NB R	9.8	A	0 / 2	10.3	B	0 / 7
	Overall		--	--		--	--	
5	Pearson Street at Lewis Street	EB LT	1.4	A	0 / 1	1.1	A	0 / 1
		WB TR	0.0	A	0 / 0	0.0	A	0 / 0
		SB LR	9.3	A	0 / 5	9.5	A	0 / 2
	Overall		--	--		--	--	
6	Essex Street at Brook Street and Ridge Street	EB TR	0.2	A	0 / 2	0.4	A	1 / 10
		WB LT	1.7	A	4 / 24	2.6	A	15 / 52
		--	--	--	--	--	--	--
		NB LR	4.4	A	4 / 22	7.6	A	13 / 37
	Overall		--	--		--	--	
7	Lupine Road at Ridge Street and School Street	NB LTR	18.9	C	0 / 29	21.3	C	0 / 52
		SB LTR	17.3	C	0 / 1	0.0	A	0 / 0
		SE LTR	0.1	A	0 / 0	0.1	A	0 / 0
		NW LTR	0.8	A	0 / 2	0.4	A	0 / 1
	Overall		--	--		--	--	
8	Lewis Street at North Main Street	EB LR	46.2	D	121 / 91	47.3	D	115 / 91
		NB LT	116.5	F	569 / #800	77.9	E	726 / #971
		SB TR	19.1	B	352 / 611	14.0	B	217 / 372
	Overall		**62.2**	**E**		**52.4**	**D**	
9	Pearson Street at North Main Street	EB LR	93.9	F	0 / 138	148.3	F	0 / 280
		NB LT	3.0	A	0 / 10	1.8	A	0 / 6
		SB TR	0.0	A	0 / 0	0.0	A	0 / 0
	Overall		--	--		--	--	
10	Central Street at Brook Street	NB T	0.0	A	0 / 0	0.0	A	0 / 0
		SB T	0.0	A	0 / 0	0.0	A	0 / 0
		SE LR	24.3	C	0 / 106	28.8	D	0 / 150
	Overall		--	--		--	--	

1 Delay = average delay in seconds per vehicle; 2 LOS = Level of Service; 3 Queue = 50th/95th percentile queue length (if only one queue length is shown, it is the 95th percentile queue length), # = volume for 95th percentile cycle exceeds capacity. Queue shown is maximum after two cycles; R = right-turn movement, L = left-turn movement, T = through movement; WB = westbound, EB = eastbound, NB = northbound, SB = southbound, NE = northeast-bound, SE = southeast-bound, SW = southwest-bound, NW = northwest-bound

6. FUTURE BUILD CONDITIONS – ALTERNATIVE 1

Alternative 1 incorporates geometric changes that will simplify movements through intersections and make them safer for all users. It will also alter the circulation of select roadways to provide a simpler overall circulation pattern throughout the Historic Mill District. As previously mentioned in Section 1, the following elements were incorporated into Alternative 1 only:

Intersections

Essex Street at School Street

- Relocate the existing Depot Pizza building to add a cut-through to Pearson Street to make a four-way intersection ("Lewis Street Extension")
- Add STOP-sign at Lewis Street Extension
- Add crosswalk across the new Lewis Street approach

Pearson Street at Lewis Street

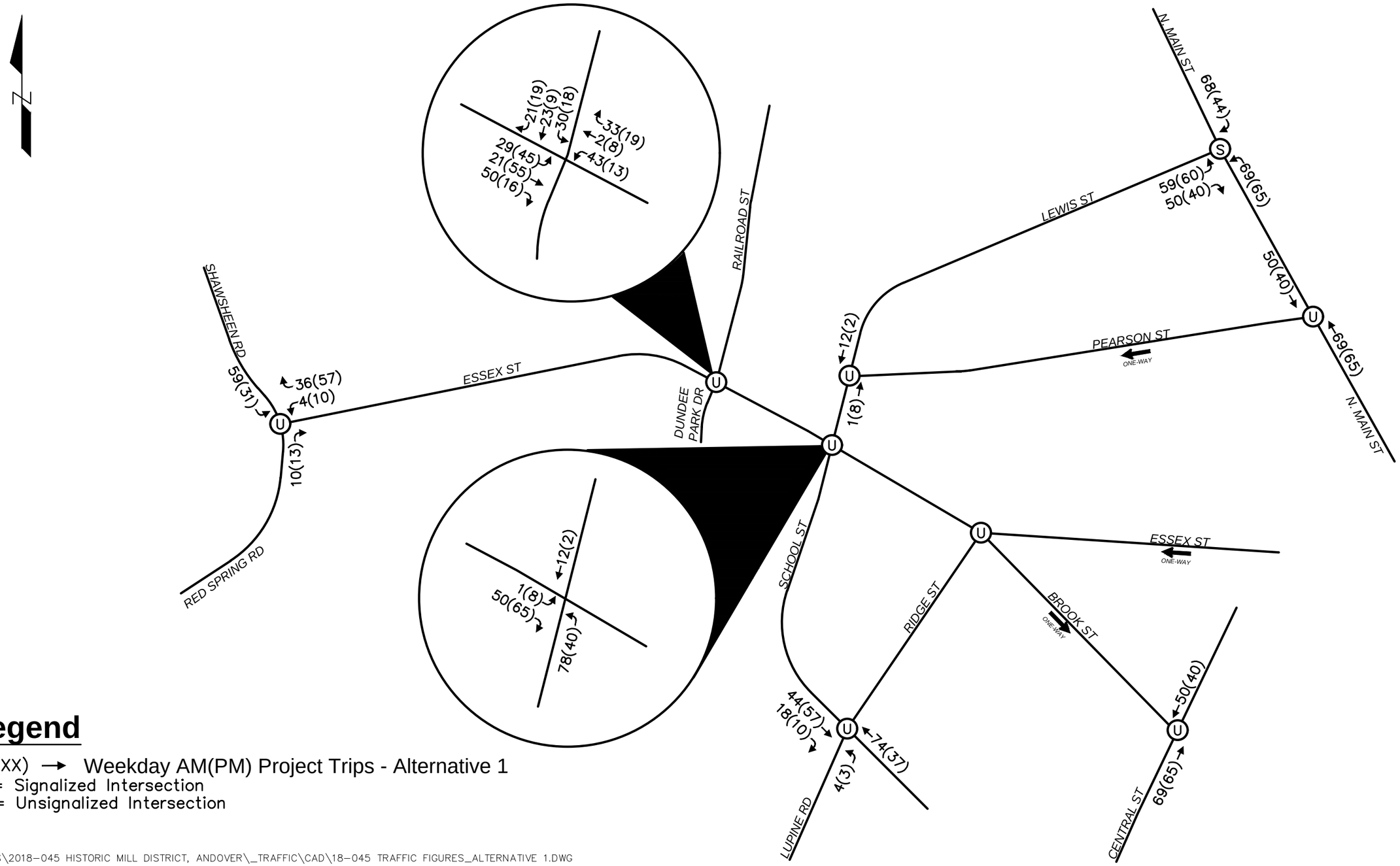
- Tighten the curb radius along the Lewis Street approach, making the approach narrower and more defined
- Make Pearson Street one-way in the southwesterly direction from North Main Street
- Add a designated bicycle lane from N. Main Street to Lewis Street
- Maintain and better define parking along the north side of the roadway

Based on these changes, the trip distributions and associated trips for each development were determined and are attached in Appendix F. The Full Build Out Project Trips for this scenario are shown in Figure 6.1 and the Build volumes, used in the capacity analysis, are shown in Figure 6.2.

6.1 2025 Build Alternative 1 - Intersection Analysis

The study intersections were analyzed for 2025 Build Alternative 1 traffic conditions during the Weekday AM and Weekday PM peak hours. For this scenario, all recommended geometrical changes detailed above and in Section 1 were incorporated into the traffic model. The results of this analysis are shown in Table 6.1. Detailed capacity analysis worksheets are included in Appendix J.

As shown in Table 6.1, there are 13 movements that decline in level of service as compared to the No-Build scenario. One (1) movement declines by 3+ levels of service. There is also one movement, the northbound movement along Red Spring Road during the Weekday PM peak hour, which improves in LOS due to the addition of exclusive turn lanes.



Legend

XX(XX) → Weekday AM(PM) Project Trips - Alternative 1
S = Signalized Intersection
U = Unsignalized Intersection

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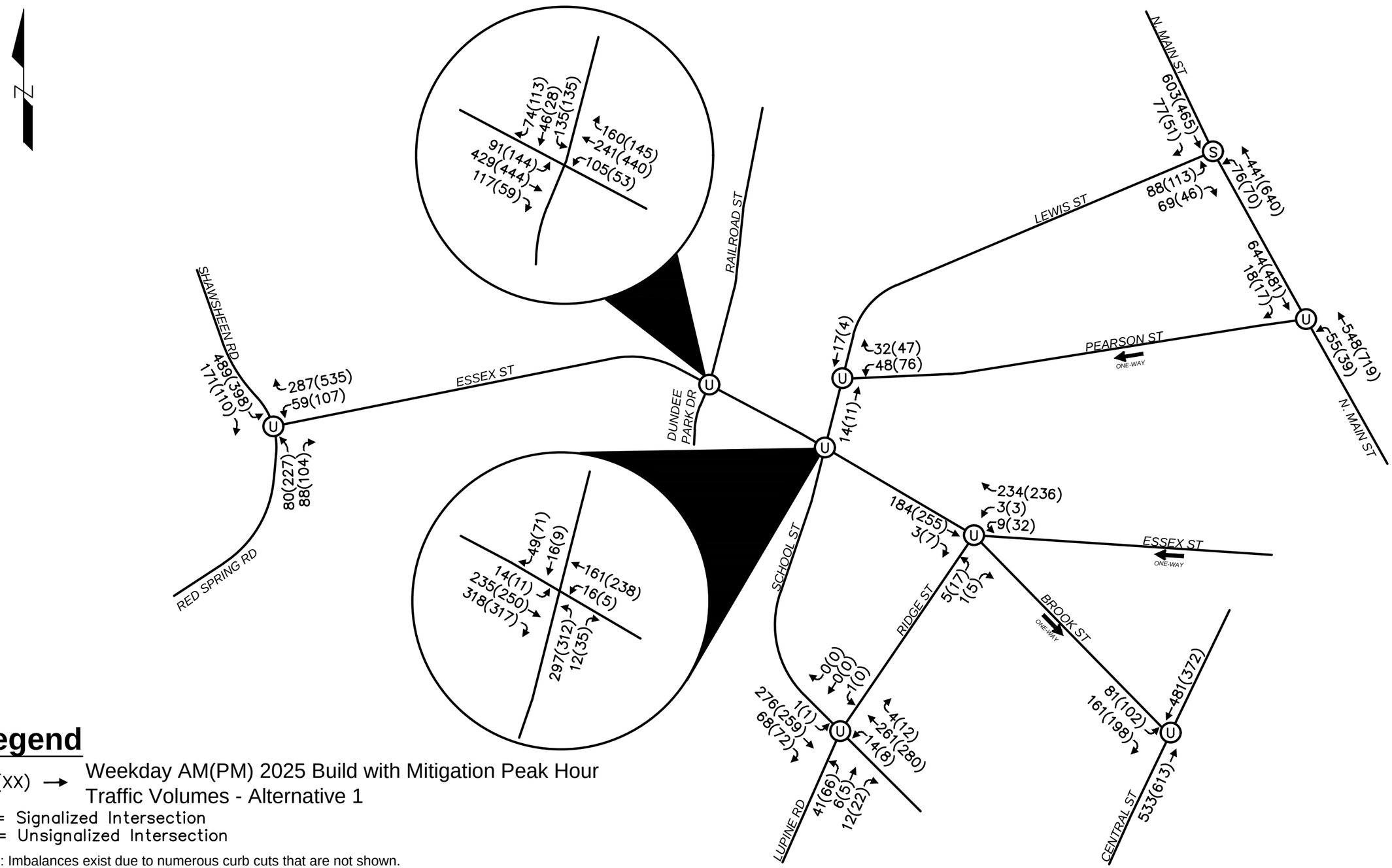
			DATE: APRIL 2019
			SCALE: N.T.S. / Figure 6.1



Legend

XX(XX) → Weekday AM(PM) 2025 Build with Mitigation Peak Hour Traffic Volumes - Alternative 1

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_ALTERNATIVE 1.DWG

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2025 Build Weekday Peak Hour Traffic Volumes - Alternative 1

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

Figure 6.2

Table 6.1: 2025 Build Alternative 1 - LOS

ID	Roadway	Movement	2025 Build Alternative 1 - Full Build Out					
			Weekday AM Peak Hour			Weekday PM Peak Hour		
			Delay [1]	LOS [2]	Queue [3]	Delay [1]	LOS [2]	Queue [3]
1	Shawsheen Road at Essex Street and Red Spring Road	SB TR	2.2	A	4 / 60	2.8	A	8 / 114
		WB LR	5.7	A	42 / 109	4.8	A	45 / 124
		NB LR	13.8	B	82 / 156	36.3	E	131 / 494
	Overall		--	--		--	--	
2	Pearson Street at Dundee Park Drive / Railroad Street and Essex Street	WB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		NB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		SB LTR	253.5	F	476 / 816	189.3	F	436 / 712
		SE LTR	5.5	A	55 / 157	10.2	A	110 / 273
		NW LTR	4.5	A	58 / 107	5.3	A	39 / 95
	Overall		--	--		--	--	
3/4	Essex Street at School Street Lewis Street	EB TR	1.9	A	7 / 34	1.8	A	7 / 38
		WB LT	3.8	A	11 / 44	2.4	A	3 / 24
		NB LTR	16.4	C	157 / 371	20.9	C	201 / 444
		SB LTR	13.6	B	30 / 52	16.7	C	33 / 56
	Overall		--	--		--	--	
5	Pearson Street at Lewis Street	WB LR	8.9	A	0 / 7	9.0	A	0 / 11
		NB TR	0.0	A	0 / 0	0.0	A	0 / 0
		SB LT	0.0	A	0 / 0	0.0	A	0 / 0
	Overall		--	--		--	--	
6	Essex Street at Brook Street and Ridge Street	EB TR	0.7	A	0 / 2	0.9	A	0 / 4
		WB LT	2.4	A	4 / 23	2.1	A	11 / 40
		--	--	--	--	--	--	--
		NB LR	8.0	A	5 / 22	6.0	A	14 / 39
	Overall		--	--		--	--	
7	Lupine Road at Ridge Street and School Street	NB LTR	22.0	C	0 / 35	26.9	D	0 / 67
		SB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		SE LTR	0.1	A	0 / 0	0.1	A	0 / 0
		NW LTR	0.8	A	0 / 2	0.5	A	0 / 1
	Overall		--	--		--	--	
8	Lewis Street at North Main Street	EB LR	56.1	E	114 / 111	36.5	D	83 / 107
		NB LT	15.4	B	124 / 295	24.3	C	191 / 480
		SB TR	17.2	B	178 / 489	16.7	B	113 / 317
	Overall		**23.1**	**C**		**23.9**	**C**	
9	Pearson Street at North Main Street	EB LR	N/A	N/A	N/A	N/A	N/A	N/A
		NB LT	3.0	A	0 / 10	1.8	A	0 / 5
		SB TR	0.0	A	0 / 0	0.0	A	0 / 0
	Overall		--	--		--	--	
10	Central Street at Brook Street	NB T	0.0	A	0 / 0	0.0	A	0 / 0
		SB T	0.0	A	0 / 0	0.0	A	0 / 0
		SE LR	24.1	C	0 / 105	26.0	D	0 / 134
	Overall		--	--		--	--	

1 Delay = average delay in seconds per vehicle; 2 LOS = Level of Service; 3 Queue = 50th/95th percentile queue length (if only one queue length is shown, it is the 95th percentile queue length), # = volume for 95th percentile cycle exceeds capacity. Queue shown is maximum after two cycles; R = right-turn movement, L = left-turn movement, T = through movement; WB = westbound, EB = eastbound, NB = northbound, SB = southbound, NE = northeast-bound, SE = southeast-bound, SW = southwest-bound, NW = northwest-bound

7. FUTURE BUILD CONDITIONS – ALTERNATIVE 1A (PREFERRED)

Alternative 1A, which is the preferred alternative, incorporates similar geometric changes that Alternative 1 includes. As previously mentioned in Section 1, the following elements were incorporated into Alternative 1A only:

Intersections

School Street at Lupine Road

- Add exclusive right-turn and left-turn lanes along Lupine Road in the northbound direction

Dundee Park Driveway at Lupine Road

- Add a new Dundee Park Entrance/Exit onto Lupine Road.

North Main Street (Route 28) at Lewis Street

- Make Lewis Street one-way in the northeasterly direction towards North Main Street
- Make an exclusive right-turn and exclusive left-turn lane along Lewis Street

North Main Street (Route 28) at Pearson Street

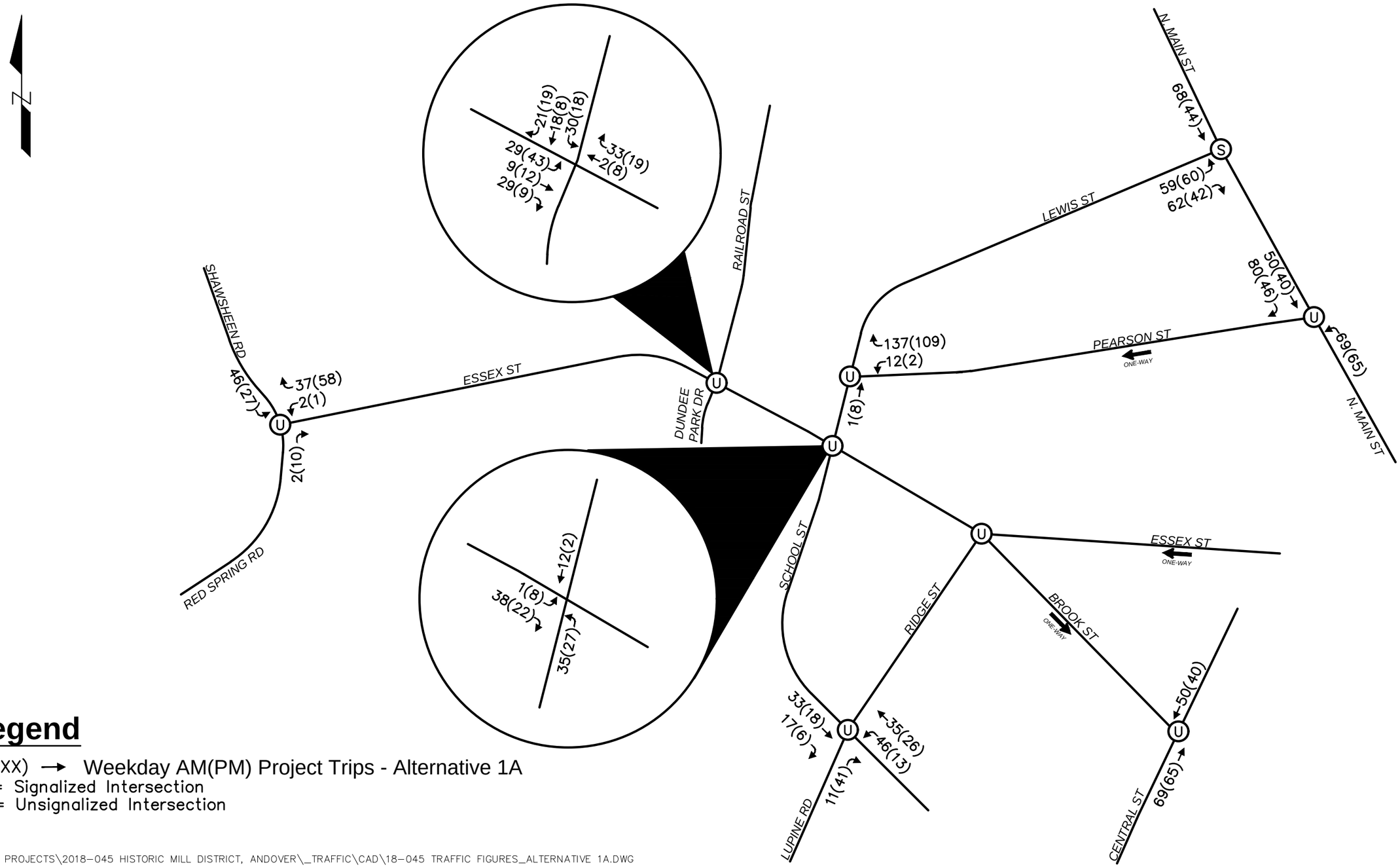
- Make an exclusive left-turn lane along N. Main Street in the northbound direction to accommodate increase in turning vehicles

Based on these changes, the trip distributions and associated project trips for each development were determined and are attached in Appendix G. The Full Build Out Project Trips for this scenario are shown in Figure 7.1 and the Build volumes, used in the capacity analysis, are shown in Figure 7.2.

7.1 2025 Build Alternative 1A - Intersection Analysis

The study intersections were analyzed for 2025 Build Alternative 1A traffic conditions during the Weekday AM and Weekday PM peak hours. For this scenario, all recommended geometrical changes detailed above and in Section 1 were incorporated into the traffic model. The results of this analysis are shown in Table 7.1. Detailed capacity analysis worksheets are included in Appendix J.

As shown in Table 7.1, there are 10 movements that decline in level of service as compared to the No-Build scenario. Zero (0) of the movements decline by 3+ levels of service. There are two (2) movements, the northbound movement along Red Spring Road during the Weekday PM peak hour and the southbound movement along Railroad Street during the Weekday AM peak hour, which improve in LOS.



Legend

XX(XX) → Weekday AM(PM) Project Trips - Alternative 1A
S = Signalized Intersection
U = Unsignalized Intersection

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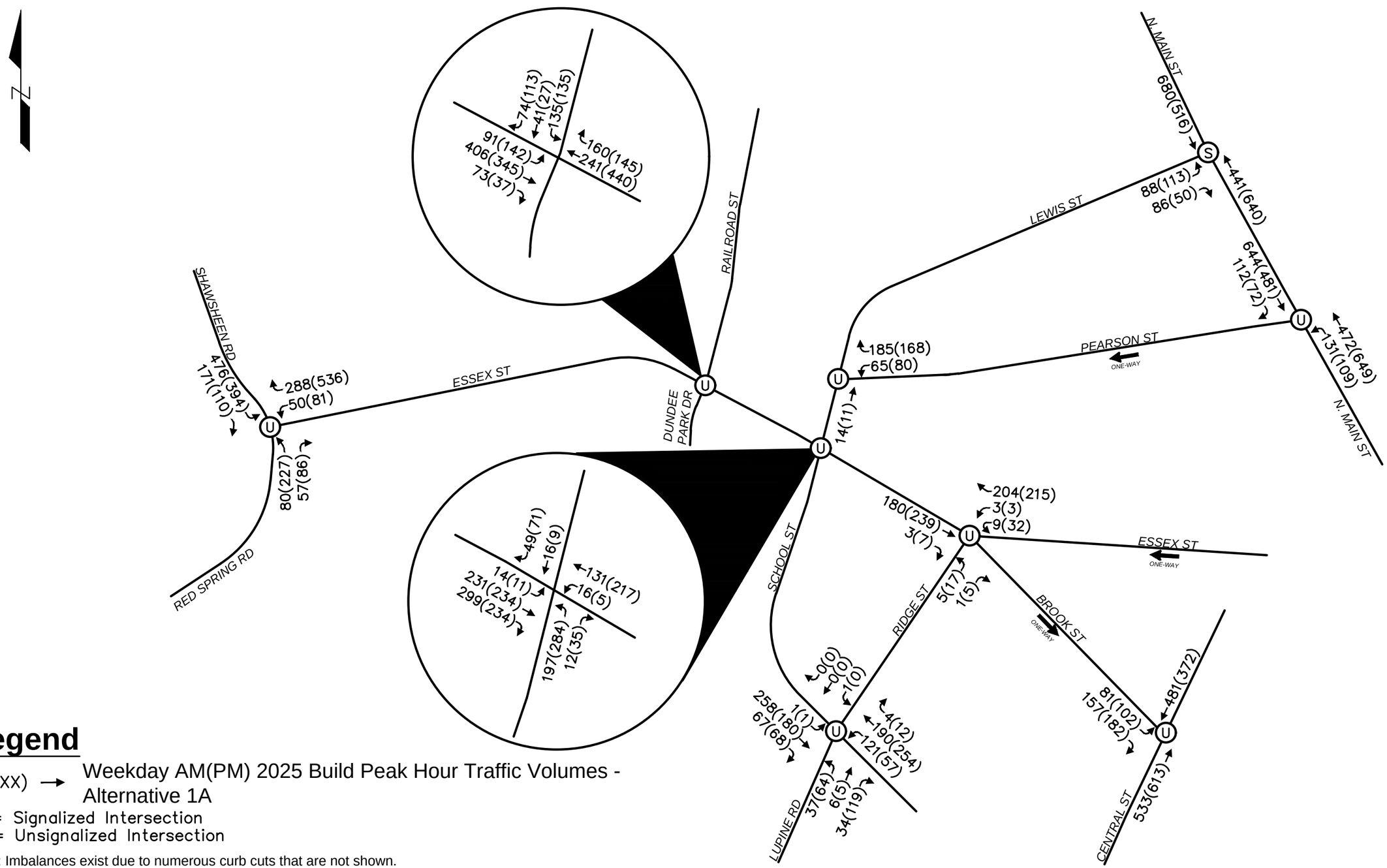
			SCALE: N.T.S. / Figure 7.1



Legend

XX(XX) → Weekday AM(PM) 2025 Build Peak Hour Traffic Volumes - Alternative 1A

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

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2025 Build Weekday Peak Hour Traffic Volumes - Alternative 1A

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

Figure 7.2

Table 7.1: 2025 Build Alternative 1A - LOS

ID	Roadway	Movement	2025 Build Alternative 1A - Full Build Out					
			Weekday AM Peak Hour			Weekday PM Peak Hour		
			Delay [1]	LOS [2]	Queue [3]	Delay [1]	LOS [2]	Queue [3]
1	Shawsheen Road at Essex Street and Red Spring Road	SB TR	1.8	A	2 / 13	1.1	A	1 / 7
		WB LR	5.4	A	39 / 105	4.0	A	35 / 92
		NB LR	12.1	B	72 / 138	29.7	D	205 / 441
	Overall		--	--		--	--	
2	Pearson Street at Dundee Park Drive / Railroad Street and Essex Street	WB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		NB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		SB LTR	42.3	E	136 / 307	109.2	F	283 / 551
		SE LTR	4.0	A	40 / 107	5.9	A	70 / 158
		NW LTR	1.0	A	6 / 31	1.0	A	8 / 31
	Overall		--	--		--	--	
3/4	Essex Street at School Street Lewis Street	EB TR	1.6	A	5 / 26	2.0	A	3 / 24
		WB LT	3.8	A	9 / 38	2.9	A	4 / 26
		NB LTR	6.9	A	73 / 141	14.2	B	131 / 275
		SB LTR	6.7	A	29 / 52	8.7	A	32 / 51
	Overall		--	--		--	--	
5	Pearson Street at Lewis Street	WB LR	9.7	A	0 / 26	9.6	A	0 / 26
		NB TR	0.0	A	0 / 0	0.0	A	0 / 0
		SB LT	0.0	A	0 / 0	0.0	A	0 / 0
	Overall		--	--		--	--	
6	Essex Street at Brook Street and Ridge Street	EB TR	0.7	A	0 / 2	0.8	A	0 / 4
		WB LT	2.3	A	4 / 24	2.4	A	14 / 49
		--	--	--	--	--	--	--
		NB LR	7.9	A	5 / 22	7.1	A	15 / 40
	Overall		--	--		--	--	
7	Lupine Road at Ridge Street and School Street	NB LTR	40.3	E	0 / 84	19.7	C	0 / 68
		SB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		SE LTR	0.1	A	0 / 0	0.1	A	0 / 0
		NW LTR	5.8	A	0 / 22	2.7	A	0 / 8
	Overall		--	--		--	--	
8	Lewis Street at North Main Street	EB LR	22.6	C	43 / 91	27.4	C	59 / 103
		NB LT	12.6	B	82 / 235	21.8	C	160 / 408
		SB TR	19.1	B	146 / 458	14.9	B	104 / 296
	Overall		***17.7***	***B***		***20.4***	***C***	
9	Pearson Street at North Main Street	EB LR	N/A	N/A	N/A	N/A	N/A	N/A
		NB LT	3.7	A	0 / 35	1.9	A	0 / 19
		SB TR	0.0	A	0 / 0	0.0	A	0 / 0
	Overall		--	--		--	--	
10	Central Street at Brook Street	NB T	0.0	A	0 / 0	0.0	A	0 / 0
		SB T	0.0	A	0 / 0	0.0	A	0 / 0
		SE LR	24.1	C	0 / 104	26.4	D	0 / 129
	Overall		--	--		--	--	

1 Delay = average delay in seconds per vehicle; 2 LOS = Level of Service; 3 Queue = 50th/95th percentile queue length (if only one queue length is shown, it is the 95th percentile queue length), # = volume for 95th percentile cycle exceeds capacity. Queue shown is maximum after two cycles; R = right-turn movement, L = left-turn movement, T = through movement; WB = westbound, EB = eastbound, NB = northbound, SB = southbound, NE = northeast-bound, SE = southeast-bound, SW = southwest-bound, NW = northwest-bound

8. FUTURE BUILD CONDITIONS – ALTERNATIVE 2

Alternative 2 incorporates some of the same geometric changes as Alternative 1, with the biggest difference being at the intersection of Pearson Street and Lewis Street. Alternative 1 will incorporate a cut-through that will connect Essex Street with Pearson Street. Alternative 2 will still eliminate the connection of Pearson Street to the Essex Street at Railroad Street and Dundee Park Drive intersection, but will not incorporate a cut-through to Essex Street. Instead, Pearson Street and Lewis Street will be connected by a bend in the roadway that will continue provide for two-way traffic along Pearson Street. As previously mentioned in Section 1, the following elements were incorporated into Alternative 2 only:

Intersections

Essex Street at School Street

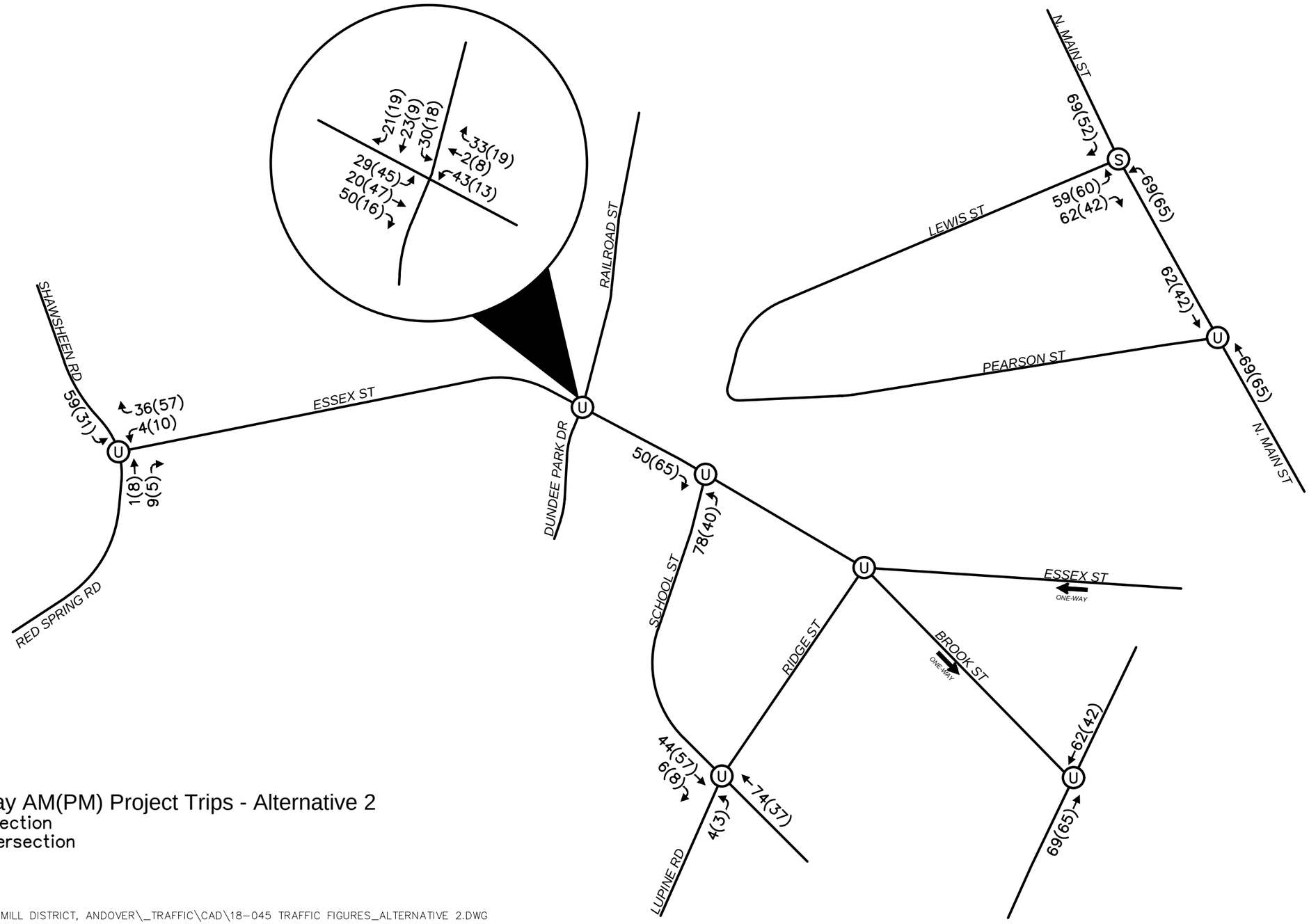
- Retain the existing Depot Pizza building, connecting Pearson Street and Lewis Street, while maintaining Pearson Street as a two-way street.

Based on this change, the trip distributions and associated project trips for each development were determined and are attached in Appendix H. The Full Build Out Project Trips for this scenario are shown in Figure 8.1 and the Build volumes, used in the capacity analysis, are shown in Figure 8.2.

8.1 2025 Build Alternative 2 - Intersection Analysis

The study intersections were analyzed for 2025 Build Alternative 2 traffic conditions during the Weekday AM and Weekday PM peak hours. For this scenario, all recommended geometrical changes detailed above and in Section 1 were incorporated into the traffic model. The results of this analysis are shown in Table 8.1. Detailed capacity analysis worksheets are included in Appendix J.

As shown in Table 8.1, there are 15 movements that decline in level of service as compared to the No-Build scenario. There are also two (2) movements that improve in level of service. The northbound movement along Red Spring Road improves from a LOS F to a LOS E during the Weekday PM Peak Hour and the eastbound movement along Pearson Street at its intersection with N. Main Street improves from a LOS E to a LOS D during the Weekday AM Peak Hour. Zero (0) movements decline by 3+ levels of service or to a LOS F during either peak hour.



Legend

XX(XX) → Weekday AM(PM) Project Trips - Alternative 2
S = Signalized Intersection
U = Unsignalized Intersection

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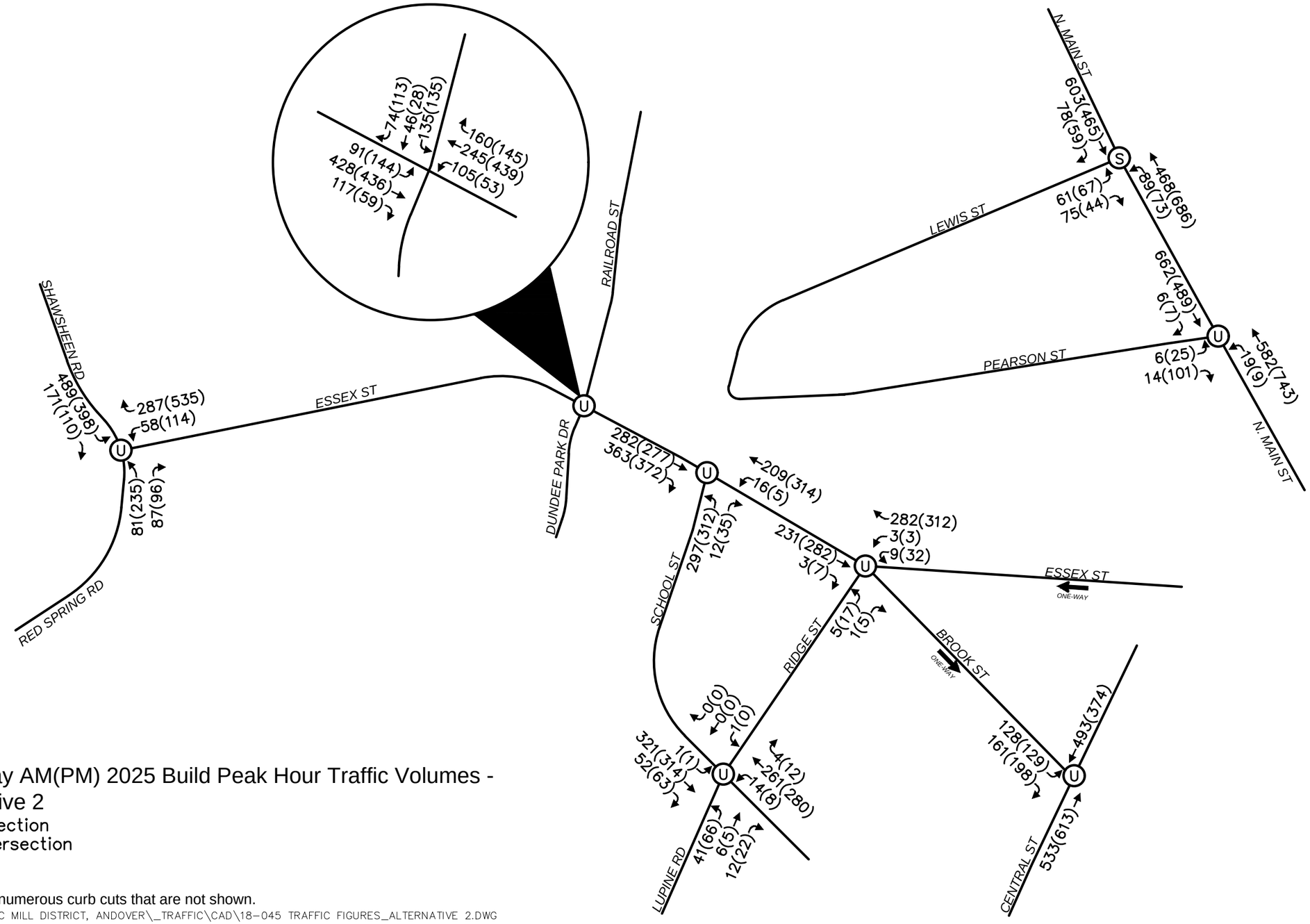
PROJECT NO: 2018-045
DATE: APRIL 2019
SCALE: N.T.S.
Figure 8.1



Legend

XX(XX) → Weekday AM(PM) 2025 Build Peak Hour Traffic Volumes - Alternative 2

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

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2025 Build Weekday Peak Hour Traffic Volumes - Alternative 2

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

Figure 8.2

Table 8.1: 2025 Build Alternative 2 - LOS

ID	Roadway	Movement	2025 Build Alternative 2 - Full Build Out					
			Weekday AM Peak Hour			Weekday PM Peak Hour		
			Delay [1]	LOS [2]	Queue [3]	Delay [1]	LOS [2]	Queue [3]
1	Shawsheen Road at Essex Street and Red Spring Road	SB TR	1.8	A	1 / 7	1.2	A	1 / 10
		WB LR	5.2	A	30 / 89	4.8	A	54 / 128
		NB LR	12.2	B	81 / 145	38.5	E	251 / 516
	Overall		--	--		--	--	
2	Pearson Street at Dundee Park Drive / Railroad Street and Essex Street	WB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		NB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		SB LTR	103.2	F	262 / 522	157.6	F	382 / 673
		SE LTR	4.3	A	39 / 107	6.4	A	83 / 179
		NW LTR	4.4	A	61 / 115	3.5	A	43 / 106
	Overall		--	--		--	--	
3/4	Essex Street at School Street Lewis Street	EB TR	1.6	A	9 / 37	1.8	A	7 / 34
		WB LT	5.4	A	14 / 52	3.5	A	8 / 40
		NB LTR	16.9	C	125 / 263	20.9	C	180 / 386
		SB LTR	N/A	N/A	N/A	N/A	N/A	N/A
	Overall		--	--		--	--	
5	Pearson Street at Lewis Street	WB LR	N/A	N/A	N/A	N/A	N/A	N/A
		NB T	N/A	N/A	N/A	N/A	N/A	N/A
		SB T	N/A	N/A	N/A	N/A	N/A	N/A
	Overall		--	--		--	--	
6	Essex Street at Brook Street and Ridge Street	EB TR	0.7	A	0 / 0	1.0	A	1 / 7
		WB LT	1.9	A	5 / 28	3.0	A	17 / 60
		--	--	--	--	--	--	--
		NB LR	3.1	A	4 / 21	8.3	A	16 / 42
	Overall		--	--		--	--	
7	Lupine Road at Ridge Street and School Street	NB LTR	23.6	C	0 / 39	31.1	D	0 / 78
		SB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		SE LTR	0.1	A	0 / 0	0.1	A	0 / 0
		NW LTR	0.9	A	0 / 2	0.5	A	0 / 1
	Overall		--	--		--	--	
8	Lewis Street at North Main Street	EB LR	49.4	D	89 / 87	42.6	D	55 / 75
		NB LT	15.8	B	118 / 298	20.7	C	176 / #536
		SB TR	15.3	B	150 / 446	11.9	B	85 / 278
	Overall		**20.4**	**C**		**20.3**	**C**	
9	Pearson Street at North Main Street	EB LR	29.5	D	0 / 14	38.3	E	0 / 99
		NB LT	1.1	A	0 / 3	0.4	A	0 / 1
		SB TR	0.0	A	0 / 0	0.0	A	0 / 0
	Overall		--	--		--	--	
10	Central Street at Brook Street	NB T	0.0	A	0 / 0	0.0	A	0 / 0
		SB T	0.0	A	0 / 0	0.0	A	0 / 0
		SE LR	43.5	E	0 / 191	36.7	E	0 / 186
	Overall		--	--		--	--	

1 Delay = average delay in seconds per vehicle; 2 LOS = Level of Service; 3 Queue = 50th/95th percentile queue length (if only one queue length is shown, it is the 95th percentile queue length), # = volume for 95th percentile cycle exceeds capacity. Queue shown is maximum after two cycles; R = right-turn movement, L = left-turn movement, T = through movement; WB = westbound, EB = eastbound, NB = northbound, SB = southbound, NE = northeast-bound, SE = southeast-bound, SW = southwest-bound, NW = northwest-bound

9. FUTURE BUILD CONDITIONS – ALTERNATIVE 2A

Alternative 2A incorporates all of the geometric changes as Alternative 2 with the addition of others. As previously mentioned in Section 1, the following elements were incorporated into Alternative 2A only:

Intersections

School Street at Lupine Road

- Add exclusive right-turn and left-turn lanes along Lupine Road in the northbound direction

Dundee Park Driveway at Lupine Road

- Add a new Dundee Park Entrance/Exit onto Lupine Road.

North Main Street (Route 28) at Lewis Street

- Make Lewis Street one-way in the northeasterly direction towards North Main Street
- Make an exclusive right-turn and exclusive left-turn lane along Lewis Street

North Main Street (Route 28) at Pearson Street

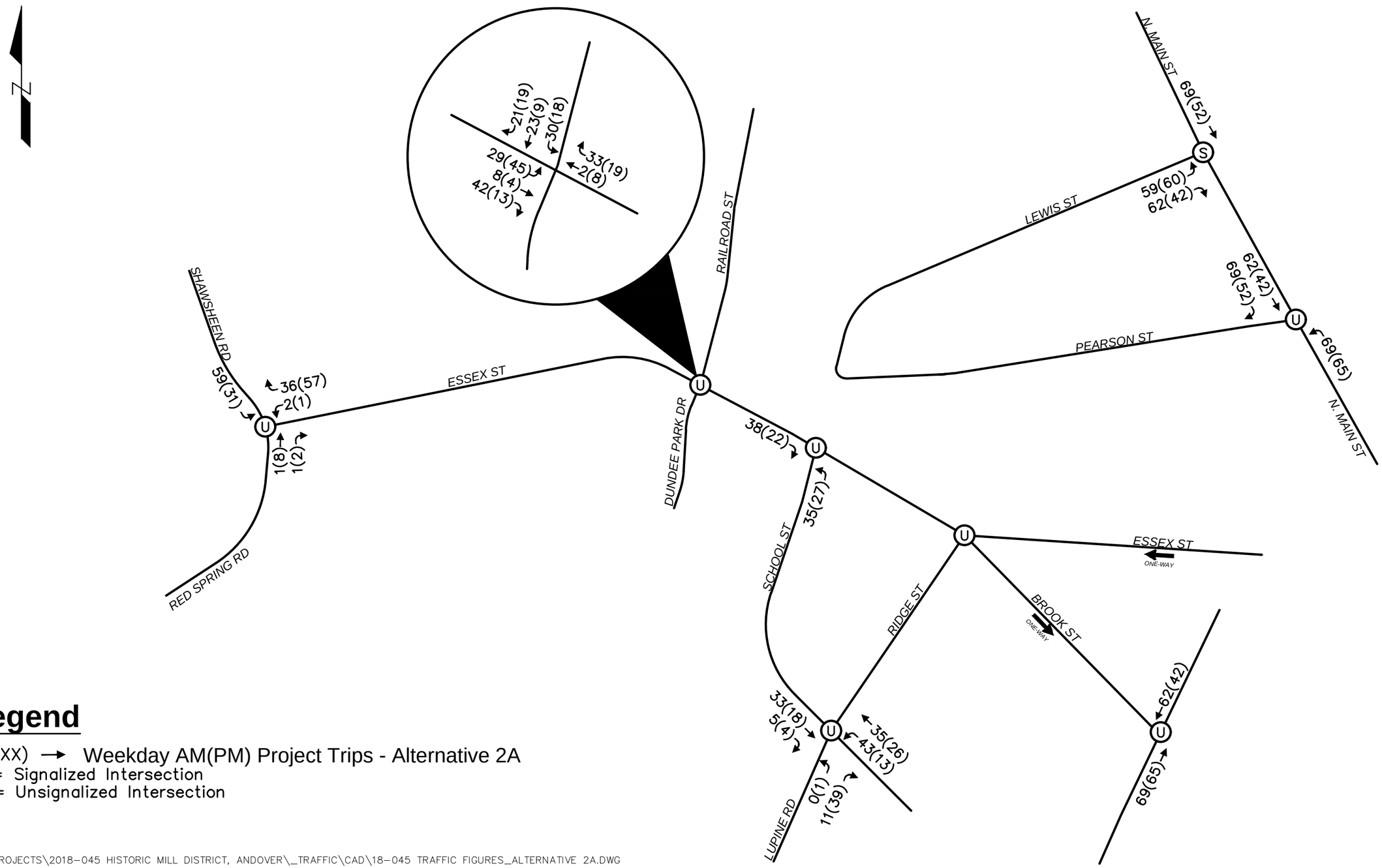
- Make an exclusive left-turn lane along N. Main Street in the northbound direction to accommodate increase in turning vehicles
- Make Pearson Street one-way in the southwesterly direction

Based on these changes, the trip distributions and associated project trips for each development were determined and are attached in Appendix I. The Full Build Out Project Trips for this scenario are shown in Figure 9.1 and the Build volumes, used in the capacity analysis, are shown in Figure 9.2.

10.1 2025 Build Alternative 2A - Intersection Analysis

The study intersections were analyzed for 2025 Build Alternative 2A traffic conditions during the Weekday AM and Weekday PM peak hours. For this scenario, all recommended geometrical changes detailed above and in Section 1 were incorporated into the traffic model. The results of this analysis are shown in Table 9.1. Detailed capacity analysis worksheets are included in Appendix J.

As shown in Table 9.1, there are nine (9) movements that decline in level of service as compared to the No-Build scenario. There are also two (2) movements that improve in level of service. The northbound movement along Red Spring Road improves from a LOS F to a LOS E during the Weekday PM Peak Hour and the southbound movement along Railroad Street at improves from a LOS F to a LOS E during the Weekday AM Peak Hour. Zero (0) movements decline by 3+ levels of service or to a LOS F during either peak hour. Although there are fewer movements that decline in LOS as compared to Alternative 1A, there are movements that decline to a lower LOS than in Alternative 1A.



Legend

XX(XX) → Weekday AM(PM) Project Trips - Alternative 2A
S = Signalized Intersection
U = Unsignalized Intersection

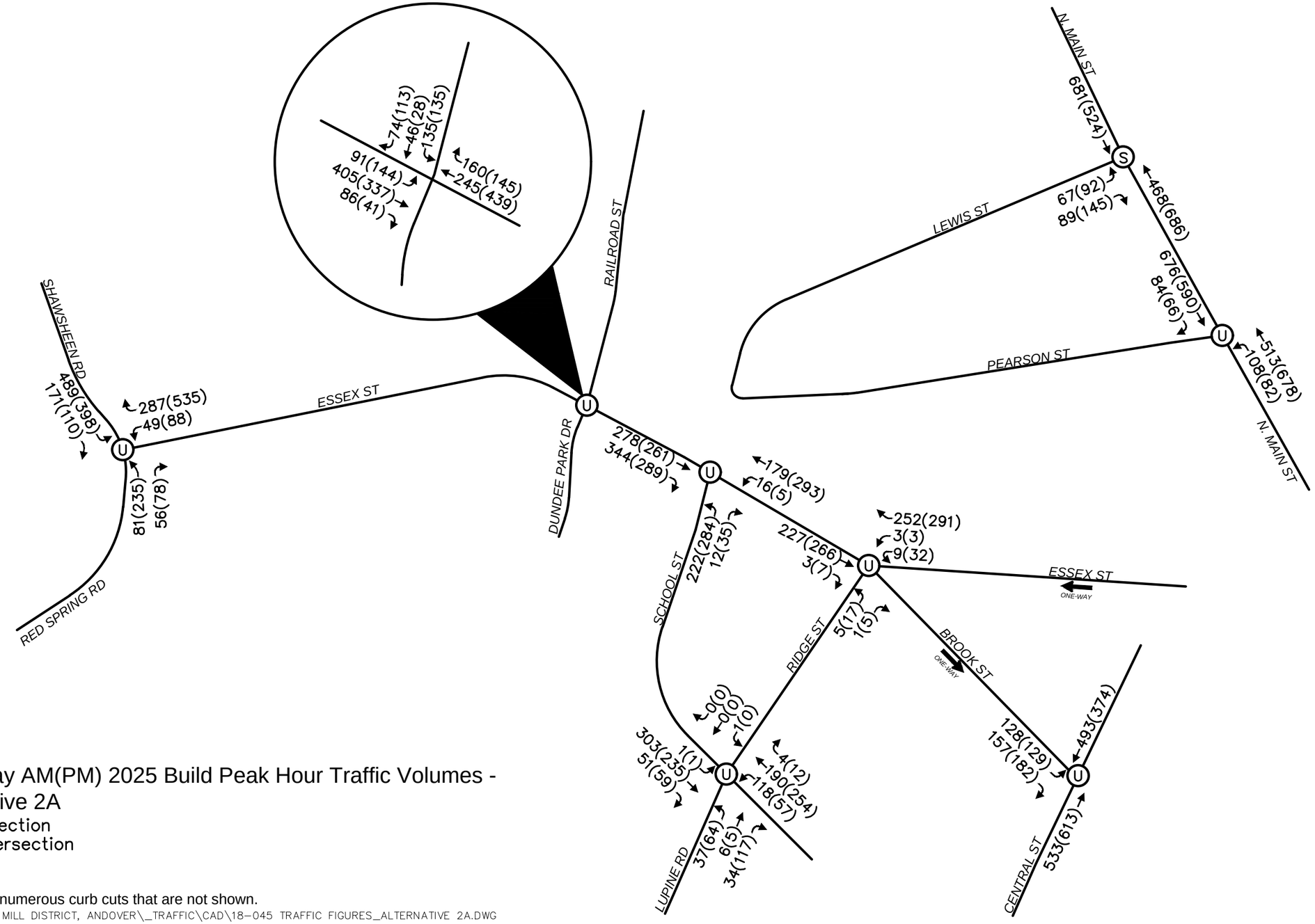
P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_ALTERNATIVE 2A.DWG

Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

Full Build Out Project Trips - Alternative 2A

PROJECT NO: 2018-045
DATE: APRIL 2019
SCALE: N.T.S.
Figure 9.1



Legend

XX(XX) → Weekday AM(PM) 2025 Build Peak Hour Traffic Volumes - Alternative 2A

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_ALTERNATIVE 2A.DWG

Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

2025 Build Weekday Peak Hour Traffic Volumes - Alternative 2A

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

Figure 9.2

Table 9.1: 2025 Build Alternative 2A - LOS

ID	Roadway	Movement	2025 Build Alternative 2A - Full Build Out					
			Weekday AM Peak Hour			Weekday PM Peak Hour		
			Delay [1]	LOS [2]	Queue [3]	Delay [1]	LOS [2]	Queue [3]
1	Shawsheen Road at Essex Street and Red Spring Road	SB TR	1.7	A	2 / 14	1.2	A	1 / 6
		WB LR	5.3	A	31 / 92	4.1	A	41 / 112
		NB LR	12.1	B	77 / 146	42.4	E	179 / 552
	Overall		--	--		--	--	
2	Pearson Street at Dundee Park Drive / Railroad Street and Essex Street	WB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		NB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		SB LTR	37.1	E	130 / 256	94.3	F	259 / 527
		SE LTR	4.1	A	43 / 118	6.9	A	81 / 190
		NW LTR	1.0	A	1 / 13	1.2	A	5 / 24
	Overall		--	--		--	--	
3/4	Essex Street at School Street Lewis Street	EB TR	1.6	A	9 / 40	1.6	A	7 / 32
		WB LT	4.9	A	13 / 50	3.8	A	5 / 33
		NB LTR	10.5	B	90 / 190	13.1	B	128 / 262
		SB LTR	N/A	N/A	N/A	N/A	N/A	N/A
	Overall		--	--		--	--	
5	Pearson Street at Lewis Street	WB LR	N/A	N/A	N/A	N/A	N/A	N/A
		NB T	N/A	N/A	N/A	N/A	N/A	N/A
		SB T	N/A	N/A	N/A	N/A	N/A	N/A
	Overall		--	--		--	--	
6	Essex Street at Brook Street and Ridge Street	EB TR	1.0	A	0 / 0	0.9	A	1 / 13
		WB LT	2.1	A	4 / 26	2.6	A	14 / 57
		--	--	--	--	--	--	--
		NB LR	4.8	A	5 / 22	7.8	A	15 / 40
	Overall		--	--		--	--	
7	Lupine Road at Ridge Street and School Street	NB LTR	34.5	D	0 / 68	22.3	C	0 / 81
		SB LTR	N/A	N/A	N/A	N/A	N/A	N/A
		SE LTR	0.1	A	0 / 0	0.1	A	0 / 0
		NW LTR	5.8	A	0 / 22	2.8	A	0 / 9
	Overall		--	--		--	--	
8	Lewis Street at North Main Street	EB LR	27.0	C	37 / 68	23.5	C	52 / 84
		NB LT	8.9	A	55 / 210	19.7	B	141 / 404
		SB TR	13.8	B	90 / #434	12.3	B	83 / 267
	Overall		***14.5***	***B***		***18.2***	***B***	
9	Pearson Street at North Main Street	EB LR	N/A	N/A	N/A	N/A	N/A	N/A
		NB LT	2.9	A	0 / 27	1.5	A	0 / 15
		SB TR	0.0	A	0 / 0	0.0	A	0 / 0
	Overall		--	--		--	--	
10	Central Street at Brook Street	NB T	0.0	A	0 / 0	0.0	A	0 / 0
		SB T	0.0	A	0 / 0	0.0	A	0 / 0
		SE LR	43.8	E	0 / 190	37.6	E	0 / 181
	Overall		--	--		--	--	

1 Delay = average delay in seconds per vehicle; 2 LOS = Level of Service; 3 Queue = 50th/95th percentile queue length (if only one queue length is shown, it is the 95th percentile queue length), # = volume for 95th percentile cycle exceeds capacity. Queue shown is maximum after two cycles; R = right-turn movement, L = left-turn movement, T = through movement; WB = westbound, EB = eastbound, NB = northbound, SB = southbound, NE = northeast-bound, SE = southeast-bound, SW = southwest-bound, NW = northwest-bound

10. CONCLUSION

This Circulation and Street Design Study was prepared to assess and analyze the existing traffic conditions and operations at nine (9) intersections in the Historic Mill District of the Town of Andover in an effort to identify and recommend potential improvements. Information gathered at each of the study intersections facilitated recommendations for changes to the traffic circulation and geometric layout of certain roadways.

Collected data included crash data from the years 2012 to 2016, the most recent five (5) years of data available from MassDOT. Crash data was analyzed at each of the study intersections and a crash rate was calculated using the existing traffic volumes. Two (2) of the intersections had crash rates above both the District 4 and Statewide averages. The intersection of Essex Street at Brook Street and Ridge Street has a crash rate of 0.84 c/mev, which is higher than the District 4 and Statewide average of 0.57. The intersection of Central Street at Brook Street has a crash rate of 0.62 c/mev, which is higher than the District 4 and Statewide average of 0.57. Although these two intersections had above average crash rates, there were zero (0) reported fatal crashes at any of the study intersections and 86% of the reported crashes resulted in property damage only. With the proposed redesign of much of the Historic Mill District, it is expected that safety will be improved at each of the study intersections.

As part of the design process, nine (9) separate parcels of land were identified for potential redevelopment, with seven (7) being developed within the next few years. Based on the potential land uses of these parcels, the proposed number of trips were calculated. Reductions for public transportation, biking, and walking were taken and a net number of vehicle-trips per parcel were calculated. These trips were then distributed onto the network for each alternative.

Capacity analyses were carried out for 2018 Existing Conditions, 2025 No-Build Conditions, and 2025 Build Conditions (for each geometry alternative). These analyses were carried out for all study intersections for the Weekday AM and Weekday PM peak hours. The analyses of the geometric alternatives yielded the following changes in levels of service as compared to the No-Build scenario:

Alternative 1: 13 movements decline in level of service. One (1) movement declines by 3+ levels of service. One (1) movement, the northbound movement along Red Spring Road during the Weekday PM peak hour, improves in LOS due to the addition of exclusive turn lanes.

Alternative 1A: 10 movements decline in level of service. Zero (0) of the movements decline by 3+ levels of service. There are two (2) movements, the northbound movement along Red Spring Road during the Weekday PM peak hour and the southbound movement along Railroad Street during the Weekday AM peak hour, which improve in LOS.

Alternative 2: 15 movements decline in level of service. There are also two (2) movements that improve in level of service. The northbound movement along Red Spring Road improves from a LOS F to a LOS E during the Weekday PM Peak Hour and the eastbound movement along Pearson Street at its intersection with N. Main Street improves from a LOS E to a LOS D during the

Weekday AM Peak Hour. Zero (0) movements decline by 3+ levels of service or to a LOS F during either peak hour.

Alternative 2A: Nine (9) movements decline in level of service. There are also two (2) movements that improve in level of service. The northbound movement along Red Spring Road improves from a LOS F to a LOS E during the Weekday PM Peak Hour and the southbound movement along Railroad Street at improves from a LOS F to a LOS E during the Weekday AM Peak Hour. Zero (0) movements decline by 3+ levels of service or to a LOS F during either peak hour. Although there are fewer movements that decline in LOS as compared to Alternative 1A, there are movements that decline to a lower LOS than in Alternative 1A.

Based on these analyses, and taking into account overall circulation of the Historic Mill District, Alternative 1A is the preferred alternative for redevelopment.

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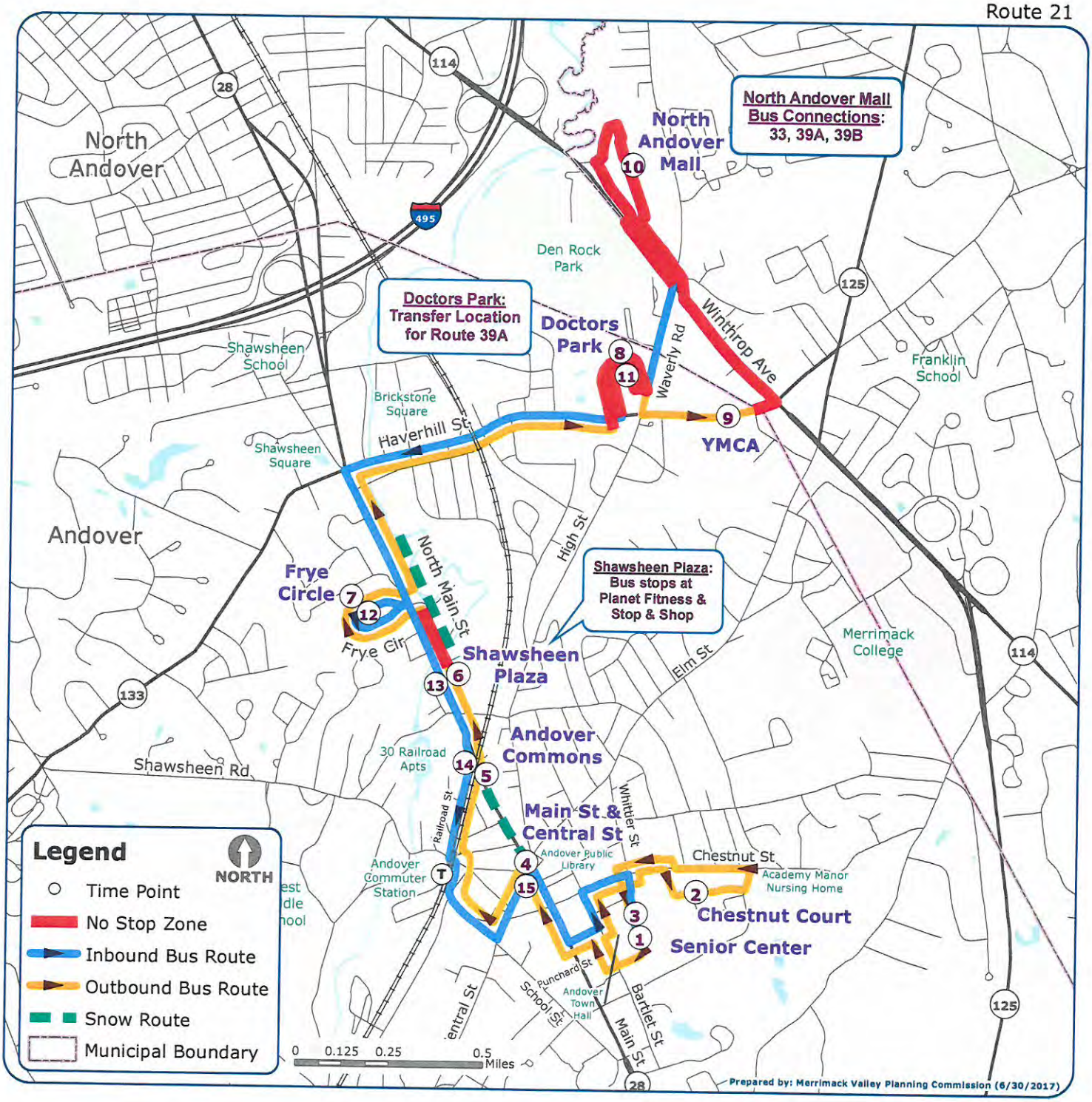
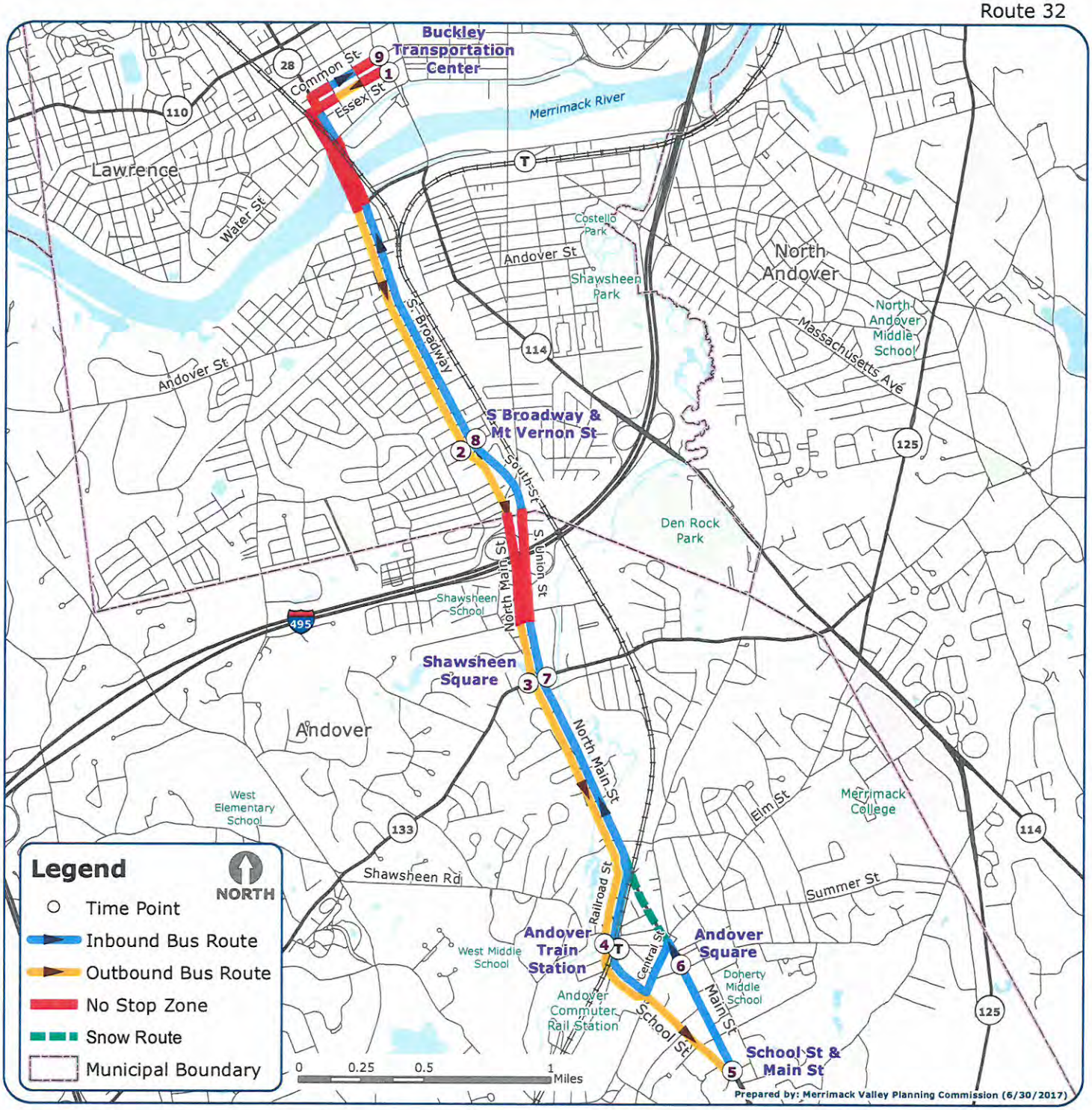
APPENDIX A – MULTI-MODAL TRANSPORTATION

Route 21

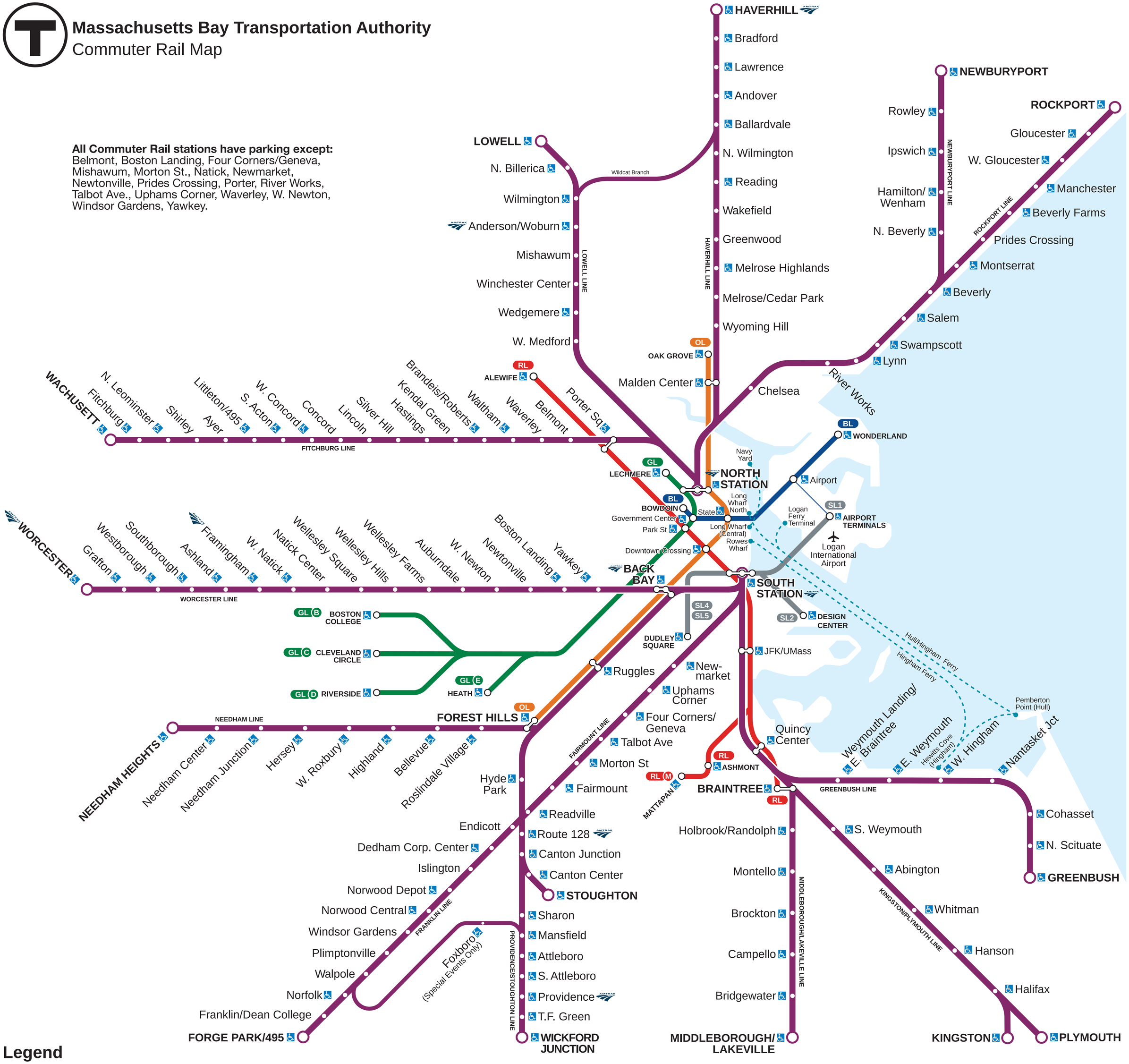

North Andover Mall Bus Connections: 33, 39A, 39B
Doctors Park: Transfer Location for Route 39A
Shawsheen Plaza: Bus stops at Planet Fitness & Stop & Shop
North Andover
Andover
North Andover Mall
Den Rock Park
Doctors Park
Wavery Rd
Winthrop Ave
Franklin School
Shawsheen School
Brickstone Square
Haverhill St
Shawsheen Square
YMCA
High St
North Main St
Frye Circle
Frye Cir
Shawsheen Plaza
Elm St
Merrimack College
Andover Commons
30 Railroad Apts
Shawsheen Rd
Railroad St
Main St & Central St
Whittier St
Andover Public Library
Andover Commuter Station
Chestnut St
Academy Manor Nursing Home
Chestnut Court
Senior Center
Punchard St
Andover Town Hall
School St
Bartlet St
Main St
Central St
Legend
NORTH
Time Point
No Stop Zone
Inbound Bus Route
Outbound Bus Route
Snow Route
Municipal Boundary
0 0.125 0.25 0.5 Miles
Prepared by: Merrimack Valley Planning Commission (6/30/2017)

Route 32


Buckley Transportation Center
Merrimack River
Lawrence
Water St
Common St
Essex St
Andover St
Costello Park
Shawsheen Park
North Andover
North Andover Middle School
Massachusetts Ave
S Broadway
S Broadway & Mt Vernon St
South St
S Union St
North Main St
Den Rock Park
Shawsheen School
Shawsheen Square
Andover
West Elementary School
Shawsheen Rd
Merrimack College
Elm St
Summer St
Railroad St
Central St
Andover Train Station
Andover Square
West Middle School
Doherty Middle School
Andover Commuter Rail Station
School St
Main St
School St & Main St
Legend
NORTH
Time Point
Inbound Bus Route
Outbound Bus Route
No Stop Zone
Snow Route
Municipal Boundary
0 0.25 0.5 1 Miles
Prepared by: Merrimack Valley Planning Commission (6/30/2017)

Massachusetts Bay Transportation Authority
Commuter Rail Map

All Commuter Rail stations have parking except:
Belmont, Boston Landing, Four Corners/Geneva, Mishawum, Morton St., Natick, Newmarket, Newtonville, Prides Crossing, Porter, River Works, Talbot Ave., Uphams Corner, Waverley, W. Newton, Windsor Gardens, Yawkey.



Legend

- COMMUTER RAIL LINES
- Under Construction
- Terminus Station
- RL RED LINE
- M MATTAPAN LINE
- OL ORANGE LINE
- SL SILVER LINE and branches SL1 SL4 SL2 SL5
- GL GREEN LINE and branches B C D E
- BL BLUE LINE
- Accessible station — All MBTA and Massport bus and ferry services are accessible
- Transfer station
- FERRY
- Free Logan Airport shuttle bus
- Amtrak service
- Customer Communications & Travel Info 617-222-3200, 1-800-392-6100, TTY 617-222-5146, www.mbta.com
- MBTA Transit Police: **911** TTY 617-222-1200
- Elevator/escalator/lift updates: 800-392-6100

© May 2017 v.30 Not to scale

HAVERHILL LINE effective May 21, 2018

Massachusetts Bay Transportation Authority

KEOLIS

Monday to Friday

Inbound to Boston

ZONE	STATION	TRAIN #	200	202	204	206	286	288	208	290	210	212	214	216	218	292	220	294	296	222	298	224	226	228
			AM										PM											
	Bikes Allowed																							
7	Haverhill	♿	5:05	5:40	6:10	6:40	-	-	7:35	-	9:05	10:49	12:05	2:00	3:25	-	4:47	-	-	6:25	-	7:45	9:10	10:50
7	Bradford	♿	5:07	5:42	6:12	6:42	-	-	7:37	-	f 9:07	f 10:52	f 12:07	f 2:02	f 3:27	-	f 4:49	-	-	f 6:28	-	f 7:47	f 9:12	f 10:52
6	Lawrence	♿	5:16	5:51	6:21	6:52	-	-	7:46	-	9:15	10:59	12:15	2:10	3:35	-	4:57	-	-	6:39	-	7:55	9:20	11:00
5	Andover	♿	5:23	5:58	6:28	6:59	-	-	7:53	-	f 9:22	f 11:06	f 12:22	f 2:17	f 3:42	-	f 5:04	-	-	f 6:46	-	f 8:02	f 9:27	f 11:07
4	Ballardvale	♿	5:29	6:04	6:34	7:04	-	-	7:59	-	f 9:27	f 11:11	f 12:27	f 2:22	f 3:47	-	f 5:09	-	-	f 6:51	-	f 8:07	f 9:32	f 11:12
3	North Wilmington		5:36	6:11	6:41	-	-	-	-	-	f 9:34	f 11:18	f 12:34	f 2:29	-	-	-	-	-	-	-	-	f 9:39	f 11:19
2	Reading	♿	5:43	6:18	6:48	-	7:30	8:00	-	8:30	9:41	11:25	12:41	2:36	-	4:50	-	5:37	6:55	-	8:07	-	9:46	11:26
2	Wakefield		5:49	6:24	6:54	-	7:36	8:06	VIA	8:36	f 9:46	f 11:30	f 12:46	f 2:41	-	f 4:55	-	f 5:42	f 7:00	-	f 8:12	-	f 9:51	f 11:31
2	Greenwood		5:52	6:27	6:57	-	7:39	8:09	LOWELL	8:39	f 9:49	f 11:33	f 12:49	f 2:44	-	f 4:58	-	f 5:45	f 7:03	-	f 8:15	-	f 9:54	f 11:34
1	Melrose Highlands	♿	5:54	6:29	6:59	-	7:41	8:11	LINE	8:41	f 9:51	f 11:35	f 12:51	f 2:46	-	f 5:00	-	f 5:47	f 7:05	-	f 8:17	-	f 9:56	f 11:36
1	Melrose/Cedar Park		5:56	6:31	7:01	-	7:43	8:13	-	8:43	f 9:53	f 11:37	f 12:53	f 2:48	-	f 5:01	-	f 5:48	f 7:06	-	f 8:18	-	f 9:58	f 11:38
1	Wyoming Hill		5:58	6:33	7:03	-	7:45	8:15	-	8:45	f 9:55	f 11:39	f 12:55	f 2:50	-	f 5:03	-	f 5:51	f 7:08	-	f 8:20	-	f 10:00	f 11:40
1A	Malden Center	♿	L 6:02	L 6:37	L 7:07	-	L 7:51	L 8:19	-	L 8:49	L 9:58	L 11:43	L 12:58	L 2:54	-	L 5:06	-	L 5:54	L 7:11	-	L 8:23	-	L 10:03	L 11:43
1A	North Station	♿	6:15	6:50	7:20	7:38	8:02	8:30	8:38	9:00	10:10	11:55	1:10	3:06	4:23	5:17	5:45	6:05	7:22	7:25	8:34	8:43	10:15	11:55

Trains in purple box indicate peak period trains.

Monday to Friday

Outbound from Boston

ZONE	STATION	TRAIN #	285	287	201	289	203	205	207	209	211	291	213	293	215	217	295	219	221	297	223	225	227	229
			AM						PM															AM
	Bikes Allowed																							
1A	North Station	♿	6:43	7:10	7:35	7:55	9:20	10:30	12:20	1:44	3:15	3:50	4:30	4:48	5:15	5:35	6:05	6:25	6:55	7:20	7:40	9:20	11:00	12:10
1A	Malden Center	♿	f 6:54	f 7:21	f 7:45	-	f 9:31	f 10:41	f 12:31	f 1:55	3:26	4:01	4:41	4:59	5:26	5:46	6:16	6:36	-	f 7:31	f 7:51	f 9:31	f 11:11	f 12:21
1	Wyoming Hill		f 6:57	f 7:24	f 7:48	-	f 9:34	f 10:44	f 12:34	f 1:58	3:30	4:05	4:45	5:03	-	5:50	6:20	6:40	-	f 7:34	f 7:54	f 9:34	f 11:14	f 12:24
1	Melrose/Cedar Park		f 6:59	f 7:26	f 7:50	-	f 9:36	f 10:46	f 12:36	f 2:00	3:32	4:07	4:47	5:05	-	5:52	6:22	6:42	-	f 7:36	f 7:56	f 9:36	f 11:16	f 12:26
1	Melrose Highlands	♿	f 7:02	f 7:29	f 7:53	-	f 9:39	f 10:49	f 12:39	f 2:03	3:36	4:11	4:51	5:09	-	5:56	6:26	6:46	VIA	f 7:39	f 7:59	f 9:39	f 11:19	f 12:29
2	Greenwood		f 7:05	f 7:32	f 7:56	-	f 9:42	f 10:52	f 12:42	f 2:06	3:39	4:14	4:54	5:12	-	5:59	6:29	6:49	LOWELL	f 7:42	f 8:02	f 9:42	f 11:22	f 12:32
2	Wakefield		f 7:09	f 7:36	f 8:00	-	f 9:46	f 10:56	f 12:46	f 2:10	3:43	4:18	4:58	5:16	5:36	6:03	6:33	6:53	LINE	f 7:46	f 8:06	f 9:46	f 11:26	f 12:36
2	Reading	♿	7:15	7:42	8:06	8:17	9:52	11:02	12:52	2:16	3:49	4:24	5:04	5:22	5:42	6:09	6:39	6:59	-	7:52	8:12	9:52	11:32	12:42
3	North Wilmington		-	-	8:12	-	f 9:58	f 11:08	f 12:58	f 2:22	3:56	-	5:11	-	5:49	6:16	-	7:06	-	-	f 8:18	f 9:58	f 11:38	f 12:48
4	Ballardvale	♿	-	-	8:19	-	f 10:05	f 11:16	f 1:05	f 2:30	4:03	-	5:18	-	5:56	6:23	-	7:13	7:35	-	f 8:25	f 10:05	f 11:45	f 12:55
5	Andover	♿	-	-	8:24	-	f 10:10	f 11:21	f 1:10	f 2:35	4:09	-	5:24	-	6:02	6:29	-	7:19	7:41	-	f 8:30	f 10:10	f 11:50	f 1:00
6	Lawrence	♿	-	-	8:31	-	10:17	11:28	1:17	2:42	4:16	-	5:31	-	6:09	6:36	-	7:26	7:48	-	8:37	10:17	11:57	1:07
7	Bradford	♿	-	-	L 8:40	-	L 10:26	L 11:38	L 1:27	L 2:54	L 4:26	-	L 5:42	-	L 6:20	L 6:47	-	L 7:37	L 7:59	-	L 8:46	L 10:26	L 12:06	L 1:16
7	Haverhill	♿	-	-	8:43	-	10:29	11:41	1:30	2:57	4:29	-	5:45	-	6:23	6:50	-	7:40	8:02	-	8:49	10:29	12:09	1:19

Trains in purple box indicate peak period trains.

Keep in Mind:

This schedule will be effective from May 21, 2018 and will replace the schedule of November 20, 2017.

Times listed are departure times. To ensure you make your train, please be on the platform ready to board prior to departure time.

Presidents' Day and 4th of July operate on a **Saturday service schedule.**

New Year's Day, Memorial Day, Labor Day, Thanksgiving Day, and Christmas Day operate on a **Sunday service schedule**.

For all other holiday schedules, please check MBTA.com or call 617-222-3200.

Saturday & Sunday

Inbound to Boston

ZONE	STATION	SATURDAY TRAIN # / SUNDAY TRAIN #	1200 / 2200	1202 / 2202	1204 / 2204	1206 / 2206	1208 / 2208	1210 / 2210
			AM		PM			
	Bikes Allowed							
7	Haverhill	♿	7:15	10:20	1:15	4:15	7:10	10:10
7	Bradford	♿	7:18	10:23	1:18	4:18	7:13	10:13
6	Lawrence	♿	7:27	10:32	1:27	4:27	7:22	10:22
5	Andover	♿	7:32	10:37	1:33	4:32	7:28	10:28
4	Ballardvale	♿	f 7:37	f 10:42	f 1:37	f 4:37	f 7:32	f 10:32
3	North Wilmington		f 7:44	f 10:49	f 1:44	f 4:44	f 7:39	f 10:39
2	Reading	♿	7:50	10:56	1:50	4:50	7:45	10:45
2	Wakefield		7:55	11:01	1:55	4:55	7:50	10:50
2	Greenwood		f 7:59	f 11:05	f 1:59	f 4:59	f 7:54	f 10:54
1	Melrose Highlands	♿	8:02	11:08	2:02	5:02	7:57	10:57
1	Melrose/Cedar Park		f 8:04	f 11:10	f 2:04	f 5:04	f 7:59	f 10:59
1	Wyoming Hill		f 8:06	f 11:12	f 2:06	f 5:06	f 8:01	f 11:01
1A	Malden Center	♿	L 8:10	L 11:16	L 2:10	L 5:10	L 8:05	L 11:05
1A	North Station	♿	8:21	11:27	2:21	5:21	8:16	11:16

Saturday & Sunday

Outbound from Boston

ZONE	STATION	SATURDAY TRAIN # / SUNDAY TRAIN #	1201 / 2201	1203 / 2203	1205 / 2205	1207 / 2207	1209 / 2209	1211 / 2211
			AM		PM			
	Bikes Allowed							
1A	North Station	♿	8:40	11:40	2:45	5:35	8:40	11:30
1A	Malden Center	♿	8:50	11:50	2:55	5:45	8:50	11:40
1	Wyoming Hill		f 8:54	f 11:54	f 2:59	f 5:49	f 8:54	f 11:44
1	Melrose/Cedar Park		f 8:56	f 11:56	f 3:01	f 5:51	f 8:56	f 11:46
1	Melrose Highlands	♿	8:59	11:59	3:04	5:54	8:59	11:49
2	Greenwood		f 9:02	f 12:02	f 3:07	f 5:57	f 9:02	f 11:52
2	Wakefield		9:05	12:05	3:10	6:00	9:05	11:55
2	Reading	♿	9:11	12:11	3:16	6:06	9:11	12:01
3	North Wilmington		f 9:17	f 12:17	f 3:22	f 6:12	f 9:17	f 12:07
4	Ballardvale	♿	f 9:23	f 12:23	f 3:28	f 6:18	f 9:23	f 12:13
5	Andover	♿	9:28	12:28	3:33	6:23	9:28	12:18
6	Lawrence	♿	9:35	12:35	3:40	6:30	9:35	12:25
7	Bradford	♿	L 9:45	L 12:45	L 3:50	L 6:40	L 9:45	L 12:35
7	Haverhill	♿	9:48	12:48	3:53	6:43	9:48	12:38

Times in purple with "f" indicate a flag stop: Passengers must tell the conductor that they wish to leave. Passengers waiting to board must be visible on the platform for the train to stop.

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

Bikes: Bicycles are allowed on trains with the bicycle symbol shown below the train number.

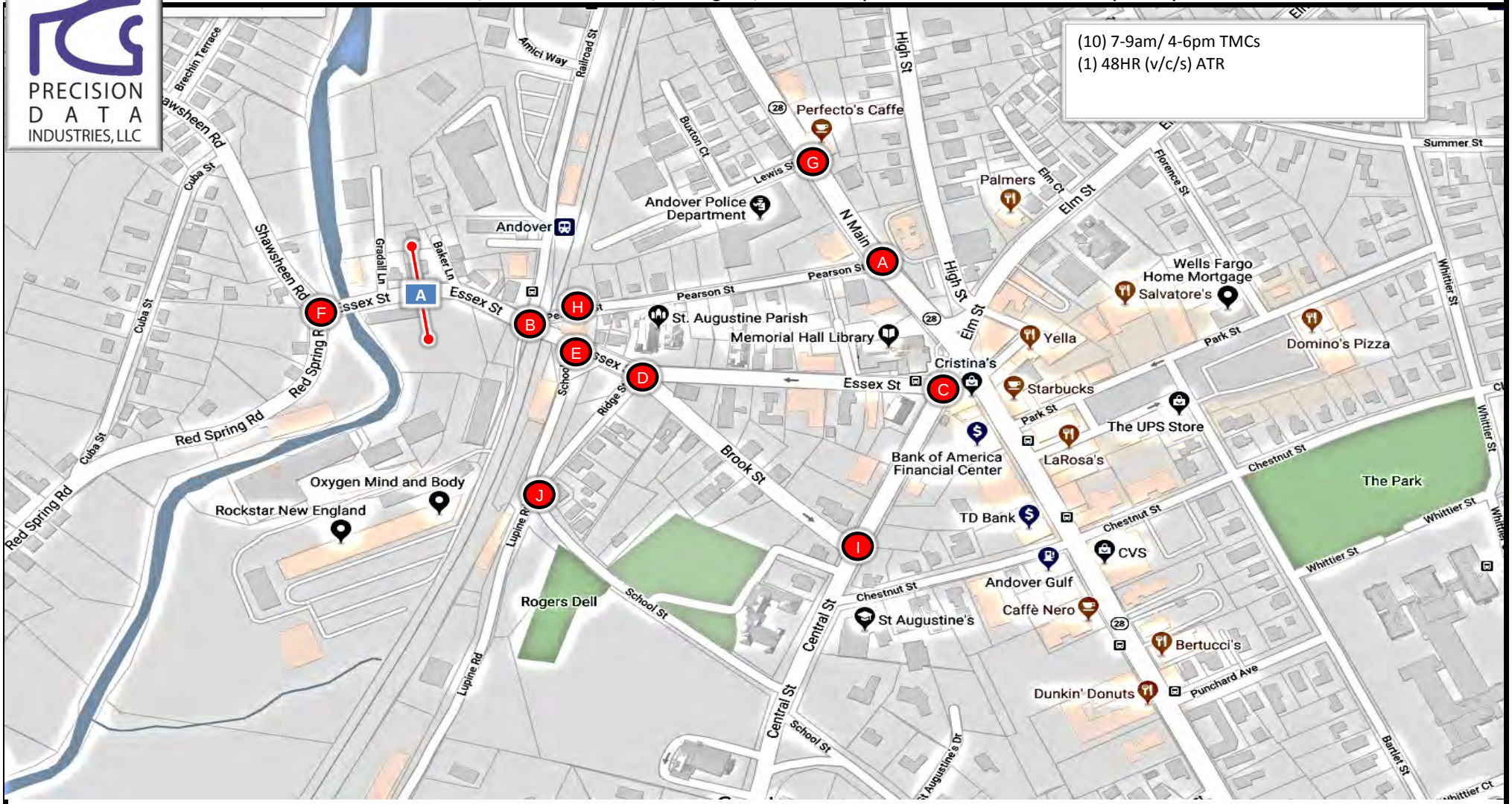
High level platform and bridge plate available. Visit **mbta.com/accessibility** for more information.

VIA LOWELL LINE: Operates via the Lowell Line between Wilmington and North Station. See the Lowell Line schedule for all stops.

APPENDIX B – TRAFFIC COUNTS

Location Map: 186242 Andover, MA

Precision Data Industries, LLC 46 Morton Street, Framingham, MA 01702 ph: 508-875-0100 email: datarequests@pdillc.com



Client:	Engineer:	Site Code:	Date:	PDI Job #	City, State:
Design Consultants	S. Siragusa		Tues 5/15 thru Wed 5/16/2018	186242	Andover, MA

75 Essex Street
west of Baker Lane
City, State: Andover, MA
Client: DCI/ S. Siragusa

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186242 A Volume
Site Code: TBA

Start	EB				WB				Combined				05/15/18
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Tue
12:00	2		64		2		73		4		137		
12:15	2		71		0		61		2		132		
12:30	3		60		1		67		4		127		
12:45	4	11	70	265	5	8	65	266	9	19	135	531	
01:00	3		62		2		68		5		130		
01:15	2		73		1		78		3		151		
01:30	3		58		1		61		4		119		
01:45	0	8	71	264	0	4	93	300	0	12	164	564	
02:00	1		66		0		84		1		150		
02:15	0		134		0		67		0		201		
02:30	0		82		0		77		0		159		
02:45	0	1	100	382	1	1	76	304	1	2	176	686	
03:00	0		89		0		98		0		187		
03:15	0		77		0		110		0		187		
03:30	0		71		0		101		0		172		
03:45	0	0	96	333	0	0	111	420	0	0	207	753	
04:00	1		70		0		114		1		184		
04:15	0		96		1		116		1		212		
04:30	2		79		1		123		3		202		
04:45	6	9	93	338	4	6	99	452	10	15	192	790	
05:00	7		74		5		135		12		209		
05:15	14		91		7		103		21		194		
05:30	15		104		10		118		25		222		
05:45	20	56	98	367	10	32	100	456	30	88	198	823	
06:00	17		68		7		117		24		185		
06:15	43		81		23		109		66		190		
06:30	47		63		30		79		77		142		
06:45	79	186	75	287	49	109	62	367	128	295	137	654	
07:00	62		50		54		56		116		106		
07:15	85		59		115		62		200		121		
07:30	104		49		128		63		232		112		
07:45	105	356	34	192	66	363	71	252	171	719	105	444	
08:00	93		34		77		60		170		94		
08:15	102		26		87		46		189		72		
08:30	127		17		99		34		226		51		
08:45	100	422	23	100	95	358	39	179	195	780	62	279	
09:00	93		18		74		34		167		52		
09:15	82		14		52		22		134		36		
09:30	75		6		39		28		114		34		
09:45	73	323	9	47	47	212	18	102	120	535	27	149	
10:00	84		5		49		10		133		15		
10:15	66		4		69		6		135		10		
10:30	61		2		58		3		119		5		
10:45	70	281	3	14	49	225	3	22	119	506	6	36	
11:00	58		4		61		10		119		14		
11:15	64		1		52		8		116		9		
11:30	77		2		77		13		154		15		
11:45	76	275	3	10	82	272	2	33	158	547	5	43	
Total	1928		2599		1590		3153		3518		5752		
Percent	54.8%		45.2%		45.2%		54.8%						
Day Total		4527				4743				9270			
Peak	07:45	-	02:15	-	07:15	-	04:15	-	08:00	-	05:00	-	- -
Vol.	427	-	405	-	386	-	473	-	780	-	823	-	- -
P.H.F.	0.841		0.756		0.754		0.876		0.841		0.927		

75 Essex Street
west of Baker Lane
City, State: Andover, MA
Client: DCI/ S. Siragusa

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186242 A Volume
Site Code: TBA

Start	EB				WB				Combined				05/16/18
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	4		83		7		83		11		166		
12:15	3		63		3		62		6		125		
12:30	3		66		2		79		5		145		
12:45	2	12	66	278	2	14	78	302	4	26	144	580	
01:00	2		62		3		81		5		143		
01:15	1		58		0		84		1		142		
01:30	1		50		0		71		1		121		
01:45	0	4	69	239	2	5	81	317	2	9	150	556	
02:00	1		88		0		79		1		167		
02:15	1		114		1		81		2		195		
02:30	1		84		2		91		3		175		
02:45	1	4	98	384	0	3	76	327	1	7	174	711	
03:00	1		88		1		107		2		195		
03:15	0		87		0		99		0		186		
03:30	1		87		1		94		2		181		
03:45	1	3	86	348	1	3	112	412	2	6	198	760	
04:00	1		66		3		114		4		180		
04:15	4		66		0		94		4		160		
04:30	5		97		3		95		8		192		
04:45	3	13	89	318	2	8	115	418	5	21	204	736	
05:00	3		79		4		128		7		207		
05:15	7		142		6		128		13		270		
05:30	20		90		6		158		26		248		
05:45	26	56	100	411	13	29	117	531	39	85	217	942	
06:00	23		98		9		143		32		241		
06:15	35		111		13		113		48		224		
06:30	48		98		21		114		69		212		
06:45	69	175	89	396	45	88	96	466	114	263	185	862	
07:00	59		74		67		99		126		173		
07:15	74		61		139		88		213		149		
07:30	95		53		131		81		226		134		
07:45	90	318	67	255	55	392	58	326	145	710	125	581	
08:00	103		44		60		67		163		111		
08:15	120		33		65		54		185		87		
08:30	132		33		90		37		222		70		
08:45	122	477	47	157	80	295	37	195	202	772	84	352	
09:00	83		33		65		56		148		89		
09:15	74		12		62		29		136		41		
09:30	80		14		49		18		129		32		
09:45	60	297	11	70	52	228	22	125	112	525	33	195	
10:00	49		9		50		19		99		28		
10:15	55		8		39		9		94		17		
10:30	60		7		60		11		120		18		
10:45	61	225	6	30	66	215	6	45	127	440	12	75	
11:00	57		7		49		8		106		15		
11:15	59		4		56		8		115		12		
11:30	71		3		79		11		150		14		
11:45	70	257	4	18	69	253	6	33	139	510	10	51	
Total	1841		2904		1533		3497		3374		6401		
Percent	54.6%		45.4%		45.4%		54.6%						
Day Total		4745				5030				9775			
Peak	08:00	-	05:15	-	07:00	-	05:15	-	08:00	-	05:15	-	- -
Vol.	477	-	430	-	392	-	546	-	772	-	976	-	- -
P.H.F.	0.903		0.757		0.705		0.864		0.854		0.904		

75 Essex Street
west of Baker Lane
City, State: Andover, MA
Client: DCI/ S. Siragusa

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46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186242 A Class
Site Code: TBA

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/15/18	0	10	1	0	0	0	0	0	0	0	0	0	0	11
01:00	1	7	0	0	0	0	0	0	0	0	0	0	0	8
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	3	6	0	0	0	0	0	0	0	0	0	0	9
05:00	0	48	5	1	2	0	0	0	0	0	0	0	0	56
06:00	0	151	28	4	1	2	0	0	0	0	0	0	0	186
07:00	4	287	50	8	2	2	1	2	0	0	0	0	0	356
08:00	2	345	52	7	10	4	1	1	0	0	0	0	0	422
09:00	0	266	41	5	9	1	0	1	0	0	0	0	0	323
10:00	2	242	28	1	6	2	0	0	0	0	0	0	0	281
11:00	0	206	47	3	14	4	0	1	0	0	0	0	0	275
12 PM	1	209	41	3	7	1	1	1	1	0	0	0	0	265
13:00	2	206	44	4	5	2	0	1	0	0	0	0	0	264
14:00	2	322	44	5	6	2	0	1	0	0	0	0	0	382
15:00	0	281	43	1	6	0	0	2	0	0	0	0	0	333
16:00	2	294	33	1	5	2	0	1	0	0	0	0	0	338
17:00	4	317	31	1	7	6	0	0	1	0	0	0	0	367
18:00	2	254	28	0	2	1	0	0	0	0	0	0	0	287
19:00	0	177	10	0	4	1	0	0	0	0	0	0	0	192
20:00	0	93	5	0	1	1	0	0	0	0	0	0	0	100
21:00	0	46	1	0	0	0	0	0	0	0	0	0	0	47
22:00	0	12	2	0	0	0	0	0	0	0	0	0	0	14
23:00	0	10	0	0	0	0	0	0	0	0	0	0	0	10
Total	22	3786	541	44	87	31	3	11	2	0	0	0	0	4527
Percent	0.5%	83.6%	12.0%	1.0%	1.9%	0.7%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	08:00	07:00	11:00	08:00	07:00	07:00						08:00
Vol.	4	345	52	8	14	4	1	2						422
PM Peak	17:00	14:00	13:00	14:00	12:00	17:00	12:00	15:00	12:00					14:00
Vol.	4	322	44	5	7	6	1	2	1					382

75 Essex Street
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186242 A Class
Site Code: TBA

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/16/18	0	12	0	0	0	0	0	0	0	0	0	0	0	12
01:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
02:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
03:00	0	1	1	0	0	1	0	0	0	0	0	0	0	3
04:00	0	9	3	0	1	0	0	0	0	0	0	0	0	13
05:00	1	48	6	0	1	0	0	0	0	0	0	0	0	56
06:00	1	133	32	4	3	2	0	0	0	0	0	0	0	175
07:00	2	265	36	8	5	1	0	1	0	0	0	0	0	318
08:00	2	394	61	6	10	3	0	1	0	0	0	0	0	477
09:00	1	240	46	0	9	1	0	0	0	0	0	0	0	297
10:00	0	189	25	1	5	3	0	2	0	0	0	0	0	225
11:00	2	210	29	3	12	1	0	0	0	0	0	0	0	257
12 PM	0	245	25	2	3	3	0	0	0	0	0	0	0	278
13:00	0	182	40	3	13	0	0	1	0	0	0	0	0	239
14:00	6	317	46	5	5	4	0	1	0	0	0	0	0	384
15:00	2	298	42	2	2	1	0	1	0	0	0	0	0	348
16:00	2	266	44	0	6	0	0	0	0	0	0	0	0	318
17:00	1	363	40	0	3	3	0	0	0	1	0	0	0	411
18:00	5	346	35	0	7	1	1	0	1	0	0	0	0	396
19:00	1	228	23	1	1	1	0	0	0	0	0	0	0	255
20:00	1	141	14	0	0	1	0	0	0	0	0	0	0	157
21:00	0	64	6	0	0	0	0	0	0	0	0	0	0	70
22:00	0	26	0	1	2	1	0	0	0	0	0	0	0	30
23:00	0	16	1	0	0	0	0	0	1	0	0	0	0	18
Total	27	3999	557	36	88	27	1	7	2	1	0	0	0	4745
Percent	0.6%	84.3%	11.7%	0.8%	1.9%	0.6%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	08:00	07:00	11:00	08:00		10:00						08:00
Vol.	2	394	61	8	12	3		2						477
PM Peak	14:00	17:00	14:00	14:00	13:00	14:00	18:00	13:00	18:00	17:00				17:00
Vol.	6	363	46	5	13	4	1	1	1	1				411

75 Essex Street
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186242 A Class
Site Code: TBA

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/15/18	0	7	1	0	0	0	0	0	0	0	0	0	0	8
01:00	0	3	0	0	1	0	0	0	0	0	0	0	0	4
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
05:00	0	24	6	0	1	1	0	0	0	0	0	0	0	32
06:00	1	90	11	3	1	3	0	0	0	0	0	0	0	109
07:00	1	310	36	6	4	3	0	3	0	0	0	0	0	363
08:00	0	273	63	8	10	0	0	3	1	0	0	0	0	358
09:00	0	160	44	1	3	1	0	3	0	0	0	0	0	212
10:00	0	170	38	5	8	3	0	0	1	0	0	0	0	225
11:00	1	216	40	2	8	2	0	3	0	0	0	0	0	272
12 PM	0	217	36	0	8	2	0	3	0	0	0	0	0	266
13:00	0	234	45	9	8	1	0	2	1	0	0	0	0	300
14:00	1	244	48	2	8	1	0	0	0	0	0	0	0	304
15:00	0	340	63	4	11	1	0	1	0	0	0	0	0	420
16:00	0	364	82	1	3	1	0	1	0	0	0	0	0	452
17:00	2	388	56	0	10	0	0	0	0	0	0	0	0	456
18:00	0	334	31	0	2	0	0	0	0	0	0	0	0	367
19:00	0	231	19	0	2	0	0	0	0	0	0	0	0	252
20:00	0	168	9	0	2	0	0	0	0	0	0	0	0	179
21:00	0	93	9	0	0	0	0	0	0	0	0	0	0	102
22:00	0	20	2	0	0	0	0	0	0	0	0	0	0	22
23:00	0	28	4	1	0	0	0	0	0	0	0	0	0	33
Total	6	3920	644	42	90	19	0	19	3	0	0	0	0	4743
Percent	0.1%	82.6%	13.6%	0.9%	1.9%	0.4%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	07:00	08:00	08:00	08:00	06:00		07:00	08:00					07:00
Vol.	1	310	63	8	10	3		3	1					363
PM Peak	17:00	17:00	16:00	13:00	15:00	12:00		12:00	13:00					17:00
Vol.	2	388	82	9	11	2		3	1					456

75 Essex Street
west of Baker Lane
City, State: Andover, MA
Client: DCI/ S. Siragusa

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186242 A Class
Site Code: TBA

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/16/18	0	14	0	0	0	0	0	0	0	0	0	0	0	14
01:00	0	3	0	0	2	0	0	0	0	0	0	0	0	5
02:00	0	2	0	0	1	0	0	0	0	0	0	0	0	3
03:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
04:00	0	4	4	0	0	0	0	0	0	0	0	0	0	8
05:00	0	21	8	0	0	0	0	0	0	0	0	0	0	29
06:00	0	74	10	3	1	0	0	0	0	0	0	0	0	88
07:00	0	327	56	9	0	0	0	0	0	0	0	0	0	392
08:00	0	235	44	5	11	0	0	0	0	0	0	0	0	295
09:00	0	180	40	1	5	1	0	1	0	0	0	0	0	228
10:00	0	171	38	1	5	0	0	0	0	0	0	0	0	215
11:00	1	199	38	4	6	1	0	3	0	0	1	0	0	253
12 PM	1	248	43	0	7	2	0	1	0	0	0	0	0	302
13:00	0	248	43	14	9	0	0	3	0	0	0	0	0	317
14:00	3	263	48	1	5	3	0	4	0	0	0	0	0	327
15:00	2	324	70	2	11	2	0	1	0	0	0	0	0	412
16:00	0	348	63	0	7	0	0	0	0	0	0	0	0	418
17:00	1	458	67	0	4	0	0	1	0	0	0	0	0	531
18:00	0	422	39	0	3	0	0	2	0	0	0	0	0	466
19:00	0	293	32	0	1	0	0	0	0	0	0	0	0	326
20:00	0	183	8	0	4	0	0	0	0	0	0	0	0	195
21:00	0	117	8	0	0	0	0	0	0	0	0	0	0	125
22:00	0	43	2	0	0	0	0	0	0	0	0	0	0	45
23:00	0	27	5	0	1	0	0	0	0	0	0	0	0	33
Total	8	4207	666	40	83	9	0	16	0	0	1	0	0	5030
Percent	0.2%	83.6%	13.2%	0.8%	1.7%	0.2%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	07:00	07:00	07:00	08:00	09:00		11:00			11:00			07:00
Vol.	1	327	56	9	11	1		3			1			392
PM Peak	14:00	17:00	15:00	13:00	15:00	14:00		14:00						17:00
Vol.	3	458	70	14	11	3		4						531

75 Essex Street
west of Baker Lane
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Client: DCI/ S. Siragusa

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186242 A Speed
Site Code: TBA

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
05/15/ 18	1	0	2	5	2	1	0	0	0	0	0	0	0	11	32	26
01:00	0	0	2	6	0	0	0	0	0	0	0	0	0	8	28	26
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	28	27
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	1	6	2	0	0	0	0	0	0	0	0	9	30	28
05:00	0	1	4	37	14	0	0	0	0	0	0	0	0	56	30	28
06:00	1	2	47	104	30	**2**	0	0	0	0	0	0	0	186	29	26
07:00	**24**	16	80	206	29	1	0	0	0	0	0	0	0	356	28	25
08:00	5	14	**105**	**253**	**44**	1	0	0	0	0	0	0	0	**422**	28	26
09:00	13	**24**	96	164	26	0	0	0	0	0	0	0	0	323	28	24
10:00	3	15	95	145	23	0	0	0	0	0	0	0	0	281	28	25
11:00	6	14	91	140	24	0	0	0	0	0	0	0	0	275	28	25
12 PM	4	20	74	129	38	0	0	0	0	0	0	0	0	265	28	25
13:00	3	17	81	124	37	2	0	0	0	0	0	0	0	264	28	25
14:00	**37**	**28**	**127**	164	25	1	0	0	0	0	0	0	0	**382**	28	23
15:00	0	7	90	189	**45**	1	0	**1**	0	0	0	0	0	333	28	26
16:00	6	22	115	166	29	0	0	0	0	0	0	0	0	338	28	25
17:00	5	16	126	**195**	25	0	0	0	0	0	0	0	0	367	28	25
18:00	7	21	93	151	14	1	0	0	0	0	0	0	0	287	28	24
19:00	1	4	48	114	22	**3**	0	0	0	0	0	0	0	192	28	26
20:00	1	6	23	59	11	0	0	0	0	0	0	0	0	100	28	26
21:00	0	1	12	29	5	0	0	0	0	0	0	0	0	47	28	26
22:00	0	0	4	9	1	0	0	0	0	0	0	0	0	14	28	26
23:00	0	1	2	7	0	0	0	0	0	0	0	0	0	10	27	25
Total	117	229	1318	2403	446	13	0	1	0	0	0	0	0	4527		
%	2.6%	5.1%	29.1%	53.1%	9.9%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	09:00	08:00	08:00	08:00	06:00								08:00		
Vol.	24	24	105	253	44	2								422		
PM Peak	14:00	14:00	14:00	17:00	15:00	19:00		15:00						14:00		
Vol.	37	28	127	195	45	3		1						382		

Stats

15th Percentile :	20 MPH
50th Percentile :	25 MPH
85th Percentile :	28 MPH
95th Percentile :	31 MPH
Mean Speed(Average) :	25 MPH
10 MPH Pace Speed :	20-29 MPH
Number in Pace :	3721
Percent in Pace :	82.2%
Number of Vehicles > 25 MPH :	2382
Percent of Vehicles > 25 MPH :	52.6%

75 Essex Street
west of Baker Lane
City, State: Andover, MA
Client: DCI/ S. Siragusa

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186242 A Speed
Site Code: TBA

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
05/16/ 18	0	0	2	5	4	1	0	0	0	0	0	0	0	12	32	29
01:00	0	1	1	1	1	0	0	0	0	0	0	0	0	4	31	24
02:00	0	0	0	3	1	0	0	0	0	0	0	0	0	4	31	28
03:00	0	0	1	2	0	0	0	0	0	0	0	0	0	3	27	25
04:00	0	0	2	8	3	0	0	0	0	0	0	0	0	13	30	27
05:00	0	1	6	37	10	**2**	0	0	0	0	0	0	0	56	30	28
06:00	1	3	39	101	30	1	0	0	0	0	0	0	0	175	29	27
07:00	**7**	12	89	175	34	0	0	0	0	**1**	0	0	0	318	28	25
08:00	5	**24**	**166**	**244**	**37**	1	0	0	0	0	0	0	0	**477**	28	25
09:00	4	20	102	152	19	0	0	0	0	0	0	0	0	297	28	25
10:00	0	11	75	115	23	1	0	0	0	0	0	0	0	225	28	25
11:00	3	18	90	123	23	0	0	0	0	0	0	0	0	257	28	25
12 PM	8	9	105	130	26	0	0	0	0	0	0	0	0	278	28	25
13:00	1	13	83	120	22	0	0	0	0	0	0	0	0	239	28	25
14:00	**50**	**27**	**146**	143	17	**1**	0	0	0	0	0	0	0	384	27	22
15:00	5	9	94	**208**	31	1	0	0	0	0	0	0	0	348	28	26
16:00	3	13	88	190	22	0	**1**	**1**	0	0	0	0	0	318	28	25
17:00	33	16	114	206	42	0	0	0	0	0	0	0	0	**411**	28	24
18:00	27	11	103	207	**47**	1	0	0	0	0	0	0	0	396	28	25
19:00	1	9	77	133	35	0	0	0	0	0	0	0	0	255	28	26
20:00	1	3	49	87	17	0	0	0	0	0	0	0	0	157	28	26
21:00	0	3	13	43	10	1	0	0	0	0	0	0	0	70	29	27
22:00	0	0	11	14	4	1	0	0	0	0	0	0	0	30	29	26
23:00	0	0	7	6	5	0	0	0	0	0	0	0	0	18	31	26
Total	149	203	1463	2453	463	11	1	1	0	1	0	0	0	4745		
%	3.1%	4.3%	30.8%	51.7%	9.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	08:00	08:00	08:00	08:00	05:00				07:00				08:00		
Vol.	7	24	166	244	37	2				1				477		
PM Peak	14:00	14:00	14:00	15:00	18:00	14:00	16:00	16:00						17:00		
Vol.	50	27	146	208	47	1	1	1						411		

Stats

15th Percentile :	20 MPH
50th Percentile :	25 MPH
85th Percentile :	28 MPH
95th Percentile :	31 MPH
Mean Speed(Average) :	25 MPH
10 MPH Pace Speed :	20-29 MPH
Number in Pace :	3916
Percent in Pace :	82.5%
Number of Vehicles > 25 MPH :	2439
Percent of Vehicles > 25 MPH :	51.4%

75 Essex Street
west of Baker Lane
City, State: Andover, MA
Client: DCI/ S. Siragusa

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

186242 A Speed
Site Code: TBA

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
05/15/ 18	0	0	0	5	3	0	0	0	0	0	0	0	0	8	32	29
01:00	0	0	0	2	1	1	0	0	0	0	0	0	0	4	36	31
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	28	27
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	5	1	0	0	0	0	0	0	0	6	34	33
05:00	0	1	2	17	11	1	0	0	0	0	0	0	0	32	32	28
06:00	1	4	21	55	26	2	0	0	0	0	0	0	0	109	31	27
07:00	**19**	22	75	189	**54**	**4**	0	0	0	0	0	0	0	**363**	29	25
08:00	2	15	72	**215**	53	1	0	0	0	0	0	0	0	358	29	26
09:00	0	9	57	119	27	0	0	0	0	0	0	0	0	212	28	26
10:00	0	16	47	134	26	2	0	0	0	0	0	0	0	225	28	26
11:00	2	**26**	**77**	142	25	0	0	0	0	0	0	0	0	272	28	25
12 PM	**4**	10	63	151	36	2	0	0	0	0	0	0	0	266	28	26
13:00	0	10	69	169	48	**4**	0	0	0	0	0	0	0	300	29	26
14:00	0	18	81	166	39	0	0	0	0	0	0	0	0	304	28	26
15:00	3	15	129	233	40	0	0	0	0	0	0	0	0	420	28	25
16:00	2	**31**	**145**	236	36	2	0	0	0	0	0	0	0	452	28	25
17:00	2	29	121	**255**	**49**	0	0	0	0	0	0	0	0	**456**	28	25
18:00	0	3	88	241	34	1	0	0	0	0	0	0	0	367	28	26
19:00	0	5	38	162	44	3	0	0	0	0	0	0	0	252	30	27
20:00	0	0	29	109	37	4	0	0	0	0	0	0	0	179	30	27
21:00	0	1	13	62	24	2	0	0	0	0	0	0	0	102	31	28
22:00	0	0	0	16	4	2	0	0	0	0	0	0	0	22	32	29
23:00	0	0	2	15	16	0	0	0	0	0	0	0	0	33	32	29
Total	35	215	1129	2694	638	32	0	0	0	0	0	0	0	4743		
%	0.7%	4.5%	23.8%	56.8%	13.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	11:00	11:00	08:00	07:00	07:00								07:00		
Vol.	19	26	77	215	54	4								363		
PM Peak	12:00	16:00	16:00	17:00	17:00	13:00								17:00		
Vol.	4	31	145	255	49	4								456		

Stats

15th Percentile :	21 MPH
50th Percentile :	25 MPH
85th Percentile :	28 MPH
95th Percentile :	32 MPH
Mean Speed(Average) :	26 MPH
10 MPH Pace Speed :	20-29 MPH
Number in Pace :	3823
Percent in Pace :	80.6%
Number of Vehicles > 25 MPH :	2825
Percent of Vehicles > 25 MPH :	59.6%

75 Essex Street
west of Baker Lane
City, State: Andover, MA
Client: DCI/ S. Siragusa

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186242 A Speed
Site Code: TBA

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
05/16/ 18	0	0	0	9	5	0	0	0	0	0	0	0	0	14	31	29
01:00	0	0	1	2	2	0	0	0	0	0	0	0	0	5	32	28
02:00	0	0	1	0	1	0	0	0	**1**	0	0	0	0	3	51	35
03:00	0	0	0	3	0	0	0	0	0	0	0	0	0	3	28	27
04:00	0	0	0	4	3	1	0	0	0	0	0	0	0	8	33	30
05:00	0	1	1	17	10	0	0	0	0	0	0	0	0	29	31	28
06:00	0	0	14	48	23	**3**	0	0	0	0	0	0	0	88	31	28
07:00	0	10	56	**258**	**67**	1	0	0	0	0	0	0	0	**392**	29	27
08:00	0	7	70	181	35	2	0	0	0	0	0	0	0	295	28	26
09:00	**5**	8	56	121	36	2	0	0	0	0	0	0	0	228	29	26
10:00	0	8	54	124	28	1	0	0	0	0	0	0	0	215	28	26
11:00	3	**22**	**96**	117	15	0	0	0	0	0	0	0	0	253	28	24
12 PM	0	7	104	163	27	1	0	0	0	0	0	0	0	302	28	26
13:00	10	14	99	161	32	1	0	0	0	0	0	0	0	317	28	25
14:00	7	34	136	131	19	0	0	0	0	0	0	0	0	327	27	24
15:00	11	22	117	226	35	1	0	0	0	0	0	0	0	412	28	25
16:00	1	13	99	250	54	1	0	0	0	0	0	0	0	418	28	26
17:00	**19**	**36**	**169**	240	63	**4**	0	0	0	0	0	0	0	**531**	28	25
18:00	2	9	87	**295**	**71**	2	0	0	0	0	0	0	0	466	29	27
19:00	0	3	55	198	66	4	0	0	0	0	0	0	0	326	30	27
20:00	0	3	21	134	36	1	0	0	0	0	0	0	0	195	30	27
21:00	1	0	17	71	34	2	0	0	0	0	0	0	0	125	31	28
22:00	0	0	4	24	17	0	0	0	0	0	0	0	0	45	32	28
23:00	0	0	5	14	13	1	0	0	0	0	0	0	0	33	32	29
Total	59	197	1262	2791	692	28	0	0	1	0	0	0	0	5030		
%	1.2%	3.9%	25.1%	55.5%	13.8%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	11:00	11:00	07:00	07:00	06:00			02:00					07:00		
Vol.	5	22	96	258	67	3			1					392		
PM Peak	17:00	17:00	17:00	18:00	18:00	17:00								17:00		
Vol.	19	36	169	295	71	4								531		

Stats

15th Percentile :	20 MPH
50th Percentile :	25 MPH
85th Percentile :	28 MPH
95th Percentile :	32 MPH
Mean Speed(Average) :	26 MPH
10 MPH Pace Speed :	20-29 MPH
Number in Pace :	4053
Percent in Pace :	80.6%
Number of Vehicles > 25 MPH :	2954
Percent of Vehicles > 25 MPH :	58.7%

PDI File #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	3	156	0	159	91	0	0	91	12	5	0	17	267
7:15 AM	7	149	0	156	106	7	0	113	7	2	0	9	278
7:30 AM	6	155	0	161	89	12	0	101	12	7	0	19	281
7:45 AM	9	137	0	146	84	17	0	101	11	4	0	15	262
Total	25	597	0	622	370	36	0	406	42	18	0	60	1088
8:00 AM	3	129	0	132	103	6	0	109	10	4	0	14	255
8:15 AM	4	123	0	127	104	9	0	113	13	3	0	16	256
8:30 AM	5	158	0	163	117	16	0	133	16	7	0	23	319
8:45 AM	5	148	0	153	131	21	0	152	18	12	0	30	335
Total	17	558	0	575	455	52	0	507	57	26	0	83	1165
Grand Total	42	1155	0	1197	825	88	0	913	99	44	0	143	2253
Approach %	3.5	96.5	0.0		90.4	9.6	0.0		69.2	30.8	0.0		
Total %	1.9	51.3	0.0	53.1	36.6	3.9	0.0	40.5	4.4	2.0	0.0	6.3	
Exiting Leg Total				869				1254				130	2253
Cars	42	1115	0	1157	795	81	0	876	90	42	0	132	2165
% Cars	100.0	96.5	0.0	96.7	96.4	92.0	0.0	95.9	90.9	95.5	0.0	92.3	96.1
Exiting Leg Total				837				1205				123	2165
Heavy Vehicles	0	40	0	40	30	7	0	37	9	2	0	11	88
% Heavy Vehicles	0.0	3.5	0.0	3.3	3.6	8.0	0.0	4.1	9.1	4.5	0.0	7.7	3.9
Exiting Leg Total				32				49				7	88

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	3	129	0	132	103	6	0	109	10	4	0	14	255
8:15 AM	4	123	0	127	104	9	0	113	13	3	0	16	256
8:30 AM	5	158	0	163	117	16	0	133	16	7	0	23	319
8:45 AM	5	148	0	153	131	21	0	152	18	12	0	30	335
Total Volume	17	558	0	575	455	52	0	507	57	26	0	83	1165
% Approach Total	3.0	97.0	0.0		89.7	10.3	0.0		68.7	31.3	0.0		
PHF	0.850	0.883	0.000	0.882	0.868	0.619	0.000	0.834	0.792	0.542	0.000	0.692	0.869
Cars	17	534	0	551	436	46	0	482	53	24	0	77	1110
Cars %	100.0	95.7	0.0	95.8	95.8	88.5	0.0	95.1	93.0	92.3	0.0	92.8	95.3
Heavy Vehicles	0	24	0	24	19	6	0	25	4	2	0	6	55
Heavy Vehicles %	0.0	4.3	0.0	4.2	4.2	11.5	0.0	4.9	7.0	7.7	0.0	7.2	4.7
Cars Enter Leg	17	534	0	551	436	46	0	482	53	24	0	77	1110
Heavy Enter Leg	0	24	0	24	19	6	0	25	4	2	0	6	55
Total Entering Leg	17	558	0	575	455	52	0	507	57	26	0	83	1165
Cars Exiting Leg				460				587				63	1110
Heavy Exiting Leg				21				28				6	55
Total Exiting Leg				481				615				69	1165

PDI File #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28)				North Main Street (Route 28)				Pearson Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	3	151	0	154	89	0	0	89	12	5	0	17	260
7:15 AM	7	146	0	153	101	7	0	108	4	2	0	6	267
7:30 AM	6	152	0	158	85	12	0	97	10	7	0	17	272
7:45 AM	9	132	0	141	84	16	0	100	11	4	0	15	256
Total	25	581	0	606	359	35	0	394	37	18	0	55	1055
8:00 AM	3	120	0	123	100	5	0	105	10	4	0	14	242
8:15 AM	4	121	0	125	101	9	0	110	11	3	0	14	249
8:30 AM	5	152	0	157	111	12	0	123	14	5	0	19	299
8:45 AM	5	141	0	146	124	20	0	144	18	12	0	30	320
Total	17	534	0	551	436	46	0	482	53	24	0	77	1110
Grand Total	42	1115	0	1157	795	81	0	876	90	42	0	132	2165
Approach %	3.6	96.4	0.0		90.8	9.2	0.0		68.2	31.8	0.0		
Total %	1.9	51.5	0.0	53.4	36.7	3.7	0.0	40.5	4.2	1.9	0.0	6.1	
Exiting Leg Total				837				1205				123	2165

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28)				North Main Street (Route 28)				Pearson Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	3	120	0	123	100	5	0	105	10	4	0	14	242
8:15 AM	4	121	0	125	101	9	0	110	11	3	0	14	249
8:30 AM	5	152	0	157	111	12	0	123	14	5	0	19	299
8:45 AM	5	141	0	146	124	20	0	144	18	12	0	30	320
Total Volume	17	534	0	551	436	46	0	482	53	24	0	77	1110
% Approach Total	3.1	96.9	0.0		90.5	9.5	0.0		68.8	31.2	0.0		
PHF	0.850	0.878	0.000	0.877	0.879	0.575	0.000	0.837	0.736	0.500	0.000	0.642	0.867
Entering Leg	17	534	0	551	436	46	0	482	53	24	0	77	1110
Exiting Leg				460				587				63	1110
Total				1011				1069				140	2220

PDI File #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	North Main Street (Route 28)				North Main Street (Route 28)				Pearson Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	5	0	5	2	0	0	2	0	0	0	0	7
7:15 AM	0	3	0	3	5	0	0	5	3	0	0	3	11
7:30 AM	0	3	0	3	4	0	0	4	2	0	0	2	9
7:45 AM	0	5	0	5	0	1	0	1	0	0	0	0	6
Total	0	16	0	16	11	1	0	12	5	0	0	5	33
8:00 AM	0	9	0	9	3	1	0	4	0	0	0	0	13
8:15 AM	0	2	0	2	3	0	0	3	2	0	0	2	7
8:30 AM	0	6	0	6	6	4	0	10	2	2	0	4	20
8:45 AM	0	7	0	7	7	1	0	8	0	0	0	0	15
Total	0	24	0	24	19	6	0	25	4	2	0	6	55
Grand Total	0	40	0	40	30	7	0	37	9	2	0	11	88
Approach %	0.0	100.0	0.0		81.1	18.9	0.0		81.8	18.2	0.0		
Total %	0.0	45.5	0.0	45.5	34.1	8.0	0.0	42.0	10.2	2.3	0.0	12.5	
Exiting Leg Total				32				49				7	88
Buses	0	3	0	3	6	1	0	7	0	0	0	0	10
% Buses	0.0	7.5	0.0	7.5	20.0	14.3	0.0	18.9	0.0	0.0	0.0	0.0	11.4
Exiting Leg Total				6				3				1	10
Single-Unit Trucks	0	31	0	31	19	6	0	25	8	2	0	10	66
% Single-Unit	0.0	77.5	0.0	77.5	63.3	85.7	0.0	67.6	88.9	100.0	0.0	90.9	75.0
Exiting Leg Total				21				39				6	66
Articulated Trucks	0	6	0	6	5	0	0	5	1	0	0	1	12
% Articulated	0.0	15.0	0.0	15.0	16.7	0.0	0.0	13.5	11.1	0.0	0.0	9.1	13.6
Exiting Leg Total				5				7				0	12

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28)				North Main Street (Route 28)				Pearson Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	9	0	9	3	1	0	4	0	0	0	0	13
8:15 AM	0	2	0	2	3	0	0	3	2	0	0	2	7
8:30 AM	0	6	0	6	6	4	0	10	2	2	0	4	20
8:45 AM	0	7	0	7	7	1	0	8	0	0	0	0	15
Total Volume	0	24	0	24	19	6	0	25	4	2	0	6	55
% Approach Total	0.0	100.0	0.0		76.0	24.0	0.0		66.7	33.3	0.0		
PHF	0.000	0.667	0.000	0.667	0.679	0.375	0.000	0.625	0.500	0.250	0.000	0.375	0.688
Buses	0	1	0	1	5	0	0	5	0	0	0	0	6
Buses %	0.0	4.2	0.0	4.2	26.3	0.0	0.0	20.0	0.0	0.0	0.0	0.0	10.9
Single-Unit Trucks	0	20	0	20	12	6	0	18	3	2	0	5	43
Single-Unit %	0.0	83.3	0.0	83.3	63.2	100.0	0.0	72.0	75.0	100.0	0.0	83.3	78.2
Articulated Trucks	0	3	0	3	2	0	0	2	1	0	0	1	6
Articulated %	0.0	12.5	0.0	12.5	10.5	0.0	0.0	8.0	25.0	0.0	0.0	16.7	10.9
Buses	0	1	0	1	5	0	0	5	0	0	0	0	6
Single-Unit Trucks	0	20	0	20	12	6	0	18	3	2	0	5	43
Articulated Trucks	0	3	0	3	2	0	0	2	1	0	0	1	6
Total Entering Leg	0	24	0	24	19	6	0	25	4	2	0	6	55
Buses				5				1				0	6
Single-Unit Trucks				14				23				6	43
Articulated Trucks				2				4				0	6
Total Exiting Leg				21				28				6	55

PDI File #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	2	135	0	137	83	0	0	83	11	5	0	16	236
7:15 AM	4	129	0	133	96	6	0	102	3	1	0	4	239
7:30 AM	4	136	0	140	82	12	0	94	9	7	0	16	250
7:45 AM	9	123	0	132	78	15	0	93	9	1	0	10	235
Total	19	523	0	542	339	33	0	372	32	14	0	46	960
8:00 AM	3	109	0	112	94	4	0	98	10	3	0	13	223
8:15 AM	4	109	0	113	88	9	0	97	10	3	0	13	223
8:30 AM	3	131	0	134	97	12	0	109	13	5	0	18	261
8:45 AM	4	123	0	127	113	20	0	133	17	10	0	27	287
Total	14	472	0	486	392	45	0	437	50	21	0	71	994
Grand Total	33	995	0	1028	731	78	0	809	82	35	0	117	1954
Approach %	3.2	96.8	0.0		90.4	9.6	0.0		70.1	29.9	0.0		
Total %	1.7	50.9	0.0	52.6	37.4	4.0	0.0	41.4	4.2	1.8	0.0	6.0	
Exiting Leg Total				766				1077				111	1954

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	3	109	0	112	94	4	0	98	10	3	0	13	223
8:15 AM	4	109	0	113	88	9	0	97	10	3	0	13	223
8:30 AM	3	131	0	134	97	12	0	109	13	5	0	18	261
8:45 AM	4	123	0	127	113	20	0	133	17	10	0	27	287
Total Volume	14	472	0	486	392	45	0	437	50	21	0	71	994
% Approach Total	2.9	97.1	0.0		89.7	10.3	0.0		70.4	29.6	0.0		
PHF	0.875	0.901	0.000	0.907	0.867	0.563	0.000	0.821	0.735	0.525	0.000	0.657	0.866
Entering Leg	14	472	0	486	392	45	0	437	50	21	0	71	994
Exiting Leg				413				522				59	994
Total				899				959				130	1988

PDI File #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	1	16	0	17	6	0	0	6	1	0	0	1	24
7:15 AM	3	17	0	20	5	1	0	6	1	1	0	2	28
7:30 AM	2	15	0	17	3	0	0	3	1	0	0	1	21
7:45 AM	0	9	0	9	6	1	0	7	2	3	0	5	21
Total	6	57	0	63	20	2	0	22	5	4	0	9	94
8:00 AM	0	11	0	11	6	1	0	7	0	1	0	1	19
8:15 AM	0	12	0	12	13	0	0	13	1	0	0	1	26
8:30 AM	2	21	0	23	14	0	0	14	1	0	0	1	38
8:45 AM	1	17	0	18	11	0	0	11	1	2	0	3	32
Total	3	61	0	64	44	1	0	45	3	3	0	6	115
Grand Total	9	118	0	127	64	3	0	67	8	7	0	15	209
Approach %	7.1	92.9	0.0		95.5	4.5	0.0		53.3	46.7	0.0		
Total %	4.3	56.5	0.0	60.8	30.6	1.4	0.0	32.1	3.8	3.3	0.0	7.2	
Exiting Leg Total				71				126				12	209

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	11	0	11	6	1	0	7	0	1	0	1	19
8:15 AM	0	12	0	12	13	0	0	13	1	0	0	1	26
8:30 AM	2	21	0	23	14	0	0	14	1	0	0	1	38
8:45 AM	1	17	0	18	11	0	0	11	1	2	0	3	32
Total Volume	3	61	0	64	44	1	0	45	3	3	0	6	115
% Approach Total	4.7	95.3	0.0		97.8	2.2	0.0		50.0	50.0	0.0		
PHF	0.375	0.726	0.000	0.696	0.786	0.250	0.000	0.804	0.750	0.375	0.000	0.500	0.757
Entering Leg	3	61	0	64	44	1	0	45	3	3	0	6	115
Exiting Leg				47				64				4	115
Total				111				109				10	230

PDI File #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street 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	1	0	0	1	0	0	0	0	2
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	1	0	1	0	1	0	1	0	0	0	0	2
Total	0	2	0	2	1	1	0	2	0	0	0	0	4
8:00 AM	0	1	0	1	2	0	0	2	0	0	0	0	3
8:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	2	0	0	2	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	5	0	0	5	0	0	0	0	6
Grand Total	0	3	0	3	6	1	0	7	0	0	0	0	10
Approach %	0.0	100.0	0.0		85.7	14.3	0.0		0.0	0.0	0.0		
Total %	0.0	30.0	0.0	30.0	60.0	10.0	0.0	70.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				6				3				1	10

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:45 AM	0	1	0	1	0	1	0	1	0	0	0	0	2
8:00 AM	0	1	0	1	2	0	0	2	0	0	0	0	3
8:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	2	0	0	2	0	0	0	0	2
Total Volume	0	2	0	2	5	1	0	6	0	0	0	0	8
% Approach Total	0.0	100.0	0.0		83.3	16.7	0.0		0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.500	0.625	0.250	0.000	0.750	0.000	0.000	0.000	0.000	0.667
Entering Leg	0	2	0	2	5	1	0	6	0	0	0	0	8
Exiting Leg				5				2				1	8
Total				7				8				1	16

PDI File #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	3	0	3	1	0	0	1	0	0	0	0	4
7:15 AM	0	3	0	3	2	0	0	2	3	0	0	3	8
7:30 AM	0	2	0	2	4	0	0	4	2	0	0	2	8
7:45 AM	0	3	0	3	0	0	0	0	0	0	0	0	3
Total	0	11	0	11	7	0	0	7	5	0	0	5	23
8:00 AM	0	8	0	8	1	1	0	2	0	0	0	0	10
8:15 AM	0	2	0	2	1	0	0	1	1	0	0	1	4
8:30 AM	0	4	0	4	3	4	0	7	2	2	0	4	15
8:45 AM	0	6	0	6	7	1	0	8	0	0	0	0	14
Total	0	20	0	20	12	6	0	18	3	2	0	5	43
Grand Total	0	31	0	31	19	6	0	25	8	2	0	10	66
Approach %	0.0	100.0	0.0		76.0	24.0	0.0		80.0	20.0	0.0		
Total %	0.0	47.0	0.0	47.0	28.8	9.1	0.0	37.9	12.1	3.0	0.0	15.2	
Exiting Leg Total				21				39				6	66

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	8	0	8	1	1	0	2	0	0	0	0	10
8:15 AM	0	2	0	2	1	0	0	1	1	0	0	1	4
8:30 AM	0	4	0	4	3	4	0	7	2	2	0	4	15
8:45 AM	0	6	0	6	7	1	0	8	0	0	0	0	14
Total Volume	0	20	0	20	12	6	0	18	3	2	0	5	43
% Approach Total	0.0	100.0	0.0		66.7	33.3	0.0		60.0	40.0	0.0		
PHF	0.000	0.625	0.000	0.625	0.429	0.375	0.000	0.563	0.375	0.250	0.000	0.313	0.717
Entering Leg	0	20	0	20	12	6	0	18	3	2	0	5	43
Exiting Leg				14				23				6	43
Total				34				41				11	86

PDI File #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street 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	0	0	0	3	0	0	3	0	0	0	0	3
7:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	3	0	3	3	0	0	3	0	0	0	0	6
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	1	1	0	0	1	2
8:30 AM	0	2	0	2	1	0	0	1	0	0	0	0	3
8:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	3	0	3	2	0	0	2	1	0	0	1	6
Grand Total	0	6	0	6	5	0	0	5	1	0	0	1	12
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		100.0	0.0	0.0		
Total %	0.0	50.0	0.0	50.0	41.7	0.0	0.0	41.7	8.3	0.0	0.0	8.3	
Exiting Leg Total				5				7				0	12

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street 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	0	0	0	3	0	0	3	0	0	0	0	3
7:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	3	0	3	3	0	0	3	0	0	0	0	6
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.750	0.000	0.750	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	3	0	3	3	0	0	3	0	0	0	0	6
Exiting Leg				3				3				0	6
Total				6				6				0	12

PDI File #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28)						North Main Street (Route 28)						Pearson Street						
	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	North Main Street (Route 28)						North Main Street (Route 28)						Pearson Street						
	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 #: **186242 A**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28)						North Main Street (Route 28)						Pearson Street						
	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	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	1	1	3
Total	0	0	0	1	0	1	0	0	0	2	0	2	0	0	0	0	1	1	4
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	2	2	2
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	2	2	2
Grand Total	0	0	0	1	0	1	0	0	0	2	0	2	0	0	0	0	3	3	6
Approach %	0	0	0	100	0		0	0	0	100	0		0	0	0	0	100		
Total %	0	0	0	16.667	0	16.667	0	0	0	33.333	0	33.333	0	0	0	0	50	50	
Exiting Leg Total						1						2						3	6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	North Main Street (Route 28)						North Main Street (Route 28)						Pearson Street						
	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
7:45 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	1	1	3
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	2	2	2
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	3	3	5
% Approach Total	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	100.0		
PHF	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	0.375	0.375	0.417
Entering Leg	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	3	3	5
Exiting Leg						0						2						3	5
Total						0						4						6	10

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	5	127	0	132	150	4	0	154	26	15	0	41	327
4:15 PM	7	91	0	98	144	9	0	153	25	9	0	34	285
4:30 PM	4	117	0	121	169	8	0	177	21	10	0	31	329
4:45 PM	3	95	0	98	155	10	0	165	20	14	0	34	297
Total	19	430	0	449	618	31	0	649	92	48	0	140	1238
5:00 PM	7	106	0	113	164	10	0	174	35	12	0	47	334
5:15 PM	2	97	0	99	133	9	0	142	37	8	0	45	286
5:30 PM	1	110	0	111	144	13	0	157	26	11	0	37	305
5:45 PM	3	97	0	100	151	15	0	166	20	7	0	27	293
Total	13	410	0	423	592	47	0	639	118	38	0	156	1218
Grand Total	32	840	0	872	1210	78	0	1288	210	86	0	296	2456
Approach %	3.7	96.3	0.0		93.9	6.1	0.0		70.9	29.1	0.0		
Total %	1.3	34.2	0.0	35.5	49.3	3.2	0.0	52.4	8.6	3.5	0.0	12.1	
Exiting Leg Total				1296				1050				110	2456
Cars	32	829	0	861	1193	76	0	1269	209	82	0	291	2421
% Cars	100.0	98.7	0.0	98.7	98.6	97.4	0.0	98.5	99.5	95.3	0.0	98.3	98.6
Exiting Leg Total				1275				1038				108	2421
Heavy Vehicles	0	11	0	11	17	2	0	19	1	4	0	5	35
% Heavy Vehicles	0.0	1.3	0.0	1.3	1.4	2.6	0.0	1.5	0.5	4.7	0.0	1.7	1.4
Exiting Leg Total				21				12				2	35

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:30 PM	4	117	0	121	169	8	0	177	21	10	0	31	329
4:45 PM	3	95	0	98	155	10	0	165	20	14	0	34	297
5:00 PM	7	106	0	113	164	10	0	174	35	12	0	47	334
5:15 PM	2	97	0	99	133	9	0	142	37	8	0	45	286
Total Volume	16	415	0	431	621	37	0	658	113	44	0	157	1246
% Approach Total	3.7	96.3	0.0		94.4	5.6	0.0		72.0	28.0	0.0		
PHF	0.571	0.887	0.000	0.890	0.919	0.925	0.000	0.929	0.764	0.786	0.000	0.835	0.933
Cars	16	410	0	426	612	36	0	648	112	41	0	153	1227
Cars %	100.0	98.8	0.0	98.8	98.6	97.3	0.0	98.5	99.1	93.2	0.0	97.5	98.5
Heavy Vehicles	0	5	0	5	9	1	0	10	1	3	0	4	19
Heavy Vehicles %	0.0	1.2	0.0	1.2	1.4	2.7	0.0	1.5	0.9	6.8	0.0	2.5	1.5
Cars Enter Leg	16	410	0	426	612	36	0	648	112	41	0	153	1227
Heavy Enter Leg	0	5	0	5	9	1	0	10	1	3	0	4	19
Total Entering Leg	16	415	0	431	621	37	0	658	113	44	0	157	1246
Cars Exiting Leg				653				522				52	1227
Heavy Exiting Leg				12				6				1	19
Total Exiting Leg				665				528				53	1246

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	5	123	0	128	148	3	0	151	26	15	0	41	320
4:15 PM	7	91	0	98	142	9	0	151	25	9	0	34	283
4:30 PM	4	115	0	119	169	8	0	177	21	10	0	31	327
4:45 PM	3	93	0	96	153	10	0	163	19	14	0	33	292
Total	19	422	0	441	612	30	0	642	91	48	0	139	1222
5:00 PM	7	106	0	113	160	9	0	169	35	9	0	44	326
5:15 PM	2	96	0	98	130	9	0	139	37	8	0	45	282
5:30 PM	1	109	0	110	143	13	0	156	26	11	0	37	303
5:45 PM	3	96	0	99	148	15	0	163	20	6	0	26	288
Total	13	407	0	420	581	46	0	627	118	34	0	152	1199
Grand Total	32	829	0	861	1193	76	0	1269	209	82	0	291	2421
Approach %	3.7	96.3	0.0		94.0	6.0	0.0		71.8	28.2	0.0		
Total %	1.3	34.2	0.0	35.6	49.3	3.1	0.0	52.4	8.6	3.4	0.0	12.0	
Exiting Leg Total				1275				1038				108	2421

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:15 PM	7	91	0	98	142	9	0	151	25	9	0	34	283
4:30 PM	4	115	0	119	169	8	0	177	21	10	0	31	327
4:45 PM	3	93	0	96	153	10	0	163	19	14	0	33	292
5:00 PM	7	106	0	113	160	9	0	169	35	9	0	44	326
Total Volume	21	405	0	426	624	36	0	660	100	42	0	142	1228
% Approach Total	4.9	95.1	0.0		94.5	5.5	0.0		70.4	29.6	0.0		
PHF	0.750	0.880	0.000	0.895	0.923	0.900	0.000	0.932	0.714	0.750	0.000	0.807	0.939
Entering Leg	21	405	0	426	624	36	0	660	100	42	0	142	1228
Exiting Leg				666				505				57	1228
Total				1092				1165				199	2456

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	North Main Street (Route 28)				North Main Street (Route 28)				Pearson Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	4	0	4	2	1	0	3	0	0	0	0	7
4:15 PM	0	0	0	0	2	0	0	2	0	0	0	0	2
4:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
4:45 PM	0	2	0	2	2	0	0	2	1	0	0	1	5
Total	0	8	0	8	6	1	0	7	1	0	0	1	16
5:00 PM	0	0	0	0	4	1	0	5	0	3	0	3	8
5:15 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
5:30 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:45 PM	0	1	0	1	3	0	0	3	0	1	0	1	5
Total	0	3	0	3	11	1	0	12	0	4	0	4	19
Grand Total	0	11	0	11	17	2	0	19	1	4	0	5	35
Approach %	0.0	100.0	0.0		89.5	10.5	0.0		20.0	80.0	0.0		
Total %	0.0	31.4	0.0	31.4	48.6	5.7	0.0	54.3	2.9	11.4	0.0	14.3	
Exiting Leg Total				21				12				2	35
Buses	0	7	0	7	4	1	0	5	0	0	0	0	12
% Buses	0.0	63.6	0.0	63.6	23.5	50.0	0.0	26.3	0.0	0.0	0.0	0.0	34.3
Exiting Leg Total				4				7				1	12
Single-Unit Trucks	0	3	0	3	12	1	0	13	1	4	0	5	21
% Single-Unit	0.0	27.3	0.0	27.3	70.6	50.0	0.0	68.4	100.0	100.0	0.0	100.0	60.0
Exiting Leg Total				16				4				1	21
Articulated Trucks	0	1	0	1	1	0	0	1	0	0	0	0	2
% Articulated	0.0	9.1	0.0	9.1	5.9	0.0	0.0	5.3	0.0	0.0	0.0	0.0	5.7
Exiting Leg Total				1				1				0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	North Main Street (Route 28)				North Main Street (Route 28)				Pearson Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
4:45 PM	0	2	0	2	2	0	0	2	1	0	0	1	5
5:00 PM	0	0	0	0	4	1	0	5	0	3	0	3	8
5:15 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
Total Volume	0	5	0	5	9	1	0	10	1	3	0	4	19
% Approach Total	0.0	100.0	0.0		90.0	10.0	0.0		25.0	75.0	0.0		
PHF	0.000	0.625	0.000	0.625	0.563	0.250	0.000	0.500	0.250	0.250	0.000	0.333	0.594
Buses	0	2	0	2	1	0	0	1	0	0	0	0	3
Buses %	0.0	40.0	0.0	40.0	11.1	0.0	0.0	10.0	0.0	0.0	0.0	0.0	15.8
Single-Unit Trucks	0	3	0	3	7	1	0	8	1	3	0	4	15
Single-Unit %	0.0	60.0	0.0	60.0	77.8	100.0	0.0	80.0	100.0	100.0	0.0	100.0	78.9
Articulated Trucks	0	0	0	0	1	0	0	1	0	0	0	0	1
Articulated %	0.0	0.0	0.0	0.0	11.1	0.0	0.0	10.0	0.0	0.0	0.0	0.0	5.3
Buses	0	2	0	2	1	0	0	1	0	0	0	0	3
Single-Unit Trucks	0	3	0	3	7	1	0	8	1	3	0	4	15
Articulated Trucks	0	0	0	0	1	0	0	1	0	0	0	0	1
Total Entering Leg	0	5	0	5	9	1	0	10	1	3	0	4	19
Buses				1				2				0	3
Single-Unit Trucks				10				4				1	15
Articulated Trucks				1				0				0	1
Total Exiting Leg				12				6				1	19

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	5	118	0	123	131	3	0	134	26	13	0	39	296
4:15 PM	5	88	0	93	129	8	0	137	22	8	0	30	260
4:30 PM	3	109	0	112	159	8	0	167	21	10	0	31	310
4:45 PM	3	82	0	85	148	8	0	156	17	12	0	29	270
Total	16	397	0	413	567	27	0	594	86	43	0	129	1136
5:00 PM	7	103	0	110	150	8	0	158	35	9	0	44	312
5:15 PM	1	90	0	91	125	9	0	134	36	7	0	43	268
5:30 PM	1	105	0	106	136	13	0	149	26	11	0	37	292
5:45 PM	3	91	0	94	142	14	0	156	19	6	0	25	275
Total	12	389	0	401	553	44	0	597	116	33	0	149	1147
Grand Total	28	786	0	814	1120	71	0	1191	202	76	0	278	2283
Approach %	3.4	96.6	0.0		94.0	6.0	0.0		72.7	27.3	0.0		
Total %	1.2	34.4	0.0	35.7	49.1	3.1	0.0	52.2	8.8	3.3	0.0	12.2	
Exiting Leg Total				1196				988				99	2283

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:30 PM	3	109	0	112	159	8	0	167	21	10	0	31	310
4:45 PM	3	82	0	85	148	8	0	156	17	12	0	29	270
5:00 PM	7	103	0	110	150	8	0	158	35	9	0	44	312
5:15 PM	1	90	0	91	125	9	0	134	36	7	0	43	268
Total Volume	14	384	0	398	582	33	0	615	109	38	0	147	1160
% Approach Total	3.5	96.5	0.0		94.6	5.4	0.0		74.1	25.9	0.0		
PHF	0.500	0.881	0.000	0.888	0.915	0.917	0.000	0.921	0.757	0.792	0.000	0.835	0.929
Entering Leg	14	384	0	398	582	33	0	615	109	38	0	147	1160
Exiting Leg				620				493				47	1160
Total				1018				1108				194	2320

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	5	0	5	17	0	0	17	0	2	0	2	24
4:15 PM	2	3	0	5	13	1	0	14	3	1	0	4	23
4:30 PM	1	6	0	7	10	0	0	10	0	0	0	0	17
4:45 PM	0	11	0	11	5	2	0	7	2	2	0	4	22
Total	3	25	0	28	45	3	0	48	5	5	0	10	86
5:00 PM	0	3	0	3	10	1	0	11	0	0	0	0	14
5:15 PM	1	6	0	7	5	0	0	5	1	1	0	2	14
5:30 PM	0	4	0	4	7	0	0	7	0	0	0	0	11
5:45 PM	0	5	0	5	6	0	0	6	1	0	0	1	12
Total	1	18	0	19	28	1	0	29	2	1	0	3	51
Grand Total	4	43	0	47	73	4	0	77	7	6	0	13	137
Approach %	8.5	91.5	0.0		94.8	5.2	0.0		53.8	46.2	0.0		
Total %	2.9	31.4	0.0	34.3	53.3	2.9	0.0	56.2	5.1	4.4	0.0	9.5	
Exiting Leg Total				79				50				8	137

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	5	0	5	17	0	0	17	0	2	0	2	24
4:15 PM	2	3	0	5	13	1	0	14	3	1	0	4	23
4:30 PM	1	6	0	7	10	0	0	10	0	0	0	0	17
4:45 PM	0	11	0	11	5	2	0	7	2	2	0	4	22
Total Volume	3	25	0	28	45	3	0	48	5	5	0	10	86
% Approach Total	10.7	89.3	0.0		93.8	6.3	0.0		50.0	50.0	0.0		
PHF	0.375	0.568	0.000	0.636	0.662	0.375	0.000	0.706	0.417	0.625	0.000	0.625	0.896
Entering Leg	3	25	0	28	45	3	0	48	5	5	0	10	86
Exiting Leg				50				30				6	86
Total				78				78				16	172

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	4	0	4	0	1	0	1	0	0	0	0	5
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	6	0	6	1	1	0	2	0	0	0	0	8
5:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
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	1	0	1	2	0	0	2	0	0	0	0	3
Total	0	1	0	1	3	0	0	3	0	0	0	0	4
Grand Total	0	7	0	7	4	1	0	5	0	0	0	0	12
Approach %	0.0	100.0	0.0		80.0	20.0	0.0		0.0	0.0	0.0		
Total %	0.0	58.3	0.0	58.3	33.3	8.3	0.0	41.7	0.0	0.0	0.0	0.0	
Exiting Leg Total				4				7				1	12

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	4	0	4	0	1	0	1	0	0	0	0	5
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	6	0	6	1	1	0	2	0	0	0	0	8
% Approach Total	0.0	100.0	0.0		50.0	50.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.375	0.000	0.375	0.250	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.400
Entering Leg	0	6	0	6	1	1	0	2	0	0	0	0	8
Exiting Leg				1				6				1	8
Total				7				8				1	16

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street 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	2	0	0	2	0	0	0	0	2
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	1	2	0	0	2	1	0	0	1	4
Total	0	2	0	2	5	0	0	5	1	0	0	1	8
5:00 PM	0	0	0	0	2	1	0	3	0	3	0	3	6
5:15 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
5:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	1	0	0	1	0	1	0	1	2
Total	0	1	0	1	7	1	0	8	0	4	0	4	13
Grand Total	0	3	0	3	12	1	0	13	1	4	0	5	21
Approach %	0.0	100.0	0.0		92.3	7.7	0.0		20.0	80.0	0.0		
Total %	0.0	14.3	0.0	14.3	57.1	4.8	0.0	61.9	4.8	19.0	0.0	23.8	
Exiting Leg Total				16				4				1	21

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Pearson Street 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	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	1	2	0	0	2	1	0	0	1	4
5:00 PM	0	0	0	0	2	1	0	3	0	3	0	3	6
5:15 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
Total Volume	0	3	0	3	7	1	0	8	1	3	0	4	15
% Approach Total	0.0	100.0	0.0		87.5	12.5	0.0		25.0	75.0	0.0		
PHF	0.000	0.750	0.000	0.750	0.583	0.250	0.000	0.667	0.250	0.250	0.000	0.333	0.625
Entering Leg	0	3	0	3	7	1	0	8	1	3	0	4	15
Exiting Leg				10				4				1	15
Total				13				12				5	30

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28)				North Main Street (Route 28)				Pearson Street				
	from North				from South				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	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	1	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	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	0	1	0	1	1	0	0	1	0	0	0	0	2
Grand Total	0	1	0	1	1	0	0	1	0	0	0	0	2
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				1				1				0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	North Main Street (Route 28)				North Main Street (Route 28)				Pearson Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	1	1	0	0	1	0	0	0	0	2
% 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	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	1	0	1	1	0	0	1	0	0	0	0	2
Exiting Leg				1				1				0	2
Total				2				2				0	4

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28)						North Main Street (Route 28)						Pearson Street						
	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
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	1	1	1
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	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	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	0.0	0.0	0.0	100.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	
Exiting Leg Total						0						0						2	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28)						North Main Street (Route 28)						Pearson Street						
	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
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	1	1	1
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Exiting Leg						0						0						1	1
Total						0						0						2	2

PDI File #: **186242 AA**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28)						North Main Street (Route 28)						Pearson Street						
	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
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	8	8
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	4	0	4	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
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	7	0	7	7
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	7	15	15
Approach %	0	0	0	0	0		0	0	0	0	0		0	0	0	53.333	46.667		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53.333	46.667	100	
Exiting Leg Total						0						0						15	15

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28)						North Main Street (Route 28)						Pearson Street						
	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
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	8	8
% 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	12.5	87.5		
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	0.250	0.583	0.667	0.667
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	8	8
Exiting Leg						0						0						8	8
Total						0						0						16	16

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
7:00 AM	7	3	14	4	0	28	1	4	0	0	0	5	1	8	55	10	0	74	0	1	0	0	0	1	2	43	15	6	0	66	174
7:15 AM	16	3	6	2	0	27	3	11	0	0	0	14	0	8	111	5	0	124	1	0	2	1	0	4	1	65	5	2	0	73	242
7:30 AM	22	5	12	2	0	41	5	10	0	0	0	15	0	16	100	7	0	123	0	0	1	0	0	1	7	62	15	11	0	95	275
7:45 AM	16	4	12	6	0	38	15	6	0	0	0	21	0	15	32	8	0	55	4	0	0	3	0	7	4	63	4	16	0	87	208
Total	61	15	44	14	0	134	24	31	0	0	0	55	1	47	298	30	0	376	5	1	3	4	0	13	14	233	39	35	0	321	899
8:00 AM	12	6	14	4	0	36	3	3	0	0	0	6	0	8	45	19	0	72	5	0	1	2	0	8	13	80	7	8	0	108	230
8:15 AM	14	4	21	6	0	45	7	3	0	0	0	10	0	14	44	9	0	67	1	0	2	0	0	3	17	77	14	15	0	123	248
8:30 AM	15	2	31	3	0	51	10	8	1	0	0	19	0	33	62	13	0	108	1	1	2	7	0	11	11	91	20	14	0	136	325
8:45 AM	9	10	17	4	0	40	7	6	3	1	0	17	0	39	60	14	0	113	1	3	5	4	0	13	23	74	13	11	0	121	304
Total	50	22	83	17	0	172	27	20	4	1	0	52	0	94	211	55	0	360	8	4	10	13	0	35	64	322	54	48	0	488	1107
Grand Total	111	37	127	31	0	306	51	51	4	1	0	107	1	141	509	85	0	736	13	5	13	17	0	48	78	555	93	83	0	809	2006
Approach %	36.3	12.1	41.5	10.1	0.0		47.7	47.7	3.7	0.9	0.0		0.1	19.2	69.2	11.5	0.0		27.1	10.4	27.1	35.4	0.0		9.6	68.6	11.5	10.3	0.0		
Total %	5.5	1.8	6.3	1.5	0.0	15.3	2.5	2.5	0.2	0.0	0.0	5.3	0.0	7.0	25.4	4.2	0.0	36.7	0.6	0.2	0.6	0.8	0.0	2.4	3.9	27.7	4.6	4.1	0.0	40.3	
Exiting Leg Total						288						130						696						204						688	2006
Cars	109	37	117	29	0	292	49	48	4	1	0	102	1	133	489	84	0	707	13	5	12	17	0	47	78	531	86	80	0	775	1923
% Cars	98.2	100.0	92.1	93.5	0.0	95.4	96.1	94.1	100.0	100.0	0.0	95.3	100.0	94.3	96.1	98.8	0.0	96.1	100.0	100.0	92.3	100.0	0.0	97.9	100.0	95.7	92.5	96.4	0.0	95.8	95.9
Exiting Leg Total						274						121						662						203						663	1923
Heavy Vehicles	2	0	10	2	0	14	2	3	0	0	0	5	0	8	20	1	0	29	0	0	1	0	0	1	0	24	7	3	0	34	83
% Heavy Vehicles	1.8	0.0	7.9	6.5	0.0	4.6	3.9	5.9	0.0	0.0	0.0	4.7	0.0	5.7	3.9	1.2	0.0	3.9	0.0	0.0	7.7	0.0	0.0	2.1	0.0	4.3	7.5	3.6	0.0	4.2	4.1
Exiting Leg Total						14						9						34						1						25	83

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
8:00 AM	12	6	14	4	0	36	3	3	0	0	0	6	0	8	45	19	0	72	5	0	1	2	0	8	13	80	7	8	0	108	230
8:15 AM	14	4	21	6	0	45	7	3	0	0	0	10	0	14	44	9	0	67	1	0	2	0	0	3	17	77	14	15	0	123	248
8:30 AM	15	2	31	3	0	51	10	8	1	0	0	19	0	33	62	13	0	108	1	1	2	7	0	11	11	91	20	14	0	136	325
8:45 AM	9	10	17	4	0	40	7	6	3	1	0	17	0	39	60	14	0	113	1	3	5	4	0	13	23	74	13	11	0	121	304
Total Volume	50	22	83	17	0	172	27	20	4	1	0	52	0	94	211	55	0	360	8	4	10	13	0	35	64	322	54	48	0	488	1107
% Approach Total	29.1	12.8	48.3	9.9	0.0		51.9	38.5	7.7	1.9	0.0		0.0	26.1	58.6	15.3	0.0		22.9	11.4	28.6	37.1	0.0		13.1	66.0	11.1	9.8	0.0		
PHF	0.833	0.550	0.669	0.708	0.000	0.843	0.675	0.625	0.333	0.250	0.000	0.684	0.000	0.603	0.851	0.724	0.000	0.796	0.400	0.333	0.500	0.464	0.000	0.673	0.696	0.885	0.675	0.800	0.000	0.897	0.852
Cars	49	22	77	15	0	163	26	18	4	1	0	49	0	89	203	54	0	346	8	4	9	13	0	34	64	312	49	46	0	471	1063
Cars %	98.0	100.0	92.8	88.2	0.0	94.8	96.3	90.0	100.0	100.0	0.0	94.2	0.0	94.7	96.2	98.2	0.0	96.1	100.0	100.0	90.0	100.0	0.0	97.1	100.0	96.9	90.7	95.8	0.0	96.5	96.0
Heavy Vehicles	1	0	6	2	0	9	1	2	0	0	0	3	0	5	8	1	0	14	0	0	1	0	0	1	0	10	5	2	0	17	44
Heavy Vehicles %	2.0	0.0	7.2	11.8	0.0	5.2	3.7	10.0	0.0	0.0	0.0	5.8	0.0	5.3	3.8	1.8	0.0	3.9	0.0	0.0	10.0	0.0	0.0	2.9	0.0	3.1	9.3	4.2	0.0	3.5	4.0
Cars Enter Leg	49	22	77	15	0	163	26	18	4	1	0	49	0	89	203	54	0	346	8	4	9	13	0	34	64	312	49	46	0	471	1063
Heavy Enter Leg	1	0	6	2	0	9	1	2	0	0	0	3	0	5	8	1	0	14	0	0	1	0	0	1	0	10	5	2	0	17	44
Total Entering Leg	50	22	83	17	0	172	27	20	4	1	0	52	0	94	211	55	0	360	8	4	10	13	0	35	64	322	54	48	0	488	1107
Cars Exiting Leg						170						68						398						144						283	1063
Heavy Exiting Leg						9						7						16						1						11	44
Total Exiting Leg						179						75						414						145						294	1107

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
7:00 AM	7	3	13	4	0	27	1	4	0	0	0	5	1	7	47	10	0	65	0	1	0	0	0	1	2	41	15	5	0	63	161
7:15 AM	15	3	5	2	0	25	2	10	0	0	0	12	0	7	109	5	0	121	1	0	2	1	0	4	1	57	5	2	0	65	227
7:30 AM	22	5	12	2	0	41	5	10	0	0	0	15	0	15	99	7	0	121	0	0	1	0	0	1	7	61	13	11	0	92	270
7:45 AM	16	4	10	6	0	36	15	6	0	0	0	21	0	15	31	8	0	54	4	0	0	3	0	7	4	60	4	16	0	84	202
Total	60	15	40	14	0	129	23	30	0	0	0	53	1	44	286	30	0	361	5	1	3	4	0	13	14	219	37	34	0	304	860
8:00 AM	11	6	12	3	0	32	3	2	0	0	0	5	0	6	43	18	0	67	5	0	1	2	0	8	13	79	7	8	0	107	219
8:15 AM	14	4	20	6	0	44	7	3	0	0	0	10	0	12	42	9	0	63	1	0	2	0	0	3	17	74	12	14	0	117	237
8:30 AM	15	2	29	2	0	48	9	7	1	0	0	17	0	32	59	13	0	104	1	1	2	7	0	11	11	87	18	13	0	129	309
8:45 AM	9	10	16	4	0	39	7	6	3	1	0	17	0	39	59	14	0	112	1	3	4	4	0	12	23	72	12	11	0	118	298
Total	49	22	77	15	0	163	26	18	4	1	0	49	0	89	203	54	0	346	8	4	9	13	0	34	64	312	49	46	0	471	1063
Grand Total	109	37	117	29	0	292	49	48	4	1	0	102	1	133	489	84	0	707	13	5	12	17	0	47	78	531	86	80	0	775	1923
Approach %	37.3	12.7	40.1	9.9	0.0		48.0	47.1	3.9	1.0	0.0		0.1	18.8	69.2	11.9	0.0		27.7	10.6	25.5	36.2	0.0		10.1	68.5	11.1	10.3	0.0		
Total %	5.7	1.9	6.1	1.5	0.0	15.2	2.5	2.5	0.2	0.1	0.0	5.3	0.1	6.9	25.4	4.4	0.0	36.8	0.7	0.3	0.6	0.9	0.0	2.4	4.1	27.6	4.5	4.2	0.0	40.3	
Exiting Leg Total						274						121						662						203						663	1923

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
8:00 AM	11	6	12	3	0	32	3	2	0	0	0	5	0	6	43	18	0	67	5	0	1	2	0	8	13	79	7	8	0	107	219
8:15 AM	14	4	20	6	0	44	7	3	0	0	0	10	0	12	42	9	0	63	1	0	2	0	0	3	17	74	12	14	0	117	237
8:30 AM	15	2	29	2	0	48	9	7	1	0	0	17	0	32	59	13	0	104	1	1	2	7	0	11	11	87	18	13	0	129	309
8:45 AM	9	10	16	4	0	39	7	6	3	1	0	17	0	39	59	14	0	112	1	3	4	4	0	12	23	72	12	11	0	118	298
Total Volume	49	22	77	15	0	163	26	18	4	1	0	49	0	89	203	54	0	346	8	4	9	13	0	34	64	312	49	46	0	471	1063
% Approach Total	30.1	13.5	47.2	9.2	0.0		53.1	36.7	8.2	2.0	0.0		0.0	25.7	58.7	15.6	0.0		23.5	11.8	26.5	38.2	0.0		13.6	66.2	10.4	9.8	0.0		
PHF	0.817	0.550	0.664	0.625	0.000	0.849	0.722	0.643	0.333	0.250	0.000	0.721	0.000	0.571	0.860	0.750	0.000	0.772	0.400	0.333	0.563	0.464	0.000	0.708	0.696	0.897	0.681	0.821	0.000	0.913	0.860
Entering Leg	49	22	77	15	0	163	26	18	4	1	0	49	0	89	203	54	0	346	8	4	9	13	0	34	64	312	49	46	0	471	1063
Exiting Leg						170						68						398						144						283	1063
Total						333						117						744						178						754	2126

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
7:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	0	0	2	0	1	0	3	13
7:15 AM	1	0	1	0	0	2	1	1	0	0	0	2	0	1	2	0	0	3	0	0	0	0	0	0	0	8	0	0	0	8	15
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	1	2	0	0	3	5
7:45 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3	0	0	0	3	6
Total	1	0	4	0	0	5	1	1	0	0	0	2	0	3	12	0	0	15	0	0	0	0	0	0	0	14	2	1	0	17	39
8:00 AM	1	0	2	1	0	4	0	1	0	0	0	1	0	2	2	1	0	5	0	0	0	0	0	0	0	1	0	0	0	1	11
8:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	0	0	3	2	1	0	6	11
8:30 AM	0	0	2	1	0	3	1	1	0	0	0	2	0	1	3	0	0	4	0	0	0	0	0	0	0	4	2	1	0	7	16
8:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	2	1	0	0	3	6
Total	1	0	6	2	0	9	1	2	0	0	0	3	0	5	8	1	0	14	0	0	1	0	0	1	0	10	5	2	0	17	44
Grand Total	2	0	10	2	0	14	2	3	0	0	0	5	0	8	20	1	0	29	0	0	1	0	0	1	0	24	7	3	0	34	83
Approach %	14.3	0.0	71.4	14.3	0.0		40.0	60.0	0.0	0.0	0.0		0.0	27.6	69.0	3.4	0.0		0.0	0.0	100.0	0.0	0.0		0.0	70.6	20.6	8.8	0.0		
Total %	2.4	0.0	12.0	2.4	0.0	16.9	2.4	3.6	0.0	0.0	0.0	6.0	0.0	9.6	24.1	1.2	0.0	34.9	0.0	0.0	1.2	0.0	0.0	1.2	0.0	28.9	8.4	3.6	0.0	41.0	
Exiting Leg Total						14						9						34						1						25	83
Buses	1	0	4	0	0	5	0	0	0	0	0	0	0	5	12	0	0	17	0	0	0	0	0	0	0	11	0	1	0	12	34
% Buses	50.0	0.0	40.0	0.0	0.0	35.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	62.5	60.0	0.0	0.0	58.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.8	0.0	33.3	0.0	35.3	41.0
Exiting Leg Total						6						0						15						0						13	34
Single-Unit Trucks	1	0	6	1	0	8	2	3	0	0	0	5	0	3	8	1	0	12	0	0	1	0	0	1	0	10	7	2	0	19	45
% Single-Unit	50.0	0.0	60.0	50.0	0.0	57.1	100.0	100.0	0.0	0.0	0.0	100.0	0.0	37.5	40.0	100.0	0.0	41.4	0.0	0.0	100.0	0.0	0.0	100.0	0.0	41.7	100.0	66.7	0.0	55.9	54.2
Exiting Leg Total						8						8						16						1						12	45
Articulated Trucks	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	3	0	0	0	3	4
% Articulated	0.0	0.0	0.0	50.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	8.8	4.8
Exiting Leg Total						0						1						3						0						0	4

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
7:45 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3	0	0	0	3	6
8:00 AM	1	0	2	1	0	4	0	1	0	0	0	1	0	2	2	1	0	5	0	0	0	0	0	0	0	1	0	0	0	1	11
8:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	0	0	3	2	1	0	6	11
8:30 AM	0	0	2	1	0	3	1	1	0	0	0	2	0	1	3	0	0	4	0	0	0	0	0	0	0	4	2	1	0	7	16
Total Volume	1	0	7	2	0	10	1	2	0	0	0	3	0	5	8	1	0	14	0	0	0	0	0	0	0	11	4	2	0	17	44
% Approach Total	10.0	0.0	70.0	20.0	0.0		33.3	66.7	0.0	0.0	0.0		0.0	35.7	57.1	7.1	0.0		0.0	0.0	0.0	0.0	0.0		0.0	64.7	23.5	11.8	0.0		
PHF	0.250	0.000	0.875	0.500	0.000	0.625	0.250	0.500	0.000	0.000	0.000	0.375	0.000	0.625	0.667	0.250	0.000	0.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.688	0.500	0.500	0.000	0.607	0.688
Buses	1	0	3	0	0	4	0	0	0	0	0	0	0	3	2	0	0	5	0	0	0	0	0	0	0	5	0	1	0	6	15
Buses %	100.0	0.0	42.9	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	25.0	0.0	0.0	35.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.5	0.0	50.0	0.0	35.3	34.1
Single-Unit Trucks	0	0	4	1	0	5	1	2	0	0	0	3	0	2	6	1	0	9	0	0	0	0	0	0	0	4	4	1	0	9	26
Single-Unit %	0.0	0.0	57.1	50.0	0.0	50.0	100.0	100.0	0.0	0.0	0.0	100.0	0.0	40.0	75.0	100.0	0.0	64.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4	100.0	50.0	0.0	52.9	59.1
Articulated Trucks	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	2	0	0	0	2	3
Articulated %	0.0	0.0	0.0	50.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0	0.0	0.0	11.8	6.8
Buses	1	0	3	0	0	4	0	0	0	0	0	0	0	3	2	0	0	5	0	0	0	0	0	0	0	5	0	1	0	6	15
Single-Unit Trucks	0	0	4	1	0	5	1	2	0	0	0	3	0	2	6	1	0	9	0	0	0	0	0	0	0	4	4	1	0	9	26
Articulated Trucks	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	2	0	0	0	2	3

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
Total Entering Leg	1	0	7	2	0	10	1	2	0	0	0	3	0	5	8	1	0	14	0	0	0	0	0	0	0	11	4	2	0	17	44
Buses						4						0						8						0						3	15
Single-Unit Trucks						4						5						8						1						8	26
Articulated Trucks						0						1						2						0						0	3
Total Exiting Leg						8						6						18						1						11	44

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
7:00 AM	6	2	9	3	0	20	1	3	0	0	0	4	1	6	45	10	0	62	0	1	0	0	0	1	2	34	12	4	0	52	139
7:15 AM	13	2	4	2	0	21	1	8	0	0	0	9	0	5	104	5	0	114	0	0	2	1	0	3	1	53	5	1	0	60	207
7:30 AM	19	4	10	2	0	35	5	8	0	0	0	13	0	14	92	7	0	113	0	0	1	0	0	1	6	56	11	11	0	84	246
7:45 AM	16	4	10	6	0	36	15	5	0	0	0	20	0	14	27	8	0	49	4	0	0	3	0	7	4	56	4	16	0	80	192
Total	54	12	33	13	0	112	22	24	0	0	0	46	1	39	268	30	0	338	4	1	3	4	0	12	13	199	32	32	0	276	784
8:00 AM	9	4	10	2	0	25	2	1	0	0	0	3	0	6	39	15	0	60	5	0	1	1	0	7	11	74	6	6	0	97	192
8:15 AM	13	4	18	6	0	41	5	1	0	0	0	6	0	11	36	9	0	56	1	0	1	0	0	2	14	70	8	10	0	102	207
8:30 AM	13	2	26	2	0	43	8	7	0	0	0	15	0	30	55	13	0	98	1	1	2	5	0	9	10	74	16	13	0	113	278
8:45 AM	7	9	15	3	0	34	5	4	3	0	0	12	0	34	52	13	0	99	1	2	3	3	0	9	22	63	10	9	0	104	258
Total	42	19	69	13	0	143	20	13	3	0	0	36	0	81	182	50	0	313	8	3	7	9	0	27	57	281	40	38	0	416	935
Grand Total	96	31	102	26	0	255	42	37	3	0	0	82	1	120	450	80	0	651	12	4	10	13	0	39	70	480	72	70	0	692	1719
Approach %	37.6	12.2	40.0	10.2	0.0		51.2	45.1	3.7	0.0	0.0		0.2	18.4	69.1	12.3	0.0		30.8	10.3	25.6	33.3	0.0		10.1	69.4	10.4	10.1	0.0		
Total %	5.6	1.8	5.9	1.5	0.0	14.8	2.4	2.2	0.2	0.0	0.0	4.8	0.1	7.0	26.2	4.7	0.0	37.9	0.7	0.2	0.6	0.8	0.0	2.3	4.1	27.9	4.2	4.1	0.0	40.3	
Exiting Leg Total						242						103						594						184						596	1719

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
8:00 AM	9	4	10	2	0	25	2	1	0	0	0	3	0	6	39	15	0	60	5	0	1	1	0	7	11	74	6	6	0	97	192
8:15 AM	13	4	18	6	0	41	5	1	0	0	0	6	0	11	36	9	0	56	1	0	1	0	0	2	14	70	8	10	0	102	207
8:30 AM	13	2	26	2	0	43	8	7	0	0	0	15	0	30	55	13	0	98	1	1	2	5	0	9	10	74	16	13	0	113	278
8:45 AM	7	9	15	3	0	34	5	4	3	0	0	12	0	34	52	13	0	99	1	2	3	3	0	9	22	63	10	9	0	104	258
Total Volume	42	19	69	13	0	143	20	13	3	0	0	36	0	81	182	50	0	313	8	3	7	9	0	27	57	281	40	38	0	416	935
% Approach Total	29.4	13.3	48.3	9.1	0.0		55.6	36.1	8.3	0.0	0.0		0.0	25.9	58.1	16.0	0.0		29.6	11.1	25.9	33.3	0.0		13.7	67.5	9.6	9.1	0.0		
PHF	0.808	0.528	0.663	0.542	0.000	0.831	0.625	0.464	0.250	0.000	0.000	0.600	0.000	0.596	0.827	0.833	0.000	0.790	0.400	0.375	0.583	0.450	0.000	0.750	0.648	0.949	0.625	0.731	0.000	0.920	0.841
Entering Leg	42	19	69	13	0	143	20	13	3	0	0	36	0	81	182	50	0	313	8	3	7	9	0	27	57	281	40	38	0	416	935
Exiting Leg						146						56						358						129						246	935
Total						289						92						671						156						662	1870

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
7:00 AM	1	1	4	1	0	7	0	1	0	0	0	1	0	1	2	0	0	3	0	0	0	0	0	0	0	7	3	1	0	11	22
7:15 AM	2	1	1	0	0	4	1	2	0	0	0	3	0	2	5	0	0	7	1	0	0	0	0	1	0	3	0	1	0	4	19
7:30 AM	3	1	2	0	0	6	0	2	0	0	0	2	0	1	7	0	0	8	0	0	0	0	0	0	1	5	2	0	0	8	24
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	1	4	0	0	5	0	0	0	0	0	0	0	4	0	0	0	4	10
Total	6	3	7	1	0	17	1	6	0	0	0	7	0	5	18	0	0	23	1	0	0	0	0	1	1	19	5	2	0	27	75
8:00 AM	2	2	2	1	0	7	1	1	0	0	0	2	0	0	4	3	0	7	0	0	0	1	0	1	1	5	1	2	0	9	26
8:15 AM	1	0	2	0	0	3	2	2	0	0	0	4	0	1	6	0	0	7	0	0	1	0	0	1	3	4	4	4	0	15	30
8:30 AM	2	0	3	0	0	5	1	0	1	0	0	2	0	2	4	0	0	6	0	0	0	2	0	2	1	13	2	0	0	16	31
8:45 AM	2	1	1	1	0	5	2	2	0	1	0	5	0	5	7	1	0	13	0	1	1	1	0	3	1	9	2	2	0	14	40
Total	7	3	8	2	0	20	6	5	1	1	0	13	0	8	21	4	0	33	0	1	2	4	0	7	6	31	9	8	0	54	127
Grand Total	13	6	15	3	0	37	7	11	1	1	0	20	0	13	39	4	0	56	1	1	2	4	0	8	7	50	14	10	0	81	202
Approach %	35.1	16.2	40.5	8.1	0.0		35.0	55.0	5.0	5.0	0.0		0.0	23.2	69.6	7.1	0.0		12.5	12.5	25.0	50.0	0.0		8.6	61.7	17.3	12.3	0.0		
Total %	6.4	3.0	7.4	1.5	0.0	18.3	3.5	5.4	0.5	0.5	0.0	9.9	0.0	6.4	19.3	2.0	0.0	27.7	0.5	0.5	1.0	2.0	0.0	4.0	3.5	24.8	6.9	5.0	0.0	40.1	
Exiting Leg Total						32						18						67						18						67	202

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
8:00 AM	2	2	2	1	0	7	1	1	0	0	0	2	0	0	4	3	0	7	0	0	0	1	0	1	1	5	1	2	0	9	26
8:15 AM	1	0	2	0	0	3	2	2	0	0	0	4	0	1	6	0	0	7	0	0	1	0	0	1	3	4	4	4	0	15	30
8:30 AM	2	0	3	0	0	5	1	0	1	0	0	2	0	2	4	0	0	6	0	0	0	2	0	2	1	13	2	0	0	16	31
8:45 AM	2	1	1	1	0	5	2	2	0	1	0	5	0	5	7	1	0	13	0	1	1	1	0	3	1	9	2	2	0	14	40
Total Volume	7	3	8	2	0	20	6	5	1	1	0	13	0	8	21	4	0	33	0	1	2	4	0	7	6	31	9	8	0	54	127
% Approach Total	35.0	15.0	40.0	10.0	0.0		46.2	38.5	7.7	7.7	0.0		0.0	24.2	63.6	12.1	0.0		0.0	14.3	28.6	57.1	0.0		11.1	57.4	16.7	14.8	0.0		
PHF	0.875	0.375	0.667	0.500	0.000	0.714	0.750	0.625	0.250	0.250	0.000	0.650	0.000	0.400	0.750	0.333	0.000	0.635	0.000	0.250	0.500	0.500	0.000	0.583	0.500	0.596	0.563	0.500	0.000	0.844	0.794
Entering Leg	7	3	8	2	0	20	6	5	1	1	0	13	0	8	21	4	0	33	0	1	2	4	0	7	6	31	9	8	0	54	127
Exiting Leg						24						12						40						14						37	127
Total						44						25						73						21						91	254

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 2018**
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Buses

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	0	0	2	0	0	0	2	11
7:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	4	0	0	0	4	7
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3
Total	0	0	2	0	0	2	0	0	0	0	0	0	0	2	10	0	0	12	0	0	0	0	0	0	0	8	0	0	0	8	22
8:00 AM	1	0	1	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	3	0	0	0	3	6
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	0	0
Total	1	0	2	0	0	3	0	0	0	0	0	0	0	3	2	0	0	5	0	0	0	0	0	0	0	3	0	1	0	4	12
Grand Total	1	0	4	0	0	5	0	0	0	0	0	0	0	5	12	0	0	17	0	0	0	0	0	0	0	11	0	1	0	12	34
Approach %	20.0	0.0	80.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	29.4	70.6	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	91.7	0.0	8.3	0.0		
Total %	2.9	0.0	11.8	0.0	0.0	14.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	35.3	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.4	0.0	2.9	0.0	35.3	
Exiting Leg Total						6						0						15						0						13	34

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	0	0	2	0	0	0	2	11
7:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	4	0	0	0	4	7
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3
Total Volume	0	0	2	0	0	2	0	0	0	0	0	0	0	2	10	0	0	12	0	0	0	0	0	0	0	8	0	0	0	8	22
% Approach Total	0.0	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	16.7	83.3	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.313	0.000	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.500
Entering Leg	0	0	2	0	0	2	0	0	0	0	0	0	0	2	10	0	0	12	0	0	0	0	0	0	0	8	0	0	0	8	22
Exiting Leg						2						0						10						0						10	22
Total						4						0						22						0						18	44

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
7:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
7:15 AM	1	0	0	0	0	1	1	1	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	3	7
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	2	0	0	3	4
7:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	3
Total	1	0	2	0	0	3	1	1	0	0	0	2	0	1	2	0	0	3	0	0	0	0	0	0	0	5	2	1	0	8	16
8:00 AM	0	0	1	0	0	1	0	1	0	0	0	1	0	1	2	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	2	2	0	0	4	7
8:30 AM	0	0	2	1	0	3	1	1	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	1	2	1	0	4	10
8:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	2	1	0	0	3	6
Total	0	0	4	1	0	5	1	2	0	0	0	3	0	2	6	1	0	9	0	0	1	0	0	1	0	5	5	1	0	11	29
Grand Total	1	0	6	1	0	8	2	3	0	0	0	5	0	3	8	1	0	12	0	0	1	0	0	1	0	10	7	2	0	19	45
Approach %	12.5	0.0	75.0	12.5	0.0		40.0	60.0	0.0	0.0	0.0		0.0	25.0	66.7	8.3	0.0		0.0	0.0	100.0	0.0	0.0		0.0	52.6	36.8	10.5	0.0		
Total %	2.2	0.0	13.3	2.2	0.0	17.8	4.4	6.7	0.0	0.0	0.0	11.1	0.0	6.7	17.8	2.2	0.0	26.7	0.0	0.0	2.2	0.0	0.0	2.2	0.0	22.2	15.6	4.4	0.0	42.2	
Exiting Leg Total						8						8						16						1						12	45

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
8:00 AM	0	0	1	0	0	1	0	1	0	0	0	1	0	1	2	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	2	2	0	0	4	7
8:30 AM	0	0	2	1	0	3	1	1	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	1	2	1	0	4	10
8:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	2	1	0	0	3	6
Total Volume	0	0	4	1	0	5	1	2	0	0	0	3	0	2	6	1	0	9	0	0	1	0	0	1	0	5	5	1	0	11	29
% Approach Total	0.0	0.0	80.0	20.0	0.0		33.3	66.7	0.0	0.0	0.0		0.0	22.2	66.7	11.1	0.0		0.0	0.0	100.0	0.0	0.0		0.0	45.5	45.5	9.1	0.0		
PHF	0.000	0.000	0.500	0.250	0.000	0.417	0.250	0.500	0.000	0.000	0.000	0.375	0.000	0.500	0.750	0.250	0.000	0.563	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.625	0.625	0.250	0.000	0.688	0.725
Entering Leg	0	0	4	1	0	5	1	2	0	0	0	3	0	2	6	1	0	9	0	0	1	0	0	1	0	5	5	1	0	11	29
Exiting Leg						5						6						9						1						8	29
Total						10						9						18						2						19	58

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	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	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	1	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	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	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
8:00 AM	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	1	0	0	0	1	2
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	1	0	0	0	1	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	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	0	0
Total	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	2	0	0	0	2	3
Grand Total	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	3	0	0	0	3	4
Approach %	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	100.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	25.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	0.0	0.0	0.0	75.0	
Exiting Leg Total						0						1						3						0						0	4

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
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	1	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	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	0	0
8:00 AM	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	1	0	0	0	1	2
Total Volume	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	2	0	0	0	2	3
% Approach Total	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	100.0	0.0	0.0	0.0		
PHF	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	0.500	0.000	0.000	0.000	0.500	0.375
Entering Leg	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	2	0	0	0	2	3
Exiting Leg						0						1						2						0						0	3
Total						1						1						2						0						2	6

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Railroad Street								Pearson Street								Essex Street								Dundee Park Drive								Essex Street								
	from North								from Northeast								from East								from South								from West								
	Right	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Bear Left	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	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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	4
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	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	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	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	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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	4
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	66.7	33.3	0.0	0.0	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		
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	50.0	25.0	0.0	0.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	25.0	
Exiting Leg Total								3								0								0								0								1	4

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Railroad Street								Pearson Street								Essex Street								Dundee Park Drive								Essex Street								
	from North								from Northeast								from East								from South								from West								
	Right	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Bear Left	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	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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	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	66.7	33.3	0.0	0.0	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		
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	0.250	0.250	0.000	0.000	0.000	0.000	0.375	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	0.250	0.333
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	4
Exiting Leg								3								0								0								0								1	4
Total								3								0								3								0								2	8

PDI File #: **186242 B**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street								Pearson Street								Essex Street								Dundee Park Drive								Essex Street								
	from North								from Northeast								from East								from South								from West								
	Right	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	2	0	2	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
7:15 AM	0	0	0	0	0	1	2	3	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
7:30 AM	0	0	0	0	0	0	0	0	0	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	0	0	0	1
7:45 AM	0	0	0	0	0	2	1	3	0	0	0	0	0	1	3	4	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Total	0	0	0	0	0	3	4	7	0	0	0	0	0	4	4	8	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
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	0	0	0	0	0	0	0	0	1	1	1	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	5
8:45 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	2	2	8
Total	0	0	0	0	0	4	0	4	0	0	0	0	0	4	2	6	0	0	0	0	0	1	1	2	0	0	0	0	0	0	1	1	0	0	0	0	0	4	4	4	17
Grand Total	0	0	0	0	0	7	4	11	0	0	0	0	0	8	6	14	0	0	0	0	0	1	2	3	0	0	0	0	0	0	1	1	0	0	0	0	0	4	4	4	33
Approach %	0	0	0	0	0	64	36		0	0	0	0	0	57	43		0	0	0	0	0	33	67		0	0	0	0	0	0	100		0	0	0	0	0	0	100		
Total %	0	0	0	0	0	21	12	33	0	0	0	0	0	24	18	42	0	0	0	0	0	3	6.1	9.1	0	0	0	0	0	0	3	3	0	0	0	0	0	0	12	12	
Exiting Leg Total								11								14								3								1								4	33

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Railroad Street								Pearson Street								Essex Street								Dundee Park Drive								Essex Street								
	from North								from Northeast								from East								from South								from West								
	Right	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:45 AM	0	0	0	0	0	2	1	3	0	0	0	0	0	1	3	4	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
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	0	0	0	0	0	0	0	0	1	1	1	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	5
Total Volume	0	0	0	0	0	3	1	4	0	0	0	0	0	3	5	8	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	17
% Approach Total	0.0	0.0	0.0	0.0	0.0	75.0	25.0		0.0	0.0	0.0	0.0	0.0	37.5	62.5		0.0	0.0	0.0	0.0	0.0	33.3	66.7		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.375	0.250	0.333	0.000	0.000	0.000	0.000	0.000	0.375	0.417	0.500	0.000	0.000	0.000	0.000	0.000	0.250	0.500	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.500	0.531
Entering Leg	0	0	0	0	0	3	1	4	0	0	0	0	0	3	5	8	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	17
Exiting Leg								4								8								3								0								2	17
Total								8								16								6								0								4	34

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:00 PM	16	5	20	1	0	42	4	8	1	2	0	15	1	33	80	14	0	128	13	0	11	11	0	35	7	42	6	9	0	64	284
4:15 PM	7	4	18	4	0	33	5	14	0	1	0	20	0	21	74	7	0	102	6	0	7	3	0	16	6	43	10	9	0	68	239
4:30 PM	22	5	15	1	0	43	2	4	0	3	0	9	1	33	66	5	0	105	11	0	3	5	0	19	6	56	9	22	0	93	269
4:45 PM	16	10	16	2	0	44	3	18	1	0	0	22	0	25	72	7	0	104	6	0	8	9	0	23	12	56	10	14	0	92	285
Total	61	24	69	8	0	162	14	44	2	6	0	66	2	112	292	33	0	439	36	0	29	28	0	93	31	197	35	54	0	317	1077
5:00 PM	18	1	22	7	0	48	6	12	1	0	0	19	1	17	79	7	0	104	15	1	13	24	0	53	0	54	11	11	0	76	300
5:15 PM	26	4	22	10	0	62	3	7	1	1	0	12	0	22	91	10	0	123	10	0	8	5	0	23	14	99	11	24	0	148	368
5:30 PM	27	4	21	10	0	62	8	12	1	1	0	22	0	36	108	6	0	150	14	5	7	17	0	43	11	63	6	8	0	88	365
5:45 PM	18	9	15	4	0	46	4	9	3	0	0	16	0	24	91	9	0	124	7	2	11	8	0	28	16	64	8	12	0	100	314
Total	89	18	80	31	0	218	21	40	6	2	0	69	1	99	369	32	0	501	46	8	39	54	0	147	41	280	36	55	0	412	1347
Grand Total	150	42	149	39	0	380	35	84	8	8	0	135	3	211	661	65	0	940	82	8	68	82	0	240	72	477	71	109	0	729	2424
Approach %	39.5	11.1	39.2	10.3	0.0		25.9	62.2	5.9	5.9	0.0		0.3	22.4	70.3	6.9	0.0		34.2	3.3	28.3	34.2	0.0		9.9	65.4	9.7	15.0	0.0		
Total %	6.2	1.7	6.1	1.6	0.0	15.7	1.4	3.5	0.3	0.3	0.0	5.6	0.1	8.7	27.3	2.7	0.0	38.8	3.4	0.3	2.8	3.4	0.0	9.9	3.0	19.7	2.9	4.5	0.0	30.1	
Exiting Leg Total						423						121						716						187						977	2424
Cars	149	42	141	36	0	368	34	83	8	8	0	133	3	203	657	65	0	928	81	8	68	82	0	239	71	475	70	109	0	725	2393
% Cars	99.3	100.0	94.6	92.3	0.0	96.8	97.1	98.8	100.0	100.0	0.0	98.5	100.0	96.2	99.4	100.0	0.0	98.7	98.8	100.0	100.0	100.0	0.0	99.6	98.6	99.6	98.6	100.0	0.0	99.5	98.7
Exiting Leg Total						414						117						705						186						971	2393
Heavy Vehicles	1	0	8	3	0	12	1	1	0	0	0	2	0	8	4	0	0	12	1	0	0	0	0	1	1	2	1	0	0	4	31
% Heavy Vehicles	0.7	0.0	5.4	7.7	0.0	3.2	2.9	1.2	0.0	0.0	0.0	1.5	0.0	3.8	0.6	0.0	0.0	1.3	1.2	0.0	0.0	0.0	0.0	0.4	1.4	0.4	1.4	0.0	0.0	0.5	1.3
Exiting Leg Total						9						4						11						1						6	31

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
5:00 PM	18	1	22	7	0	48	6	12	1	0	0	19	1	17	79	7	0	104	15	1	13	24	0	53	0	54	11	11	0	76	300
5:15 PM	26	4	22	10	0	62	3	7	1	1	0	12	0	22	91	10	0	123	10	0	8	5	0	23	14	99	11	24	0	148	368
5:30 PM	27	4	21	10	0	62	8	12	1	1	0	22	0	36	108	6	0	150	14	5	7	17	0	43	11	63	6	8	0	88	365
5:45 PM	18	9	15	4	0	46	4	9	3	0	0	16	0	24	91	9	0	124	7	2	11	8	0	28	16	64	8	12	0	100	314
Total Volume	89	18	80	31	0	218	21	40	6	2	0	69	1	99	369	32	0	501	46	8	39	54	0	147	41	280	36	55	0	412	1347
% Approach Total	40.8	8.3	36.7	14.2	0.0		30.4	58.0	8.7	2.9	0.0		0.2	19.8	73.7	6.4	0.0		31.3	5.4	26.5	36.7	0.0		10.0	68.0	8.7	13.3	0.0		
PHF	0.824	0.500	0.909	0.775	0.000	0.879	0.656	0.833	0.500	0.500	0.000	0.784	0.250	0.688	0.854	0.800	0.000	0.835	0.767	0.400	0.750	0.563	0.000	0.693	0.641	0.707	0.818	0.573	0.000	0.696	0.915
Cars	89	18	76	28	0	211	21	39	6	2	0	68	1	95	368	32	0	496	46	8	39	54	0	147	41	278	36	55	0	410	1332
Cars %	100.0	100.0	95.0	90.3	0.0	96.8	100.0	97.5	100.0	100.0	0.0	98.6	100.0	96.0	99.7	100.0	0.0	99.0	100.0	100.0	100.0	100.0	0.0	100.0	100.0	99.3	100.0	100.0	0.0	99.5	98.9
Heavy Vehicles	0	0	4	3	0	7	0	1	0	0	0	1	0	4	1	0	0	5	0	0	0	0	0	0	0	2	0	0	0	2	15
Heavy Vehicles %	0.0	0.0	5.0	9.7	0.0	3.2	0.0	2.5	0.0	0.0	0.0	1.4	0.0	4.0	0.3	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.5	1.1
Cars Enter Leg	89	18	76	28	0	211	21	39	6	2	0	68	1	95	368	32	0	496	46	8	39	54	0	147	41	278	36	55	0	410	1332
Heavy Enter Leg	0	0	4	3	0	7	0	1	0	0	0	1	0	4	1	0	0	5	0	0	0	0	0	0	0	2	0	0	0	2	15
Total Entering Leg	89	18	80	31	0	218	21	40	6	2	0	69	1	99	369	32	0	501	46	8	39	54	0	147	41	280	36	55	0	412	1347
Cars Exiting Leg						210						73						402						97						550	1332
Heavy Exiting Leg						4						3						6						0						2	15
Total Exiting Leg						214						76						408						97						552	1347

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:00 PM	15	5	19	1	0	40	3	8	1	2	0	14	1	32	80	14	0	127	12	0	11	11	0	34	6	42	6	9	0	63	278
4:15 PM	7	4	17	4	0	32	5	14	0	1	0	20	0	21	72	7	0	100	6	0	7	3	0	16	6	43	10	9	0	68	236
4:30 PM	22	5	15	1	0	43	2	4	0	3	0	9	1	31	65	5	0	102	11	0	3	5	0	19	6	56	9	22	0	93	266
4:45 PM	16	10	14	2	0	42	3	18	1	0	0	22	0	24	72	7	0	103	6	0	8	9	0	23	12	56	9	14	0	91	281
Total	60	24	65	8	0	157	13	44	2	6	0	65	2	108	289	33	0	432	35	0	29	28	0	92	30	197	34	54	0	315	1061
5:00 PM	18	1	21	4	0	44	6	11	1	0	0	18	1	16	79	7	0	103	15	1	13	24	0	53	0	52	11	11	0	74	292
5:15 PM	26	4	20	10	0	60	3	7	1	1	0	12	0	22	91	10	0	123	10	0	8	5	0	23	14	99	11	24	0	148	366
5:30 PM	27	4	21	10	0	62	8	12	1	1	0	22	0	34	108	6	0	148	14	5	7	17	0	43	11	63	6	8	0	88	363
5:45 PM	18	9	14	4	0	45	4	9	3	0	0	16	0	23	90	9	0	122	7	2	11	8	0	28	16	64	8	12	0	100	311
Total	89	18	76	28	0	211	21	39	6	2	0	68	1	95	368	32	0	496	46	8	39	54	0	147	41	278	36	55	0	410	1332
Grand Total	149	42	141	36	0	368	34	83	8	8	0	133	3	203	657	65	0	928	81	8	68	82	0	239	71	475	70	109	0	725	2393
Approach %	40.5	11.4	38.3	9.8	0.0		25.6	62.4	6.0	6.0	0.0		0.3	21.9	70.8	7.0	0.0		33.9	3.3	28.5	34.3	0.0		9.8	65.5	9.7	15.0	0.0		
Total %	6.2	1.8	5.9	1.5	0.0	15.4	1.4	3.5	0.3	0.3	0.0	5.6	0.1	8.5	27.5	2.7	0.0	38.8	3.4	0.3	2.8	3.4	0.0	10.0	3.0	19.8	2.9	4.6	0.0	30.3	
Exiting Leg Total						414						117						705						186						971	2393

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
5:00 PM	18	1	21	4	0	44	6	11	1	0	0	18	1	16	79	7	0	103	15	1	13	24	0	53	0	52	11	11	0	74	292
5:15 PM	26	4	20	10	0	60	3	7	1	1	0	12	0	22	91	10	0	123	10	0	8	5	0	23	14	99	11	24	0	148	366
5:30 PM	27	4	21	10	0	62	8	12	1	1	0	22	0	34	108	6	0	148	14	5	7	17	0	43	11	63	6	8	0	88	363
5:45 PM	18	9	14	4	0	45	4	9	3	0	0	16	0	23	90	9	0	122	7	2	11	8	0	28	16	64	8	12	0	100	311
Total Volume	89	18	76	28	0	211	21	39	6	2	0	68	1	95	368	32	0	496	46	8	39	54	0	147	41	278	36	55	0	410	1332
% Approach Total	42.2	8.5	36.0	13.3	0.0		30.9	57.4	8.8	2.9	0.0		0.2	19.2	74.2	6.5	0.0		31.3	5.4	26.5	36.7	0.0		10.0	67.8	8.8	13.4	0.0		
PHF	0.824	0.500	0.905	0.700	0.000	0.851	0.656	0.813	0.500	0.500	0.000	0.773	0.250	0.699	0.852	0.800	0.000	0.838	0.767	0.400	0.750	0.563	0.000	0.693	0.641	0.702	0.818	0.573	0.000	0.693	0.910
Entering Leg	89	18	76	28	0	211	21	39	6	2	0	68	1	95	368	32	0	496	46	8	39	54	0	147	41	278	36	55	0	410	1332
Exiting Leg						210						73						402						97						550	1332
Total						421						141						898						244						960	2664

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:00 PM	1	0	1	0	0	2	1	0	0	0	0	1	0	1	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	1	6
4:15 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	4
Total	1	0	4	0	0	5	1	0	0	0	0	1	0	4	3	0	0	7	1	0	0	0	0	1	1	0	1	0	0	2	16
5:00 PM	0	0	1	3	0	4	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	8
5:15 PM	0	0	2	0	0	2	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
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	4	3	0	7	0	1	0	0	0	1	0	4	1	0	0	5	0	0	0	0	0	0	0	2	0	0	0	2	15
Grand Total	1	0	8	3	0	12	1	1	0	0	0	2	0	8	4	0	0	12	1	0	0	0	0	1	1	2	1	0	0	4	31
Approach %	8.3	0.0	66.7	25.0	0.0		50.0	50.0	0.0	0.0	0.0		0.0	66.7	33.3	0.0	0.0		100.0	0.0	0.0	0.0	0.0		25.0	50.0	25.0	0.0	0.0		
Total %	3.2	0.0	25.8	9.7	0.0	38.7	3.2	3.2	0.0	0.0	0.0	6.5	0.0	25.8	12.9	0.0	0.0	38.7	3.2	0.0	0.0	0.0	0.0	3.2	3.2	6.5	3.2	0.0	0.0	12.9	
Exiting Leg Total						9						4						11						1						6	31
Buses	1	0	6	0	0	7	1	0	0	0	0	1	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	15
% Buses	100.0	0.0	75.0	0.0	0.0	58.3	100.0	0.0	0.0	0.0	0.0	50.0	0.0	87.5	0.0	0.0	0.0	58.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.4
Exiting Leg Total						8						0						6						0						1	15
Single-Unit Trucks	0	0	1	3	0	4	0	1	0	0	0	1	0	1	3	0	0	4	1	0	0	0	0	1	1	1	1	0	0	3	13
% Single-Unit	0.0	0.0	12.5	100.0	0.0	33.3	0.0	100.0	0.0	0.0	0.0	50.0	0.0	12.5	75.0	0.0	0.0	33.3	100.0	0.0	0.0	0.0	0.0	100.0	100.0	50.0	100.0	0.0	0.0	75.0	41.9
Exiting Leg Total						1						4						3						1						4	13
Articulated Trucks	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	3
% Articulated	0.0	0.0	12.5	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	25.0	9.7
Exiting Leg Total						0						0						2						0						1	3

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:15 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	4
5:00 PM	0	0	1	3	0	4	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	8
Total Volume	0	0	4	3	0	7	0	1	0	0	0	1	0	4	3	0	0	7	0	0	0	0	0	0	0	2	1	0	0	3	18
% Approach Total	0.0	0.0	57.1	42.9	0.0		0.0	100.0	0.0	0.0	0.0		0.0	57.1	42.9	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	66.7	33.3	0.0	0.0		
PHF	0.000	0.000	0.500	0.250	0.000	0.438	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.500	0.375	0.000	0.000	0.583	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.375	0.563
Buses	0	0	2	0	0	2	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6
Buses %	0.0	0.0	50.0	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	57.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3
Single-Unit Trucks	0	0	1	3	0	4	0	1	0	0	0	1	0	0	3	0	0	3	0	0	0	0	0	0	0	1	1	0	0	2	10
Single-Unit %	0.0	0.0	25.0	100.0	0.0	57.1	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	42.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	100.0	0.0	0.0	66.7	55.6
Articulated Trucks	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
Articulated %	0.0	0.0	25.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	33.3	11.1
Buses	0	0	2	0	0	2	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6
Single-Unit Trucks	0	0	1	3	0	4	0	1	0	0	0	1	0	0	3	0	0	3	0	0	0	0	0	0	0	1	1	0	0	2	10
Articulated Trucks	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
Total Entering Leg	0	0	4	3	0	7	0	1	0	0	0	1	0	4	3	0	0	7	0	0	0	0	0	0	0	2	1	0	0	3	18

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
Buses						4						0						2						0						0	6
Single-Unit Trucks						0						4						2						0						4	10
Articulated Trucks						0						0						2						0						0	2
Total Exiting Leg						4						4						6						0						4	18

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:00 PM	15	5	17	1	0	38	3	8	1	2	0	14	1	30	71	13	0	115	11	0	10	9	0	30	6	39	6	7	0	58	255
4:15 PM	7	4	15	4	0	30	4	13	0	1	0	18	0	21	67	6	0	94	6	0	7	2	0	15	6	36	7	9	0	58	215
4:30 PM	21	4	13	1	0	39	2	3	0	2	0	7	1	28	56	5	0	90	11	0	3	5	0	19	6	47	9	20	0	82	237
4:45 PM	15	10	14	2	0	41	3	16	1	0	0	20	0	23	67	5	0	95	6	0	8	7	0	21	11	52	7	14	0	84	261
Total	58	23	59	8	0	148	12	40	2	5	0	59	2	102	261	29	0	394	34	0	28	23	0	85	29	174	29	50	0	282	968
5:00 PM	18	1	20	3	0	42	6	9	0	0	0	15	1	16	72	7	0	96	12	1	13	23	0	49	0	51	11	11	0	73	275
5:15 PM	25	4	20	9	0	58	3	5	1	1	0	10	0	21	85	10	0	116	10	0	8	5	0	23	14	94	10	23	0	141	348
5:30 PM	25	4	19	10	0	58	8	12	1	1	0	22	0	31	101	6	0	138	13	5	6	13	0	37	10	61	6	8	0	85	340
5:45 PM	17	8	14	4	0	43	4	8	3	0	0	15	0	22	82	9	0	113	5	2	11	8	0	26	13	59	8	11	0	91	288
Total	85	17	73	26	0	201	21	34	5	2	0	62	1	90	340	32	0	463	40	8	38	49	0	135	37	265	35	53	0	390	1251
Grand Total	143	40	132	34	0	349	33	74	7	7	0	121	3	192	601	61	0	857	74	8	66	72	0	220	66	439	64	103	0	672	2219
Approach %	41.0	11.5	37.8	9.7	0.0		27.3	61.2	5.8	5.8	0.0		0.4	22.4	70.1	7.1	0.0		33.6	3.6	30.0	32.7	0.0		9.8	65.3	9.5	15.3	0.0		
Total %	6.4	1.8	5.9	1.5	0.0	15.7	1.5	3.3	0.3	0.3	0.0	5.5	0.1	8.7	27.1	2.7	0.0	38.6	3.3	0.4	3.0	3.2	0.0	9.9	3.0	19.8	2.9	4.6	0.0	30.3	
Exiting Leg Total						394						109						652						174						890	2219

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
5:00 PM	18	1	20	3	0	42	6	9	0	0	0	15	1	16	72	7	0	96	12	1	13	23	0	49	0	51	11	11	0	73	275
5:15 PM	25	4	20	9	0	58	3	5	1	1	0	10	0	21	85	10	0	116	10	0	8	5	0	23	14	94	10	23	0	141	348
5:30 PM	25	4	19	10	0	58	8	12	1	1	0	22	0	31	101	6	0	138	13	5	6	13	0	37	10	61	6	8	0	85	340
5:45 PM	17	8	14	4	0	43	4	8	3	0	0	15	0	22	82	9	0	113	5	2	11	8	0	26	13	59	8	11	0	91	288
Total Volume	85	17	73	26	0	201	21	34	5	2	0	62	1	90	340	32	0	463	40	8	38	49	0	135	37	265	35	53	0	390	1251
% Approach Total	42.3	8.5	36.3	12.9	0.0		33.9	54.8	8.1	3.2	0.0		0.2	19.4	73.4	6.9	0.0		29.6	5.9	28.1	36.3	0.0		9.5	67.9	9.0	13.6	0.0		
PHF	0.850	0.531	0.913	0.650	0.000	0.866	0.656	0.708	0.417	0.500	0.000	0.705	0.250	0.726	0.842	0.800	0.000	0.839	0.769	0.400	0.731	0.533	0.000	0.689	0.661	0.705	0.795	0.576	0.000	0.691	0.899
Entering Leg	85	17	73	26	0	201	21	34	5	2	0	62	1	90	340	32	0	463	40	8	38	49	0	135	37	265	35	53	0	390	1251
Exiting Leg						202						70						380						91						508	1251
Total						403						132						843						226						898	2502

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 2018**
Start Time: **4:00 PM**
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Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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Light Goods Vehicle

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:00 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	2	9	1	0	12	0	0	1	2	0	3	0	3	0	2	0	5	22
4:15 PM	0	0	2	0	0	2	1	1	0	0	0	2	0	0	4	1	0	5	0	0	0	1	0	1	0	7	3	0	0	10	20
4:30 PM	1	1	2	0	0	4	0	1	0	1	0	2	0	3	8	0	0	11	0	0	0	0	0	0	0	9	0	2	0	11	28
4:45 PM	1	0	0	0	0	1	0	2	0	0	0	2	0	1	5	2	0	8	0	0	0	2	0	2	1	4	2	0	0	7	20
Total	2	1	6	0	0	9	1	4	0	1	0	6	0	6	26	4	0	36	0	0	1	5	0	6	1	23	5	4	0	33	90
5:00 PM	0	0	1	1	0	2	0	2	1	0	0	3	0	0	7	0	0	7	3	0	0	1	0	4	0	1	0	0	0	1	17
5:15 PM	1	0	0	1	0	2	0	2	0	0	0	2	0	1	6	0	0	7	0	0	0	0	0	0	0	5	1	1	0	7	18
5:30 PM	2	0	2	0	0	4	0	0	0	0	0	0	0	3	7	0	0	10	1	0	1	4	0	6	1	2	0	0	0	3	23
5:45 PM	1	1	0	0	0	2	0	0	0	0	0	0	0	1	8	0	0	9	2	0	0	0	0	2	3	5	0	1	0	9	22
Total	4	1	3	2	0	10	0	4	1	0	0	5	0	5	28	0	0	33	6	0	1	5	0	12	4	13	1	2	0	20	80
Grand Total	6	2	9	2	0	19	1	8	1	1	0	11	0	11	54	4	0	69	6	0	2	10	0	18	5	36	6	6	0	53	170
Approach %	31.6	10.5	47.4	10.5	0.0		9.1	72.7	9.1	9.1	0.0		0.0	15.9	78.3	5.8	0.0		33.3	0.0	11.1	55.6	0.0		9.4	67.9	11.3	11.3	0.0		
Total %	3.5	1.2	5.3	1.2	0.0	11.2	0.6	4.7	0.6	0.6	0.0	6.5	0.0	6.5	31.8	2.4	0.0	40.6	3.5	0.0	1.2	5.9	0.0	10.6	2.9	21.2	3.5	3.5	0.0	31.2	
Exiting Leg Total						20						8						52						12						78	170

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:00 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	2	9	1	0	12	0	0	1	2	0	3	0	3	0	2	0	5	22
4:15 PM	0	0	2	0	0	2	1	1	0	0	0	2	0	0	4	1	0	5	0	0	0	1	0	1	0	7	3	0	0	10	20
4:30 PM	1	1	2	0	0	4	0	1	0	1	0	2	0	3	8	0	0	11	0	0	0	0	0	0	0	9	0	2	0	11	28
4:45 PM	1	0	0	0	0	1	0	2	0	0	0	2	0	1	5	2	0	8	0	0	0	2	0	2	1	4	2	0	0	7	20
Total Volume	2	1	6	0	0	9	1	4	0	1	0	6	0	6	26	4	0	36	0	0	1	5	0	6	1	23	5	4	0	33	90
% Approach Total	22.2	11.1	66.7	0.0	0.0		16.7	66.7	0.0	16.7	0.0		0.0	16.7	72.2	11.1	0.0		0.0	0.0	16.7	83.3	0.0		3.0	69.7	15.2	12.1	0.0		
PHF	0.500	0.250	0.750	0.000	0.000	0.563	0.250	0.500	0.000	0.250	0.000	0.750	0.000	0.500	0.722	0.500	0.000	0.750	0.000	0.000	0.250	0.625	0.000	0.500	0.250	0.639	0.417	0.500	0.000	0.750	0.804
Entering Leg	2	1	6	0	0	9	1	4	0	1	0	6	0	6	26	4	0	36	0	0	1	5	0	6	1	23	5	4	0	33	90
Exiting Leg						12						5						30						6						37	90
Total						21						11						66						12						70	180

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:00 PM	1	0	1	0	0	2	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
4:15 PM	0	0	1	0	0	1	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
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	1	0	3	0	0	4	1	0	0	0	0	1	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	9
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	2	0	0	2	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
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	1	0	0	1	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
Total	0	0	3	0	0	3	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	6
Grand Total	1	0	6	0	0	7	1	0	0	0	0	1	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	15
Approach %	14.3	0.0	85.7	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		
Total %	6.7	0.0	40.0	0.0	0.0	46.7	6.7	0.0	0.0	0.0	0.0	6.7	0.0	46.7	0.0	0.0	0.0	46.7	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						8						0						6						0						1	15

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:00 PM	1	0	1	0	0	2	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
4:15 PM	0	0	1	0	0	1	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
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	1	0	3	0	0	4	1	0	0	0	0	1	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	9
% Approach Total	25.0	0.0	75.0	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		
PHF	0.250	0.000	0.750	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.563
Entering Leg	1	0	3	0	0	4	1	0	0	0	0	1	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	9
Exiting Leg						5						0						3						0						1	9
Total						9						1						7						0						1	18

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	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	1	0	0	0	0	1	1	0	0	0	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	1	0	0	1	0	0	0	0	0	0	0	0	3	0	0	3	1	0	0	0	0	1	1	0	1	0	0	2	7
5:00 PM	0	0	0	3	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	5
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	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	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	3	0	3	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	6
Grand Total	0	0	1	3	0	4	0	1	0	0	0	1	0	1	3	0	0	4	1	0	0	0	0	1	1	1	1	0	0	3	13
Approach %	0.0	0.0	25.0	75.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	25.0	75.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		33.3	33.3	33.3	0.0	0.0		
Total %	0.0	0.0	7.7	23.1	0.0	30.8	0.0	7.7	0.0	0.0	0.0	7.7	0.0	7.7	23.1	0.0	0.0	30.8	7.7	0.0	0.0	0.0	0.0	7.7	7.7	7.7	7.7	0.0	0.0	23.1	
Exiting Leg Total						1						4						3						1						4	13

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
5:00 PM	0	0	0	3	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	5
Total Volume	0	0	1	3	0	4	0	1	0	0	0	1	0	0	3	0	0	3	0	0	0	0	0	0	0	1	1	0	0	2	10
% Approach Total	0.0	0.0	25.0	75.0	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	50.0	50.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.250	0.000	0.333	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.500	0.500
Entering Leg	0	0	1	3	0	4	0	1	0	0	0	1	0	0	3	0	0	3	0	0	0	0	0	0	0	1	1	0	0	2	10
Exiting Leg						0						4						2						0						4	10
Total						4						5						5						0						6	20

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	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	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	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	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	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
5:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	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	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	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	3
Grand Total	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	3
Approach %	0.0	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		
Total %	0.0	0.0	33.3	0.0	0.0	33.3	0.0	0.0	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	0.0	33.3	0.0	0.0	0.0	33.3	
Exiting Leg Total						0						0						2						0						1	3

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Railroad Street						Pearson Street						Essex Street						Dundee Park Drive						Essex Street						
	from North						from Northeast						from East						from South						from West						
	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Total
5:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	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	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	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	3
% Approach Total	0.0	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		
PHF	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	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.375
Entering Leg	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	3
Exiting Leg						0						0						2						0						1	3
Total						1						0						3						0						2	6

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 2018**
Start Time: **4:00 PM**
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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

Bicycles (on Roadway and Crosswalks)

	Railroad Street								Pearson Street								Essex Street								Dundee Park Drive								Essex Street								
	from North								from Northeast								from East								from South								from West								
	Right	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Bear Left	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	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	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	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	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
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	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	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	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	0	1	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	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	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	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	0.0	0.0	0.0	0.0	0.0	0.0		0.0	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		
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	0.0	0.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total								0								0								0								1								0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Railroad Street								Pearson Street								Essex Street								Dundee Park Drive								Essex Street								
	from North								from Northeast								from East								from South								from West								
	Right	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Bear Left	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	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	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	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	0	1	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	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	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	0.000	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	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Exiting Leg								0								0								0								1								0	1
Total								0								0								0								2								0	2

PDI File #: **186242 BB**
Location: **N: Railroad Street S: Dundee Park Drive NE: Pearson Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Railroad Street								Pearson Street								Essex Street								Dundee Park Drive								Essex Street								
	from North								from Northeast								from East								from South								from West								
	Right	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Bear Left	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	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	6
4:15 PM	0	0	0	0	0	0	0	0	0	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	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	5
4:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	1	0	0	0	0	0	7	0	7	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4	13
5:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	6
5:15 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	18	0	18	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	23
5:30 PM	0	0	0	0	0	0	2	2	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	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
Total	0	0	0	0	0	0	4	4	0	0	0	0	0	22	7	29	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	2	38
Grand Total	0	0	0	0	0	0	5	5	0	0	0	0	0	29	7	36	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	3	3	6	51
Approach %	0	0	0	0	0	0	100		0	0	0	0	0	81	19		0	0	0	0	0	100	0		0	0	0	0	0	100	0		0	0	0	0	0	50	50		
Total %	0	0	0	0	0	0	9.8	9.8	0	0	0	0	0	57	14	71	0	0	0	0	0	5.9	0	5.9	0	0	0	0	0	2	0	2	0	0	0	0	0	5.9	5.9	12	
Exiting Leg Total								5								36								3								1								6	51

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Railroad Street								Pearson Street								Essex Street								Dundee Park Drive								Essex Street								
	from North								from Northeast								from East								from South								from West								
	Right	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	6
5:15 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	18	0	18	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	23
5:30 PM	0	0	0	0	0	0	2	2	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	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
Total Volume	0	0	0	0	0	0	4	4	0	0	0	0	0	22	7	29	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	2	38
% 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	75.9	24.1		0.0	0.0	0.0	0.0	0.0	100.0	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	50.0	50.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.306	0.438	0.403	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	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.500	0.413
Entering Leg	0	0	0	0	0	0	4	4	0	0	0	0	0	22	7	29	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	2	38
Exiting Leg								4								29								2								1								2	38
Total								8								58								4								2								4	76

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	19	78	0	0	97	0	0	0	0	0	16	51	26	0	93	0	0	0	0	0	190
7:15 AM	35	86	0	0	121	0	0	0	0	0	16	39	47	0	102	0	0	0	0	0	223
7:30 AM	40	102	0	0	142	0	0	0	0	0	16	56	37	0	109	0	0	0	0	0	251
7:45 AM	33	152	0	0	185	0	0	0	0	0	14	59	21	0	94	0	0	0	0	0	279
Total	127	418	0	0	545	0	0	0	0	0	62	205	131	0	398	0	0	0	0	0	943
8:00 AM	22	126	0	0	148	0	0	0	0	0	7	69	22	0	98	0	0	0	0	0	246
8:15 AM	17	117	0	0	134	0	0	0	0	0	6	72	21	0	99	0	0	0	0	0	233
8:30 AM	35	117	0	0	152	0	0	0	0	0	10	77	30	0	117	0	0	0	0	0	269
8:45 AM	52	107	0	0	159	0	0	0	0	0	17	97	35	0	149	0	0	0	0	0	308
Total	126	467	0	0	593	0	0	0	0	0	40	315	108	0	463	0	0	0	0	0	1056
Grand Total	253	885	0	0	1138	0	0	0	0	0	102	520	239	0	861	0	0	0	0	0	1999
Approach %	22.2	77.8	0.0	0.0		0.0	0.0	0.0	0.0		11.8	60.4	27.8	0.0		0.0	0.0	0.0	0.0		
Total %	12.7	44.3	0.0	0.0	56.9	0.0	0.0	0.0	0.0	0.0	5.1	26.0	12.0	0.0	43.1	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					520					102					885					492	1999
Cars	248	869	0	0	1117	0	0	0	0	0	100	507	227	0	834	0	0	0	0	0	1951
% Cars	98.0	98.2	0.0	0.0	98.2	0.0	0.0	0.0	0.0	0.0	98.0	97.5	95.0	0.0	96.9	0.0	0.0	0.0	0.0	0.0	97.6
Exiting Leg Total					507					100					869					475	1951
Heavy Vehicles	5	16	0	0	21	0	0	0	0	0	2	13	12	0	27	0	0	0	0	0	48
% Heavy Vehicles	2.0	1.8	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	2.0	2.5	5.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	2.4
Exiting Leg Total					13					2					16					17	48

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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
8:00 AM	22	126	0	0	148	0	0	0	0	0	7	69	22	0	98	0	0	0	0	0	246
8:15 AM	17	117	0	0	134	0	0	0	0	0	6	72	21	0	99	0	0	0	0	0	233
8:30 AM	35	117	0	0	152	0	0	0	0	0	10	77	30	0	117	0	0	0	0	0	269
8:45 AM	52	107	0	0	159	0	0	0	0	0	17	97	35	0	149	0	0	0	0	0	308
Total Volume	126	467	0	0	593	0	0	0	0	0	40	315	108	0	463	0	0	0	0	0	1056
% Approach Total	21.2	78.8	0.0	0.0		0.0	0.0	0.0	0.0		8.6	68.0	23.3	0.0		0.0	0.0	0.0	0.0		
PHF	0.606	0.927	0.000	0.000	0.932	0.000	0.000	0.000	0.000	0.000	0.588	0.812	0.771	0.000	0.777	0.000	0.000	0.000	0.000	0.000	0.857
Cars	121	463	0	0	584	0	0	0	0	0	39	307	106	0	452	0	0	0	0	0	1036
Cars %	96.0	99.1	0.0	0.0	98.5	0.0	0.0	0.0	0.0	0.0	97.5	97.5	98.1	0.0	97.6	0.0	0.0	0.0	0.0	0.0	98.1
Heavy Vehicles	5	4	0	0	9	0	0	0	0	0	1	8	2	0	11	0	0	0	0	0	20
Heavy Vehicles %	4.0	0.9	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	2.5	2.5	1.9	0.0	2.4	0.0	0.0	0.0	0.0	0.0	1.9
Cars Enter Leg	121	463	0	0	584	0	0	0	0	0	39	307	106	0	452	0	0	0	0	0	1036
Heavy Enter Leg	5	4	0	0	9	0	0	0	0	0	1	8	2	0	11	0	0	0	0	0	20
Total Entering Leg	126	467	0	0	593	0	0	0	0	0	40	315	108	0	463	0	0	0	0	0	1056
Cars Exiting Leg					307					39					463					227	1036
Heavy Exiting Leg					8					1					4					7	20
Total Exiting Leg					315					40					467					234	1056

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	19	76	0	0	95	0	0	0	0	0	16	50	18	0	84	0	0	0	0	0	179
7:15 AM	35	83	0	0	118	0	0	0	0	0	16	38	45	0	99	0	0	0	0	0	217
7:30 AM	40	97	0	0	137	0	0	0	0	0	16	55	37	0	108	0	0	0	0	0	245
7:45 AM	33	150	0	0	183	0	0	0	0	0	13	57	21	0	91	0	0	0	0	0	274
Total	127	406	0	0	533	0	0	0	0	0	61	200	121	0	382	0	0	0	0	0	915
8:00 AM	20	125	0	0	145	0	0	0	0	0	7	67	22	0	96	0	0	0	0	0	241
8:15 AM	16	115	0	0	131	0	0	0	0	0	6	71	21	0	98	0	0	0	0	0	229
8:30 AM	34	116	0	0	150	0	0	0	0	0	9	75	28	0	112	0	0	0	0	0	262
8:45 AM	51	107	0	0	158	0	0	0	0	0	17	94	35	0	146	0	0	0	0	0	304
Total	121	463	0	0	584	0	0	0	0	0	39	307	106	0	452	0	0	0	0	0	1036
Grand Total	248	869	0	0	1117	0	0	0	0	0	100	507	227	0	834	0	0	0	0	0	1951
Approach %	22.2	77.8	0.0	0.0		0.0	0.0	0.0	0.0		12.0	60.8	27.2	0.0		0.0	0.0	0.0	0.0		
Total %	12.7	44.5	0.0	0.0	57.3	0.0	0.0	0.0	0.0	0.0	5.1	26.0	11.6	0.0	42.7	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					507					100					869					475	1951

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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
8:00 AM	20	125	0	0	145	0	0	0	0	0	7	67	22	0	96	0	0	0	0	0	241
8:15 AM	16	115	0	0	131	0	0	0	0	0	6	71	21	0	98	0	0	0	0	0	229
8:30 AM	34	116	0	0	150	0	0	0	0	0	9	75	28	0	112	0	0	0	0	0	262
8:45 AM	51	107	0	0	158	0	0	0	0	0	17	94	35	0	146	0	0	0	0	0	304
Total Volume	121	463	0	0	584	0	0	0	0	0	39	307	106	0	452	0	0	0	0	0	1036
% Approach Total	20.7	79.3	0.0	0.0		0.0	0.0	0.0	0.0		8.6	67.9	23.5	0.0		0.0	0.0	0.0	0.0		
PHF	0.593	0.926	0.000	0.000	0.924	0.000	0.000	0.000	0.000	0.000	0.574	0.816	0.757	0.000	0.774	0.000	0.000	0.000	0.000	0.000	0.852
Entering Leg	121	463	0	0	584	0	0	0	0	0	39	307	106	0	452	0	0	0	0	0	1036
Exiting Leg					307					39					463					227	1036
Total					891					39					915					227	2072

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	2	0	0	2	0	0	0	0	0	0	1	8	0	9	0	0	0	0	0	11
7:15 AM	0	3	0	0	3	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	6
7:30 AM	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	6
7:45 AM	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	5
Total	0	12	0	0	12	0	0	0	0	0	1	5	10	0	16	0	0	0	0	0	28
8:00 AM	2	1	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
8:15 AM	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
8:30 AM	1	1	0	0	2	0	0	0	0	0	1	2	2	0	5	0	0	0	0	0	7
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
Total	5	4	0	0	9	0	0	0	0	0	1	8	2	0	11	0	0	0	0	0	20
Grand Total	5	16	0	0	21	0	0	0	0	0	2	13	12	0	27	0	0	0	0	0	48
Approach %	23.8	76.2	0.0	0.0		0.0	0.0	0.0	0.0		7.4	48.1	44.4	0.0		0.0	0.0	0.0	0.0		
Total %	10.4	33.3	0.0	0.0	43.8	0.0	0.0	0.0	0.0	0.0	4.2	27.1	25.0	0.0	56.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					13					2					16					17	48
Buses	0	4	0	0	4	0	0	0	0	0	0	2	12	0	14	0	0	0	0	0	18
% Buses	0.0	25.0	0.0	0.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	100.0	0.0	51.9	0.0	0.0	0.0	0.0	0.0	37.5
Exiting Leg Total					2					0					4					12	18
Single-Unit Trucks	5	11	0	0	16	0	0	0	0	0	1	11	0	0	12	0	0	0	0	0	28
% Single-Unit	100.0	68.8	0.0	0.0	76.2	0.0	0.0	0.0	0.0	0.0	50.0	84.6	0.0	0.0	44.4	0.0	0.0	0.0	0.0	0.0	58.3
Exiting Leg Total					11					1					11					5	28
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
% Articulated	0.0	6.3	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	4.2
Exiting Leg Total					0					1					1					0	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	2	0	0	2	0	0	0	0	0	0	1	8	0	9	0	0	0	0	0	11
7:15 AM	0	3	0	0	3	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	6
7:30 AM	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	6
7:45 AM	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	5
Total Volume	0	12	0	0	12	0	0	0	0	0	1	5	10	0	16	0	0	0	0	0	28
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		6.3	31.3	62.5	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.600	0.000	0.000	0.600	0.000	0.000	0.000	0.000	0.000	0.250	0.625	0.313	0.000	0.444	0.000	0.000	0.000	0.000	0.000	0.636
Buses	0	1	0	0	1	0	0	0	0	0	0	1	10	0	11	0	0	0	0	0	12
Buses %	0.0	8.3	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	20.0	100.0	0.0	68.8	0.0	0.0	0.0	0.0	0.0	42.9
Single-Unit Trucks	0	10	0	0	10	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	14
Single-Unit %	0.0	83.3	0.0	0.0	83.3	0.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	50.0
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Articulated %	0.0	8.3	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	7.1
Buses	0	1	0	0	1	0	0	0	0	0	0	1	10	0	11	0	0	0	0	0	12
Single-Unit Trucks	0	10	0	0	10	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	14
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Total Entering Leg	0	12	0	0	12	0	0	0	0	0	1	5	10	0	16	0	0	0	0	0	28
Buses					1					0					1					10	12
Single-Unit Trucks					4					0					10					0	14
Articulated Trucks					0					1					1					0	2
Total Exiting Leg					5					1					12					10	28

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	19	65	0	0	84	0	0	0	0	0	14	47	17	0	78	0	0	0	0	0	162
7:15 AM	32	79	0	0	111	0	0	0	0	0	14	28	43	0	85	0	0	0	0	0	196
7:30 AM	36	85	0	0	121	0	0	0	0	0	14	50	36	0	100	0	0	0	0	0	221
7:45 AM	32	137	0	0	169	0	0	0	0	0	10	49	20	0	79	0	0	0	0	0	248
Total	119	366	0	0	485	0	0	0	0	0	52	174	116	0	342	0	0	0	0	0	827
8:00 AM	19	115	0	0	134	0	0	0	0	0	7	63	22	0	92	0	0	0	0	0	226
8:15 AM	16	100	0	0	116	0	0	0	0	0	6	66	20	0	92	0	0	0	0	0	208
8:30 AM	32	101	0	0	133	0	0	0	0	0	8	63	27	0	98	0	0	0	0	0	231
8:45 AM	49	98	0	0	147	0	0	0	0	0	15	91	31	0	137	0	0	0	0	0	284
Total	116	414	0	0	530	0	0	0	0	0	36	283	100	0	419	0	0	0	0	0	949
Grand Total	235	780	0	0	1015	0	0	0	0	0	88	457	216	0	761	0	0	0	0	0	1776
Approach %	23.2	76.8	0.0	0.0		0.0	0.0	0.0	0.0		11.6	60.1	28.4	0.0		0.0	0.0	0.0	0.0		
Total %	13.2	43.9	0.0	0.0	57.2	0.0	0.0	0.0	0.0	0.0	5.0	25.7	12.2	0.0	42.8	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					457					88					780					451	1776

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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
8:00 AM	19	115	0	0	134	0	0	0	0	0	7	63	22	0	92	0	0	0	0	0	226
8:15 AM	16	100	0	0	116	0	0	0	0	0	6	66	20	0	92	0	0	0	0	0	208
8:30 AM	32	101	0	0	133	0	0	0	0	0	8	63	27	0	98	0	0	0	0	0	231
8:45 AM	49	98	0	0	147	0	0	0	0	0	15	91	31	0	137	0	0	0	0	0	284
Total Volume	116	414	0	0	530	0	0	0	0	0	36	283	100	0	419	0	0	0	0	0	949
% Approach Total	21.9	78.1	0.0	0.0		0.0	0.0	0.0	0.0		8.6	67.5	23.9	0.0		0.0	0.0	0.0	0.0		
PHF	0.592	0.900	0.000	0.000	0.901	0.000	0.000	0.000	0.000	0.000	0.600	0.777	0.806	0.000	0.765	0.000	0.000	0.000	0.000	0.000	0.835
Entering Leg	116	414	0	0	530	0	0	0	0	0	36	283	100	0	419	0	0	0	0	0	949
Exiting Leg					283					36					414					216	949
Total					813					36					833					216	1898

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	11	0	0	11	0	0	0	0	0	2	3	1	0	6	0	0	0	0	0	17
7:15 AM	3	4	0	0	7	0	0	0	0	0	2	10	2	0	14	0	0	0	0	0	21
7:30 AM	4	10	0	0	14	0	0	0	0	0	2	5	1	0	8	0	0	0	0	0	22
7:45 AM	1	12	0	0	13	0	0	0	0	0	3	8	1	0	12	0	0	0	0	0	25
Total	8	37	0	0	45	0	0	0	0	0	9	26	5	0	40	0	0	0	0	0	85
8:00 AM	1	10	0	0	11	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	15
8:15 AM	0	15	0	0	15	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	21
8:30 AM	1	15	0	0	16	0	0	0	0	0	1	12	1	0	14	0	0	0	0	0	30
8:45 AM	2	9	0	0	11	0	0	0	0	0	2	3	4	0	9	0	0	0	0	0	20
Total	4	49	0	0	53	0	0	0	0	0	3	24	6	0	33	0	0	0	0	0	86
Grand Total	12	86	0	0	98	0	0	0	0	0	12	50	11	0	73	0	0	0	0	0	171
Approach %	12.2	87.8	0.0	0.0		0.0	0.0	0.0	0.0		16.4	68.5	15.1	0.0		0.0	0.0	0.0	0.0		
Total %	7.0	50.3	0.0	0.0	57.3	0.0	0.0	0.0	0.0	0.0	7.0	29.2	6.4	0.0	42.7	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					50					12					86					23	171

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	1	12	0	0	13	0	0	0	0	0	3	8	1	0	12	0	0	0	0	0	25
8:00 AM	1	10	0	0	11	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	15
8:15 AM	0	15	0	0	15	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	21
8:30 AM	1	15	0	0	16	0	0	0	0	0	1	12	1	0	14	0	0	0	0	0	30
Total Volume	3	52	0	0	55	0	0	0	0	0	4	29	3	0	36	0	0	0	0	0	91
% Approach Total	5.5	94.5	0.0	0.0		0.0	0.0	0.0	0.0		11.1	80.6	8.3	0.0		0.0	0.0	0.0	0.0		
PHF	0.750	0.867	0.000	0.000	0.859	0.000	0.000	0.000	0.000	0.000	0.333	0.604	0.750	0.000	0.643	0.000	0.000	0.000	0.000	0.000	0.758
Entering Leg	3	52	0	0	55	0	0	0	0	0	4	29	3	0	36	0	0	0	0	0	91
Exiting Leg					29					4					52					6	91
Total					84					4					88					6	182

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	0	0	0	0	0	0	8	0	8	0	0	0	0	0	8
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	0	1	10	0	11	0	0	0	0	0	12
8:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	4
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	3	0	0	3	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	6
Grand Total	0	4	0	0	4	0	0	0	0	0	0	2	12	0	14	0	0	0	0	0	18
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	14.3	85.7	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	22.2	0.0	0.0	22.2	0.0	0.0	0.0	0.0	0.0	0.0	11.1	66.7	0.0	77.8	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					2					0					4					12	18

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	0	0	0	0	0	0	8	0	8	0	0	0	0	0	8
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	0	0	0	0	0	1	10	0	11	0	0	0	0	0	12
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	9.1	90.9	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.313	0.000	0.344	0.000	0.000	0.000	0.000	0.000	0.375
Entering Leg	0	1	0	0	1	0	0	0	0	0	0	1	10	0	11	0	0	0	0	0	12
Exiting Leg					1					0					1					10	12
Total					2					0					12					10	24

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
7:15 AM	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
7:30 AM	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
7:45 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Total	0	10	0	0	10	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	14
8:00 AM	2	0	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
8:15 AM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
8:30 AM	1	0	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	3
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
Total	5	1	0	0	6	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	14
Grand Total	5	11	0	0	16	0	0	0	0	0	1	11	0	0	12	0	0	0	0	0	28
Approach %	31.3	68.8	0.0	0.0		0.0	0.0	0.0	0.0		8.3	91.7	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	17.9	39.3	0.0	0.0	57.1	0.0	0.0	0.0	0.0	0.0	3.6	39.3	0.0	0.0	42.9	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					11					1					11					5	28

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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
7:15 AM	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
7:30 AM	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
7:45 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
8:00 AM	2	0	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
Total Volume	2	8	0	0	10	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	15
% Approach Total	20.0	80.0	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	0.250	0.667	0.000	0.000	0.833	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	0.938
Entering Leg	2	8	0	0	10	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	15
Exiting Leg					5					0					8					2	15
Total					15					0					13					2	30

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	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
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Approach %	0.0	100.0	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		
Total %	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					1					1					0	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
% Approach Total	0.0	100.0	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	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Exiting Leg					0					1					1					0	2
Total					1					1					2					0	4

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North							Main Street Access from East							Central Street from South							Essex Street 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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Grand Total	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	3
Approach %	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	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	66.7	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							1							0							2							0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Central Street from North							Main Street Access from East							Central Street from South							Essex Street 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
7:15 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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
% Approach Total	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	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	0.250	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	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Exiting Leg							1							0							1							0	2
Total							2							0							2							0	4

PDI File #: **186242 C**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North							Main Street Access from East							Central Street from South							Essex Street 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	2	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1	4
7:15 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	1	1	2
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	1	1	2	0	0	0	0	0	1	1	3
Total	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	4	0	0	0	0	1	2	3	9
8:00 AM	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	4
8:15 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
8:30 AM	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	5	6	9
8:45 AM	0	0	0	0	3	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	5	11
Total	0	0	0	0	8	3	11	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	4	7	11	26
Grand Total	0	0	0	0	10	3	13	0	0	0	0	0	0	0	0	0	0	0	2	6	8	0	0	0	0	5	9	14	35
Approach %	0	0	0	0	76.9	23.1		0	0	0	0	0	0		0	0	0	0	25	75		0	0	0	0	35.7	64.3		
Total %	0	0	0	0	28.6	8.57	37.1	0	0	0	0	0	0	0	0	0	0	0	5.71	17.1	22.9	0	0	0	0	14.3	25.7	40	
Exiting Leg Total							13							0							8							14	35

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Central Street from North							Main Street Access from East							Central Street from South							Essex Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	4
8:15 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
8:30 AM	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	5	6	9
8:45 AM	0	0	0	0	3	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	5	11
Total Volume	0	0	0	0	8	3	11	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	4	7	11	26
% Approach Total	0.0	0.0	0.0	0.0	72.7	27.3		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	36.4	63.6		
PHF	0.000	0.000	0.000	0.000	0.667	0.250	0.458	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.333	0.350	0.458	0.591
Entering Leg	0	0	0	0	8	3	11	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	4	7	11	26
Exiting Leg							11							0							4							11	26
Total							22							0							8							22	52

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	47	78	0	0	125	0	0	0	0	0	15	114	35	0	164	0	0	0	0	0	289
4:15 PM	30	59	0	0	89	0	0	0	0	0	9	93	46	0	148	0	0	0	0	0	237
4:30 PM	37	56	0	0	93	0	0	0	0	0	8	110	20	0	138	0	0	0	0	0	231
4:45 PM	35	75	0	0	110	0	0	0	0	0	13	137	27	0	177	0	0	0	0	0	287
Total	149	268	0	0	417	0	0	0	0	0	45	454	128	0	627	0	0	0	0	0	1044
5:00 PM	30	71	0	0	101	0	0	0	0	0	6	134	31	0	171	0	0	0	0	0	272
5:15 PM	53	70	0	0	123	0	0	0	0	0	15	119	25	0	159	0	0	0	0	0	282
5:30 PM	43	82	0	0	125	0	0	0	0	0	11	113	38	0	162	0	0	0	0	0	287
5:45 PM	49	80	0	0	129	0	0	0	0	0	14	97	40	0	151	0	0	0	0	0	280
Total	175	303	0	0	478	0	0	0	0	0	46	463	134	0	643	0	0	0	0	0	1121
Grand Total	324	571	0	0	895	0	0	0	0	0	91	917	262	0	1270	0	0	0	0	0	2165
Approach %	36.2	63.8	0.0	0.0		0.0	0.0	0.0	0.0		7.2	72.2	20.6	0.0		0.0	0.0	0.0	0.0		
Total %	15.0	26.4	0.0	0.0	41.3	0.0	0.0	0.0	0.0	0.0	4.2	42.4	12.1	0.0	58.7	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					917					91					571					586	2165
Cars	323	560	0	0	883	0	0	0	0	0	87	911	262	0	1260	0	0	0	0	0	2143
% Cars	99.7	98.1	0.0	0.0	98.7	0.0	0.0	0.0	0.0	0.0	95.6	99.3	100.0	0.0	99.2	0.0	0.0	0.0	0.0	0.0	99.0
Exiting Leg Total					911					87					560					585	2143
Heavy Vehicles	1	11	0	0	12	0	0	0	0	0	4	6	0	0	10	0	0	0	0	0	22
% Heavy Vehicles	0.3	1.9	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	4.4	0.7	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	1.0
Exiting Leg Total					6					4					11					1	22

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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
4:45 PM	35	75	0	0	110	0	0	0	0	0	13	137	27	0	177	0	0	0	0	0	287
5:00 PM	30	71	0	0	101	0	0	0	0	0	6	134	31	0	171	0	0	0	0	0	272
5:15 PM	53	70	0	0	123	0	0	0	0	0	15	119	25	0	159	0	0	0	0	0	282
5:30 PM	43	82	0	0	125	0	0	0	0	0	11	113	38	0	162	0	0	0	0	0	287
Total Volume	161	298	0	0	459	0	0	0	0	0	45	503	121	0	669	0	0	0	0	0	1128
% Approach Total	35.1	64.9	0.0	0.0		0.0	0.0	0.0	0.0		6.7	75.2	18.1	0.0		0.0	0.0	0.0	0.0		
PHF	0.759	0.909	0.000	0.000	0.918	0.000	0.000	0.000	0.000	0.000	0.750	0.918	0.796	0.000	0.945	0.000	0.000	0.000	0.000	0.000	0.983
Cars	161	293	0	0	454	0	0	0	0	0	44	498	121	0	663	0	0	0	0	0	1117
Cars %	100.0	98.3	0.0	0.0	98.9	0.0	0.0	0.0	0.0	0.0	97.8	99.0	100.0	0.0	99.1	0.0	0.0	0.0	0.0	0.0	99.0
Heavy Vehicles	0	5	0	0	5	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	11
Heavy Vehicles %	0.0	1.7	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	2.2	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	1.0
Cars Enter Leg	161	293	0	0	454	0	0	0	0	0	44	498	121	0	663	0	0	0	0	0	1117
Heavy Enter Leg	0	5	0	0	5	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	11
Total Entering Leg	161	298	0	0	459	0	0	0	0	0	45	503	121	0	669	0	0	0	0	0	1128
Cars Exiting Leg					498					44					293					282	1117
Heavy Exiting Leg					5					1					5					0	11
Total Exiting Leg					503					45					298					282	1128

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	47	76	0	0	123	0	0	0	0	0	13	113	35	0	161	0	0	0	0	0	284
4:15 PM	30	59	0	0	89	0	0	0	0	0	8	93	46	0	147	0	0	0	0	0	236
4:30 PM	36	52	0	0	88	0	0	0	0	0	8	110	20	0	138	0	0	0	0	0	226
4:45 PM	35	73	0	0	108	0	0	0	0	0	13	135	27	0	175	0	0	0	0	0	283
Total	148	260	0	0	408	0	0	0	0	0	42	451	128	0	621	0	0	0	0	0	1029
5:00 PM	30	71	0	0	101	0	0	0	0	0	6	132	31	0	169	0	0	0	0	0	270
5:15 PM	53	69	0	0	122	0	0	0	0	0	14	118	25	0	157	0	0	0	0	0	279
5:30 PM	43	80	0	0	123	0	0	0	0	0	11	113	38	0	162	0	0	0	0	0	285
5:45 PM	49	80	0	0	129	0	0	0	0	0	14	97	40	0	151	0	0	0	0	0	280
Total	175	300	0	0	475	0	0	0	0	0	45	460	134	0	639	0	0	0	0	0	1114
Grand Total	323	560	0	0	883	0	0	0	0	0	87	911	262	0	1260	0	0	0	0	0	2143
Approach %	36.6	63.4	0.0	0.0		0.0	0.0	0.0	0.0		6.9	72.3	20.8	0.0		0.0	0.0	0.0	0.0		
Total %	15.1	26.1	0.0	0.0	41.2	0.0	0.0	0.0	0.0	0.0	4.1	42.5	12.2	0.0	58.8	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					911					87					560					585	2143

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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
4:45 PM	35	73	0	0	108	0	0	0	0	0	13	135	27	0	175	0	0	0	0	0	283
5:00 PM	30	71	0	0	101	0	0	0	0	0	6	132	31	0	169	0	0	0	0	0	270
5:15 PM	53	69	0	0	122	0	0	0	0	0	14	118	25	0	157	0	0	0	0	0	279
5:30 PM	43	80	0	0	123	0	0	0	0	0	11	113	38	0	162	0	0	0	0	0	285
Total Volume	161	293	0	0	454	0	0	0	0	0	44	498	121	0	663	0	0	0	0	0	1117
% Approach Total	35.5	64.5	0.0	0.0		0.0	0.0	0.0	0.0		6.6	75.1	18.3	0.0		0.0	0.0	0.0	0.0		
PHF	0.759	0.916	0.000	0.000	0.923	0.000	0.000	0.000	0.000	0.000	0.786	0.922	0.796	0.000	0.947	0.000	0.000	0.000	0.000	0.000	0.980
Entering Leg	161	293	0	0	454	0	0	0	0	0	44	498	121	0	663	0	0	0	0	0	1117
Exiting Leg					498					44					293					282	1117
Total					952					44					956					282	2234

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	2	0	0	2	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
4:30 PM	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
Total	1	8	0	0	9	0	0	0	0	0	3	3	0	0	6	0	0	0	0	0	15
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
5:15 PM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	3
5:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	0	3	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	7
Grand Total	1	11	0	0	12	0	0	0	0	0	4	6	0	0	10	0	0	0	0	0	22
Approach %	8.3	91.7	0.0	0.0		0.0	0.0	0.0	0.0		40.0	60.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	4.5	50.0	0.0	0.0	54.5	0.0	0.0	0.0	0.0	0.0	18.2	27.3	0.0	0.0	45.5	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					6					4					11					1	22
Buses	0	7	0	0	7	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	9
% Buses	0.0	63.6	0.0	0.0	58.3	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	40.9
Exiting Leg Total					0					2					7					0	9
Single-Unit Trucks	1	4	0	0	5	0	0	0	0	0	2	5	0	0	7	0	0	0	0	0	12
% Single-Unit	100.0	36.4	0.0	0.0	41.7	0.0	0.0	0.0	0.0	0.0	50.0	83.3	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	54.5
Exiting Leg Total					5					2					4					1	12
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	4.5
Exiting Leg Total					1					0					0					0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	2	0	0	2	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
4:30 PM	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
Total Volume	1	8	0	0	9	0	0	0	0	0	3	3	0	0	6	0	0	0	0	0	15
% Approach Total	11.1	88.9	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	0.250	0.500	0.000	0.000	0.450	0.000	0.000	0.000	0.000	0.000	0.375	0.375	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.750
Buses	0	5	0	0	5	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	6
Buses %	0.0	62.5	0.0	0.0	55.6	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	40.0
Single-Unit Trucks	1	3	0	0	4	0	0	0	0	0	2	3	0	0	5	0	0	0	0	0	9
Single-Unit %	100.0	37.5	0.0	0.0	44.4	0.0	0.0	0.0	0.0	0.0	66.7	100.0	0.0	0.0	83.3	0.0	0.0	0.0	0.0	0.0	60.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	5	0	0	5	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	6
Single-Unit Trucks	1	3	0	0	4	0	0	0	0	0	2	3	0	0	5	0	0	0	0	0	9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	1	8	0	0	9	0	0	0	0	0	3	3	0	0	6	0	0	0	0	0	15
Buses					0					1					5					0	6
Single-Unit Trucks					3					2					3					1	9
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					3					3					8					1	15

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	43	70	0	0	113	0	0	0	0	0	13	104	33	0	150	0	0	0	0	0	263
4:15 PM	29	57	0	0	86	0	0	0	0	0	7	85	42	0	134	0	0	0	0	0	220
4:30 PM	33	51	0	0	84	0	0	0	0	0	7	95	18	0	120	0	0	0	0	0	204
4:45 PM	31	68	0	0	99	0	0	0	0	0	12	127	27	0	166	0	0	0	0	0	265
Total	136	246	0	0	382	0	0	0	0	0	39	411	120	0	570	0	0	0	0	0	952
5:00 PM	26	69	0	0	95	0	0	0	0	0	6	121	30	0	157	0	0	0	0	0	252
5:15 PM	51	64	0	0	115	0	0	0	0	0	14	113	24	0	151	0	0	0	0	0	266
5:30 PM	38	78	0	0	116	0	0	0	0	0	11	106	34	0	151	0	0	0	0	0	267
5:45 PM	47	78	0	0	125	0	0	0	0	0	14	86	38	0	138	0	0	0	0	0	263
Total	162	289	0	0	451	0	0	0	0	0	45	426	126	0	597	0	0	0	0	0	1048
Grand Total	298	535	0	0	833	0	0	0	0	0	84	837	246	0	1167	0	0	0	0	0	2000
Approach %	35.8	64.2	0.0	0.0		0.0	0.0	0.0	0.0		7.2	71.7	21.1	0.0		0.0	0.0	0.0	0.0		
Total %	14.9	26.8	0.0	0.0	41.7	0.0	0.0	0.0	0.0	0.0	4.2	41.9	12.3	0.0	58.4	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					837					84					535					544	2000

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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
4:45 PM	31	68	0	0	99	0	0	0	0	0	12	127	27	0	166	0	0	0	0	0	265
5:00 PM	26	69	0	0	95	0	0	0	0	0	6	121	30	0	157	0	0	0	0	0	252
5:15 PM	51	64	0	0	115	0	0	0	0	0	14	113	24	0	151	0	0	0	0	0	266
5:30 PM	38	78	0	0	116	0	0	0	0	0	11	106	34	0	151	0	0	0	0	0	267
Total Volume	146	279	0	0	425	0	0	0	0	0	43	467	115	0	625	0	0	0	0	0	1050
% Approach Total	34.4	65.6	0.0	0.0		0.0	0.0	0.0	0.0		6.9	74.7	18.4	0.0		0.0	0.0	0.0	0.0		
PHF	0.716	0.894	0.000	0.000	0.916	0.000	0.000	0.000	0.000	0.000	0.768	0.919	0.846	0.000	0.941	0.000	0.000	0.000	0.000	0.000	0.983
Entering Leg	146	279	0	0	425	0	0	0	0	0	43	467	115	0	625	0	0	0	0	0	1050
Exiting Leg					467					43					279					261	1050
Total					892					43					904					261	2100

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	4	6	0	0	10	0	0	0	0	0	0	9	2	0	11	0	0	0	0	0	21
4:15 PM	1	2	0	0	3	0	0	0	0	0	1	8	4	0	13	0	0	0	0	0	16
4:30 PM	3	1	0	0	4	0	0	0	0	0	1	14	2	0	17	0	0	0	0	0	21
4:45 PM	4	5	0	0	9	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	17
Total	12	14	0	0	26	0	0	0	0	0	3	38	8	0	49	0	0	0	0	0	75
5:00 PM	4	2	0	0	6	0	0	0	0	0	0	11	1	0	12	0	0	0	0	0	18
5:15 PM	2	5	0	0	7	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	12
5:30 PM	5	2	0	0	7	0	0	0	0	0	0	7	4	0	11	0	0	0	0	0	18
5:45 PM	2	2	0	0	4	0	0	0	0	0	0	11	2	0	13	0	0	0	0	0	17
Total	13	11	0	0	24	0	0	0	0	0	0	33	8	0	41	0	0	0	0	0	65
Grand Total	25	25	0	0	50	0	0	0	0	0	3	71	16	0	90	0	0	0	0	0	140
Approach %	50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		3.3	78.9	17.8	0.0		0.0	0.0	0.0	0.0		
Total %	17.9	17.9	0.0	0.0	35.7	0.0	0.0	0.0	0.0	0.0	2.1	50.7	11.4	0.0	64.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					71					3					25					41	140

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	4	6	0	0	10	0	0	0	0	0	0	9	2	0	11	0	0	0	0	0	21
4:15 PM	1	2	0	0	3	0	0	0	0	0	1	8	4	0	13	0	0	0	0	0	16
4:30 PM	3	1	0	0	4	0	0	0	0	0	1	14	2	0	17	0	0	0	0	0	21
4:45 PM	4	5	0	0	9	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	17
Total Volume	12	14	0	0	26	0	0	0	0	0	3	38	8	0	49	0	0	0	0	0	75
% Approach Total	46.2	53.8	0.0	0.0		0.0	0.0	0.0	0.0		6.1	77.6	16.3	0.0		0.0	0.0	0.0	0.0		
PHF	0.750	0.583	0.000	0.000	0.650	0.000	0.000	0.000	0.000	0.000	0.750	0.679	0.500	0.000	0.721	0.000	0.000	0.000	0.000	0.000	0.893
Entering Leg	12	14	0	0	26	0	0	0	0	0	3	38	8	0	49	0	0	0	0	0	75
Exiting Leg					38					3					14					20	75
Total					64					3					63					20	150

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
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	2	0	0	2	0	0	0	0	0	0	0	0	0	0	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	5	0	0	5	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	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	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
Grand Total	0	7	0	0	7	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	9
Approach %	0.0	100.0	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		
Total %	0.0	77.8	0.0	0.0	77.8	0.0	0.0	0.0	0.0	0.0	22.2	0.0	0.0	0.0	22.2	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					2					7					0	9

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
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	2	0	0	2	0	0	0	0	0	0	0	0	0	0	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 Volume	0	5	0	0	5	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	6
% Approach Total	0.0	100.0	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	0.625	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	5	0	0	5	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	6
Exiting Leg					0					1					5					0	6
Total					5					1					6					0	12

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
4:30 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Total	1	3	0	0	4	0	0	0	0	0	2	3	0	0	5	0	0	0	0	0	9
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
5:15 PM	0	1	0	0	1	0	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
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	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Grand Total	1	4	0	0	5	0	0	0	0	0	2	5	0	0	7	0	0	0	0	0	12
Approach %	20.0	80.0	0.0	0.0		0.0	0.0	0.0	0.0		28.6	71.4	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	8.3	33.3	0.0	0.0	41.7	0.0	0.0	0.0	0.0	0.0	16.7	41.7	0.0	0.0	58.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					5					2					4					1	12

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
4:30 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Total Volume	1	3	0	0	4	0	0	0	0	0	2	3	0	0	5	0	0	0	0	0	9
% Approach Total	25.0	75.0	0.0	0.0		0.0	0.0	0.0	0.0		40.0	60.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.250	0.375	0.000	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.500	0.375	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.750
Entering Leg	1	3	0	0	4	0	0	0	0	0	2	3	0	0	5	0	0	0	0	0	9
Exiting Leg					3					2					3					1	9
Total					7					2					8					1	18

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	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
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	1	0	0	1	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Approach %	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		
Total %	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	100.0	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	Central Street from North					Main Street Access from East					Central Street from South					Essex 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	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
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	1	0	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	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	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	0.250	0.000	0.000	0.250	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	1	0	0	1	0	0	0	0	0	1
Exiting Leg					1					0					0					0	1
Total					1					0					1					0	2

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North							Main Street Access from East							Central Street from South							Essex Street 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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	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	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	2	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	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	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	1	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Grand Total	2	2	0	0	0	0	4	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	6
Approach %	50.0	50.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	33.3	33.3	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							2							0							2							2	6

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North							Main Street Access from East							Central Street from South							Essex Street 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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	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	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	1	2	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	4
% Approach Total	33.3	66.7	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.250	0.500	0.000	0.000	0.000	0.000	0.750	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	1	2	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	4
Exiting Leg							1							0							2							1	4
Total							4							0							3							1	8

PDI File #: **186242 CC**
Location: **N: Central Street S: Central Street**
Location: **E: Main Street Access W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North							Main Street Access from East							Central Street from South							Essex Street 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	4	9	13	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2	4	19
4:15 PM	0	0	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	6	2	8	0	0	0	0	4	2	6	20
4:30 PM	0	0	0	0	2	5	7	0	0	0	0	0	0	0	0	0	0	0	7	4	11	0	0	0	0	0	3	3	21
4:45 PM	0	0	0	0	3	6	9	0	0	0	0	0	0	0	0	0	0	0	3	6	9	0	0	0	0	2	4	6	24
Total	0	0	0	0	15	20	35	0	0	0	0	0	0	0	0	0	0	0	16	14	30	0	0	0	0	8	11	19	84
5:00 PM	0	0	0	0	5	4	9	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	2	3	13
5:15 PM	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0	0	3	1	4	0	0	0	0	4	2	6	14
5:30 PM	0	0	0	0	2	5	7	0	0	0	0	0	0	0	0	0	0	0	1	4	5	0	0	0	0	2	3	5	17
5:45 PM	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	4	3	7	0	0	0	0	3	2	5	15
Total	0	0	0	0	11	12	23	0	0	0	0	0	0	0	0	0	0	0	8	9	17	0	0	0	0	10	9	19	59
Grand Total	0	0	0	0	26	32	58	0	0	0	0	0	0	0	0	0	0	0	24	23	47	0	0	0	0	18	20	38	143
Approach %	0	0	0	0	44.8	55.2		0	0	0	0	0	0		0	0	0	0	51.1	48.9		0	0	0	0	47.4	52.6		
Total %	0	0	0	0	18.2	22.4	40.6	0	0	0	0	0	0	0	0	0	0	0	16.8	16.1	32.9	0	0	0	0	12.6	14	26.6	
Exiting Leg Total							58							0							47							38	143

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North							Main Street Access from East							Central Street from South							Essex Street 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	4	9	13	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2	4	19
4:15 PM	0	0	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	6	2	8	0	0	0	0	4	2	6	20
4:30 PM	0	0	0	0	2	5	7	0	0	0	0	0	0	0	0	0	0	0	7	4	11	0	0	0	0	0	3	3	21
4:45 PM	0	0	0	0	3	6	9	0	0	0	0	0	0	0	0	0	0	0	3	6	9	0	0	0	0	2	4	6	24
Total Volume	0	0	0	0	15	20	35	0	0	0	0	0	0	0	0	0	0	0	16	14	30	0	0	0	0	8	11	19	84
% Approach Total	0.0	0.0	0.0	0.0	42.9	57.1		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	53.3	46.7		0.0	0.0	0.0	0.0	42.1	57.9		
PHF	0.000	0.000	0.000	0.000	0.625	0.556	0.673	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.571	0.583	0.682	0.000	0.000	0.000	0.000	0.500	0.688	0.792	0.875
Entering Leg	0	0	0	0	15	20	35	0	0	0	0	0	0	0	0	0	0	0	16	14	30	0	0	0	0	8	11	19	84
Exiting Leg							35							0							30							19	84
Total							70							0							60							38	168

PDI File #: **186242 D**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street from East					Brook Street from Southeast					Ridge Street from South					Essex Street from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	40	0	2	0	42	0	0	0	0	0	0	0	2	0	2	0	44	0	0	44	88
7:15 AM	77	0	0	0	77	0	0	0	0	0	1	0	0	0	1	1	42	0	0	43	121
7:30 AM	71	2	4	0	77	0	0	0	0	0	0	0	2	0	2	1	45	0	0	46	125
7:45 AM	34	1	3	0	38	0	0	0	0	0	0	0	1	0	1	1	44	0	0	45	84
Total	222	3	9	0	234	0	0	0	0	0	1	0	5	0	6	3	175	0	0	178	418
8:00 AM	30	2	1	0	33	0	0	0	0	0	0	0	2	0	2	1	50	0	1	52	87
8:15 AM	30	0	0	0	30	0	0	0	0	0	2	0	1	0	3	1	52	0	0	53	86
8:30 AM	52	0	4	0	56	0	0	0	0	0	4	0	1	0	5	0	67	0	1	68	129
8:45 AM	45	6	5	0	56	0	0	0	0	0	2	0	0	0	2	0	56	0	0	56	114
Total	157	8	10	0	175	0	0	0	0	0	8	0	4	0	12	2	225	0	2	229	416
Grand Total	379	11	19	0	409	0	0	0	0	0	9	0	9	0	18	5	400	0	2	407	834
Approach %	92.7	2.7	4.6	0.0		0.0	0.0	0.0	0.0		50.0	0.0	50.0	0.0		1.2	98.3	0.0	0.5		
Total %	45.4	1.3	2.3	0.0	49.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	1.1	0.0	2.2	0.6	48.0	0.0	0.2	48.8	
Exiting Leg Total					0					428					16					390	834
Cars	360	11	19	0	390	0	0	0	0	0	9	0	9	0	18	5	387	0	2	394	802
% Cars	95.0	100.0	100.0	0.0	95.4	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	100.0	96.8	0.0	100.0	96.8	96.2
Exiting Leg Total					0					415					16					371	802
Heavy Vehicles	19	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13	32
% Heavy Vehicles	5.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.2	3.8
Exiting Leg Total					0					13					0					19	32

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Essex Street from East					Brook Street from Southeast					Ridge Street from South					Essex Street from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	40	0	2	0	42	0	0	0	0	0	0	0	2	0	2	0	44	0	0	44	88
7:15 AM	77	0	0	0	77	0	0	0	0	0	1	0	0	0	1	1	42	0	0	43	121
7:30 AM	71	2	4	0	77	0	0	0	0	0	0	0	2	0	2	1	45	0	0	46	125
7:45 AM	34	1	3	0	38	0	0	0	0	0	0	0	1	0	1	1	44	0	0	45	84
Total Volume	222	3	9	0	234	0	0	0	0	0	1	0	5	0	6	3	175	0	0	178	418
% Approach Total	94.9	1.3	3.8	0.0		0.0	0.0	0.0	0.0		16.7	0.0	83.3	0.0		1.7	98.3	0.0	0.0		
PHF	0.721	0.375	0.563	0.000	0.760	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.625	0.000	0.750	0.750	0.972	0.000	0.000	0.967	0.836
Cars	210	3	9	0	222	0	0	0	0	0	1	0	5	0	6	3	167	0	0	170	398
Cars %	94.6	100.0	100.0	0.0	94.9	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	100.0	95.4	0.0	0.0	95.5	95.2
Heavy Vehicles	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	20
Heavy Vehicles %	5.4	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	4.5	4.8
Cars Enter Leg	210	3	9	0	222	0	0	0	0	0	1	0	5	0	6	3	167	0	0	170	398
Heavy Enter Leg	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	20
Total Entering Leg	222	3	9	0	234	0	0	0	0	0	1	0	5	0	6	3	175	0	0	178	418
Cars Exiting Leg					0					177					6					215	398
Heavy Exiting Leg					0					8					0					12	20
Total Exiting Leg					0					185					6					227	418

PDI File #: **186242 D**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	32	0	2	0	34	0	0	0	0	0	0	0	2	0	2	0	41	0	0	41	77
7:15 AM	73	0	0	0	73	0	0	0	0	0	1	0	0	0	1	1	40	0	0	41	115
7:30 AM	71	2	4	0	77	0	0	0	0	0	0	0	2	0	2	1	44	0	0	45	124
7:45 AM	34	1	3	0	38	0	0	0	0	0	0	0	1	0	1	1	42	0	0	43	82
Total	210	3	9	0	222	0	0	0	0	0	1	0	5	0	6	3	167	0	0	170	398
8:00 AM	28	2	1	0	31	0	0	0	0	0	0	0	2	0	2	1	48	0	1	50	83
8:15 AM	29	0	0	0	29	0	0	0	0	0	2	0	1	0	3	1	51	0	0	52	84
8:30 AM	49	0	4	0	53	0	0	0	0	0	4	0	1	0	5	0	66	0	1	67	125
8:45 AM	44	6	5	0	55	0	0	0	0	0	2	0	0	0	2	0	55	0	0	55	112
Total	150	8	10	0	168	0	0	0	0	0	8	0	4	0	12	2	220	0	2	224	404
Grand Total	360	11	19	0	390	0	0	0	0	0	9	0	9	0	18	5	387	0	2	394	802
Approach %	92.3	2.8	4.9	0.0		0.0	0.0	0.0	0.0		50.0	0.0	50.0	0.0		1.3	98.2	0.0	0.5		
Total %	44.9	1.4	2.4	0.0	48.6	0.0	0.0	0.0	0.0	0.0	1.1	0.0	1.1	0.0	2.2	0.6	48.3	0.0	0.2	49.1	
Exiting Leg Total					0					415					16					371	802

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:15 AM	73	0	0	0	73	0	0	0	0	0	1	0	0	0	1	1	40	0	0	41	115
7:30 AM	71	2	4	0	77	0	0	0	0	0	0	0	2	0	2	1	44	0	0	45	124
7:45 AM	34	1	3	0	38	0	0	0	0	0	0	0	1	0	1	1	42	0	0	43	82
8:00 AM	28	2	1	0	31	0	0	0	0	0	0	0	2	0	2	1	48	0	1	50	83
Total Volume	206	5	8	0	219	0	0	0	0	0	1	0	5	0	6	4	174	0	1	179	404
% Approach Total	94.1	2.3	3.7	0.0		0.0	0.0	0.0	0.0		16.7	0.0	83.3	0.0		2.2	97.2	0.0	0.6		
PHF	0.705	0.625	0.500	0.000	0.711	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.625	0.000	0.750	1.000	0.906	0.000	0.250	0.895	0.815
Entering Leg	206	5	8	0	219	0	0	0	0	0	1	0	5	0	6	4	174	0	1	179	404
Exiting Leg					0					183					9					212	404
Total					219					183					15					391	808

PDI File #: **186242 D**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	11
7:15 AM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	6
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	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	20
8:00 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
8:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
8:30 AM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	12
Grand Total	19	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13	32
Approach %	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	100.0	0.0	0.0		
Total %	59.4	0.0	0.0	0.0	59.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.6	0.0	0.0	40.6	
Exiting Leg Total					0					13					0					19	32
Buses	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	18
% Buses	63.2	0.0	0.0	0.0	63.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.2	0.0	0.0	46.2	56.3
Exiting Leg Total					0					6					0					12	18
Single-Unit Trucks	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	12
% Single-Unit	31.6	0.0	0.0	0.0	31.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.2	0.0	0.0	46.2	37.5
Exiting Leg Total					0					6					0					6	12
Articulated Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
% Articulated	5.3	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	7.7	6.3
Exiting Leg Total					0					1					0					1	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	11
7:15 AM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	6
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	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total Volume	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	20
% Approach Total	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	100.0	0.0	0.0		
PHF	0.375	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.000	0.000	0.667	0.455
Buses	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	15
Buses %	83.3	0.0	0.0	0.0	83.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	62.5	0.0	0.0	62.5	75.0
Single-Unit Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	4
Single-Unit %	8.3	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.5	0.0	0.0	37.5	20.0
Articulated Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Articulated %	8.3	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
Buses	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	15
Single-Unit Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	4
Articulated Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Entering Leg	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	20
Buses					0					5					0					10	15
Single-Unit Trucks					0					3					0					1	4
Articulated Trucks					0					0					0					1	1
Total Exiting Leg					0					8					0					12	20

PDI File #: **186242 D**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	31	0	2	0	33	0	0	0	0	0	0	0	2	0	2	0	34	0	0	34	69
7:15 AM	70	0	0	0	70	0	0	0	0	0	1	0	0	0	1	0	37	0	0	37	108
7:30 AM	66	2	4	0	72	0	0	0	0	0	0	0	2	0	2	1	41	0	0	42	116
7:45 AM	32	1	3	0	36	0	0	0	0	0	0	0	1	0	1	1	39	0	0	40	77
Total	199	3	9	0	211	0	0	0	0	0	1	0	5	0	6	2	151	0	0	153	370
8:00 AM	25	2	1	0	28	0	0	0	0	0	0	0	2	0	2	1	44	0	1	46	76
8:15 AM	27	0	0	0	27	0	0	0	0	0	2	0	0	0	2	1	48	0	0	49	78
8:30 AM	44	0	4	0	48	0	0	0	0	0	4	0	1	0	5	0	58	0	1	59	112
8:45 AM	38	6	5	0	49	0	0	0	0	0	2	0	0	0	2	0	49	0	0	49	100
Total	134	8	10	0	152	0	0	0	0	0	8	0	3	0	11	2	199	0	2	203	366
Grand Total	333	11	19	0	363	0	0	0	0	0	9	0	8	0	17	4	350	0	2	356	736
Approach %	91.7	3.0	5.2	0.0		0.0	0.0	0.0	0.0		52.9	0.0	47.1	0.0		1.1	98.3	0.0	0.6		
Total %	45.2	1.5	2.6	0.0	49.3	0.0	0.0	0.0	0.0	0.0	1.2	0.0	1.1	0.0	2.3	0.5	47.6	0.0	0.3	48.4	
Exiting Leg Total					0					378					15					343	736

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:15 AM	70	0	0	0	70	0	0	0	0	0	1	0	0	0	1	0	37	0	0	37	108
7:30 AM	66	2	4	0	72	0	0	0	0	0	0	0	2	0	2	1	41	0	0	42	116
7:45 AM	32	1	3	0	36	0	0	0	0	0	0	0	1	0	1	1	39	0	0	40	77
8:00 AM	25	2	1	0	28	0	0	0	0	0	0	0	2	0	2	1	44	0	1	46	76
Total Volume	193	5	8	0	206	0	0	0	0	0	1	0	5	0	6	3	161	0	1	165	377
% Approach Total	93.7	2.4	3.9	0.0		0.0	0.0	0.0	0.0		16.7	0.0	83.3	0.0		1.8	97.6	0.0	0.6		
PHF	0.689	0.625	0.500	0.000	0.715	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.625	0.000	0.750	0.750	0.915	0.000	0.250	0.897	0.813
Entering Leg	193	5	8	0	206	0	0	0	0	0	1	0	5	0	6	3	161	0	1	165	377
Exiting Leg					0					170					8					199	377
Total					206					170					14					364	754

PDI File #: **186242 D**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	8
7:15 AM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	7
7:30 AM	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	8
7:45 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	5
Total	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	1	16	0	0	17	28
8:00 AM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	7
8:15 AM	2	0	0	0	2	0	0	0	0	0	0	0	1	0	1	0	3	0	0	3	6
8:30 AM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	12
8:45 AM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	12
Total	15	0	0	0	15	0	0	0	0	0	0	0	1	0	1	0	21	0	0	21	37
Grand Total	26	0	0	0	26	0	0	0	0	0	0	0	1	0	1	1	37	0	0	38	65
Approach %	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		2.6	97.4	0.0	0.0		
Total %	40.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	1.5	1.5	56.9	0.0	0.0	58.5	
Exiting Leg Total					0					37					1					27	65

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
8:00 AM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	7
8:15 AM	2	0	0	0	2	0	0	0	0	0	0	0	1	0	1	0	3	0	0	3	6
8:30 AM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	12
8:45 AM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	12
Total Volume	15	0	0	0	15	0	0	0	0	0	0	0	1	0	1	0	21	0	0	21	37
% Approach Total	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.625	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.656	0.000	0.000	0.656	0.771
Entering Leg	15	0	0	0	15	0	0	0	0	0	0	0	1	0	1	0	21	0	0	21	37
Exiting Leg					0					21					0					16	37
Total					15					21					1					37	74

PDI File #: **186242 D**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	10
7:15 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	15
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	2	0	0	0	2	0	0	0	0	0	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	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
Grand Total	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	18
Approach %	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	100.0	0.0	0.0		
Total %	66.7	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	
Exiting Leg Total					0					6					0					12	18

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	10
7:15 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	15
% Approach Total	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	100.0	0.0	0.0		
PHF	0.313	0.000	0.000	0.000	0.313	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.375
Entering Leg	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	15
Exiting Leg					0					5					0					10	15
Total					10					5					0					15	30

PDI File #: **186242 D**
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City, State: **Andover, MA**
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Site Code: **TBA**
Count Date: **Wednesday, May 16, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	4
8:00 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
8:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	8
Grand Total	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	12
Approach %	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	100.0	0.0	0.0		
Total %	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	
Exiting Leg Total					0					6					0					6	12

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
8:00 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
8:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total Volume	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	8
% Approach Total	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	100.0	0.0	0.0		
PHF	0.625	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.750	1.000
Entering Leg	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	8
Exiting Leg					0					3					0					5	8
Total					5					3					0					8	16

PDI File #: **186242 D**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 2018**
Start Time: **7:00 AM**
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Class:

PRECISION DATA INDUSTRIES, LLC
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Articulated Trucks

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Grand Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Approach %	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	100.0	0.0	0.0		
Total %	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	
Exiting Leg Total					0					1					0					1	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
% Approach Total	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	100.0	0.0	0.0		
PHF	0.250	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	0.250	0.000	0.000	0.250	0.500
Entering Leg	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Exiting Leg					0					1					0					1	2
Total					1					1					0					2	4

PDI File #: **186242 D**
Location: **S: Ridge Street**
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Bicycles (on Roadway and Crosswalks)

	Essex Street							Brook Street							Ridge Street							Essex Street							
	from East							from Southeast							from South							from West							
	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	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	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	0	0	1	1
Total	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	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	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	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	
Exiting Leg Total							1							1							0							0	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Essex Street							Brook Street							Ridge Street							Essex Street							
	from East							from Southeast							from South							from West							
	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	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	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	0	0	1	1
Total Volume	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	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	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	0.250	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	0.250	0.000	0.000	0.000	0.000	0.250	0.500
Entering Leg	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2
Exiting Leg							1							1							0							0	2
Total							2							1							0							1	4

PDI File #: **186242 D**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street							Brook Street							Ridge Street							Essex Street							
	from East							from Southeast							from South							from West							
	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	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	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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	2	2	0	0	0	0	0	2	2	0	0	0	0	1	1	2	0	0	0	0	4	1	5	11
Total	0	0	0	0	0	3	3	0	0	0	0	0	2	2	0	0	0	0	1	1	2	0	0	0	0	4	1	5	12
8:00 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	4	0	4	5
8:15 AM	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	1	0	1	0	0	0	0	1	1	2	0	0	0	0	0	3	3	0	0	0	0	0	5	5	11
8:45 AM	0	0	0	0	1	0	1	0	0	0	0	0	3	3	0	0	0	0	0	1	1	0	0	0	0	0	0	0	5
Total	0	0	0	0	3	1	4	0	0	0	0	1	4	5	0	0	0	0	0	5	5	0	0	0	0	4	5	9	23
Grand Total	0	0	0	0	3	4	7	0	0	0	0	1	6	7	0	0	0	0	1	6	7	0	0	0	0	8	6	14	35
Approach %	0	0	0	0	42.9	57.1		0	0	0	0	14.3	85.7		0	0	0	0	14.3	85.7		0	0	0	0	57.1	42.9		
Total %	0	0	0	0	8.57	11.4	20	0	0	0	0	2.86	17.1	20	0	0	0	0	2.86	17.1	20	0	0	0	0	22.9	17.1	40	
Exiting Leg Total							7							7							7							14	35

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Essex Street							Brook Street							Ridge Street							Essex Street							
	from East							from Southeast							from South							from West							
	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	U-Turn	CW-NB	CW-SB	Total	Total
7:45 AM	0	0	0	0	0	2	2	0	0	0	0	0	2	2	0	0	0	0	1	1	2	0	0	0	0	4	1	5	11
8:00 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	4	0	4	5
8:15 AM	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	1	0	1	0	0	0	0	1	1	2	0	0	0	0	0	3	3	0	0	0	0	0	5	5	11
Total Volume	0	0	0	0	2	3	5	0	0	0	0	1	3	4	0	0	0	0	1	5	6	0	0	0	0	8	6	14	29
% Approach Total	0.0	0.0	0.0	0.0	40.0	60.0		0.0	0.0	0.0	0.0	25.0	75.0		0.0	0.0	0.0	0.0	16.7	83.3		0.0	0.0	0.0	0.0	57.1	42.9		
PHF	0.000	0.000	0.000	0.000	0.500	0.375	0.625	0.000	0.000	0.000	0.000	0.250	0.375	0.500	0.000	0.000	0.000	0.000	0.250	0.417	0.500	0.000	0.000	0.000	0.000	0.500	0.300	0.700	0.659
Entering Leg	0	0	0	0	2	3	5	0	0	0	0	1	3	4	0	0	0	0	1	5	6	0	0	0	0	8	6	14	29
Exiting Leg							5							4							6							14	29
Total							10							8							12							28	58

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	61	0	4	0	65	0	0	0	0	0	0	0	1	0	1	0	53	0	0	53	119
4:15 PM	51	0	2	0	53	0	0	0	0	0	1	0	2	0	3	1	36	0	0	37	93
4:30 PM	39	0	6	0	45	0	1	0	0	1	0	0	1	0	1	0	53	0	0	53	100
4:45 PM	35	1	4	0	40	0	0	0	0	0	2	0	2	0	4	1	49	0	0	50	94
Total	186	1	16	0	203	0	1	0	0	1	3	0	6	0	9	2	191	0	0	193	406
5:00 PM	41	1	5	0	47	0	0	0	0	0	3	0	4	0	7	2	50	0	1	53	107
5:15 PM	59	0	9	0	68	0	0	0	0	0	2	0	2	0	4	2	79	0	1	82	154
5:30 PM	61	2	9	0	72	0	0	0	0	0	0	0	5	0	5	3	61	1	0	65	142
5:45 PM	63	0	7	0	70	0	0	0	0	0	0	0	5	0	5	0	52	0	0	52	127
Total	224	3	30	0	257	0	0	0	0	0	5	0	16	0	21	7	242	1	2	252	530
Grand Total	410	4	46	0	460	0	1	0	0	1	8	0	22	0	30	9	433	1	2	445	936
Approach %	89.1	0.9	10.0	0.0		0.0	100.0	0.0	0.0		26.7	0.0	73.3	0.0		2.0	97.3	0.2	0.4		
Total %	43.8	0.4	4.9	0.0	49.1	0.0	0.1	0.0	0.0	0.1	0.9	0.0	2.4	0.0	3.2	1.0	46.3	0.1	0.2	47.5	
Exiting Leg Total					1					487					13					435	936
Cars	409	4	46	0	459	0	1	0	0	1	8	0	22	0	30	9	431	1	2	443	933
% Cars	99.8	100.0	100.0	0.0	99.8	0.0	100.0	0.0	0.0	100.0	100.0	0.0	100.0	0.0	100.0	100.0	99.5	100.0	100.0	99.6	99.7
Exiting Leg Total					1					485					13					434	933
Heavy Vehicles	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
% Heavy Vehicles	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.4	0.3
Exiting Leg Total					0					2					0					1	3

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
5:00 PM	41	1	5	0	47	0	0	0	0	0	3	0	4	0	7	2	50	0	1	53	107
5:15 PM	59	0	9	0	68	0	0	0	0	0	2	0	2	0	4	2	79	0	1	82	154
5:30 PM	61	2	9	0	72	0	0	0	0	0	0	0	5	0	5	3	61	1	0	65	142
5:45 PM	63	0	7	0	70	0	0	0	0	0	0	0	5	0	5	0	52	0	0	52	127
Total Volume	224	3	30	0	257	0	0	0	0	0	5	0	16	0	21	7	242	1	2	252	530
% Approach Total	87.2	1.2	11.7	0.0		0.0	0.0	0.0	0.0		23.8	0.0	76.2	0.0		2.8	96.0	0.4	0.8		
PHF	0.889	0.375	0.833	0.000	0.892	0.000	0.000	0.000	0.000	0.000	0.417	0.000	0.800	0.000	0.750	0.583	0.766	0.250	0.500	0.768	0.860
Cars	224	3	30	0	257	0	0	0	0	0	5	0	16	0	21	7	240	1	2	250	528
Cars %	100.0	100.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	100.0	99.2	100.0	100.0	99.2	99.6
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	0.4
Cars Enter Leg	224	3	30	0	257	0	0	0	0	0	5	0	16	0	21	7	240	1	2	250	528
Heavy Enter Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total Entering Leg	224	3	30	0	257	0	0	0	0	0	5	0	16	0	21	7	242	1	2	252	530
Cars Exiting Leg					1					275					10					242	528
Heavy Exiting Leg					0					2					0					0	2
Total Exiting Leg					1					277					10					242	530

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	61	0	4	0	65	0	0	0	0	0	0	0	1	0	1	0	53	0	0	53	119
4:15 PM	51	0	2	0	53	0	0	0	0	0	1	0	2	0	3	1	36	0	0	37	93
4:30 PM	38	0	6	0	44	0	1	0	0	1	0	0	1	0	1	0	53	0	0	53	99
4:45 PM	35	1	4	0	40	0	0	0	0	0	2	0	2	0	4	1	49	0	0	50	94
Total	185	1	16	0	202	0	1	0	0	1	3	0	6	0	9	2	191	0	0	193	405
5:00 PM	41	1	5	0	47	0	0	0	0	0	3	0	4	0	7	2	48	0	1	51	105
5:15 PM	59	0	9	0	68	0	0	0	0	0	2	0	2	0	4	2	79	0	1	82	154
5:30 PM	61	2	9	0	72	0	0	0	0	0	0	0	5	0	5	3	61	1	0	65	142
5:45 PM	63	0	7	0	70	0	0	0	0	0	0	0	5	0	5	0	52	0	0	52	127
Total	224	3	30	0	257	0	0	0	0	0	5	0	16	0	21	7	240	1	2	250	528
Grand Total	409	4	46	0	459	0	1	0	0	1	8	0	22	0	30	9	431	1	2	443	933
Approach %	89.1	0.9	10.0	0.0		0.0	100.0	0.0	0.0		26.7	0.0	73.3	0.0		2.0	97.3	0.2	0.5		
Total %	43.8	0.4	4.9	0.0	49.2	0.0	0.1	0.0	0.0	0.1	0.9	0.0	2.4	0.0	3.2	1.0	46.2	0.1	0.2	47.5	
Exiting Leg Total					1					485					13					434	933

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
5:00 PM	41	1	5	0	47	0	0	0	0	0	3	0	4	0	7	2	48	0	1	51	105
5:15 PM	59	0	9	0	68	0	0	0	0	0	2	0	2	0	4	2	79	0	1	82	154
5:30 PM	61	2	9	0	72	0	0	0	0	0	0	0	5	0	5	3	61	1	0	65	142
5:45 PM	63	0	7	0	70	0	0	0	0	0	0	0	5	0	5	0	52	0	0	52	127
Total Volume	224	3	30	0	257	0	0	0	0	0	5	0	16	0	21	7	240	1	2	250	528
% Approach Total	87.2	1.2	11.7	0.0		0.0	0.0	0.0	0.0		23.8	0.0	76.2	0.0		2.8	96.0	0.4	0.8		
PHF	0.889	0.375	0.833	0.000	0.892	0.000	0.000	0.000	0.000	0.000	0.417	0.000	0.800	0.000	0.750	0.583	0.759	0.250	0.500	0.762	0.857
Entering Leg	224	3	30	0	257	0	0	0	0	0	5	0	16	0	21	7	240	1	2	250	528
Exiting Leg					1					275					10					242	528
Total					258					275					31					492	1056

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	1	0	0	0	1	0	0	0	0	0	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	0	0	0	0	0	0
Total	1	0	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	2	0	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
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	2	0	0	2	2
Grand Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
Approach %	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	100.0	0.0	0.0		
Total %	33.3	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	66.7	
Exiting Leg Total					0					2					0					1	3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0
Single-Unit Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
% Single-Unit	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	66.7
Exiting Leg Total					0					1					0					1	2
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	33.3
Exiting Leg Total					0					1					0					0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	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
4:30 PM	1	0	0	0	1	0	0	0	0	0	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	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	2	0	0	2	2
Total Volume	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
% Approach Total	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	100.0	0.0	0.0		
PHF	0.250	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	0.250	0.000	0.000	0.250	0.375
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Single-Unit %	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	66.7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	33.3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Entering Leg	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
Buses					0					0					0					0	0
Single-Unit Trucks					0					1					0					1	2
Articulated Trucks					0					1					0					0	1
Total Exiting Leg					0					2					0					1	3

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	54	0	4	0	58	0	0	0	0	0	0	0	1	0	1	0	52	0	0	52	111
4:15 PM	45	0	2	0	47	0	0	0	0	0	1	0	2	0	3	1	31	0	0	32	82
4:30 PM	34	0	6	0	40	0	1	0	0	1	0	0	1	0	1	0	48	0	0	48	90
4:45 PM	33	1	4	0	38	0	0	0	0	0	2	0	2	0	4	1	47	0	0	48	90
Total	166	1	16	0	183	0	1	0	0	1	3	0	6	0	9	2	178	0	0	180	373
5:00 PM	39	0	5	0	44	0	0	0	0	0	2	0	3	0	5	2	46	0	1	49	98
5:15 PM	56	0	9	0	65	0	0	0	0	0	2	0	2	0	4	2	77	0	1	80	149
5:30 PM	54	2	9	0	65	0	0	0	0	0	0	0	5	0	5	3	55	1	0	59	129
5:45 PM	58	0	7	0	65	0	0	0	0	0	0	0	5	0	5	0	48	0	0	48	118
Total	207	2	30	0	239	0	0	0	0	0	4	0	15	0	19	7	226	1	2	236	494
Grand Total	373	3	46	0	422	0	1	0	0	1	7	0	21	0	28	9	404	1	2	416	867
Approach %	88.4	0.7	10.9	0.0		0.0	100.0	0.0	0.0		25.0	0.0	75.0	0.0		2.2	97.1	0.2	0.5		
Total %	43.0	0.3	5.3	0.0	48.7	0.0	0.1	0.0	0.0	0.1	0.8	0.0	2.4	0.0	3.2	1.0	46.6	0.1	0.2	48.0	
Exiting Leg Total					1					457					12					397	867

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
5:00 PM	39	0	5	0	44	0	0	0	0	0	2	0	3	0	5	2	46	0	1	49	98
5:15 PM	56	0	9	0	65	0	0	0	0	0	2	0	2	0	4	2	77	0	1	80	149
5:30 PM	54	2	9	0	65	0	0	0	0	0	0	0	5	0	5	3	55	1	0	59	129
5:45 PM	58	0	7	0	65	0	0	0	0	0	0	0	5	0	5	0	48	0	0	48	118
Total Volume	207	2	30	0	239	0	0	0	0	0	4	0	15	0	19	7	226	1	2	236	494
% Approach Total	86.6	0.8	12.6	0.0		0.0	0.0	0.0	0.0		21.1	0.0	78.9	0.0		3.0	95.8	0.4	0.8		
PHF	0.892	0.250	0.833	0.000	0.919	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.750	0.000	0.950	0.583	0.734	0.250	0.500	0.738	0.829
Entering Leg	207	2	30	0	239	0	0	0	0	0	4	0	15	0	19	7	226	1	2	236	494
Exiting Leg					1					260					9					224	494
Total					240					260					28					460	988

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
4:15 PM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	11
4:30 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	9
4:45 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
Total	19	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13	32
5:00 PM	2	1	0	0	3	0	0	0	0	0	1	0	1	0	2	0	2	0	0	2	7
5:15 PM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	5
5:30 PM	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	13
5:45 PM	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	9
Total	17	1	0	0	18	0	0	0	0	0	1	0	1	0	2	0	14	0	0	14	34
Grand Total	36	1	0	0	37	0	0	0	0	0	1	0	1	0	2	0	27	0	0	27	66
Approach %	97.3	2.7	0.0	0.0		0.0	0.0	0.0	0.0		50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		
Total %	54.5	1.5	0.0	0.0	56.1	0.0	0.0	0.0	0.0	0.0	1.5	0.0	1.5	0.0	3.0	0.0	40.9	0.0	0.0	40.9	
Exiting Leg Total					0					28					1					37	66

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
5:00 PM	2	1	0	0	3	0	0	0	0	0	1	0	1	0	2	0	2	0	0	2	7
5:15 PM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	5
5:30 PM	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	13
5:45 PM	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	9
Total Volume	17	1	0	0	18	0	0	0	0	0	1	0	1	0	2	0	14	0	0	14	34
% Approach Total	94.4	5.6	0.0	0.0		0.0	0.0	0.0	0.0		50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.607	0.250	0.000	0.000	0.643	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.000	0.583	0.000	0.000	0.583	0.654
Entering Leg	17	1	0	0	18	0	0	0	0	0	1	0	1	0	2	0	14	0	0	14	34
Exiting Leg					0					15					1					18	34
Total					18					15					3					32	68

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 2018**
Start Time: **4:00 PM**
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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

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	1	0	0	0	1	0	0	0	0	0	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	0	0	0	0	0	0
Total	1	0	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	1	0	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	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	1	0	0	1	1
Grand Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Approach %	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	100.0	0.0	0.0		
Total %	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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:

4:15 PM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	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
4:30 PM	1	0	0	0	1	0	0	0	0	0	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	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	1	0	0	1	1
Total Volume	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
% Approach Total	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	100.0	0.0	0.0		
PHF	0.250	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	0.250	0.000	0.000	0.250	0.500
Entering Leg	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Exiting Leg					0					1					0					1	2
Total					1					1					0					2	4

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	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	1	0	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	100.0	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	100.0	0.0	0.0	100.0	
Exiting Leg Total					0					1					0					0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Essex Street					Brook Street					Ridge Street					Essex Street					
	from East					from Southeast					from South					from West					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	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
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 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	0	0	0	0	0	0	0	0	0	0	1	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	100.0	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	0.250	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	1	0	0	1	1
Exiting Leg					0					1					0					0	1
Total					0					1					0					1	2

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street							Brook Street							Ridge Street							Essex Street							
	from East							from Southeast							from South							from West							
	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	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	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	1	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	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	2	0	0	0	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	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							2							0							0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street							Brook Street							Ridge Street							Essex Street							
	from East							from Southeast							from South							from West							
	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	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	1	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	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	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	0.500	0.000	0.000	0.000	0.000	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	2	0	0	0	0	2	2
Exiting Leg							0							2							0							0	2
Total							0							2							0							2	4

PDI File #: **186242 DD**
Location: **S: Ridge Street**
Location: **E: Essex Street W: Essex Street SE: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street							Brook Street							Ridge Street							Essex Street							
	from East							from Southeast							from South							from West							
	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	3	1	4	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	6
4:15 PM	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	1	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
Total	0	0	0	0	3	2	5	0	0	0	0	4	0	4	0	0	0	0	1	1	2	0	0	0	0	2	1	3	14
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	2	0	0	0	0	1	1	2	5
5:15 PM	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	1	5	6	13
5:30 PM	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	2	6
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	5	2	7	0	0	0	0	1	0	1	0	0	0	0	2	4	6	0	0	0	0	3	7	10	24
Grand Total	0	0	0	0	8	4	12	0	0	0	0	5	0	5	0	0	0	0	3	5	8	0	0	0	0	5	8	13	38
Approach %	0	0	0	0	66.7	33.3		0	0	0	0	100	0		0	0	0	0	37.5	62.5		0	0	0	0	38.5	61.5		
Total %	0	0	0	0	21.1	10.5	31.6	0	0	0	0	13.2	0	13.2	0	0	0	0	7.89	13.2	21.1	0	0	0	0	13.2	21.1	34.2	
Exiting Leg Total							12							5							8							13	38

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Essex Street							Brook Street							Ridge Street							Essex Street							
	from East							from Southeast							from South							from West							
	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	2	0	0	0	0	1	1	2	5
5:15 PM	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	1	5	6	13
5:30 PM	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	2	6
Total Volume	0	0	0	0	5	2	7	0	0	0	0	2	0	2	0	0	0	0	3	4	7	0	0	0	0	3	7	10	26
% Approach Total	0.0	0.0	0.0	0.0	71.4	28.6		0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	42.9	57.1		0.0	0.0	0.0	0.0	30.0	70.0		
PHF	0.000	0.000	0.000	0.000	0.313	0.250	0.438	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.750	0.333	0.583	0.000	0.000	0.000	0.000	0.750	0.350	0.417	0.500
Entering Leg	0	0	0	0	5	2	7	0	0	0	0	2	0	2	0	0	0	0	3	4	7	0	0	0	0	3	7	10	26
Exiting Leg							7							2							7							10	26
Total							14							4							14							20	52

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	48	0	0	48	1	27	0	28	16	41	0	57	133
7:15 AM	76	2	0	78	1	49	0	50	28	43	0	71	199
7:30 AM	72	1	0	73	1	52	0	53	30	44	0	74	200
7:45 AM	30	2	0	32	1	24	0	25	36	43	0	79	136
Total	226	5	0	231	4	152	0	156	110	171	0	281	668
8:00 AM	33	1	0	34	5	40	0	45	49	50	0	99	178
8:15 AM	28	2	0	30	2	39	0	41	45	53	0	98	169
8:30 AM	52	7	0	59	2	57	0	59	58	65	0	123	241
8:45 AM	40	5	0	45	2	72	0	74	39	55	0	94	213
Total	153	15	0	168	11	208	0	219	191	223	0	414	801
Grand Total	379	20	0	399	15	360	0	375	301	394	0	695	1469
Approach %	95.0	5.0	0.0		4.0	96.0	0.0		43.3	56.7	0.0		
Total %	25.8	1.4	0.0	27.2	1.0	24.5	0.0	25.5	20.5	26.8	0.0	47.3	
Exiting Leg Total				409				321				739	1469
Cars	364	18	0	382	14	345	0	359	280	382	0	662	1403
% Cars	96.0	90.0	0.0	95.7	93.3	95.8	0.0	95.7	93.0	97.0	0.0	95.3	95.5
Exiting Leg Total				396				298				709	1403
Heavy Vehicles	15	2	0	17	1	15	0	16	21	12	0	33	66
% Heavy Vehicles	4.0	10.0	0.0	4.3	6.7	4.2	0.0	4.3	7.0	3.0	0.0	4.7	4.5
Exiting Leg Total				13				23				30	66

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	33	1	0	34	5	40	0	45	49	50	0	99	178
8:15 AM	28	2	0	30	2	39	0	41	45	53	0	98	169
8:30 AM	52	7	0	59	2	57	0	59	58	65	0	123	241
8:45 AM	40	5	0	45	2	72	0	74	39	55	0	94	213
Total Volume	153	15	0	168	11	208	0	219	191	223	0	414	801
% Approach Total	91.1	8.9	0.0		5.0	95.0	0.0		46.1	53.9	0.0		
PHF	0.736	0.536	0.000	0.712	0.550	0.722	0.000	0.740	0.823	0.858	0.000	0.841	0.831
Cars	148	13	0	161	11	199	0	210	181	218	0	399	770
Cars %	96.7	86.7	0.0	95.8	100.0	95.7	0.0	95.9	94.8	97.8	0.0	96.4	96.1
Heavy Vehicles	5	2	0	7	0	9	0	9	10	5	0	15	31
Heavy Vehicles %	3.3	13.3	0.0	4.2	0.0	4.3	0.0	4.1	5.2	2.2	0.0	3.6	3.9
Cars Enter Leg	148	13	0	161	11	199	0	210	181	218	0	399	770
Heavy Enter Leg	5	2	0	7	0	9	0	9	10	5	0	15	31
Total Entering Leg	153	15	0	168	11	208	0	219	191	223	0	414	801
Cars Exiting Leg				229				194				347	770
Heavy Exiting Leg				5				12				14	31
Total Exiting Leg				234				206				361	801

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	40	0	0	40	1	25	0	26	16	38	0	54	120
7:15 AM	74	2	0	76	1	48	0	49	21	41	0	62	187
7:30 AM	72	1	0	73	1	50	0	51	30	43	0	73	197
7:45 AM	30	2	0	32	0	23	0	23	32	42	0	74	129
Total	216	5	0	221	3	146	0	149	99	164	0	263	633
8:00 AM	31	1	0	32	5	37	0	42	48	48	0	96	170
8:15 AM	27	2	0	29	2	36	0	38	42	52	0	94	161
8:30 AM	50	6	0	56	2	54	0	56	53	64	0	117	229
8:45 AM	40	4	0	44	2	72	0	74	38	54	0	92	210
Total	148	13	0	161	11	199	0	210	181	218	0	399	770
Grand Total	364	18	0	382	14	345	0	359	280	382	0	662	1403
Approach %	95.3	4.7	0.0		3.9	96.1	0.0		42.3	57.7	0.0		
Total %	25.9	1.3	0.0	27.2	1.0	24.6	0.0	25.6	20.0	27.2	0.0	47.2	
Exiting Leg Total				396				298				709	1403

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	31	1	0	32	5	37	0	42	48	48	0	96	170
8:15 AM	27	2	0	29	2	36	0	38	42	52	0	94	161
8:30 AM	50	6	0	56	2	54	0	56	53	64	0	117	229
8:45 AM	40	4	0	44	2	72	0	74	38	54	0	92	210
Total Volume	148	13	0	161	11	199	0	210	181	218	0	399	770
% Approach Total	91.9	8.1	0.0		5.2	94.8	0.0		45.4	54.6	0.0		
PHF	0.740	0.542	0.000	0.719	0.550	0.691	0.000	0.709	0.854	0.852	0.000	0.853	0.841
Entering Leg	148	13	0	161	11	199	0	210	181	218	0	399	770
Exiting Leg				229				194				347	770
Total				390				404				746	1540

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	8	0	0	8	0	2	0	2	0	3	0	3	13
7:15 AM	2	0	0	2	0	1	0	1	7	2	0	9	12
7:30 AM	0	0	0	0	0	2	0	2	0	1	0	1	3
7:45 AM	0	0	0	0	1	1	0	2	4	1	0	5	7
Total	10	0	0	10	1	6	0	7	11	7	0	18	35
8:00 AM	2	0	0	2	0	3	0	3	1	2	0	3	8
8:15 AM	1	0	0	1	0	3	0	3	3	1	0	4	8
8:30 AM	2	1	0	3	0	3	0	3	5	1	0	6	12
8:45 AM	0	1	0	1	0	0	0	0	1	1	0	2	3
Total	5	2	0	7	0	9	0	9	10	5	0	15	31
Grand Total	15	2	0	17	1	15	0	16	21	12	0	33	66
Approach %	88.2	11.8	0.0		6.3	93.8	0.0		63.6	36.4	0.0		
Total %	22.7	3.0	0.0	25.8	1.5	22.7	0.0	24.2	31.8	18.2	0.0	50.0	
Exiting Leg Total				13				23				30	66
Buses	11	1	0	12	1	8	0	9	10	5	0	15	36
% Buses	73.3	50.0	0.0	70.6	100.0	53.3	0.0	56.3	47.6	41.7	0.0	45.5	54.5
Exiting Leg Total				6				11				19	36
Single-Unit Trucks	4	1	0	5	0	7	0	7	9	6	0	15	27
% Single-Unit	26.7	50.0	0.0	29.4	0.0	46.7	0.0	43.8	42.9	50.0	0.0	45.5	40.9
Exiting Leg Total				6				10				11	27
Articulated Trucks	0	0	0	0	0	0	0	0	2	1	0	3	3
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	8.3	0.0	9.1	4.5
Exiting Leg Total				1				2				0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	8	0	0	8	0	2	0	2	0	3	0	3	13
7:15 AM	2	0	0	2	0	1	0	1	7	2	0	9	12
7:30 AM	0	0	0	0	0	2	0	2	0	1	0	1	3
7:45 AM	0	0	0	0	1	1	0	2	4	1	0	5	7
Total Volume	10	0	0	10	1	6	0	7	11	7	0	18	35
% Approach Total	100.0	0.0	0.0		14.3	85.7	0.0		61.1	38.9	0.0		
PHF	0.313	0.000	0.000	0.313	0.250	0.750	0.000	0.875	0.393	0.583	0.000	0.500	0.673
Buses	10	0	0	10	1	3	0	4	6	4	0	10	24
Buses %	100.0	0.0	0.0	100.0	100.0	50.0	0.0	57.1	54.5	57.1	0.0	55.6	68.6
Single-Unit Trucks	0	0	0	0	0	3	0	3	4	3	0	7	10
Single-Unit %	0.0	0.0	0.0	0.0	0.0	50.0	0.0	42.9	36.4	42.9	0.0	38.9	28.6
Articulated Trucks	0	0	0	0	0	0	0	0	1	0	0	1	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	0.0	5.6	2.9
Buses	10	0	0	10	1	3	0	4	6	4	0	10	24
Single-Unit Trucks	0	0	0	0	0	3	0	3	4	3	0	7	10
Articulated Trucks	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Entering Leg	10	0	0	10	1	6	0	7	11	7	0	18	35
Buses				5				6				13	24
Single-Unit Trucks				3				4				3	10
Articulated Trucks				0				1				0	1
Total Exiting Leg				8				11				16	35

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	39	0	0	39	1	23	0	24	12	32	0	44	107
7:15 AM	69	2	0	71	1	46	0	47	19	38	0	57	175
7:30 AM	67	1	0	68	1	47	0	48	26	41	0	67	183
7:45 AM	27	1	0	28	0	21	0	21	30	39	0	69	118
Total	202	4	0	206	3	137	0	140	87	150	0	237	583
8:00 AM	28	1	0	29	4	33	0	37	44	45	0	89	155
8:15 AM	24	2	0	26	2	32	0	34	40	49	0	89	149
8:30 AM	47	5	0	52	1	52	0	53	46	56	0	102	207
8:45 AM	34	4	0	38	2	65	0	67	33	49	0	82	187
Total	133	12	0	145	9	182	0	191	163	199	0	362	698
Grand Total	335	16	0	351	12	319	0	331	250	349	0	599	1281
Approach %	95.4	4.6	0.0		3.6	96.4	0.0		41.7	58.3	0.0		
Total %	26.2	1.2	0.0	27.4	0.9	24.9	0.0	25.8	19.5	27.2	0.0	46.8	
Exiting Leg Total				361				266				654	1281

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	28	1	0	29	4	33	0	37	44	45	0	89	155
8:15 AM	24	2	0	26	2	32	0	34	40	49	0	89	149
8:30 AM	47	5	0	52	1	52	0	53	46	56	0	102	207
8:45 AM	34	4	0	38	2	65	0	67	33	49	0	82	187
Total Volume	133	12	0	145	9	182	0	191	163	199	0	362	698
% Approach Total	91.7	8.3	0.0		4.7	95.3	0.0		45.0	55.0	0.0		
PHF	0.707	0.600	0.000	0.697	0.563	0.700	0.000	0.713	0.886	0.888	0.000	0.887	0.843
Entering Leg	133	12	0	145	9	182	0	191	163	199	0	362	698
Exiting Leg				208				175				315	698
Total				353				366				677	1396

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street 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	4	6	0	10	13
7:15 AM	5	0	0	5	0	2	0	2	1	3	0	4	11
7:30 AM	5	0	0	5	0	3	0	3	4	2	0	6	14
7:45 AM	3	1	0	4	0	2	0	2	2	3	0	5	11
Total	14	1	0	15	0	9	0	9	11	14	0	25	49
8:00 AM	3	0	0	3	1	4	0	5	4	3	0	7	15
8:15 AM	3	0	0	3	0	4	0	4	2	3	0	5	12
8:30 AM	3	0	0	3	1	2	0	3	7	8	0	15	21
8:45 AM	6	0	0	6	0	7	0	7	5	5	0	10	23
Total	15	0	0	15	2	17	0	19	18	19	0	37	71
Grand Total	29	1	0	30	2	26	0	28	29	33	0	62	120
Approach %	96.7	3.3	0.0		7.1	92.9	0.0		46.8	53.2	0.0		
Total %	24.2	0.8	0.0	25.0	1.7	21.7	0.0	23.3	24.2	27.5	0.0	51.7	
Exiting Leg Total				35				30				55	120

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Essex Street from East				School Street from South				Essex Street 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	1	4	0	5	4	3	0	7	15
8:15 AM	3	0	0	3	0	4	0	4	2	3	0	5	12
8:30 AM	3	0	0	3	1	2	0	3	7	8	0	15	21
8:45 AM	6	0	0	6	0	7	0	7	5	5	0	10	23
Total Volume	15	0	0	15	2	17	0	19	18	19	0	37	71
% Approach Total	100.0	0.0	0.0		10.5	89.5	0.0		48.6	51.4	0.0		
PHF	0.625	0.000	0.000	0.625	0.500	0.607	0.000	0.679	0.643	0.594	0.000	0.617	0.772
Entering Leg	15	0	0	15	2	17	0	19	18	19	0	37	71
Exiting Leg				21				18				32	71
Total				36				37				69	142

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	8	0	0	8	0	2	0	2	0	2	0	2	12
7:15 AM	2	0	0	2	0	0	0	0	3	2	0	5	7
7:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	1	0	0	1	3	0	0	3	4
Total	10	0	0	10	1	3	0	4	6	4	0	10	24
8:00 AM	0	0	0	0	0	2	0	2	0	1	0	1	3
8:15 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
8:30 AM	1	1	0	2	0	2	0	2	3	0	0	3	7
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	1	0	2	0	5	0	5	4	1	0	5	12
Grand Total	11	1	0	12	1	8	0	9	10	5	0	15	36
Approach %	91.7	8.3	0.0		11.1	88.9	0.0		66.7	33.3	0.0		
Total %	30.6	2.8	0.0	33.3	2.8	22.2	0.0	25.0	27.8	13.9	0.0	41.7	
Exiting Leg Total				6				11				19	36

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	8	0	0	8	0	2	0	2	0	2	0	2	12
7:15 AM	2	0	0	2	0	0	0	0	3	2	0	5	7
7:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	1	0	0	1	3	0	0	3	4
Total Volume	10	0	0	10	1	3	0	4	6	4	0	10	24
% Approach Total	100.0	0.0	0.0		25.0	75.0	0.0		60.0	40.0	0.0		
PHF	0.313	0.000	0.000	0.313	0.250	0.375	0.000	0.500	0.500	0.500	0.000	0.500	0.500
Entering Leg	10	0	0	10	1	3	0	4	6	4	0	10	24
Exiting Leg				5				6				13	24
Total				15				10				23	48

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street 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	0	0	0	0	1	0	1	1
7:15 AM	0	0	0	0	0	1	0	1	3	0	0	3	4
7:30 AM	0	0	0	0	0	1	0	1	0	1	0	1	2
7:45 AM	0	0	0	0	0	1	0	1	1	1	0	2	3
Total	0	0	0	0	0	3	0	3	4	3	0	7	10
8:00 AM	2	0	0	2	0	1	0	1	1	0	0	1	4
8:15 AM	1	0	0	1	0	2	0	2	1	1	0	2	5
8:30 AM	1	0	0	1	0	1	0	1	2	1	0	3	5
8:45 AM	0	1	0	1	0	0	0	0	1	1	0	2	3
Total	4	1	0	5	0	4	0	4	5	3	0	8	17
Grand Total	4	1	0	5	0	7	0	7	9	6	0	15	27
Approach %	80.0	20.0	0.0		0.0	100.0	0.0		60.0	40.0	0.0		
Total %	14.8	3.7	0.0	18.5	0.0	25.9	0.0	25.9	33.3	22.2	0.0	55.6	
Exiting Leg Total				6				10				11	27

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	1	0	1	1	1	0	2	3
8:00 AM	2	0	0	2	0	1	0	1	1	0	0	1	4
8:15 AM	1	0	0	1	0	2	0	2	1	1	0	2	5
8:30 AM	1	0	0	1	0	1	0	1	2	1	0	3	5
Total Volume	4	0	0	4	0	5	0	5	5	3	0	8	17
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		62.5	37.5	0.0		
PHF	0.500	0.000	0.000	0.500	0.000	0.625	0.000	0.625	0.625	0.750	0.000	0.667	0.850
Entering Leg	4	0	0	4	0	5	0	5	5	3	0	8	17
Exiting Leg				3				5				9	17
Total				7				10				17	34

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street 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	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	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	0	0	0	0	0	0	0	0	1	0	0	1	1
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
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	0	0	0	0	0	0	0	1	1	0	2	2
Grand Total	0	0	0	0	0	0	0	0	2	1	0	3	3
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		66.7	33.3	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	33.3	0.0	100.0	
Exiting Leg Total				1				2				0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:15 AM	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
7:45 AM	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	1	0	1	1
Total Volume	0	0	0	0	0	0	0	0	1	1	0	2	2
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		50.0	50.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.500	0.500
Entering Leg	0	0	0	0	0	0	0	0	1	1	0	2	2
Exiting Leg				1				1				0	2
Total				1				1				2	4

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street						School Street						Essex Street						
	from East						from South						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	2	0	0	0	0	2	0	0	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	0	0	0
7:45 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
Total	2	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0	0	0	4
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	2	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0	0	0	4
Approach %	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		
Total %	50.0	0.0	0.0	0.0	0.0	50.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						4	4

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Essex Street						School Street						Essex Street						
	from East						from South						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	2	0	0	0	0	2	0	0	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	0	0	0
7:45 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
Total Volume	2	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0	0	0	4
% Approach Total	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		
PHF	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	2	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0	0	0	4
Exiting Leg						0						0						4	4
Total						2						2						4	8

PDI File #: **186242 E**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East						School Street from South						Essex Street 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	1	0	1	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
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
Approach %	0	0	0	0	0		0	0	0	100	0		0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	0	0	
Exiting Leg Total						0						1						0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Essex Street from East						School Street from South						Essex Street 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
7:45 AM	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	1	0	1	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	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	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	0.250	0.000	0.250	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	1	0	1	0	0	0	0	0	0	1
Exiting Leg						0						1						0	1
Total						0						2						0	2

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	55	0	0	55	4	71	0	75	27	50	0	77	207
4:15 PM	48	1	0	49	6	56	0	62	34	33	0	67	178
4:30 PM	39	0	0	39	6	66	0	72	33	52	0	85	196
4:45 PM	34	0	1	35	3	66	0	69	29	49	0	78	182
Total	176	1	1	178	19	259	0	278	123	184	0	307	763
5:00 PM	43	0	0	43	9	55	1	65	42	50	0	92	200
5:15 PM	57	3	0	60	11	65	0	76	55	77	0	132	268
5:30 PM	65	1	0	66	10	81	0	91	37	59	0	96	253
5:45 PM	61	1	0	62	3	57	0	60	34	51	0	85	207
Total	226	5	0	231	33	258	1	292	168	237	0	405	928
Grand Total	402	6	1	409	52	517	1	570	291	421	0	712	1691
Approach %	98.3	1.5	0.2		9.1	90.7	0.2		40.9	59.1	0.0		
Total %	23.8	0.4	0.1	24.2	3.1	30.6	0.1	33.7	17.2	24.9	0.0	42.1	
Exiting Leg Total				474				298				919	1691
Cars	401	6	1	408	52	507	1	560	282	419	0	701	1669
% Cars	99.8	100.0	100.0	99.8	100.0	98.1	100.0	98.2	96.9	99.5	0.0	98.5	98.7
Exiting Leg Total				472				289				908	1669
Heavy Vehicles	1	0	0	1	0	10	0	10	9	2	0	11	22
% Heavy Vehicles	0.2	0.0	0.0	0.2	0.0	1.9	0.0	1.8	3.1	0.5	0.0	1.5	1.3
Exiting Leg Total				2				9				11	22

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	43	0	0	43	9	55	1	65	42	50	0	92	200
5:15 PM	57	3	0	60	11	65	0	76	55	77	0	132	268
5:30 PM	65	1	0	66	10	81	0	91	37	59	0	96	253
5:45 PM	61	1	0	62	3	57	0	60	34	51	0	85	207
Total Volume	226	5	0	231	33	258	1	292	168	237	0	405	928
% Approach Total	97.8	2.2	0.0		11.3	88.4	0.3		41.5	58.5	0.0		
PHF	0.869	0.417	0.000	0.875	0.750	0.796	0.250	0.802	0.764	0.769	0.000	0.767	0.866
Cars	226	5	0	231	33	254	1	288	165	235	0	400	919
Cars %	100.0	100.0	0.0	100.0	100.0	98.4	100.0	98.6	98.2	99.2	0.0	98.8	99.0
Heavy Vehicles	0	0	0	0	0	4	0	4	3	2	0	5	9
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	1.6	0.0	1.4	1.8	0.8	0.0	1.2	1.0
Cars Enter Leg	226	5	0	231	33	254	1	288	165	235	0	400	919
Heavy Enter Leg	0	0	0	0	0	4	0	4	3	2	0	5	9
Total Entering Leg	226	5	0	231	33	258	1	292	168	237	0	405	928
Cars Exiting Leg				268				171				480	919
Heavy Exiting Leg				2				3				4	9
Total Exiting Leg				270				174				484	928

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	55	0	0	55	4	70	0	74	25	50	0	75	204
4:15 PM	48	1	0	49	6	54	0	60	33	33	0	66	175
4:30 PM	38	0	0	38	6	64	0	70	32	52	0	84	192
4:45 PM	34	0	1	35	3	65	0	68	27	49	0	76	179
Total	175	1	1	177	19	253	0	272	117	184	0	301	750
5:00 PM	43	0	0	43	9	54	1	64	42	48	0	90	197
5:15 PM	57	3	0	60	11	65	0	76	53	77	0	130	266
5:30 PM	65	1	0	66	10	79	0	89	37	59	0	96	251
5:45 PM	61	1	0	62	3	56	0	59	33	51	0	84	205
Total	226	5	0	231	33	254	1	288	165	235	0	400	919
Grand Total	401	6	1	408	52	507	1	560	282	419	0	701	1669
Approach %	98.3	1.5	0.2		9.3	90.5	0.2		40.2	59.8	0.0		
Total %	24.0	0.4	0.1	24.4	3.1	30.4	0.1	33.6	16.9	25.1	0.0	42.0	
Exiting Leg Total				472				289				908	1669

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	43	0	0	43	9	54	1	64	42	48	0	90	197
5:15 PM	57	3	0	60	11	65	0	76	53	77	0	130	266
5:30 PM	65	1	0	66	10	79	0	89	37	59	0	96	251
5:45 PM	61	1	0	62	3	56	0	59	33	51	0	84	205
Total Volume	226	5	0	231	33	254	1	288	165	235	0	400	919
% Approach Total	97.8	2.2	0.0		11.5	88.2	0.3		41.3	58.8	0.0		
PHF	0.869	0.417	0.000	0.875	0.750	0.804	0.250	0.809	0.778	0.763	0.000	0.769	0.864
Entering Leg	226	5	0	231	33	254	1	288	165	235	0	400	919
Exiting Leg				268				171				480	919
Total				499				459				880	1838

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Essex Street from East				School Street from South				Essex Street 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	1	0	1	2	0	0	2	3
4:15 PM	0	0	0	0	0	2	0	2	1	0	0	1	3
4:30 PM	1	0	0	1	0	2	0	2	1	0	0	1	4
4:45 PM	0	0	0	0	0	1	0	1	2	0	0	2	3
Total	1	0	0	1	0	6	0	6	6	0	0	6	13
5:00 PM	0	0	0	0	0	1	0	1	0	2	0	2	3
5:15 PM	0	0	0	0	0	0	0	0	2	0	0	2	2
5:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	2
5:45 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
Total	0	0	0	0	0	4	0	4	3	2	0	5	9
Grand Total	1	0	0	1	0	10	0	10	9	2	0	11	22
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		81.8	18.2	0.0		
Total %	4.5	0.0	0.0	4.5	0.0	45.5	0.0	45.5	40.9	9.1	0.0	50.0	
Exiting Leg Total				2				9				11	22
Buses	0	0	0	0	0	7	0	7	6	0	0	6	13
% Buses	0.0	0.0	0.0	0.0	0.0	70.0	0.0	70.0	66.7	0.0	0.0	54.5	59.1
Exiting Leg Total				0				6				7	13
Single-Unit Trucks	1	0	0	1	0	3	0	3	2	1	0	3	7
% Single-Unit	100.0	0.0	0.0	100.0	0.0	30.0	0.0	30.0	22.2	50.0	0.0	27.3	31.8
Exiting Leg Total				1				2				4	7
Articulated Trucks	0	0	0	0	0	0	0	0	1	1	0	2	2
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	50.0	0.0	18.2	9.1
Exiting Leg Total				1				1				0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Essex Street from East				School Street from South				Essex Street 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	1	0	1	2	0	0	2	3
4:15 PM	0	0	0	0	0	2	0	2	1	0	0	1	3
4:30 PM	1	0	0	1	0	2	0	2	1	0	0	1	4
4:45 PM	0	0	0	0	0	1	0	1	2	0	0	2	3
Total Volume	1	0	0	1	0	6	0	6	6	0	0	6	13
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.750	0.000	0.750	0.750	0.000	0.000	0.750	0.813
Buses	0	0	0	0	0	4	0	4	3	0	0	3	7
Buses %	0.0	0.0	0.0	0.0	0.0	66.7	0.0	66.7	50.0	0.0	0.0	50.0	53.8
Single-Unit Trucks	1	0	0	1	0	2	0	2	2	0	0	2	5
Single-Unit %	100.0	0.0	0.0	100.0	0.0	33.3	0.0	33.3	33.3	0.0	0.0	33.3	38.5
Articulated Trucks	0	0	0	0	0	0	0	0	1	0	0	1	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	16.7	7.7
Buses	0	0	0	0	0	4	0	4	3	0	0	3	7
Single-Unit Trucks	1	0	0	1	0	2	0	2	2	0	0	2	5
Articulated Trucks	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Entering Leg	1	0	0	1	0	6	0	6	6	0	0	6	13
Buses				0				3				4	7
Single-Unit Trucks				0				2				3	5
Articulated Trucks				0				1				0	1
Total Exiting Leg				0				6				7	13

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	51	0	0	51	4	63	0	67	21	48	0	69	187
4:15 PM	45	1	0	46	6	50	0	56	30	28	0	58	160
4:30 PM	35	0	0	35	6	54	0	60	26	47	0	73	168
4:45 PM	32	0	1	33	3	59	0	62	26	47	0	73	168
Total	163	1	1	165	19	226	0	245	103	170	0	273	683
5:00 PM	39	0	0	39	9	51	1	61	38	46	0	84	184
5:15 PM	54	2	0	56	10	61	0	71	50	74	0	124	251
5:30 PM	59	1	0	60	9	75	0	84	35	56	0	91	235
5:45 PM	56	1	0	57	3	52	0	55	30	47	0	77	189
Total	208	4	0	212	31	239	1	271	153	223	0	376	859
Grand Total	371	5	1	377	50	465	1	516	256	393	0	649	1542
Approach %	98.4	1.3	0.3		9.7	90.1	0.2		39.4	60.6	0.0		
Total %	24.1	0.3	0.1	24.4	3.2	30.2	0.1	33.5	16.6	25.5	0.0	42.1	
Exiting Leg Total				444				262				836	1542

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	39	0	0	39	9	51	1	61	38	46	0	84	184
5:15 PM	54	2	0	56	10	61	0	71	50	74	0	124	251
5:30 PM	59	1	0	60	9	75	0	84	35	56	0	91	235
5:45 PM	56	1	0	57	3	52	0	55	30	47	0	77	189
Total Volume	208	4	0	212	31	239	1	271	153	223	0	376	859
% Approach Total	98.1	1.9	0.0		11.4	88.2	0.4		40.7	59.3	0.0		
PHF	0.881	0.500	0.000	0.883	0.775	0.797	0.250	0.807	0.765	0.753	0.000	0.758	0.856
Entering Leg	208	4	0	212	31	239	1	271	153	223	0	376	859
Exiting Leg				254				158				447	859
Total				466				429				823	1718

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	4	0	0	4	0	7	0	7	3	2	0	5	16
4:15 PM	3	0	0	3	0	3	0	3	3	5	0	8	14
4:30 PM	3	0	0	3	0	9	0	9	6	5	0	11	23
4:45 PM	2	0	0	2	0	6	0	6	1	2	0	3	11
Total	12	0	0	12	0	25	0	25	13	14	0	27	64
5:00 PM	4	0	0	4	0	3	0	3	4	2	0	6	13
5:15 PM	3	1	0	4	1	4	0	5	3	3	0	6	15
5:30 PM	6	0	0	6	1	4	0	5	2	3	0	5	16
5:45 PM	5	0	0	5	0	4	0	4	3	4	0	7	16
Total	18	1	0	19	2	15	0	17	12	12	0	24	60
Grand Total	30	1	0	31	2	40	0	42	25	26	0	51	124
Approach %	96.8	3.2	0.0		4.8	95.2	0.0		49.0	51.0	0.0		
Total %	24.2	0.8	0.0	25.0	1.6	32.3	0.0	33.9	20.2	21.0	0.0	41.1	
Exiting Leg Total				28				26				70	124

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	4	0	0	4	0	7	0	7	3	2	0	5	16
4:15 PM	3	0	0	3	0	3	0	3	3	5	0	8	14
4:30 PM	3	0	0	3	0	9	0	9	6	5	0	11	23
4:45 PM	2	0	0	2	0	6	0	6	1	2	0	3	11
Total Volume	12	0	0	12	0	25	0	25	13	14	0	27	64
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		48.1	51.9	0.0		
PHF	0.750	0.000	0.000	0.750	0.000	0.694	0.000	0.694	0.542	0.700	0.000	0.614	0.696
Entering Leg	12	0	0	12	0	25	0	25	13	14	0	27	64
Exiting Leg				14				13				37	64
Total				26				38				64	128

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street 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	1	0	1	1	0	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	2
4:45 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
Total	0	0	0	0	0	4	0	4	3	0	0	3	7
5:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	2	0	0	2	2
5:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	3	0	3	3	0	0	3	6
Grand Total	0	0	0	0	0	7	0	7	6	0	0	6	13
Approach %	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	53.8	0.0	53.8	46.2	0.0	0.0	46.2	
Exiting Leg Total				0				6				7	13

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Essex Street from East				School Street from South				Essex Street 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	1	0	1	1	0	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	2
4:45 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
Total Volume	0	0	0	0	0	4	0	4	3	0	0	3	7
% Approach Total	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.750	0.000	0.000	0.750	0.875
Entering Leg	0	0	0	0	0	4	0	4	3	0	0	3	7
Exiting Leg				0				3				4	7
Total				0				7				7	14

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street 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	0	0	1	1
4:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	2
4:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	1	0	0	1	0	2	0	2	2	0	0	2	5
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
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	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	1	0	1	2
Grand Total	1	0	0	1	0	3	0	3	2	1	0	3	7
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		66.7	33.3	0.0		
Total %	14.3	0.0	0.0	14.3	0.0	42.9	0.0	42.9	28.6	14.3	0.0	42.9	
Exiting Leg Total				1				2				4	7

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Essex Street from East				School Street from South				Essex Street 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	0	0	1	1
4:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	2
4:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	1	0	0	1	0	2	0	2	2	0	0	2	5
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.500	0.000	0.000	0.500	0.625
Entering Leg	1	0	0	1	0	2	0	2	2	0	0	2	5
Exiting Leg				0				2				3	5
Total				1				4				5	10

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East				School Street from South				Essex Street 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	0	0	0	0
4:30 PM	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
Total	0	0	0	0	0	0	0	0	1	0	0	1	1
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
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	1	0	1	1
Grand Total	0	0	0	0	0	0	0	0	1	1	0	2	2
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		50.0	50.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	100.0	
Exiting Leg Total				1				1				0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Essex Street from East				School Street from South				Essex Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
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	1	0	0	1	1
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	1	0	1	1
Total Volume	0	0	0	0	0	0	0	0	1	1	0	2	2
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		50.0	50.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.500	0.500
Entering Leg	0	0	0	0	0	0	0	0	1	1	0	2	2
Exiting Leg				1				1				0	2
Total				1				1				2	4

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Essex Street						School Street						Essex Street						
	from East						from South						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	1	0	1	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
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	2
Total	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	2	3
Grand Total	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	2	3
Approach %	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	50.0	0.0	50.0	0.0		
Total %	0.0	0.0	0.0	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	33.3	0.0	66.7	
Exiting Leg Total						2						0						1	3

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street						School Street						Essex Street						
	from East						from South						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
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	1	0	1	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
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	2
Total Volume	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	2	3
% Approach Total	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	50.0	0.0	50.0	0.0		
PHF	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	0.000	0.250	0.000	0.250	0.375
Entering Leg	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	2	3
Exiting Leg						2						0						1	3
Total						3						0						3	6

PDI File #: **186242 EE**
Location: **S: School Street**
Location: **E: Essex Street W: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Essex Street from East						School Street from South						Essex Street 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	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	3	0	3	4
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	1	0	1	0	0	0	0	1	1	0	0	0	1	6	7	9
5:30 PM	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	2	1	3	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
Total	0	0	0	2	1	3	0	0	0	0	1	1	0	0	0	6	7	13	17
Grand Total	0	0	0	3	1	4	0	0	0	0	1	1	0	0	0	9	7	16	21
Approach %	0	0	0	75	25		0	0	0	0	100		0	0	0	56.25	43.75		
Total %	0	0	0	14.286	4.7619	19.048	0	0	0	0	4.7619	4.7619	0	0	0	42.857	33.333	76.19	
Exiting Leg Total						4						1						16	21

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Essex Street from East						School Street from South						Essex Street 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
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	1	0	1	0	0	0	0	1	1	0	0	0	1	6	7	9
5:30 PM	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	2	1	3	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
Total Volume	0	0	0	2	1	3	0	0	0	0	1	1	0	0	0	6	7	13	17
% Approach Total	0.0	0.0	0.0	66.7	33.3		0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	46.2	53.8		
PHF	0.000	0.000	0.000	0.500	0.250	0.375	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.500	0.292	0.464	0.472
Entering Leg	0	0	0	2	1	3	0	0	0	0	1	1	0	0	0	6	7	13	17
Exiting Leg						3						1						13	17
Total						6						2						26	34

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	38	48	0	86	47	15	0	62	13	25	0	38	186
7:15 AM	37	57	0	94	94	45	0	139	11	19	0	30	263
7:30 AM	37	64	0	101	73	60	0	133	30	13	0	43	277
7:45 AM	38	70	0	108	43	15	0	58	20	11	0	31	197
Total	150	239	0	389	257	135	0	392	74	68	0	142	923
8:00 AM	44	86	0	130	47	12	0	59	18	12	0	30	219
8:15 AM	48	105	0	153	50	13	0	63	18	22	0	40	256
8:30 AM	38	108	0	146	73	19	0	92	23	18	0	41	279
8:45 AM	32	109	0	141	68	12	0	80	15	24	0	39	260
Total	162	408	0	570	238	56	0	294	74	76	0	150	1014
Grand Total	312	647	0	959	495	191	0	686	148	144	0	292	1937
Approach %	32.5	67.5	0.0		72.2	27.8	0.0		50.7	49.3	0.0		
Total %	16.1	33.4	0.0	49.5	25.6	9.9	0.0	35.4	7.6	7.4	0.0	15.1	
Exiting Leg Total				639				795				503	1937
Cars	311	625	0	936	474	188	0	662	140	137	0	277	1875
% Cars	99.7	96.6	0.0	97.6	95.8	98.4	0.0	96.5	94.6	95.1	0.0	94.9	96.8
Exiting Leg Total				611				765				499	1875
Heavy Vehicles	1	22	0	23	21	3	0	24	8	7	0	15	62
% Heavy Vehicles	0.3	3.4	0.0	2.4	4.2	1.6	0.0	3.5	5.4	4.9	0.0	5.1	3.2
Exiting Leg Total				28				30				4	62

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	44	86	0	130	47	12	0	59	18	12	0	30	219
8:15 AM	48	105	0	153	50	13	0	63	18	22	0	40	256
8:30 AM	38	108	0	146	73	19	0	92	23	18	0	41	279
8:45 AM	32	109	0	141	68	12	0	80	15	24	0	39	260
Total Volume	162	408	0	570	238	56	0	294	74	76	0	150	1014
% Approach Total	28.4	71.6	0.0		81.0	19.0	0.0		49.3	50.7	0.0		
PHF	0.844	0.936	0.000	0.931	0.815	0.737	0.000	0.799	0.804	0.792	0.000	0.915	0.909
Cars	161	395	0	556	231	54	0	285	69	74	0	143	984
Cars %	99.4	96.8	0.0	97.5	97.1	96.4	0.0	96.9	93.2	97.4	0.0	95.3	97.0
Heavy Vehicles	1	13	0	14	7	2	0	9	5	2	0	7	30
Heavy Vehicles %	0.6	3.2	0.0	2.5	2.9	3.6	0.0	3.1	6.8	2.6	0.0	4.7	3.0
Cars Enter Leg	161	395	0	556	231	54	0	285	69	74	0	143	984
Heavy Enter Leg	1	13	0	14	7	2	0	9	5	2	0	7	30
Total Entering Leg	162	408	0	570	238	56	0	294	74	76	0	150	1014
Cars Exiting Leg				305				464				215	984
Heavy Exiting Leg				9				18				3	30
Total Exiting Leg				314				482				218	1014

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	38	47	0	85	41	14	0	55	12	22	0	34	174
7:15 AM	37	53	0	90	88	45	0	133	11	18	0	29	252
7:30 AM	37	63	0	100	72	60	0	132	28	12	0	40	272
7:45 AM	38	67	0	105	42	15	0	57	20	11	0	31	193
Total	150	230	0	380	243	134	0	377	71	63	0	134	891
8:00 AM	44	86	0	130	45	11	0	56	17	11	0	28	214
8:15 AM	48	101	0	149	49	12	0	61	16	21	0	37	247
8:30 AM	37	102	0	139	70	19	0	89	22	18	0	40	268
8:45 AM	32	106	0	138	67	12	0	79	14	24	0	38	255
Total	161	395	0	556	231	54	0	285	69	74	0	143	984
Grand Total	311	625	0	936	474	188	0	662	140	137	0	277	1875
Approach %	33.2	66.8	0.0		71.6	28.4	0.0		50.5	49.5	0.0		
Total %	16.6	33.3	0.0	49.9	25.3	10.0	0.0	35.3	7.5	7.3	0.0	14.8	
Exiting Leg Total				611				765				499	1875

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	44	86	0	130	45	11	0	56	17	11	0	28	214
8:15 AM	48	101	0	149	49	12	0	61	16	21	0	37	247
8:30 AM	37	102	0	139	70	19	0	89	22	18	0	40	268
8:45 AM	32	106	0	138	67	12	0	79	14	24	0	38	255
Total Volume	161	395	0	556	231	54	0	285	69	74	0	143	984
% Approach Total	29.0	71.0	0.0		81.1	18.9	0.0		48.3	51.7	0.0		
PHF	0.839	0.932	0.000	0.933	0.825	0.711	0.000	0.801	0.784	0.771	0.000	0.894	0.918
Entering Leg	161	395	0	556	231	54	0	285	69	74	0	143	984
Exiting Leg				305				464				215	984
Total				861				749				358	1968

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	1	0	1	6	1	0	7	1	3	0	4	12
7:15 AM	0	4	0	4	6	0	0	6	0	1	0	1	11
7:30 AM	0	1	0	1	1	0	0	1	2	1	0	3	5
7:45 AM	0	3	0	3	1	0	0	1	0	0	0	0	4
Total	0	9	0	9	14	1	0	15	3	5	0	8	32
8:00 AM	0	0	0	0	2	1	0	3	1	1	0	2	5
8:15 AM	0	4	0	4	1	1	0	2	2	1	0	3	9
8:30 AM	1	6	0	7	3	0	0	3	1	0	0	1	11
8:45 AM	0	3	0	3	1	0	0	1	1	0	0	1	5
Total	1	13	0	14	7	2	0	9	5	2	0	7	30
Grand Total	1	22	0	23	21	3	0	24	8	7	0	15	62
Approach %	4.3	95.7	0.0		87.5	12.5	0.0		53.3	46.7	0.0		
Total %	1.6	35.5	0.0	37.1	33.9	4.8	0.0	38.7	12.9	11.3	0.0	24.2	
Exiting Leg Total				28				30				4	62
Buses	0	11	0	11	12	1	0	13	1	3	0	4	28
% Buses	0.0	50.0	0.0	47.8	57.1	33.3	0.0	54.2	12.5	42.9	0.0	26.7	45.2
Exiting Leg Total				15				12				1	28
Single-Unit Trucks	1	10	0	11	9	2	0	11	6	3	0	9	31
% Single-Unit	100.0	45.5	0.0	47.8	42.9	66.7	0.0	45.8	75.0	42.9	0.0	60.0	50.0
Exiting Leg Total				12				16				3	31
Articulated Trucks	0	1	0	1	0	0	0	0	1	1	0	2	3
% Articulated	0.0	4.5	0.0	4.3	0.0	0.0	0.0	0.0	12.5	14.3	0.0	13.3	4.8
Exiting Leg Total				1				2				0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	1	0	1	6	1	0	7	1	3	0	4	12
7:15 AM	0	4	0	4	6	0	0	6	0	1	0	1	11
7:30 AM	0	1	0	1	1	0	0	1	2	1	0	3	5
7:45 AM	0	3	0	3	1	0	0	1	0	0	0	0	4
Total Volume	0	9	0	9	14	1	0	15	3	5	0	8	32
% Approach Total	0.0	100.0	0.0		93.3	6.7	0.0		37.5	62.5	0.0		
PHF	0.000	0.563	0.000	0.563	0.583	0.250	0.000	0.536	0.375	0.417	0.000	0.500	0.667
Buses	0	7	0	7	9	1	0	10	1	2	0	3	20
Buses %	0.0	77.8	0.0	77.8	64.3	100.0	0.0	66.7	33.3	40.0	0.0	37.5	62.5
Single-Unit Trucks	0	2	0	2	5	0	0	5	2	2	0	4	11
Single-Unit %	0.0	22.2	0.0	22.2	35.7	0.0	0.0	33.3	66.7	40.0	0.0	50.0	34.4
Articulated Trucks	0	0	0	0	0	0	0	0	0	1	0	1	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	12.5	3.1
Buses	0	7	0	7	9	1	0	10	1	2	0	3	20
Single-Unit Trucks	0	2	0	2	5	0	0	5	2	2	0	4	11
Articulated Trucks	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Entering Leg	0	9	0	9	14	1	0	15	3	5	0	8	32
Buses				11				8				1	20
Single-Unit Trucks				7				4				0	11
Articulated Trucks				1				0				0	1
Total Exiting Leg				19				12				1	32

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	37	40	0	77	38	14	0	52	10	21	0	31	160
7:15 AM	34	50	0	84	81	41	0	122	10	16	0	26	232
7:30 AM	35	58	0	93	65	57	0	122	24	10	0	34	249
7:45 AM	38	63	0	101	39	15	0	54	17	8	0	25	180
Total	144	211	0	355	223	127	0	350	61	55	0	116	821
8:00 AM	36	78	0	114	42	6	0	48	14	9	0	23	185
8:15 AM	42	91	0	133	42	9	0	51	12	18	0	30	214
8:30 AM	32	93	0	125	66	15	0	81	19	17	0	36	242
8:45 AM	30	93	0	123	58	9	0	67	12	23	0	35	225
Total	140	355	0	495	208	39	0	247	57	67	0	124	866
Grand Total	284	566	0	850	431	166	0	597	118	122	0	240	1687
Approach %	33.4	66.6	0.0		72.2	27.8	0.0		49.2	50.8	0.0		
Total %	16.8	33.6	0.0	50.4	25.5	9.8	0.0	35.4	7.0	7.2	0.0	14.2	
Exiting Leg Total				553				684				450	1687

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	36	78	0	114	42	6	0	48	14	9	0	23	185
8:15 AM	42	91	0	133	42	9	0	51	12	18	0	30	214
8:30 AM	32	93	0	125	66	15	0	81	19	17	0	36	242
8:45 AM	30	93	0	123	58	9	0	67	12	23	0	35	225
Total Volume	140	355	0	495	208	39	0	247	57	67	0	124	866
% Approach Total	28.3	71.7	0.0		84.2	15.8	0.0		46.0	54.0	0.0		
PHF	0.833	0.954	0.000	0.930	0.788	0.650	0.000	0.762	0.750	0.728	0.000	0.861	0.895
Entering Leg	140	355	0	495	208	39	0	247	57	67	0	124	866
Exiting Leg				275				412				179	866
Total				770				659				303	1732

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	1	7	0	8	3	0	0	3	2	1	0	3	14
7:15 AM	3	2	0	5	7	4	0	11	1	2	0	3	19
7:30 AM	2	5	0	7	7	3	0	10	4	2	0	6	23
7:45 AM	0	4	0	4	3	0	0	3	3	3	0	6	13
Total	6	18	0	24	20	7	0	27	10	8	0	18	69
8:00 AM	7	8	0	15	3	5	0	8	2	2	0	4	27
8:15 AM	6	10	0	16	7	3	0	10	4	3	0	7	33
8:30 AM	5	9	0	14	4	4	0	8	3	1	0	4	26
8:45 AM	2	13	0	15	9	3	0	12	2	1	0	3	30
Total	20	40	0	60	23	15	0	38	11	7	0	18	116
Grand Total	26	58	0	84	43	22	0	65	21	15	0	36	185
Approach %	31.0	69.0	0.0		66.2	33.8	0.0		58.3	41.7	0.0		
Total %	14.1	31.4	0.0	45.4	23.2	11.9	0.0	35.1	11.4	8.1	0.0	19.5	
Exiting Leg Total				58				79				48	185

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	7	8	0	15	3	5	0	8	2	2	0	4	27
8:15 AM	6	10	0	16	7	3	0	10	4	3	0	7	33
8:30 AM	5	9	0	14	4	4	0	8	3	1	0	4	26
8:45 AM	2	13	0	15	9	3	0	12	2	1	0	3	30
Total Volume	20	40	0	60	23	15	0	38	11	7	0	18	116
% Approach Total	33.3	66.7	0.0		60.5	39.5	0.0		61.1	38.9	0.0		
PHF	0.714	0.769	0.000	0.938	0.639	0.750	0.000	0.792	0.688	0.583	0.000	0.643	0.879
Entering Leg	20	40	0	60	23	15	0	38	11	7	0	18	116
Exiting Leg				30				51				35	116
Total				90				89				53	232

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	1	0	1	6	1	0	7	1	1	0	2	10
7:15 AM	0	4	0	4	3	0	0	3	0	1	0	1	8
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	0	7	0	7	9	1	0	10	1	2	0	3	20
8:00 AM	0	0	0	0	1	0	0	1	0	1	0	1	2
8:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
8:30 AM	0	3	0	3	2	0	0	2	0	0	0	0	5
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	4	0	4	3	0	0	3	0	1	0	1	8
Grand Total	0	11	0	11	12	1	0	13	1	3	0	4	28
Approach %	0.0	100.0	0.0		92.3	7.7	0.0		25.0	75.0	0.0		
Total %	0.0	39.3	0.0	39.3	42.9	3.6	0.0	46.4	3.6	10.7	0.0	14.3	
Exiting Leg Total				15				12				1	28

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	1	0	1	6	1	0	7	1	1	0	2	10
7:15 AM	0	4	0	4	3	0	0	3	0	1	0	1	8
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total Volume	0	7	0	7	9	1	0	10	1	2	0	3	20
% Approach Total	0.0	100.0	0.0		90.0	10.0	0.0		33.3	66.7	0.0		
PHF	0.000	0.438	0.000	0.438	0.375	0.250	0.000	0.357	0.250	0.500	0.000	0.375	0.500
Entering Leg	0	7	0	7	9	1	0	10	1	2	0	3	20
Exiting Leg				11				8				1	20
Total				18				18				4	40

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	2
7:15 AM	0	0	0	0	3	0	0	3	0	0	0	0	3
7:30 AM	0	1	0	1	1	0	0	1	2	0	0	2	4
7:45 AM	0	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	2	0	2	5	0	0	5	2	2	0	4	11
8:00 AM	0	0	0	0	1	1	0	2	0	0	0	0	2
8:15 AM	0	2	0	2	1	1	0	2	2	1	0	3	7
8:30 AM	1	3	0	4	1	0	0	1	1	0	0	1	6
8:45 AM	0	3	0	3	1	0	0	1	1	0	0	1	5
Total	1	8	0	9	4	2	0	6	4	1	0	5	20
Grand Total	1	10	0	11	9	2	0	11	6	3	0	9	31
Approach %	9.1	90.9	0.0		81.8	18.2	0.0		66.7	33.3	0.0		
Total %	3.2	32.3	0.0	35.5	29.0	6.5	0.0	35.5	19.4	9.7	0.0	29.0	
Exiting Leg Total				12				16				3	31

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	0	0	0	0	1	1	0	2	0	0	0	0	2
8:15 AM	0	2	0	2	1	1	0	2	2	1	0	3	7
8:30 AM	1	3	0	4	1	0	0	1	1	0	0	1	6
8:45 AM	0	3	0	3	1	0	0	1	1	0	0	1	5
Total Volume	1	8	0	9	4	2	0	6	4	1	0	5	20
% Approach Total	11.1	88.9	0.0		66.7	33.3	0.0		80.0	20.0	0.0		
PHF	0.250	0.667	0.000	0.563	1.000	0.500	0.000	0.750	0.500	0.250	0.000	0.417	0.714
Entering Leg	1	8	0	9	4	2	0	6	4	1	0	5	20
Exiting Leg				5				12				3	20
Total				14				18				8	40

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	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	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
7:45 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
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
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	1	0	1	0	0	0	0	1	0	0	1	2
Grand Total	0	1	0	1	0	0	0	0	1	1	0	2	3
Approach %	0.0	100.0	0.0		0.0	0.0	0.0		50.0	50.0	0.0		
Total %	0.0	33.3	0.0	33.3	0.0	0.0	0.0	0.0	33.3	33.3	0.0	66.7	
Exiting Leg Total				1				2				0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	1	0	0	0	0	1	1	0	2	3
% Approach Total	0.0	100.0	0.0		0.0	0.0	0.0		50.0	50.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.500	0.750
Entering Leg	0	1	0	1	0	0	0	0	1	1	0	2	3
Exiting Leg				1				2				0	3
Total				2				2				2	6

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Shawsheen Road						Essex Street						Red Spring Road						
	from North						from East						from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
7:00 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
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	1	0	0	0	0	1	1
Total	1	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	1	3
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	1	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	1	3
Approach %	100.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		
Total %	33.3	0.0	0.0	0.0	0.0	33.3	33.3	0.0	0.0	0.0	0.0	33.3	33.3	0.0	0.0	0.0	0.0	33.3	
Exiting Leg Total						1						1						1	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Shawsheen Road						Essex Street						Red Spring Road						
	from North						from East						from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
7:00 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
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	1	0	0	0	0	1	1
Total Volume	1	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	1	3
% Approach Total	100.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.250	0.750
Entering Leg	1	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	1	3
Exiting Leg						1						1						1	3
Total						2						2						2	6

PDI File #: **186242 F**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North						Essex Street from East						Red Spring Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	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	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Approach %	0	0	0	100	0		0	0	0	0	0		0	0	0	0	0		
Total %	0	0	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total						1						0						0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Shawsheen Road from North						Essex Street from East						Red Spring Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
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	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.250	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	0.250
Entering Leg	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg						1						0						0	1
Total						2						0						0	2

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	19	51	0	70	110	10	0	120	18	38	0	56	246
4:15 PM	21	51	0	72	81	18	0	99	15	54	0	69	240
4:30 PM	20	73	0	93	73	24	0	97	27	47	0	74	264
4:45 PM	24	71	0	95	93	18	0	111	19	42	0	61	267
Total	84	246	0	330	357	70	0	427	79	181	0	260	1017
5:00 PM	22	64	0	86	109	24	0	133	19	52	0	71	290
5:15 PM	15	119	0	134	109	19	0	128	26	61	0	87	349
5:30 PM	35	72	0	107	129	31	0	160	20	60	0	80	347
5:45 PM	32	93	0	125	107	25	0	132	21	42	0	63	320
Total	104	348	0	452	454	99	0	553	86	215	0	301	1306
Grand Total	188	594	0	782	811	169	0	980	165	396	0	561	2323
Approach %	24.0	76.0	0.0		82.8	17.2	0.0		29.4	70.6	0.0		
Total %	8.1	25.6	0.0	33.7	34.9	7.3	0.0	42.2	7.1	17.0	0.0	24.1	
Exiting Leg Total				1207				759				357	2323
Cars	185	592	0	777	805	168	0	973	160	395	0	555	2305
% Cars	98.4	99.7	0.0	99.4	99.3	99.4	0.0	99.3	97.0	99.7	0.0	98.9	99.2
Exiting Leg Total				1200				752				353	2305
Heavy Vehicles	3	2	0	5	6	1	0	7	5	1	0	6	18
% Heavy Vehicles	1.6	0.3	0.0	0.6	0.7	0.6	0.0	0.7	3.0	0.3	0.0	1.1	0.8
Exiting Leg Total				7				7				4	18

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	22	64	0	86	109	24	0	133	19	52	0	71	290
5:15 PM	15	119	0	134	109	19	0	128	26	61	0	87	349
5:30 PM	35	72	0	107	129	31	0	160	20	60	0	80	347
5:45 PM	32	93	0	125	107	25	0	132	21	42	0	63	320
Total Volume	104	348	0	452	454	99	0	553	86	215	0	301	1306
% Approach Total	23.0	77.0	0.0		82.1	17.9	0.0		28.6	71.4	0.0		
PHF	0.743	0.731	0.000	0.843	0.880	0.798	0.000	0.864	0.827	0.881	0.000	0.865	0.936
Cars	103	348	0	451	452	99	0	551	83	214	0	297	1299
Cars %	99.0	100.0	0.0	99.8	99.6	100.0	0.0	99.6	96.5	99.5	0.0	98.7	99.5
Heavy Vehicles	1	0	0	1	2	0	0	2	3	1	0	4	7
Heavy Vehicles %	1.0	0.0	0.0	0.2	0.4	0.0	0.0	0.4	3.5	0.5	0.0	1.3	0.5
Cars Enter Leg	103	348	0	451	452	99	0	551	83	214	0	297	1299
Heavy Enter Leg	1	0	0	1	2	0	0	2	3	1	0	4	7
Total Entering Leg	104	348	0	452	454	99	0	553	86	215	0	301	1306
Cars Exiting Leg				666				431				202	1299
Heavy Exiting Leg				3				3				1	7
Total Exiting Leg				669				434				203	1306

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	19	51	0	70	109	9	0	118	16	38	0	54	242
4:15 PM	21	51	0	72	79	18	0	97	15	54	0	69	238
4:30 PM	20	71	0	91	72	24	0	96	27	47	0	74	261
4:45 PM	22	71	0	93	93	18	0	111	19	42	0	61	265
Total	82	244	0	326	353	69	0	422	77	181	0	258	1006
5:00 PM	21	64	0	85	108	24	0	132	16	51	0	67	284
5:15 PM	15	119	0	134	109	19	0	128	26	61	0	87	349
5:30 PM	35	72	0	107	129	31	0	160	20	60	0	80	347
5:45 PM	32	93	0	125	106	25	0	131	21	42	0	63	319
Total	103	348	0	451	452	99	0	551	83	214	0	297	1299
Grand Total	185	592	0	777	805	168	0	973	160	395	0	555	2305
Approach %	23.8	76.2	0.0		82.7	17.3	0.0		28.8	71.2	0.0		
Total %	8.0	25.7	0.0	33.7	34.9	7.3	0.0	42.2	6.9	17.1	0.0	24.1	
Exiting Leg Total				1200				752				353	2305

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	21	64	0	85	108	24	0	132	16	51	0	67	284
5:15 PM	15	119	0	134	109	19	0	128	26	61	0	87	349
5:30 PM	35	72	0	107	129	31	0	160	20	60	0	80	347
5:45 PM	32	93	0	125	106	25	0	131	21	42	0	63	319
Total Volume	103	348	0	451	452	99	0	551	83	214	0	297	1299
% Approach Total	22.8	77.2	0.0		82.0	18.0	0.0		27.9	72.1	0.0		
PHF	0.736	0.731	0.000	0.841	0.876	0.798	0.000	0.861	0.798	0.877	0.000	0.853	0.931
Entering Leg	103	348	0	451	452	99	0	551	83	214	0	297	1299
Exiting Leg				666				431				202	1299
Total				1117				982				499	2598

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	1	1	0	2	2	0	0	2	4
4:15 PM	0	0	0	0	2	0	0	2	0	0	0	0	2
4:30 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
4:45 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
Total	2	2	0	4	4	1	0	5	2	0	0	2	11
5:00 PM	1	0	0	1	1	0	0	1	3	1	0	4	6
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	1	0	0	1	0	0	0	0	1
Total	1	0	0	1	2	0	0	2	3	1	0	4	7
Grand Total	3	2	0	5	6	1	0	7	5	1	0	6	18
Approach %	60.0	40.0	0.0		85.7	14.3	0.0		83.3	16.7	0.0		
Total %	16.7	11.1	0.0	27.8	33.3	5.6	0.0	38.9	27.8	5.6	0.0	33.3	
Exiting Leg Total				7				7				4	18
Buses	0	0	0	0	1	0	0	1	0	0	0	0	1
% Buses	0.0	0.0	0.0	0.0	16.7	0.0	0.0	14.3	0.0	0.0	0.0	0.0	5.6
Exiting Leg Total				1				0				0	1
Single-Unit Trucks	3	1	0	4	4	1	0	5	4	1	0	5	14
% Single-Unit	100.0	50.0	0.0	80.0	66.7	100.0	0.0	71.4	80.0	100.0	0.0	83.3	77.8
Exiting Leg Total				5				5				4	14
Articulated Trucks	0	1	0	1	1	0	0	1	1	0	0	1	3
% Articulated	0.0	50.0	0.0	20.0	16.7	0.0	0.0	14.3	20.0	0.0	0.0	16.7	16.7
Exiting Leg Total				1				2				0	3

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:15 PM	0	0	0	0	2	0	0	2	0	0	0	0	2
4:30 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
4:45 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
5:00 PM	1	0	0	1	1	0	0	1	3	1	0	4	6
Total Volume	3	2	0	5	4	0	0	4	3	1	0	4	13
% Approach Total	60.0	40.0	0.0		100.0	0.0	0.0		75.0	25.0	0.0		
PHF	0.375	0.250	0.000	0.625	0.500	0.000	0.000	0.500	0.250	0.250	0.000	0.250	0.542
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	3	1	0	4	4	0	0	4	2	1	0	3	11
Single-Unit %	100.0	50.0	0.0	80.0	100.0	0.0	0.0	100.0	66.7	100.0	0.0	75.0	84.6
Articulated Trucks	0	1	0	1	0	0	0	0	1	0	0	1	2
Articulated %	0.0	50.0	0.0	20.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	25.0	15.4
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	3	1	0	4	4	0	0	4	2	1	0	3	11
Articulated Trucks	0	1	0	1	0	0	0	0	1	0	0	1	2
Total Entering Leg	3	2	0	5	4	0	0	4	3	1	0	4	13
Buses				0				0				0	0
Single-Unit Trucks				5				3				3	11
Articulated Trucks				0				2				0	2
Total Exiting Leg				5				5				3	13

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	17	46	0	63	98	9	0	107	15	32	0	47	217
4:15 PM	20	44	0	64	72	18	0	90	12	53	0	65	219
4:30 PM	19	63	0	82	61	24	0	85	26	40	0	66	233
4:45 PM	20	65	0	85	87	15	0	102	19	38	0	57	244
Total	76	218	0	294	318	66	0	384	72	163	0	235	913
5:00 PM	19	62	0	81	100	22	0	122	16	46	0	62	265
5:15 PM	13	115	0	128	102	18	0	120	25	51	0	76	324
5:30 PM	31	68	0	99	120	29	0	149	20	57	0	77	325
5:45 PM	31	86	0	117	96	24	0	120	19	39	0	58	295
Total	94	331	0	425	418	93	0	511	80	193	0	273	1209
Grand Total	170	549	0	719	736	159	0	895	152	356	0	508	2122
Approach %	23.6	76.4	0.0		82.2	17.8	0.0		29.9	70.1	0.0		
Total %	8.0	25.9	0.0	33.9	34.7	7.5	0.0	42.2	7.2	16.8	0.0	23.9	
Exiting Leg Total				1092				701				329	2122

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	19	62	0	81	100	22	0	122	16	46	0	62	265
5:15 PM	13	115	0	128	102	18	0	120	25	51	0	76	324
5:30 PM	31	68	0	99	120	29	0	149	20	57	0	77	325
5:45 PM	31	86	0	117	96	24	0	120	19	39	0	58	295
Total Volume	94	331	0	425	418	93	0	511	80	193	0	273	1209
% Approach Total	22.1	77.9	0.0		81.8	18.2	0.0		29.3	70.7	0.0		
PHF	0.758	0.720	0.000	0.830	0.871	0.802	0.000	0.857	0.800	0.846	0.000	0.886	0.930
Entering Leg	94	331	0	425	418	93	0	511	80	193	0	273	1209
Exiting Leg				611				411				187	1209
Total				1036				922				460	2418

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	2	5	0	7	11	0	0	11	1	6	0	7	25
4:15 PM	1	7	0	8	6	0	0	6	3	1	0	4	18
4:30 PM	1	8	0	9	10	0	0	10	1	7	0	8	27
4:45 PM	2	6	0	8	6	3	0	9	0	4	0	4	21
Total	6	26	0	32	33	3	0	36	5	18	0	23	91
5:00 PM	2	2	0	4	8	2	0	10	0	5	0	5	19
5:15 PM	2	4	0	6	7	1	0	8	1	10	0	11	25
5:30 PM	4	4	0	8	9	2	0	11	0	3	0	3	22
5:45 PM	1	7	0	8	9	1	0	10	2	3	0	5	23
Total	9	17	0	26	33	6	0	39	3	21	0	24	89
Grand Total	15	43	0	58	66	9	0	75	8	39	0	47	180
Approach %	25.9	74.1	0.0		88.0	12.0	0.0		17.0	83.0	0.0		
Total %	8.3	23.9	0.0	32.2	36.7	5.0	0.0	41.7	4.4	21.7	0.0	26.1	
Exiting Leg Total				105				51				24	180

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:30 PM	1	8	0	9	10	0	0	10	1	7	0	8	27
4:45 PM	2	6	0	8	6	3	0	9	0	4	0	4	21
5:00 PM	2	2	0	4	8	2	0	10	0	5	0	5	19
5:15 PM	2	4	0	6	7	1	0	8	1	10	0	11	25
Total Volume	7	20	0	27	31	6	0	37	2	26	0	28	92
% Approach Total	25.9	74.1	0.0		83.8	16.2	0.0		7.1	92.9	0.0		
PHF	0.875	0.625	0.000	0.750	0.775	0.500	0.000	0.925	0.500	0.650	0.000	0.636	0.852
Entering Leg	7	20	0	27	31	6	0	37	2	26	0	28	92
Exiting Leg				57				22				13	92
Total				84				59				41	184

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
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	1	0	0	1	0	0	0	0	1
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	1	0	0	1	0	0	0	0	1
Approach %	0.0	0.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				1				0				0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
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	1	0	0	1	0	0	0	0	1
% Approach Total	0.0	0.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	1	0	0	1	0	0	0	0	1
Exiting Leg				1				0				0	1
Total				1				1				0	2

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	0	1	2	0	0	2	3
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	2	0	0	2	0	0	0	0	0	0	0	0	2
Total	2	1	0	3	3	1	0	4	2	0	0	2	9
5:00 PM	1	0	0	1	1	0	0	1	2	1	0	3	5
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	1	0	0	1	1	0	0	1	2	1	0	3	5
Grand Total	3	1	0	4	4	1	0	5	4	1	0	5	14
Approach %	75.0	25.0	0.0		80.0	20.0	0.0		80.0	20.0	0.0		
Total %	21.4	7.1	0.0	28.6	28.6	7.1	0.0	35.7	28.6	7.1	0.0	35.7	
Exiting Leg Total				5				5				4	14

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Shawsheen Road from North				Essex Street from East				Red Spring Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
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	2	0	0	2	0	0	0	0	0	0	0	0	2
5:00 PM	1	0	0	1	1	0	0	1	2	1	0	3	5
Total Volume	3	1	0	4	4	0	0	4	2	1	0	3	11
% Approach Total	75.0	25.0	0.0		100.0	0.0	0.0		66.7	33.3	0.0		
PHF	0.375	0.250	0.000	0.500	0.500	0.000	0.000	0.500	0.250	0.250	0.000	0.250	0.550
Entering Leg	3	1	0	4	4	0	0	4	2	1	0	3	11
Exiting Leg				5				3				3	11
Total				9				7				6	22

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	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	0	0	0	0
4:30 PM	0	1	0	1	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
Total	0	1	0	1	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	1	0	0	1	1	0	0	1	2
Grand Total	0	1	0	1	1	0	0	1	1	0	0	1	3
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		100.0	0.0	0.0		
Total %	0.0	33.3	0.0	33.3	33.3	0.0	0.0	33.3	33.3	0.0	0.0	33.3	
Exiting Leg Total				1				2				0	3

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Shawsheen Road				Essex Street				Red Spring Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	1	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
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	1	0	1	0	0	0	0	1	0	0	1	2
% Approach Total	0.0	100.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	1	0	1	0	0	0	0	1	0	0	1	2
Exiting Leg				0				2				0	2
Total				1				2				1	4

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Shawsheen Road						Essex Street						Red Spring Road						
	from North						from East						from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Approach %	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		
Total %	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						1	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Shawsheen Road						Essex Street						Red Spring Road						
	from North						from East						from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
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	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	1	0	0	0	0	1	0	0	0	0	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	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.250	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	0.250
Entering Leg	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg						0						0						1	1
Total						1						0						1	2

PDI File #: **186242 FF**
Location: **N: Shawsheen Road S: Red Spring Road**
Location: **E: Essex Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Shawsheen Road						Essex Street						Red Spring Road						
	from North						from East						from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	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	Shawsheen Road						Essex Street						Red Spring Road						
	from North						from East						from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	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 #: **186242 G**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	1	151	0	152	88	1	0	89	2	0	0	2	243
7:15 AM	1	148	0	149	95	1	0	96	8	3	0	11	256
7:30 AM	0	158	0	158	94	3	0	97	2	1	0	3	258
7:45 AM	1	148	0	149	82	1	0	83	2	1	0	3	235
Total	3	605	0	608	359	6	0	365	14	5	0	19	992
8:00 AM	2	130	0	132	96	2	0	98	2	0	0	2	232
8:15 AM	2	131	0	133	106	0	0	106	2	1	0	3	242
8:30 AM	2	159	0	161	112	3	0	115	5	1	0	6	282
8:45 AM	3	152	0	155	130	2	0	132	3	0	0	3	290
Total	9	572	0	581	444	7	0	451	12	2	0	14	1046
Grand Total	12	1177	0	1189	803	13	0	816	26	7	0	33	2038
Approach %	1.0	99.0	0.0		98.4	1.6	0.0		78.8	21.2	0.0		
Total %	0.6	57.8	0.0	58.3	39.4	0.6	0.0	40.0	1.3	0.3	0.0	1.6	
Exiting Leg Total				810				1203				25	2038
Cars	11	1144	0	1155	774	12	0	786	25	7	0	32	1973
% Cars	91.7	97.2	0.0	97.1	96.4	92.3	0.0	96.3	96.2	100.0	0.0	97.0	96.8
Exiting Leg Total				781				1169				23	1973
Heavy Vehicles	1	33	0	34	29	1	0	30	1	0	0	1	65
% Heavy Vehicles	8.3	2.8	0.0	2.9	3.6	7.7	0.0	3.7	3.8	0.0	0.0	3.0	3.2
Exiting Leg Total				29				34				2	65

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	2	130	0	132	96	2	0	98	2	0	0	2	232
8:15 AM	2	131	0	133	106	0	0	106	2	1	0	3	242
8:30 AM	2	159	0	161	112	3	0	115	5	1	0	6	282
8:45 AM	3	152	0	155	130	2	0	132	3	0	0	3	290
Total Volume	9	572	0	581	444	7	0	451	12	2	0	14	1046
% Approach Total	1.5	98.5	0.0		98.4	1.6	0.0		85.7	14.3	0.0		
PHF	0.750	0.899	0.000	0.902	0.854	0.583	0.000	0.854	0.600	0.500	0.000	0.583	0.902
Cars	8	548	0	556	425	6	0	431	11	2	0	13	1000
Cars %	88.9	95.8	0.0	95.7	95.7	85.7	0.0	95.6	91.7	100.0	0.0	92.9	95.6
Heavy Vehicles	1	24	0	25	19	1	0	20	1	0	0	1	46
Heavy Vehicles %	11.1	4.2	0.0	4.3	4.3	14.3	0.0	4.4	8.3	0.0	0.0	7.1	4.4
Cars Enter Leg	8	548	0	556	425	6	0	431	11	2	0	13	1000
Heavy Enter Leg	1	24	0	25	19	1	0	20	1	0	0	1	46
Total Entering Leg	9	572	0	581	444	7	0	451	12	2	0	14	1046
Cars Exiting Leg				427				559				14	1000
Heavy Exiting Leg				19				25				2	46
Total Exiting Leg				446				584				16	1046

PDI File #: **186242 G**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	1	149	0	150	86	1	0	87	2	0	0	2	239
7:15 AM	1	146	0	147	90	1	0	91	8	3	0	11	249
7:30 AM	0	157	0	157	91	3	0	94	2	1	0	3	254
7:45 AM	1	144	0	145	82	1	0	83	2	1	0	3	231
Total	3	596	0	599	349	6	0	355	14	5	0	19	973
8:00 AM	2	122	0	124	92	2	0	94	2	0	0	2	220
8:15 AM	2	129	0	131	104	0	0	104	2	1	0	3	238
8:30 AM	2	154	0	156	104	3	0	107	4	1	0	5	268
8:45 AM	2	143	0	145	125	1	0	126	3	0	0	3	274
Total	8	548	0	556	425	6	0	431	11	2	0	13	1000
Grand Total	11	1144	0	1155	774	12	0	786	25	7	0	32	1973
Approach %	1.0	99.0	0.0		98.5	1.5	0.0		78.1	21.9	0.0		
Total %	0.6	58.0	0.0	58.5	39.2	0.6	0.0	39.8	1.3	0.4	0.0	1.6	
Exiting Leg Total				781				1169				23	1973

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	2	122	0	124	92	2	0	94	2	0	0	2	220
8:15 AM	2	129	0	131	104	0	0	104	2	1	0	3	238
8:30 AM	2	154	0	156	104	3	0	107	4	1	0	5	268
8:45 AM	2	143	0	145	125	1	0	126	3	0	0	3	274
Total Volume	8	548	0	556	425	6	0	431	11	2	0	13	1000
% Approach Total	1.4	98.6	0.0		98.6	1.4	0.0		84.6	15.4	0.0		
PHF	1.000	0.890	0.000	0.891	0.850	0.500	0.000	0.855	0.688	0.500	0.000	0.650	0.912
Entering Leg	8	548	0	556	425	6	0	431	11	2	0	13	1000
Exiting Leg				427				559				14	1000
Total				983				990				27	2000

PDI File #: **186242 G**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	2	0	2	2	0	0	2	0	0	0	0	4
7:15 AM	0	2	0	2	5	0	0	5	0	0	0	0	7
7:30 AM	0	1	0	1	3	0	0	3	0	0	0	0	4
7:45 AM	0	4	0	4	0	0	0	0	0	0	0	0	4
Total	0	9	0	9	10	0	0	10	0	0	0	0	19
8:00 AM	0	8	0	8	4	0	0	4	0	0	0	0	12
8:15 AM	0	2	0	2	2	0	0	2	0	0	0	0	4
8:30 AM	0	5	0	5	8	0	0	8	1	0	0	1	14
8:45 AM	1	9	0	10	5	1	0	6	0	0	0	0	16
Total	1	24	0	25	19	1	0	20	1	0	0	1	46
Grand Total	1	33	0	34	29	1	0	30	1	0	0	1	65
Approach %	2.9	97.1	0.0		96.7	3.3	0.0		100.0	0.0	0.0		
Total %	1.5	50.8	0.0	52.3	44.6	1.5	0.0	46.2	1.5	0.0	0.0	1.5	
Exiting Leg Total				29				34				2	65
Buses	0	2	0	2	6	0	0	6	0	0	0	0	8
% Buses	0.0	6.1	0.0	5.9	20.7	0.0	0.0	20.0	0.0	0.0	0.0	0.0	12.3
Exiting Leg Total				6				2				0	8
Single-Unit Trucks	1	26	0	27	18	1	0	19	1	0	0	1	47
% Single-Unit	100.0	78.8	0.0	79.4	62.1	100.0	0.0	63.3	100.0	0.0	0.0	100.0	72.3
Exiting Leg Total				18				27				2	47
Articulated Trucks	0	5	0	5	5	0	0	5	0	0	0	0	10
% Articulated	0.0	15.2	0.0	14.7	17.2	0.0	0.0	16.7	0.0	0.0	0.0	0.0	15.4
Exiting Leg Total				5				5				0	10

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	8	0	8	4	0	0	4	0	0	0	0	12
8:15 AM	0	2	0	2	2	0	0	2	0	0	0	0	4
8:30 AM	0	5	0	5	8	0	0	8	1	0	0	1	14
8:45 AM	1	9	0	10	5	1	0	6	0	0	0	0	16
Total Volume	1	24	0	25	19	1	0	20	1	0	0	1	46
% Approach Total	4.0	96.0	0.0		95.0	5.0	0.0		100.0	0.0	0.0		
PHF	0.250	0.667	0.000	0.625	0.594	0.250	0.000	0.625	0.250	0.000	0.000	0.250	0.719
Buses	0	1	0	1	5	0	0	5	0	0	0	0	6
Buses %	0.0	4.2	0.0	4.0	26.3	0.0	0.0	25.0	0.0	0.0	0.0	0.0	13.0
Single-Unit Trucks	1	19	0	20	12	1	0	13	1	0	0	1	34
Single-Unit %	100.0	79.2	0.0	80.0	63.2	100.0	0.0	65.0	100.0	0.0	0.0	100.0	73.9
Articulated Trucks	0	4	0	4	2	0	0	2	0	0	0	0	6
Articulated %	0.0	16.7	0.0	16.0	10.5	0.0	0.0	10.0	0.0	0.0	0.0	0.0	13.0
Buses	0	1	0	1	5	0	0	5	0	0	0	0	6
Single-Unit Trucks	1	19	0	20	12	1	0	13	1	0	0	1	34
Articulated Trucks	0	4	0	4	2	0	0	2	0	0	0	0	6
Total Entering Leg	1	24	0	25	19	1	0	20	1	0	0	1	46
Buses				5				1				0	6
Single-Unit Trucks				12				20				2	34
Articulated Trucks				2				4				0	6
Total Exiting Leg				19				25				2	46

PDI File #: **186242 G**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	1	134	0	135	82	1	0	83	1	0	0	1	219
7:15 AM	1	130	0	131	88	1	0	89	5	1	0	6	226
7:30 AM	0	138	0	138	87	2	0	89	2	1	0	3	230
7:45 AM	1	130	0	131	74	0	0	74	0	1	0	1	206
Total	3	532	0	535	331	4	0	335	8	3	0	11	881
8:00 AM	1	113	0	114	89	1	0	90	2	0	0	2	206
8:15 AM	2	119	0	121	89	0	0	89	1	1	0	2	212
8:30 AM	1	134	0	135	95	1	0	96	2	1	0	3	234
8:45 AM	2	126	0	128	116	0	0	116	2	0	0	2	246
Total	6	492	0	498	389	2	0	391	7	2	0	9	898
Grand Total	9	1024	0	1033	720	6	0	726	15	5	0	20	1779
Approach %	0.9	99.1	0.0		99.2	0.8	0.0		75.0	25.0	0.0		
Total %	0.5	57.6	0.0	58.1	40.5	0.3	0.0	40.8	0.8	0.3	0.0	1.1	
Exiting Leg Total				725				1039				15	1779

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	1	113	0	114	89	1	0	90	2	0	0	2	206
8:15 AM	2	119	0	121	89	0	0	89	1	1	0	2	212
8:30 AM	1	134	0	135	95	1	0	96	2	1	0	3	234
8:45 AM	2	126	0	128	116	0	0	116	2	0	0	2	246
Total Volume	6	492	0	498	389	2	0	391	7	2	0	9	898
% Approach Total	1.2	98.8	0.0		99.5	0.5	0.0		77.8	22.2	0.0		
PHF	0.750	0.918	0.000	0.922	0.838	0.500	0.000	0.843	0.875	0.500	0.000	0.750	0.913
Entering Leg	6	492	0	498	389	2	0	391	7	2	0	9	898
Exiting Leg				391				499				8	898
Total				889				890				17	1796

PDI File #: **186242 G**
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Location: **W: Lewis Street**
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Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 2018**
Start Time: **7:00 AM**
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Class:

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Office: 508-875-0100 Fax: 508-875-0118
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Light Goods Vehicle

	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	15	0	15	4	0	0	4	1	0	0	1	20
7:15 AM	0	16	0	16	2	0	0	2	3	2	0	5	23
7:30 AM	0	18	0	18	4	1	0	5	0	0	0	0	23
7:45 AM	0	14	0	14	8	1	0	9	2	0	0	2	25
Total	0	63	0	63	18	2	0	20	6	2	0	8	91
8:00 AM	1	9	0	10	3	1	0	4	0	0	0	0	14
8:15 AM	0	10	0	10	15	0	0	15	1	0	0	1	26
8:30 AM	1	20	0	21	9	2	0	11	2	0	0	2	34
8:45 AM	0	16	0	16	9	1	0	10	1	0	0	1	27
Total	2	55	0	57	36	4	0	40	4	0	0	4	101
Grand Total	2	118	0	120	54	6	0	60	10	2	0	12	192
Approach %	1.7	98.3	0.0		90.0	10.0	0.0		83.3	16.7	0.0		
Total %	1.0	61.5	0.0	62.5	28.1	3.1	0.0	31.3	5.2	1.0	0.0	6.3	
Exiting Leg Total				56				128				8	192

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	1	9	0	10	3	1	0	4	0	0	0	0	14
8:15 AM	0	10	0	10	15	0	0	15	1	0	0	1	26
8:30 AM	1	20	0	21	9	2	0	11	2	0	0	2	34
8:45 AM	0	16	0	16	9	1	0	10	1	0	0	1	27
Total Volume	2	55	0	57	36	4	0	40	4	0	0	4	101
% Approach Total	3.5	96.5	0.0		90.0	10.0	0.0		100.0	0.0	0.0		
PHF	0.500	0.688	0.000	0.679	0.600	0.500	0.000	0.667	0.500	0.000	0.000	0.500	0.743
Entering Leg	2	55	0	57	36	4	0	40	4	0	0	4	101
Exiting Leg				36				59				6	101
Total				93				99				10	202

PDI File #: **186242 G**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
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City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 2018**
Start Time: **7:00 AM**
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Class:

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Email: datarequests@pdillc.com

Buses

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street 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	1	0	0	1	0	0	0	0	2
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	0	1	0	1	1	0	0	1	0	0	0	0	2
8:00 AM	0	1	0	1	3	0	0	3	0	0	0	0	4
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	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	5	0	0	5	0	0	0	0	6
Grand Total	0	2	0	2	6	0	0	6	0	0	0	0	8
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	25.0	0.0	25.0	75.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				6				2				0	8

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	1	3	0	0	3	0	0	0	0	4
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	0	0	0	1
Total Volume	0	1	0	1	5	0	0	5	0	0	0	0	6
% 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	0.417	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.375
Entering Leg	0	1	0	1	5	0	0	5	0	0	0	0	6
Exiting Leg				5				1				0	6
Total				6				6				0	12

PDI File #: **186242 G**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street 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	1	0	0	1	0	0	0	0	2
7:15 AM	0	2	0	2	2	0	0	2	0	0	0	0	4
7:30 AM	0	1	0	1	3	0	0	3	0	0	0	0	4
7:45 AM	0	3	0	3	0	0	0	0	0	0	0	0	3
Total	0	7	0	7	6	0	0	6	0	0	0	0	13
8:00 AM	0	6	0	6	1	0	0	1	0	0	0	0	7
8:15 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
8:30 AM	0	4	0	4	7	0	0	7	1	0	0	1	12
8:45 AM	1	7	0	8	4	1	0	5	0	0	0	0	13
Total	1	19	0	20	12	1	0	13	1	0	0	1	34
Grand Total	1	26	0	27	18	1	0	19	1	0	0	1	47
Approach %	3.7	96.3	0.0		94.7	5.3	0.0		100.0	0.0	0.0		
Total %	2.1	55.3	0.0	57.4	38.3	2.1	0.0	40.4	2.1	0.0	0.0	2.1	
Exiting Leg Total				18				27				2	47

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	6	0	6	1	0	0	1	0	0	0	0	7
8:15 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
8:30 AM	0	4	0	4	7	0	0	7	1	0	0	1	12
8:45 AM	1	7	0	8	4	1	0	5	0	0	0	0	13
Total Volume	1	19	0	20	12	1	0	13	1	0	0	1	34
% Approach Total	5.0	95.0	0.0		92.3	7.7	0.0		100.0	0.0	0.0		
PHF	0.250	0.679	0.000	0.625	0.429	0.250	0.000	0.464	0.250	0.000	0.000	0.250	0.654
Entering Leg	1	19	0	20	12	1	0	13	1	0	0	1	34
Exiting Leg				12				20				2	34
Total				32				33				3	68

PDI File #: **186242 G**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				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	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	3	0	0	3	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	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
8:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
8:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
8:45 AM	0	2	0	2	1	0	0	1	0	0	0	0	3
Total	0	4	0	4	2	0	0	2	0	0	0	0	6
Grand Total	0	5	0	5	5	0	0	5	0	0	0	0	10
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				5				5				0	10

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
8:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
8:45 AM	0	2	0	2	1	0	0	1	0	0	0	0	3
Total Volume	0	4	0	4	2	0	0	2	0	0	0	0	6
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.500	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	4	0	4	2	0	0	2	0	0	0	0	6
Exiting Leg				2				4				0	6
Total				6				6				0	12

PDI File #: **186242 G**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28)						North Main Street (Route 28)						Lewis Street						
	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	North Main Street (Route 28)						North Main Street (Route 28)						Lewis Street						
	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 #: **186242 G**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28)						North Main Street (Route 28)						Lewis Street						
	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	3	1	4	0	0	0	0	1	1	0	0	0	0	1	1	6
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	1	0	1	0	0	0	0	1	1	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	2
Total	0	0	0	4	1	5	0	0	0	1	2	3	0	0	0	0	2	2	10
8:00 AM	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	1	0	1	5
8:15 AM	0	0	0	2	1	3	0	0	0	2	2	4	0	0	0	1	1	2	9
8:30 AM	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	1	2	3	6
8:45 AM	0	0	0	0	0	0	0	0	0	4	4	8	0	0	0	0	0	0	8
Total	0	0	0	5	2	7	0	0	0	8	7	15	0	0	0	3	3	6	28
Grand Total	0	0	0	9	3	12	0	0	0	9	9	18	0	0	0	3	5	8	38
Approach %	0	0	0	75	25		0	0	0	50	50		0	0	0	37.5	62.5		
Total %	0	0	0	23.684	7.8947	31.579	0	0	0	23.684	23.684	47.368	0	0	0	7.8947	13.158	21.053	
Exiting Leg Total						12						18						8	38

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	North Main Street (Route 28)						North Main Street (Route 28)						Lewis Street						
	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
8:00 AM	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	1	0	1	5
8:15 AM	0	0	0	2	1	3	0	0	0	2	2	4	0	0	0	1	1	2	9
8:30 AM	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	1	2	3	6
8:45 AM	0	0	0	0	0	0	0	0	0	4	4	8	0	0	0	0	0	0	8
Total Volume	0	0	0	5	2	7	0	0	0	8	7	15	0	0	0	3	3	6	28
% Approach Total	0.0	0.0	0.0	71.4	28.6		0.0	0.0	0.0	53.3	46.7		0.0	0.0	0.0	50.0	50.0		
PHF	0.000	0.000	0.000	0.417	0.500	0.438	0.000	0.000	0.000	0.500	0.438	0.469	0.000	0.000	0.000	0.750	0.375	0.500	0.778
Entering Leg	0	0	0	5	2	7	0	0	0	8	7	15	0	0	0	3	3	6	28
Exiting Leg						7						15						6	28
Total						14						30						12	56

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	2	131	0	133	167	0	0	167	1	1	0	2	302
4:15 PM	0	96	0	96	142	2	0	144	0	2	0	2	242
4:30 PM	3	117	0	120	175	1	0	176	0	3	0	3	299
4:45 PM	2	97	0	99	167	2	0	169	1	1	0	2	270
Total	7	441	0	448	651	5	0	656	2	7	0	9	1113
5:00 PM	2	112	0	114	172	2	0	174	2	0	0	2	290
5:15 PM	1	94	0	95	138	1	0	139	1	0	0	1	235
5:30 PM	1	110	0	111	152	1	0	153	2	0	0	2	266
5:45 PM	2	98	0	100	153	0	0	153	0	0	0	0	253
Total	6	414	0	420	615	4	0	619	5	0	0	5	1044
Grand Total	13	855	0	868	1266	9	0	1275	7	7	0	14	2157
Approach %	1.5	98.5	0.0		99.3	0.7	0.0		50.0	50.0	0.0		
Total %	0.6	39.6	0.0	40.2	58.7	0.4	0.0	59.1	0.3	0.3	0.0	0.6	
Exiting Leg Total				1273				862				22	2157
Cars	12	844	0	856	1247	9	0	1256	7	7	0	14	2126
% Cars	92.3	98.7	0.0	98.6	98.5	100.0	0.0	98.5	100.0	100.0	0.0	100.0	98.6
Exiting Leg Total				1254				851				21	2126
Heavy Vehicles	1	11	0	12	19	0	0	19	0	0	0	0	31
% Heavy Vehicles	7.7	1.3	0.0	1.4	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	1.4
Exiting Leg Total				19				11				1	31

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	2	131	0	133	167	0	0	167	1	1	0	2	302
4:15 PM	0	96	0	96	142	2	0	144	0	2	0	2	242
4:30 PM	3	117	0	120	175	1	0	176	0	3	0	3	299
4:45 PM	2	97	0	99	167	2	0	169	1	1	0	2	270
Total Volume	7	441	0	448	651	5	0	656	2	7	0	9	1113
% Approach Total	1.6	98.4	0.0		99.2	0.8	0.0		22.2	77.8	0.0		
PHF	0.583	0.842	0.000	0.842	0.930	0.625	0.000	0.932	0.500	0.583	0.000	0.750	0.921
Cars	7	433	0	440	642	5	0	647	2	7	0	9	1096
Cars %	100.0	98.2	0.0	98.2	98.6	100.0	0.0	98.6	100.0	100.0	0.0	100.0	98.5
Heavy Vehicles	0	8	0	8	9	0	0	9	0	0	0	0	17
Heavy Vehicles %	0.0	1.8	0.0	1.8	1.4	0.0	0.0	1.4	0.0	0.0	0.0	0.0	1.5
Cars Enter Leg	7	433	0	440	642	5	0	647	2	7	0	9	1096
Heavy Enter Leg	0	8	0	8	9	0	0	9	0	0	0	0	17
Total Entering Leg	7	441	0	448	651	5	0	656	2	7	0	9	1113
Cars Exiting Leg				649				435				12	1096
Heavy Exiting Leg				9				8				0	17
Total Exiting Leg				658				443				12	1113

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	2	127	0	129	163	0	0	163	1	1	0	2	294
4:15 PM	0	96	0	96	141	2	0	143	0	2	0	2	241
4:30 PM	3	115	0	118	175	1	0	176	0	3	0	3	297
4:45 PM	2	95	0	97	163	2	0	165	1	1	0	2	264
Total	7	433	0	440	642	5	0	647	2	7	0	9	1096
5:00 PM	2	112	0	114	167	2	0	169	2	0	0	2	285
5:15 PM	1	93	0	94	135	1	0	136	1	0	0	1	231
5:30 PM	1	109	0	110	151	1	0	152	2	0	0	2	264
5:45 PM	1	97	0	98	152	0	0	152	0	0	0	0	250
Total	5	411	0	416	605	4	0	609	5	0	0	5	1030
Grand Total	12	844	0	856	1247	9	0	1256	7	7	0	14	2126
Approach %	1.4	98.6	0.0		99.3	0.7	0.0		50.0	50.0	0.0		
Total %	0.6	39.7	0.0	40.3	58.7	0.4	0.0	59.1	0.3	0.3	0.0	0.7	
Exiting Leg Total				1254				851				21	2126

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	2	127	0	129	163	0	0	163	1	1	0	2	294
4:15 PM	0	96	0	96	141	2	0	143	0	2	0	2	241
4:30 PM	3	115	0	118	175	1	0	176	0	3	0	3	297
4:45 PM	2	95	0	97	163	2	0	165	1	1	0	2	264
Total Volume	7	433	0	440	642	5	0	647	2	7	0	9	1096
% Approach Total	1.6	98.4	0.0		99.2	0.8	0.0		22.2	77.8	0.0		
PHF	0.583	0.852	0.000	0.853	0.917	0.625	0.000	0.919	0.500	0.583	0.000	0.750	0.923
Entering Leg	7	433	0	440	642	5	0	647	2	7	0	9	1096
Exiting Leg				649				435				12	1096
Total				1089				1082				21	2192

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	4	0	4	4	0	0	4	0	0	0	0	8
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
4:45 PM	0	2	0	2	4	0	0	4	0	0	0	0	6
Total	0	8	0	8	9	0	0	9	0	0	0	0	17
5:00 PM	0	0	0	0	5	0	0	5	0	0	0	0	5
5:15 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
5:30 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:45 PM	1	1	0	2	1	0	0	1	0	0	0	0	3
Total	1	3	0	4	10	0	0	10	0	0	0	0	14
Grand Total	1	11	0	12	19	0	0	19	0	0	0	0	31
Approach %	8.3	91.7	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	3.2	35.5	0.0	38.7	61.3	0.0	0.0	61.3	0.0	0.0	0.0	0.0	
Exiting Leg Total				19				11				1	31
Buses	0	7	0	7	3	0	0	3	0	0	0	0	10
% Buses	0.0	63.6	0.0	58.3	15.8	0.0	0.0	15.8	0.0	0.0	0.0	0.0	32.3
Exiting Leg Total				3				7				0	10
Single-Unit Trucks	1	3	0	4	15	0	0	15	0	0	0	0	19
% Single-Unit	100.0	27.3	0.0	33.3	78.9	0.0	0.0	78.9	0.0	0.0	0.0	0.0	61.3
Exiting Leg Total				15				3				1	19
Articulated Trucks	0	1	0	1	1	0	0	1	0	0	0	0	2
% Articulated	0.0	9.1	0.0	8.3	5.3	0.0	0.0	5.3	0.0	0.0	0.0	0.0	6.5
Exiting Leg Total				1				1				0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	4	0	4	4	0	0	4	0	0	0	0	8
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
4:45 PM	0	2	0	2	4	0	0	4	0	0	0	0	6
Total Volume	0	8	0	8	9	0	0	9	0	0	0	0	17
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.500	0.563	0.000	0.000	0.563	0.000	0.000	0.000	0.000	0.531
Buses	0	6	0	6	1	0	0	1	0	0	0	0	7
Buses %	0.0	75.0	0.0	75.0	11.1	0.0	0.0	11.1	0.0	0.0	0.0	0.0	41.2
Single-Unit Trucks	0	2	0	2	7	0	0	7	0	0	0	0	9
Single-Unit %	0.0	25.0	0.0	25.0	77.8	0.0	0.0	77.8	0.0	0.0	0.0	0.0	52.9
Articulated Trucks	0	0	0	0	1	0	0	1	0	0	0	0	1
Articulated %	0.0	0.0	0.0	0.0	11.1	0.0	0.0	11.1	0.0	0.0	0.0	0.0	5.9
Buses	0	6	0	6	1	0	0	1	0	0	0	0	7
Single-Unit Trucks	0	2	0	2	7	0	0	7	0	0	0	0	9
Articulated Trucks	0	0	0	0	1	0	0	1	0	0	0	0	1
Total Entering Leg	0	8	0	8	9	0	0	9	0	0	0	0	17
Buses				1				6				0	7
Single-Unit Trucks				7				2				0	9
Articulated Trucks				1				0				0	1
Total Exiting Leg				9				8				0	17

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	124	0	125	148	0	0	148	0	1	0	1	274
4:15 PM	0	92	0	92	128	2	0	130	0	1	0	1	223
4:30 PM	3	110	0	113	165	0	0	165	0	3	0	3	281
4:45 PM	2	85	0	87	157	2	0	159	1	1	0	2	248
Total	6	411	0	417	598	4	0	602	1	6	0	7	1026
5:00 PM	2	111	0	113	156	2	0	158	2	0	0	2	273
5:15 PM	1	90	0	91	126	1	0	127	1	0	0	1	219
5:30 PM	1	104	0	105	145	1	0	146	2	0	0	2	253
5:45 PM	1	90	0	91	145	0	0	145	0	0	0	0	236
Total	5	395	0	400	572	4	0	576	5	0	0	5	981
Grand Total	11	806	0	817	1170	8	0	1178	6	6	0	12	2007
Approach %	1.3	98.7	0.0		99.3	0.7	0.0		50.0	50.0	0.0		
Total %	0.5	40.2	0.0	40.7	58.3	0.4	0.0	58.7	0.3	0.3	0.0	0.6	
Exiting Leg Total				1176				812				19	2007

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	124	0	125	148	0	0	148	0	1	0	1	274
4:15 PM	0	92	0	92	128	2	0	130	0	1	0	1	223
4:30 PM	3	110	0	113	165	0	0	165	0	3	0	3	281
4:45 PM	2	85	0	87	157	2	0	159	1	1	0	2	248
Total Volume	6	411	0	417	598	4	0	602	1	6	0	7	1026
% Approach Total	1.4	98.6	0.0		99.3	0.7	0.0		14.3	85.7	0.0		
PHF	0.500	0.829	0.000	0.834	0.906	0.500	0.000	0.912	0.250	0.500	0.000	0.583	0.913
Entering Leg	6	411	0	417	598	4	0	602	1	6	0	7	1026
Exiting Leg				604				412				10	1026
Total				1021				1014				17	2052

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	3	0	4	15	0	0	15	1	0	0	1	20
4:15 PM	0	4	0	4	13	0	0	13	0	1	0	1	18
4:30 PM	0	5	0	5	10	1	0	11	0	0	0	0	16
4:45 PM	0	10	0	10	6	0	0	6	0	0	0	0	16
Total	1	22	0	23	44	1	0	45	1	1	0	2	70
5:00 PM	0	1	0	1	11	0	0	11	0	0	0	0	12
5:15 PM	0	3	0	3	9	0	0	9	0	0	0	0	12
5:30 PM	0	5	0	5	6	0	0	6	0	0	0	0	11
5:45 PM	0	7	0	7	7	0	0	7	0	0	0	0	14
Total	0	16	0	16	33	0	0	33	0	0	0	0	49
Grand Total	1	38	0	39	77	1	0	78	1	1	0	2	119
Approach %	2.6	97.4	0.0		98.7	1.3	0.0		50.0	50.0	0.0		
Total %	0.8	31.9	0.0	32.8	64.7	0.8	0.0	65.5	0.8	0.8	0.0	1.7	
Exiting Leg Total				78				39				2	119

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	3	0	4	15	0	0	15	1	0	0	1	20
4:15 PM	0	4	0	4	13	0	0	13	0	1	0	1	18
4:30 PM	0	5	0	5	10	1	0	11	0	0	0	0	16
4:45 PM	0	10	0	10	6	0	0	6	0	0	0	0	16
Total Volume	1	22	0	23	44	1	0	45	1	1	0	2	70
% Approach Total	4.3	95.7	0.0		97.8	2.2	0.0		50.0	50.0	0.0		
PHF	0.250	0.550	0.000	0.575	0.733	0.250	0.000	0.750	0.250	0.250	0.000	0.500	0.875
Entering Leg	1	22	0	23	44	1	0	45	1	1	0	2	70
Exiting Leg				45				23				2	70
Total				68				68				4	140

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	4	0	4	0	0	0	0	0	0	0	0	4
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	6	0	6	1	0	0	1	0	0	0	0	7
5:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
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	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	1	0	1	2	0	0	2	0	0	0	0	3
Grand Total	0	7	0	7	3	0	0	3	0	0	0	0	10
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	70.0	0.0	70.0	30.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				3				7				0	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28) from North				North Main Street (Route 28) from South				Lewis Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	4	0	4	0	0	0	0	0	0	0	0	4
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	6	0	6	1	0	0	1	0	0	0	0	7
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.375	0.000	0.375	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.438
Entering Leg	0	6	0	6	1	0	0	1	0	0	0	0	7
Exiting Leg				1				6				0	7
Total				7				7				0	14

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				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	3	0	0	3	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	1	4	0	0	4	0	0	0	0	5
Total	0	2	0	2	7	0	0	7	0	0	0	0	9
5:00 PM	0	0	0	0	4	0	0	4	0	0	0	0	4
5:15 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
5:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
5:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	1	1	0	2	8	0	0	8	0	0	0	0	10
Grand Total	1	3	0	4	15	0	0	15	0	0	0	0	19
Approach %	25.0	75.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	5.3	15.8	0.0	21.1	78.9	0.0	0.0	78.9	0.0	0.0	0.0	0.0	
Exiting Leg Total				15				3				1	19

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				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	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	1	4	0	0	4	0	0	0	0	5
5:00 PM	0	0	0	0	4	0	0	4	0	0	0	0	4
5:15 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
Total Volume	0	3	0	3	11	0	0	11	0	0	0	0	14
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.750	0.000	0.750	0.688	0.000	0.000	0.688	0.000	0.000	0.000	0.000	0.700
Entering Leg	0	3	0	3	11	0	0	11	0	0	0	0	14
Exiting Leg				11				3				0	14
Total				14				14				0	28

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				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	1	0	0	1	0	0	0	0	1
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	1	0	0	1	0	0	0	0	1
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	1	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	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	1	1	0	0	1	0	0	0	0	2
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				1				1				0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28)				North Main Street (Route 28)				Lewis Street				
	from North				from South				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	1	0	0	1	0	0	0	0	1
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	1	0	0	1	0	0	0	0	1
% Approach Total	0.0	0.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	1	0	0	1	0	0	0	0	1
Exiting Leg				1				0				0	1
Total				1				1				0	2

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	North Main Street (Route 28)						North Main Street (Route 28)						Lewis Street						
	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
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	1	1	1
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	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	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	0.0	0.0	0.0	100.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	
Exiting Leg Total						0						0						2	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	North Main Street (Route 28)						North Main Street (Route 28)						Lewis Street						
	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
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	1	1	1
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Exiting Leg						0						0						1	1
Total						0						0						2	2

PDI File #: **186242 GG**
Location: **N: North Main Street (Route 28) S: North Main Street (Route 28)**
Location: **W: Lewis Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	North Main Street (Route 28)						North Main Street (Route 28)						Lewis Street						
	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
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	2
4:30 PM	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	1	1	4
4:45 PM	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	1	1	3
Total	0	0	0	1	4	5	0	0	0	2	1	3	0	0	0	1	2	3	11
5:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	2	2	0	0	0	0	1	1	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	2	0	2	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
Total	0	0	0	0	3	3	0	0	0	0	4	4	0	0	0	4	1	5	12
Grand Total	0	0	0	1	7	8	0	0	0	2	5	7	0	0	0	5	3	8	23
Approach %	0	0	0	12.5	87.5		0	0	0	28.571	71.429		0	0	0	62.5	37.5		
Total %	0	0	0	4.3478	30.435	34.783	0	0	0	8.6957	21.739	30.435	0	0	0	21.739	13.043	34.783	
Exiting Leg Total						8						7						8	23

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	North Main Street (Route 28)						North Main Street (Route 28)						Lewis Street						
	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
4:45 PM	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	1	1	3
5:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	2	2	0	0	0	0	1	1	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	2	0	2	5
Total Volume	0	0	0	0	5	5	0	0	0	0	4	4	0	0	0	3	1	4	13
% Approach Total	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	75.0	25.0		
PHF	0.000	0.000	0.000	0.000	0.625	0.625	0.000	0.000	0.000	0.000	0.333	0.333	0.000	0.000	0.000	0.375	0.250	0.500	0.650
Entering Leg	0	0	0	0	5	5	0	0	0	0	4	4	0	0	0	3	1	4	13
Exiting Leg						5						4						4	13
Total						10						8						8	26

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Lewis Street					Pearson Street					Driveway					Pearson 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	1	0	1	0	2	0	4	0	0	4	1	0	0	0	1	0	20	1	0	21	28
7:15 AM	2	0	4	0	6	1	11	0	0	12	0	0	0	0	0	0	7	1	0	8	26
7:30 AM	2	0	2	0	4	0	13	0	0	13	0	0	0	0	0	0	18	0	0	18	35
7:45 AM	0	0	0	0	0	2	22	0	0	24	0	0	0	0	0	0	10	0	0	10	34
Total	5	0	7	0	12	3	50	0	0	53	1	0	0	0	1	0	55	2	0	57	123
8:00 AM	0	0	2	0	2	0	5	0	0	5	0	0	0	0	0	0	11	1	0	12	19
8:15 AM	2	0	1	0	3	0	8	0	0	8	0	0	0	0	0	0	15	4	0	19	30
8:30 AM	3	0	3	0	6	4	17	0	0	21	0	0	0	0	0	0	21	4	0	25	52
8:45 AM	0	0	0	0	0	1	16	0	0	17	0	0	0	0	0	0	17	3	0	20	37
Total	5	0	6	0	11	5	46	0	0	51	0	0	0	0	0	0	64	12	0	76	138
Grand Total	10	0	13	0	23	8	96	0	0	104	1	0	0	0	1	0	119	14	0	133	261
Approach %	43.5	0.0	56.5	0.0		7.7	92.3	0.0	0.0		100.0	0.0	0.0	0.0		0.0	89.5	10.5	0.0		
Total %	3.8	0.0	5.0	0.0	8.8	3.1	36.8	0.0	0.0	39.8	0.4	0.0	0.0	0.0	0.4	0.0	45.6	5.4	0.0	51.0	
Exiting Leg Total					22					133					0					106	261
Cars	7	0	10	0	17	4	94	0	0	98	1	0	0	0	1	0	112	12	0	124	240
% Cars	70.0	0.0	76.9	0.0	73.9	50.0	97.9	0.0	0.0	94.2	100.0	0.0	0.0	0.0	100.0	0.0	94.1	85.7	0.0	93.2	92.0
Exiting Leg Total					16					123					0					101	240
Heavy Vehicles	3	0	3	0	6	4	2	0	0	6	0	0	0	0	0	0	7	2	0	9	21
% Heavy Vehicles	30.0	0.0	23.1	0.0	26.1	50.0	2.1	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	5.9	14.3	0.0	6.8	8.0
Exiting Leg Total					6					10					0					5	21

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Lewis Street					Pearson Street					Driveway					Pearson 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	2	0	2	0	5	0	0	5	0	0	0	0	0	0	11	1	0	12	19
8:15 AM	2	0	1	0	3	0	8	0	0	8	0	0	0	0	0	0	15	4	0	19	30
8:30 AM	3	0	3	0	6	4	17	0	0	21	0	0	0	0	0	0	21	4	0	25	52
8:45 AM	0	0	0	0	0	1	16	0	0	17	0	0	0	0	0	0	17	3	0	20	37
Total Volume	5	0	6	0	11	5	46	0	0	51	0	0	0	0	0	0	64	12	0	76	138
% Approach Total	45.5	0.0	54.5	0.0		9.8	90.2	0.0	0.0		0.0	0.0	0.0	0.0		0.0	84.2	15.8	0.0		
PHF	0.417	0.000	0.500	0.000	0.458	0.313	0.676	0.000	0.000	0.607	0.000	0.000	0.000	0.000	0.000	0.000	0.762	0.750	0.000	0.760	0.663
Cars	4	0	6	0	10	2	44	0	0	46	0	0	0	0	0	0	59	10	0	69	125
Cars %	80.0	0.0	100.0	0.0	90.9	40.0	95.7	0.0	0.0	90.2	0.0	0.0	0.0	0.0	0.0	0.0	92.2	83.3	0.0	90.8	90.6
Heavy Vehicles	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	5	2	0	7	13
Heavy Vehicles %	20.0	0.0	0.0	0.0	9.1	60.0	4.3	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0	0.0	7.8	16.7	0.0	9.2	9.4
Cars Enter Leg	4	0	6	0	10	2	44	0	0	46	0	0	0	0	0	0	59	10	0	69	125
Heavy Enter Leg	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	5	2	0	7	13
Total Entering Leg	5	0	6	0	11	5	46	0	0	51	0	0	0	0	0	0	64	12	0	76	138
Cars Exiting Leg					12					65					0					48	125
Heavy Exiting Leg					5					5					0					3	13
Total Exiting Leg					17					70					0					51	138

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Lewis Street					Pearson Street					Driveway					Pearson 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	1	0	1	0	2	0	4	0	0	4	1	0	0	0	1	0	20	1	0	21	28
7:15 AM	0	0	1	0	1	1	11	0	0	12	0	0	0	0	0	0	7	1	0	8	21
7:30 AM	2	0	2	0	4	0	13	0	0	13	0	0	0	0	0	0	16	0	0	16	33
7:45 AM	0	0	0	0	0	1	22	0	0	23	0	0	0	0	0	0	10	0	0	10	33
Total	3	0	4	0	7	2	50	0	0	52	1	0	0	0	1	0	53	2	0	55	115
8:00 AM	0	0	2	0	2	0	4	0	0	4	0	0	0	0	0	0	10	1	0	11	17
8:15 AM	2	0	1	0	3	0	8	0	0	8	0	0	0	0	0	0	14	4	0	18	29
8:30 AM	2	0	3	0	5	2	16	0	0	18	0	0	0	0	0	0	18	3	0	21	44
8:45 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	17	2	0	19	35
Total	4	0	6	0	10	2	44	0	0	46	0	0	0	0	0	0	59	10	0	69	125
Grand Total	7	0	10	0	17	4	94	0	0	98	1	0	0	0	1	0	112	12	0	124	240
Approach %	41.2	0.0	58.8	0.0		4.1	95.9	0.0	0.0		100.0	0.0	0.0	0.0		0.0	90.3	9.7	0.0		
Total %	2.9	0.0	4.2	0.0	7.1	1.7	39.2	0.0	0.0	40.8	0.4	0.0	0.0	0.0	0.4	0.0	46.7	5.0	0.0	51.7	
Exiting Leg Total					16					123					0					101	240

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Lewis Street					Pearson Street					Driveway					Pearson 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	2	0	2	0	4	0	0	4	0	0	0	0	0	0	10	1	0	11	17
8:15 AM	2	0	1	0	3	0	8	0	0	8	0	0	0	0	0	0	14	4	0	18	29
8:30 AM	2	0	3	0	5	2	16	0	0	18	0	0	0	0	0	0	18	3	0	21	44
8:45 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	17	2	0	19	35
Total Volume	4	0	6	0	10	2	44	0	0	46	0	0	0	0	0	0	59	10	0	69	125
% Approach Total	40.0	0.0	60.0	0.0		4.3	95.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	85.5	14.5	0.0		
PHF	0.500	0.000	0.500	0.000	0.500	0.250	0.688	0.000	0.000	0.639	0.000	0.000	0.000	0.000	0.000	0.000	0.819	0.625	0.000	0.821	0.710
Entering Leg	4	0	6	0	10	2	44	0	0	46	0	0	0	0	0	0	59	10	0	69	125
Exiting Leg					12					65					0					48	125
Total					22					111					0					117	250

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Lewis Street					Pearson Street					Driveway					Pearson 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	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	2	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	3	0	5	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	8
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:30 AM	1	0	0	0	1	2	1	0	0	3	0	0	0	0	0	0	3	1	0	4	8
8:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2
Total	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	5	2	0	7	13
Grand Total	3	0	3	0	6	4	2	0	0	6	0	0	0	0	0	0	7	2	0	9	21
Approach %	50.0	0.0	50.0	0.0		66.7	33.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	77.8	22.2	0.0		
Total %	14.3	0.0	14.3	0.0	28.6	19.0	9.5	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	0.0	33.3	9.5	0.0	42.9	
Exiting Leg Total					6					10					0					5	21
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0
Single-Unit Trucks	3	0	3	0	6	4	2	0	0	6	0	0	0	0	0	0	6	2	0	8	20
% Single-Unit	100.0	0.0	100.0	0.0	100.0	100.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	85.7	100.0	0.0	88.9	95.2
Exiting Leg Total					6					9					0					5	20
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.0	0.0	11.1	4.8
Exiting Leg Total					0					1					0					0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Lewis Street					Pearson Street					Driveway					Pearson 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	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:30 AM	1	0	0	0	1	2	1	0	0	3	0	0	0	0	0	0	3	1	0	4	8
8:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2
Total Volume	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	5	2	0	7	13
% Approach Total	100.0	0.0	0.0	0.0		60.0	40.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	71.4	28.6	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.375	0.500	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.000	0.417	0.500	0.000	0.438	0.406
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	4	2	0	6	12
Single-Unit %	100.0	0.0	0.0	0.0	100.0	100.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	100.0	0.0	85.7	92.3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	14.3	7.7
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	4	2	0	6	12
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Entering Leg	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	5	2	0	7	13
Buses					0					0					0					0	0
Single-Unit Trucks					5					4					0					3	12
Articulated Trucks					0					1					0					0	1
Total Exiting Leg					5					5					0					3	13

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street from North					Pearson Street from East					Driveway from South					Pearson 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	1	0	1	0	2	0	4	0	0	4	1	0	0	0	1	0	16	1	0	17	24
7:15 AM	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	0	7	1	0	8	17
7:30 AM	1	0	1	0	2	0	12	0	0	12	0	0	0	0	0	0	14	0	0	14	28
7:45 AM	0	0	0	0	0	1	21	0	0	22	0	0	0	0	0	0	10	0	0	10	32
Total	2	0	2	0	4	2	45	0	0	47	1	0	0	0	1	0	47	2	0	49	101
8:00 AM	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	0	9	0	0	9	13
8:15 AM	1	0	1	0	2	0	6	0	0	6	0	0	0	0	0	0	13	1	0	14	22
8:30 AM	0	0	3	0	3	1	15	0	0	16	0	0	0	0	0	0	16	3	0	19	38
8:45 AM	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	15	0	0	15	27
Total	1	0	6	0	7	1	35	0	0	36	0	0	0	0	0	0	53	4	0	57	100
Grand Total	3	0	8	0	11	3	80	0	0	83	1	0	0	0	1	0	100	6	0	106	201
Approach %	27.3	0.0	72.7	0.0		3.6	96.4	0.0	0.0		100.0	0.0	0.0	0.0		0.0	94.3	5.7	0.0		
Total %	1.5	0.0	4.0	0.0	5.5	1.5	39.8	0.0	0.0	41.3	0.5	0.0	0.0	0.0	0.5	0.0	49.8	3.0	0.0	52.7	
Exiting Leg Total					9					109					0					83	201

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Lewis Street from North					Pearson Street from East					Driveway from South					Pearson 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	1	21	0	0	22	0	0	0	0	0	0	10	0	0	10	32
8:00 AM	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	0	9	0	0	9	13
8:15 AM	1	0	1	0	2	0	6	0	0	6	0	0	0	0	0	0	13	1	0	14	22
8:30 AM	0	0	3	0	3	1	15	0	0	16	0	0	0	0	0	0	16	3	0	19	38
Total Volume	1	0	6	0	7	2	44	0	0	46	0	0	0	0	0	0	48	4	0	52	105
% Approach Total	14.3	0.0	85.7	0.0		4.3	95.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	92.3	7.7	0.0		
PHF	0.250	0.000	0.500	0.000	0.583	0.500	0.524	0.000	0.000	0.523	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.333	0.000	0.684	0.691
Entering Leg	1	0	6	0	7	2	44	0	0	46	0	0	0	0	0	0	48	4	0	52	105
Exiting Leg					6					54					0					45	105
Total					13					100					0					97	210

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street					Pearson Street					Driveway					Pearson 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	0	0	0	0	0	0	4	0	0	4	4
7:15 AM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	4
7:30 AM	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	5
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	1	0	2	0	3	0	5	0	0	5	0	0	0	0	0	0	6	0	0	6	14
8:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	4
8:15 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	3	0	4	7
8:30 AM	2	0	0	0	2	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	6
8:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	2	0	4	8
Total	3	0	0	0	3	1	9	0	0	10	0	0	0	0	0	0	6	6	0	12	25
Grand Total	4	0	2	0	6	1	14	0	0	15	0	0	0	0	0	0	12	6	0	18	39
Approach %	66.7	0.0	33.3	0.0		6.7	93.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	66.7	33.3	0.0		
Total %	10.3	0.0	5.1	0.0	15.4	2.6	35.9	0.0	0.0	38.5	0.0	0.0	0.0	0.0	0.0	0.0	30.8	15.4	0.0	46.2	
Exiting Leg Total					7					14					0					18	39

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Lewis Street					Pearson Street					Driveway					Pearson 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	1	0	2	4
8:15 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	3	0	4	7
8:30 AM	2	0	0	0	2	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	6
8:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	2	0	4	8
Total Volume	3	0	0	0	3	1	9	0	0	10	0	0	0	0	0	0	6	6	0	12	25
% Approach Total	100.0	0.0	0.0	0.0		10.0	90.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0		
PHF	0.375	0.000	0.000	0.000	0.375	0.250	0.563	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.500	0.000	0.750	0.781
Entering Leg	3	0	0	0	3	1	9	0	0	10	0	0	0	0	0	0	6	6	0	12	25
Exiting Leg					7					6					0					12	25
Total					10					16					0					24	50

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street					Pearson Street					Driveway					Pearson 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	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lewis Street					Pearson Street					Driveway					Pearson 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	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street					Pearson Street					Driveway					Pearson 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	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	2	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	3	0	5	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	8
8:00 AM	0	0	0	0	0	0	1	0	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	1	0	0	1	1
8:30 AM	1	0	0	0	1	2	1	0	0	3	0	0	0	0	0	0	3	1	0	4	8
8:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2
Total	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	4	2	0	6	12
Grand Total	3	0	3	0	6	4	2	0	0	6	0	0	0	0	0	0	6	2	0	8	20
Approach %	50.0	0.0	50.0	0.0		66.7	33.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	75.0	25.0	0.0		
Total %	15.0	0.0	15.0	0.0	30.0	20.0	10.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	10.0	0.0	40.0	
Exiting Leg Total					6					9					0					5	20

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Lewis Street					Pearson Street					Driveway					Pearson 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	1	0	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	1	0	0	1	1
8:30 AM	1	0	0	0	1	2	1	0	0	3	0	0	0	0	0	0	3	1	0	4	8
8:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2
Total Volume	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	4	2	0	6	12
% Approach Total	100.0	0.0	0.0	0.0		60.0	40.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	66.7	33.3	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.375	0.500	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.000	0.333	0.500	0.000	0.375	0.375
Entering Leg	1	0	0	0	1	3	2	0	0	5	0	0	0	0	0	0	4	2	0	6	12
Exiting Leg					5					4					0					3	12
Total					6					9					0					9	24

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street					Pearson Street					Driveway					Pearson 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	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	100.0	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	100.0	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:

7:15 AM	Lewis Street					Pearson Street					Driveway					Pearson 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
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	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	0	0	0	0	0	0	0	0	0	0	1	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	100.0	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	0.250	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	1	0	0	1	1
Exiting Leg					0					1					0					0	1
Total					0					1					0					1	2

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Lewis Street							Pearson Street							Driveway							Pearson 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	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
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	1	1	1
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		
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	100.0	100.0	
Exiting Leg Total							0							0							0							1	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Lewis Street							Pearson Street							Driveway							Pearson 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	1	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Exiting Leg							0							0							0							1	1
Total							0							0							0							2	2

PDI File #: **186242 H**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street							Pearson Street							Driveway							Pearson 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	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	2	4
7:15 AM	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
7:30 AM	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	1	1	2
7:45 AM	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	9	11
Total	0	0	0	0	2	4	6	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	9	4	13	20
8:00 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	2	0	2	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	0	0	0	0	0	4	4	4
8:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	2	3	5
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	1	1	1
Total	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	3	7	10	13
Grand Total	0	0	0	0	2	5	7	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	12	11	23	33
Approach %	0	0	0	0	28.6	71.4		0	0	0	0	0	0		0	0	0	0	66.7	33.3		0	0	0	0	52.2	47.8		
Total %	0	0	0	0	6.06	15.2	21.2	0	0	0	0	0	0	0	0	0	0	0	6.06	3.03	9.09	0	0	0	0	36.4	33.3	69.7	
Exiting Leg Total							7							0							3							23	33

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Lewis Street							Pearson Street							Driveway							Pearson 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
7:45 AM	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	9	11
8:00 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	2	0	2	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	0	0	0	0	0	4	4	4
8:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	2	3	5
Total Volume	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	11	7	18	23
% 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	50.0	50.0		0.0	0.0	0.0	0.0	61.1	38.9		
PHF	0.000	0.000	0.000	0.000	0.000	0.375	0.375	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	0.000	0.000	0.000	0.000	0.344	0.438	0.500	0.523
Entering Leg	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	11	7	18	23
Exiting Leg							3							0							2							18	23
Total							6							0							4							36	46

PDI File #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Lewis Street					Pearson Street					Driveway					Pearson 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	1	0	1	0	13	0	0	13	0	0	0	0	0	0	7	1	0	8	22
4:15 PM	0	0	2	0	2	0	21	0	0	21	0	0	0	0	0	0	13	2	0	15	38
4:30 PM	1	0	5	0	6	1	8	0	0	9	1	0	0	0	1	0	9	2	0	11	27
4:45 PM	0	0	1	0	1	0	22	0	0	22	0	0	0	0	0	0	11	1	0	12	35
Total	1	0	9	0	10	1	64	0	0	65	1	0	0	0	1	0	40	6	0	46	122
5:00 PM	0	0	1	0	1	0	18	0	0	18	0	0	0	0	0	0	18	0	0	18	37
5:15 PM	1	0	1	0	2	0	13	0	0	13	0	0	0	0	0	0	21	1	0	22	37
5:30 PM	1	0	1	0	2	1	19	0	0	20	0	0	0	0	0	0	21	1	0	22	44
5:45 PM	0	0	1	0	1	0	16	0	0	16	0	0	0	0	0	0	15	0	0	15	32
Total	2	0	4	0	6	1	66	0	0	67	0	0	0	0	0	0	75	2	0	77	150
Grand Total	3	0	13	0	16	2	130	0	0	132	1	0	0	0	1	0	115	8	0	123	272
Approach %	18.8	0.0	81.3	0.0		1.5	98.5	0.0	0.0		100.0	0.0	0.0	0.0		0.0	93.5	6.5	0.0		
Total %	1.1	0.0	4.8	0.0	5.9	0.7	47.8	0.0	0.0	48.5	0.4	0.0	0.0	0.0	0.4	0.0	42.3	2.9	0.0	45.2	
Exiting Leg Total					10					129					0					133	272
Cars	3	0	12	0	15	2	128	0	0	130	1	0	0	0	1	0	112	7	0	119	265
% Cars	100.0	0.0	92.3	0.0	93.8	100.0	98.5	0.0	0.0	98.5	100.0	0.0	0.0	0.0	100.0	0.0	97.4	87.5	0.0	96.7	97.4
Exiting Leg Total					9					125					0					131	265
Heavy Vehicles	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	3	1	0	4	7
% Heavy Vehicles	0.0	0.0	7.7	0.0	6.3	0.0	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	2.6	12.5	0.0	3.3	2.6
Exiting Leg Total					1					4					0					2	7

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Lewis Street					Pearson Street					Driveway					Pearson 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
4:45 PM	0	0	1	0	1	0	22	0	0	22	0	0	0	0	0	0	11	1	0	12	35
5:00 PM	0	0	1	0	1	0	18	0	0	18	0	0	0	0	0	0	18	0	0	18	37
5:15 PM	1	0	1	0	2	0	13	0	0	13	0	0	0	0	0	0	21	1	0	22	37
5:30 PM	1	0	1	0	2	1	19	0	0	20	0	0	0	0	0	0	21	1	0	22	44
Total Volume	2	0	4	0	6	1	72	0	0	73	0	0	0	0	0	0	71	3	0	74	153
% Approach Total	33.3	0.0	66.7	0.0		1.4	98.6	0.0	0.0		0.0	0.0	0.0	0.0		0.0	95.9	4.1	0.0		
PHF	0.500	0.000	1.000	0.000	0.750	0.250	0.818	0.000	0.000	0.830	0.000	0.000	0.000	0.000	0.000	0.000	0.845	0.750	0.000	0.841	0.869
Cars	2	0	4	0	6	1	71	0	0	72	0	0	0	0	0	0	68	2	0	70	148
Cars %	100.0	0.0	100.0	0.0	100.0	100.0	98.6	0.0	0.0	98.6	0.0	0.0	0.0	0.0	0.0	0.0	95.8	66.7	0.0	94.6	96.7
Heavy Vehicles	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	5
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	4.2	33.3	0.0	5.4	3.3
Cars Enter Leg	2	0	4	0	6	1	71	0	0	72	0	0	0	0	0	0	68	2	0	70	148
Heavy Enter Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	5
Total Entering Leg	2	0	4	0	6	1	72	0	0	73	0	0	0	0	0	0	71	3	0	74	153
Cars Exiting Leg					3					72					0					73	148
Heavy Exiting Leg					1					3					0					1	5
Total Exiting Leg					4					75					0					74	153

PDI File #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Lewis Street					Pearson Street					Driveway					Pearson 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	1	0	1	0	12	0	0	12	0	0	0	0	0	0	7	1	0	8	21
4:15 PM	0	0	2	0	2	0	21	0	0	21	0	0	0	0	0	0	13	2	0	15	38
4:30 PM	1	0	5	0	6	1	8	0	0	9	1	0	0	0	1	0	9	2	0	11	27
4:45 PM	0	0	1	0	1	0	22	0	0	22	0	0	0	0	0	0	11	0	0	11	34
Total	1	0	9	0	10	1	63	0	0	64	1	0	0	0	1	0	40	5	0	45	120
5:00 PM	0	0	1	0	1	0	17	0	0	17	0	0	0	0	0	0	15	0	0	15	33
5:15 PM	1	0	1	0	2	0	13	0	0	13	0	0	0	0	0	0	21	1	0	22	37
5:30 PM	1	0	1	0	2	1	19	0	0	20	0	0	0	0	0	0	21	1	0	22	44
5:45 PM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	15	0	0	15	31
Total	2	0	3	0	5	1	65	0	0	66	0	0	0	0	0	0	72	2	0	74	145
Grand Total	3	0	12	0	15	2	128	0	0	130	1	0	0	0	1	0	112	7	0	119	265
Approach %	20.0	0.0	80.0	0.0		1.5	98.5	0.0	0.0		100.0	0.0	0.0	0.0		0.0	94.1	5.9	0.0		
Total %	1.1	0.0	4.5	0.0	5.7	0.8	48.3	0.0	0.0	49.1	0.4	0.0	0.0	0.0	0.4	0.0	42.3	2.6	0.0	44.9	
Exiting Leg Total					9					125					0					131	265

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Lewis Street					Pearson Street					Driveway					Pearson 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
4:45 PM	0	0	1	0	1	0	22	0	0	22	0	0	0	0	0	0	11	0	0	11	34
5:00 PM	0	0	1	0	1	0	17	0	0	17	0	0	0	0	0	0	15	0	0	15	33
5:15 PM	1	0	1	0	2	0	13	0	0	13	0	0	0	0	0	0	21	1	0	22	37
5:30 PM	1	0	1	0	2	1	19	0	0	20	0	0	0	0	0	0	21	1	0	22	44
Total Volume	2	0	4	0	6	1	71	0	0	72	0	0	0	0	0	0	68	2	0	70	148
% Approach Total	33.3	0.0	66.7	0.0		1.4	98.6	0.0	0.0		0.0	0.0	0.0	0.0		0.0	97.1	2.9	0.0		
PHF	0.500	0.000	1.000	0.000	0.750	0.250	0.807	0.000	0.000	0.818	0.000	0.000	0.000	0.000	0.000	0.000	0.810	0.500	0.000	0.795	0.841
Entering Leg	2	0	4	0	6	1	71	0	0	72	0	0	0	0	0	0	68	2	0	70	148
Exiting Leg					3					72					0					73	148
Total					9					144					0					143	296

PDI File #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Lewis Street					Pearson Street					Driveway					Pearson 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	1	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	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	2
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
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	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	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	5
Grand Total	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	3	1	0	4	7
Approach %	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	75.0	25.0	0.0		
Total %	0.0	0.0	14.3	0.0	14.3	0.0	28.6	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	0.0	42.9	14.3	0.0	57.1	
Exiting Leg Total					1					4					0					2	7
Buses	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Buses	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	0.0	0.0	0.0	0.0	14.3
Exiting Leg Total					0					0					0					1	1
Single-Unit Trucks	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	6
% Single-Unit	0.0	0.0	100.0	0.0	100.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	100.0	85.7
Exiting Leg Total					1					4					0					1	6
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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:

4:15 PM	Lewis Street					Pearson Street					Driveway					Pearson 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
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	5
% 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	75.0	25.0	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	0.250	0.000	0.333	0.313
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	5
Single-Unit %	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	100.0	100.0	0.0	100.0	100.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	5
Buses					0					0					0					0	0
Single-Unit Trucks					1					3					0					1	5
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					1					3					0					1	5

PDI File #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street from North					Pearson Street from East					Driveway from South					Pearson 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	1	0	1	0	12	0	0	12	0	0	0	0	0	0	7	1	0	8	21
4:15 PM	0	0	1	0	1	0	19	0	0	19	0	0	0	0	0	0	10	1	0	11	31
4:30 PM	0	0	5	0	5	1	7	0	0	8	1	0	0	0	1	0	9	2	0	11	25
4:45 PM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	9	0	0	9	29
Total	0	0	7	0	7	1	58	0	0	59	1	0	0	0	1	0	35	4	0	39	106
5:00 PM	0	0	1	0	1	0	15	0	0	15	0	0	0	0	0	0	14	0	0	14	30
5:15 PM	0	0	1	0	1	0	12	0	0	12	0	0	0	0	0	0	21	0	0	21	34
5:30 PM	1	0	1	0	2	1	19	0	0	20	0	0	0	0	0	0	21	1	0	22	44
5:45 PM	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	13	0	0	13	28
Total	1	0	3	0	4	1	61	0	0	62	0	0	0	0	0	0	69	1	0	70	136
Grand Total	1	0	10	0	11	2	119	0	0	121	1	0	0	0	1	0	104	5	0	109	242
Approach %	9.1	0.0	90.9	0.0		1.7	98.3	0.0	0.0		100.0	0.0	0.0	0.0		0.0	95.4	4.6	0.0		
Total %	0.4	0.0	4.1	0.0	4.5	0.8	49.2	0.0	0.0	50.0	0.4	0.0	0.0	0.0	0.4	0.0	43.0	2.1	0.0	45.0	
Exiting Leg Total					7					115					0					120	242

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Lewis Street from North					Pearson Street from East					Driveway from South					Pearson 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
4:45 PM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	9	0	0	9	29
5:00 PM	0	0	1	0	1	0	15	0	0	15	0	0	0	0	0	0	14	0	0	14	30
5:15 PM	0	0	1	0	1	0	12	0	0	12	0	0	0	0	0	0	21	0	0	21	34
5:30 PM	1	0	1	0	2	1	19	0	0	20	0	0	0	0	0	0	21	1	0	22	44
Total Volume	1	0	3	0	4	1	66	0	0	67	0	0	0	0	0	0	65	1	0	66	137
% Approach Total	25.0	0.0	75.0	0.0		1.5	98.5	0.0	0.0		0.0	0.0	0.0	0.0		0.0	98.5	1.5	0.0		
PHF	0.250	0.000	0.750	0.000	0.500	0.250	0.825	0.000	0.000	0.838	0.000	0.000	0.000	0.000	0.000	0.000	0.774	0.250	0.000	0.750	0.778
Entering Leg	1	0	3	0	4	1	66	0	0	67	0	0	0	0	0	0	65	1	0	66	137
Exiting Leg					2					68					0					67	137
Total					6					135					0					133	274

PDI File #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street					Pearson Street					Driveway					Pearson 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	1	0	1	0	2	0	0	2	0	0	0	0	0	0	3	1	0	4	7
4:30 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:45 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	0	5	0	0	5	0	0	0	0	0	0	5	1	0	6	14
5:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
5:15 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	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	2	0	0	2	2
Total	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	3	1	0	4	8
Grand Total	2	0	2	0	4	0	8	0	0	8	0	0	0	0	0	0	8	2	0	10	22
Approach %	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	80.0	20.0	0.0		
Total %	9.1	0.0	9.1	0.0	18.2	0.0	36.4	0.0	0.0	36.4	0.0	0.0	0.0	0.0	0.0	0.0	36.4	9.1	0.0	45.5	
Exiting Leg Total					2					10					0					10	22

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Lewis Street					Pearson Street					Driveway					Pearson 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
4:15 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	3	1	0	4	7
4:30 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	5
5:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total Volume	1	0	2	0	3	0	7	0	0	7	0	0	0	0	0	0	6	1	0	7	17
% Approach Total	33.3	0.0	66.7	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	85.7	14.3	0.0		
PHF	0.250	0.000	0.500	0.000	0.750	0.000	0.875	0.000	0.000	0.875	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.438	0.607
Entering Leg	1	0	2	0	3	0	7	0	0	7	0	0	0	0	0	0	6	1	0	7	17
Exiting Leg					1					8					0					8	17
Total					4					15					0					15	34

PDI File #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street					Pearson Street					Driveway					Pearson 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	1	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	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	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	Lewis Street					Pearson Street					Driveway					Pearson 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	1	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	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total 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 #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street					Pearson Street					Driveway					Pearson 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	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
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	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	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	5
Grand Total	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	6
Approach %	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	75.0	25.0	0.0		
Total %	0.0	0.0	16.7	0.0	16.7	0.0	16.7	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	50.0	16.7	0.0	66.7	
Exiting Leg Total					1					4					0					1	6

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Lewis Street					Pearson Street					Driveway					Pearson 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
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	5
% 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	75.0	25.0	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	0.250	0.000	0.333	0.313
Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	5
Exiting Leg					1					3					0					1	5
Total					1					4					0					5	10

PDI File #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street					Pearson Street					Driveway					Pearson 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Lewis Street					Pearson Street					Driveway					Pearson 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Lewis Street							Pearson Street							Driveway							Pearson 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	1	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	0.0	0.0	0.0	100.0	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	100.0	0.0	100.0	
Exiting Leg Total							0							0							0							1	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Lewis Street							Pearson Street							Driveway							Pearson 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	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	1	0	1	1
Exiting Leg							0							0							0							1	1
Total							0							0							0							2	2

PDI File #: **186242 HH**
Location: **N: Lewis Street S: Driveway**
Location: **E: Pearson Street W: Pearson Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Lewis Street from North							Pearson Street from East							Driveway from South							Pearson Street 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	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	8	9
4:15 PM	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5
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	5	2	7	7
4:45 PM	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2	7
Total	0	0	0	0	3	6	9	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	9	8	17	28
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	1	5	6	6
5:15 PM	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	1	17	18	20
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	6	1	7	7
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	2	0	2	2
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	10	23	33	35
Grand Total	0	0	0	0	3	6	9	0	0	0	0	0	0	0	0	0	0	0	2	2	4	0	0	0	0	19	31	50	63
Approach %	0	0	0	0	33.3	66.7		0	0	0	0	0	0		0	0	0	0	50	50		0	0	0	0	38	62		
Total %	0	0	0	0	4.76	9.52	14.3	0	0	0	0	0	0	0	0	0	0	0	3.17	3.17	6.35	0	0	0	0	30.2	49.2	79.4	
Exiting Leg Total							9							0							4							50	63

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Lewis Street from North							Pearson Street from East							Driveway from South							Pearson Street 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	5	2	7	7
4:45 PM	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2	7
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	1	5	6	6
5:15 PM	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	1	17	18	20
Total Volume	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	9	24	33	40
% 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	33.3	66.7		0.0	0.0	0.0	0.0	27.3	72.7		
PHF	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	0.000	0.000	0.000	0.000	0.250	0.250	0.375	0.000	0.000	0.000	0.000	0.450	0.353	0.458	0.500
Entering Leg	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	9	24	33	40
Exiting Leg							4							0							3							33	40
Total							8							0							6							66	80

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	73	0	73	84	0	0	84	30	14	0	44	201
7:15 AM	0	81	0	81	92	0	0	92	35	12	0	47	220
7:30 AM	0	104	0	104	96	0	0	96	31	12	0	43	243
7:45 AM	0	141	0	141	85	0	0	85	23	20	0	43	269
Total	0	399	0	399	357	0	0	357	119	58	0	177	933
8:00 AM	0	115	0	115	91	0	0	91	37	11	0	48	254
8:15 AM	0	100	0	100	94	0	0	94	33	20	0	53	247
8:30 AM	0	98	0	98	117	0	0	117	45	25	0	70	285
8:45 AM	0	96	1	97	138	0	0	138	38	21	0	59	294
Total	0	409	1	410	440	0	0	440	153	77	0	230	1080
Grand Total	0	808	1	809	797	0	0	797	272	135	0	407	2013
Approach %	0.0	99.9	0.1		100.0	0.0	0.0		66.8	33.2	0.0		
Total %	0.0	40.1	0.0	40.2	39.6	0.0	0.0	39.6	13.5	6.7	0.0	20.2	
Exiting Leg Total				933				1080				0	2013
Cars	0	789	1	790	776	0	0	776	262	132	0	394	1960
% Cars	0.0	97.6	100.0	97.7	97.4	0.0	0.0	97.4	96.3	97.8	0.0	96.8	97.4
Exiting Leg Total				909				1051				0	1960
Heavy Vehicles	0	19	0	19	21	0	0	21	10	3	0	13	53
% Heavy Vehicles	0.0	2.4	0.0	2.3	2.6	0.0	0.0	2.6	3.7	2.2	0.0	3.2	2.6
Exiting Leg Total				24				29				0	53

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	115	0	115	91	0	0	91	37	11	0	48	254
8:15 AM	0	100	0	100	94	0	0	94	33	20	0	53	247
8:30 AM	0	98	0	98	117	0	0	117	45	25	0	70	285
8:45 AM	0	96	1	97	138	0	0	138	38	21	0	59	294
Total Volume	0	409	1	410	440	0	0	440	153	77	0	230	1080
% Approach Total	0.0	99.8	0.2		100.0	0.0	0.0		66.5	33.5	0.0		
PHF	0.000	0.889	0.250	0.891	0.797	0.000	0.000	0.797	0.850	0.770	0.000	0.821	0.918
Cars	0	402	1	403	431	0	0	431	149	76	0	225	1059
Cars %	0.0	98.3	100.0	98.3	98.0	0.0	0.0	98.0	97.4	98.7	0.0	97.8	98.1
Heavy Vehicles	0	7	0	7	9	0	0	9	4	1	0	5	21
Heavy Vehicles %	0.0	1.7	0.0	1.7	2.0	0.0	0.0	2.0	2.6	1.3	0.0	2.2	1.9
Cars Enter Leg	0	402	1	403	431	0	0	431	149	76	0	225	1059
Heavy Enter Leg	0	7	0	7	9	0	0	9	4	1	0	5	21
Total Entering Leg	0	409	1	410	440	0	0	440	153	77	0	230	1080
Cars Exiting Leg				508				551				0	1059
Heavy Exiting Leg				10				11				0	21
Total Exiting Leg				518				562				0	1080

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	71	0	71	77	0	0	77	27	14	0	41	189
7:15 AM	0	78	0	78	89	0	0	89	33	12	0	45	212
7:30 AM	0	99	0	99	95	0	0	95	30	12	0	42	236
7:45 AM	0	139	0	139	84	0	0	84	23	18	0	41	264
Total	0	387	0	387	345	0	0	345	113	56	0	169	901
8:00 AM	0	112	0	112	89	0	0	89	35	11	0	46	247
8:15 AM	0	97	0	97	94	0	0	94	33	19	0	52	243
8:30 AM	0	97	0	97	113	0	0	113	44	25	0	69	279
8:45 AM	0	96	1	97	135	0	0	135	37	21	0	58	290
Total	0	402	1	403	431	0	0	431	149	76	0	225	1059
Grand Total	0	789	1	790	776	0	0	776	262	132	0	394	1960
Approach %	0.0	99.9	0.1		100.0	0.0	0.0		66.5	33.5	0.0		
Total %	0.0	40.3	0.1	40.3	39.6	0.0	0.0	39.6	13.4	6.7	0.0	20.1	
Exiting Leg Total				909				1051				0	1960

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	112	0	112	89	0	0	89	35	11	0	46	247
8:15 AM	0	97	0	97	94	0	0	94	33	19	0	52	243
8:30 AM	0	97	0	97	113	0	0	113	44	25	0	69	279
8:45 AM	0	96	1	97	135	0	0	135	37	21	0	58	290
Total Volume	0	402	1	403	431	0	0	431	149	76	0	225	1059
% Approach Total	0.0	99.8	0.2		100.0	0.0	0.0		66.2	33.8	0.0		
PHF	0.000	0.897	0.250	0.900	0.798	0.000	0.000	0.798	0.847	0.760	0.000	0.815	0.913
Entering Leg	0	402	1	403	431	0	0	431	149	76	0	225	1059
Exiting Leg				508				551				0	1059
Total				911				982				225	2118

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	2	0	2	7	0	0	7	3	0	0	3	12
7:15 AM	0	3	0	3	3	0	0	3	2	0	0	2	8
7:30 AM	0	5	0	5	1	0	0	1	1	0	0	1	7
7:45 AM	0	2	0	2	1	0	0	1	0	2	0	2	5
Total	0	12	0	12	12	0	0	12	6	2	0	8	32
8:00 AM	0	3	0	3	2	0	0	2	2	0	0	2	7
8:15 AM	0	3	0	3	0	0	0	0	0	1	0	1	4
8:30 AM	0	1	0	1	4	0	0	4	1	0	0	1	6
8:45 AM	0	0	0	0	3	0	0	3	1	0	0	1	4
Total	0	7	0	7	9	0	0	9	4	1	0	5	21
Grand Total	0	19	0	19	21	0	0	21	10	3	0	13	53
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		76.9	23.1	0.0		
Total %	0.0	35.8	0.0	35.8	39.6	0.0	0.0	39.6	18.9	5.7	0.0	24.5	
Exiting Leg Total				24				29				0	53
Buses	0	4	0	4	12	0	0	12	5	1	0	6	22
% Buses	0.0	21.1	0.0	21.1	57.1	0.0	0.0	57.1	50.0	33.3	0.0	46.2	41.5
Exiting Leg Total				13				9				0	22
Single-Unit Trucks	0	14	0	14	9	0	0	9	4	2	0	6	29
% Single-Unit	0.0	73.7	0.0	73.7	42.9	0.0	0.0	42.9	40.0	66.7	0.0	46.2	54.7
Exiting Leg Total				11				18				0	29
Articulated Trucks	0	1	0	1	0	0	0	0	1	0	0	1	2
% Articulated	0.0	5.3	0.0	5.3	0.0	0.0	0.0	0.0	10.0	0.0	0.0	7.7	3.8
Exiting Leg Total				0				2				0	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	2	0	2	7	0	0	7	3	0	0	3	12
7:15 AM	0	3	0	3	3	0	0	3	2	0	0	2	8
7:30 AM	0	5	0	5	1	0	0	1	1	0	0	1	7
7:45 AM	0	2	0	2	1	0	0	1	0	2	0	2	5
Total Volume	0	12	0	12	12	0	0	12	6	2	0	8	32
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		75.0	25.0	0.0		
PHF	0.000	0.600	0.000	0.600	0.429	0.000	0.000	0.429	0.500	0.250	0.000	0.667	0.667
Buses	0	1	0	1	9	0	0	9	4	1	0	5	15
Buses %	0.0	8.3	0.0	8.3	75.0	0.0	0.0	75.0	66.7	50.0	0.0	62.5	46.9
Single-Unit Trucks	0	10	0	10	3	0	0	3	2	1	0	3	16
Single-Unit %	0.0	83.3	0.0	83.3	25.0	0.0	0.0	25.0	33.3	50.0	0.0	37.5	50.0
Articulated Trucks	0	1	0	1	0	0	0	0	0	0	0	0	1
Articulated %	0.0	8.3	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
Buses	0	1	0	1	9	0	0	9	4	1	0	5	15
Single-Unit Trucks	0	10	0	10	3	0	0	3	2	1	0	3	16
Articulated Trucks	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Entering Leg	0	12	0	12	12	0	0	12	6	2	0	8	32
Buses				10				5				0	15
Single-Unit Trucks				4				12				0	16
Articulated Trucks				0				1				0	1
Total Exiting Leg				14				18				0	32

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	61	0	61	70	0	0	70	20	14	0	34	165
7:15 AM	0	74	0	74	75	0	0	75	31	11	0	42	191
7:30 AM	0	88	0	88	86	0	0	86	28	12	0	40	214
7:45 AM	0	129	0	129	73	0	0	73	23	15	0	38	240
Total	0	352	0	352	304	0	0	304	102	52	0	154	810
8:00 AM	0	104	0	104	85	0	0	85	31	11	0	42	231
8:15 AM	0	85	0	85	88	0	0	88	30	19	0	49	222
8:30 AM	0	85	0	85	102	0	0	102	39	20	0	59	246
8:45 AM	0	86	1	87	127	0	0	127	33	19	0	52	266
Total	0	360	1	361	402	0	0	402	133	69	0	202	965
Grand Total	0	712	1	713	706	0	0	706	235	121	0	356	1775
Approach %	0.0	99.9	0.1		100.0	0.0	0.0		66.0	34.0	0.0		
Total %	0.0	40.1	0.1	40.2	39.8	0.0	0.0	39.8	13.2	6.8	0.0	20.1	
Exiting Leg Total				828				947				0	1775

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	104	0	104	85	0	0	85	31	11	0	42	231
8:15 AM	0	85	0	85	88	0	0	88	30	19	0	49	222
8:30 AM	0	85	0	85	102	0	0	102	39	20	0	59	246
8:45 AM	0	86	1	87	127	0	0	127	33	19	0	52	266
Total Volume	0	360	1	361	402	0	0	402	133	69	0	202	965
% Approach Total	0.0	99.7	0.3		100.0	0.0	0.0		65.8	34.2	0.0		
PHF	0.000	0.865	0.250	0.868	0.791	0.000	0.000	0.791	0.853	0.863	0.000	0.856	0.907
Entering Leg	0	360	1	361	402	0	0	402	133	69	0	202	965
Exiting Leg				472				493				0	965
Total				833				895				202	1930

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street 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	7	0	0	7	7	0	0	7	24
7:15 AM	0	4	0	4	14	0	0	14	2	1	0	3	21
7:30 AM	0	9	0	9	9	0	0	9	2	0	0	2	20
7:45 AM	0	9	0	9	11	0	0	11	0	3	0	3	23
Total	0	32	0	32	41	0	0	41	11	4	0	15	88
8:00 AM	0	8	0	8	4	0	0	4	4	0	0	4	16
8:15 AM	0	12	0	12	6	0	0	6	3	0	0	3	21
8:30 AM	0	12	0	12	11	0	0	11	5	5	0	10	33
8:45 AM	0	10	0	10	8	0	0	8	4	2	0	6	24
Total	0	42	0	42	29	0	0	29	16	7	0	23	94
Grand Total	0	74	0	74	70	0	0	70	27	11	0	38	182
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		71.1	28.9	0.0		
Total %	0.0	40.7	0.0	40.7	38.5	0.0	0.0	38.5	14.8	6.0	0.0	20.9	
Exiting Leg Total				81				101				0	182

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	8	0	8	4	0	0	4	4	0	0	4	16
8:15 AM	0	12	0	12	6	0	0	6	3	0	0	3	21
8:30 AM	0	12	0	12	11	0	0	11	5	5	0	10	33
8:45 AM	0	10	0	10	8	0	0	8	4	2	0	6	24
Total Volume	0	42	0	42	29	0	0	29	16	7	0	23	94
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		69.6	30.4	0.0		
PHF	0.000	0.875	0.000	0.875	0.659	0.000	0.000	0.659	0.800	0.350	0.000	0.575	0.712
Entering Leg	0	42	0	42	29	0	0	29	16	7	0	23	94
Exiting Leg				36				58				0	94
Total				78				87				23	188

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street 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	7	0	0	7	2	0	0	2	9
7:15 AM	0	0	0	0	2	0	0	2	2	0	0	2	4
7:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	1	0	1	9	0	0	9	4	1	0	5	15
8:00 AM	0	1	0	1	0	0	0	0	1	0	0	1	2
8:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	1	3	0	0	3	0	0	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	3	3	0	0	3	1	0	0	1	7
Grand Total	0	4	0	4	12	0	0	12	5	1	0	6	22
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		83.3	16.7	0.0		
Total %	0.0	18.2	0.0	18.2	54.5	0.0	0.0	54.5	22.7	4.5	0.0	27.3	
Exiting Leg Total				13				9				0	22

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Central Street from North				Central Street from South				Brook Street 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	7	0	0	7	2	0	0	2	9
7:15 AM	0	0	0	0	2	0	0	2	2	0	0	2	4
7:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	1	0	1	9	0	0	9	4	1	0	5	15
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		80.0	20.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.321	0.000	0.000	0.321	0.500	0.250	0.000	0.625	0.417
Entering Leg	0	1	0	1	9	0	0	9	4	1	0	5	15
Exiting Leg				10				5				0	15
Total				11				14				5	30

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street 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	1	0	0	1	2
7:15 AM	0	3	0	3	1	0	0	1	0	0	0	0	4
7:30 AM	0	4	0	4	1	0	0	1	1	0	0	1	6
7:45 AM	0	2	0	2	1	0	0	1	0	1	0	1	4
Total	0	10	0	10	3	0	0	3	2	1	0	3	16
8:00 AM	0	2	0	2	2	0	0	2	0	0	0	0	4
8:15 AM	0	2	0	2	0	0	0	0	0	1	0	1	3
8:30 AM	0	0	0	0	1	0	0	1	1	0	0	1	2
8:45 AM	0	0	0	0	3	0	0	3	1	0	0	1	4
Total	0	4	0	4	6	0	0	6	2	1	0	3	13
Grand Total	0	14	0	14	9	0	0	9	4	2	0	6	29
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		66.7	33.3	0.0		
Total %	0.0	48.3	0.0	48.3	31.0	0.0	0.0	31.0	13.8	6.9	0.0	20.7	
Exiting Leg Total				11				18				0	29

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	0	3	0	3	1	0	0	1	0	0	0	0	4
7:30 AM	0	4	0	4	1	0	0	1	1	0	0	1	6
7:45 AM	0	2	0	2	1	0	0	1	0	1	0	1	4
8:00 AM	0	2	0	2	2	0	0	2	0	0	0	0	4
Total Volume	0	11	0	11	5	0	0	5	1	1	0	2	18
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		50.0	50.0	0.0		
PHF	0.000	0.688	0.000	0.688	0.625	0.000	0.000	0.625	0.250	0.250	0.000	0.500	0.750
Entering Leg	0	11	0	11	5	0	0	5	1	1	0	2	18
Exiting Leg				6				12				0	18
Total				17				17				2	36

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street 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	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	0	1	0	1	0	0	0	0	0	0	0	0	1
8:00 AM	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
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	0	0	0	0	0	0	0	1	0	0	1	1
Grand Total	0	1	0	1	0	0	0	0	1	0	0	1	2
Approach %	0.0	100.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Total %	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	
Exiting Leg Total				0				2				0	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Central Street from North				Central Street from South				Brook Street 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	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	0	1	0	1	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	100.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	1	0	1	0	0	0	0	0	0	0	0	1
Exiting Leg				0				1				0	1
Total				1				1				0	2

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North						Central Street from South						Brook Street 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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	1	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
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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2
Grand Total	0	2	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	3
Approach %	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	66.7	0.0	0.0	0.0	66.7	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						1						2						0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Central Street from North						Central Street from South						Brook Street 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
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	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	1	0	0	0	0	1	0	0	0	0	0	0	1
Total Volume	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2
% Approach Total	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2
Exiting Leg						1						1						0	2
Total						2						2						0	4

PDI File #: **186242 I**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North						Central Street from South						Brook Street 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	1	0	1	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
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	2	2	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	6	6
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	14	20	20
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	20	28	28
Grand Total	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	9	20	29	30
Approach %	0	0	0	100	0		0	0	0	0	0		0	0	0	31.034	68.966		
Total %	0	0	0	3.3333	0	3.3333	0	0	0	0	0	0	0	0	0	30	66.667	96.667	
Exiting Leg Total						1						0						29	30

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Central Street from North						Central Street from South						Brook Street 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
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	2	2	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	6	6
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	14	20	20
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	20	28	28
% 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	28.6	71.4		
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	0.333	0.357	0.350	0.350
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	20	28	28
Exiting Leg						0						0						28	28
Total						0						0						56	56

PDI File #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	76	0	76	141	0	0	141	31	28	0	59	276
4:15 PM	0	62	0	62	144	0	0	144	25	17	0	42	248
4:30 PM	0	47	0	47	133	0	0	133	41	21	0	62	242
4:45 PM	0	73	0	73	129	0	0	129	37	18	0	55	257
Total	0	258	0	258	547	0	0	547	134	84	0	218	1023
5:00 PM	0	81	0	81	139	0	0	139	35	25	0	60	280
5:15 PM	0	70	1	71	115	0	0	115	63	30	0	93	279
5:30 PM	0	86	0	86	144	0	0	144	53	20	0	73	303
5:45 PM	0	78	0	78	122	1	0	123	37	22	0	59	260
Total	0	315	1	316	520	1	0	521	188	97	0	285	1122
Grand Total	0	573	1	574	1067	1	0	1068	322	181	0	503	2145
Approach %	0.0	99.8	0.2		99.9	0.1	0.0		64.0	36.0	0.0		
Total %	0.0	26.7	0.0	26.8	49.7	0.0	0.0	49.8	15.0	8.4	0.0	23.4	
Exiting Leg Total				1249				895				1	2145
Cars	0	562	1	563	1062	1	0	1063	322	179	0	501	2127
% Cars	0.0	98.1	100.0	98.1	99.5	100.0	0.0	99.5	100.0	98.9	0.0	99.6	99.2
Exiting Leg Total				1242				884				1	2127
Heavy Vehicles	0	11	0	11	5	0	0	5	0	2	0	2	18
% Heavy Vehicles	0.0	1.9	0.0	1.9	0.5	0.0	0.0	0.5	0.0	1.1	0.0	0.4	0.8
Exiting Leg Total				7				11				0	18

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	0	81	0	81	139	0	0	139	35	25	0	60	280
5:15 PM	0	70	1	71	115	0	0	115	63	30	0	93	279
5:30 PM	0	86	0	86	144	0	0	144	53	20	0	73	303
5:45 PM	0	78	0	78	122	1	0	123	37	22	0	59	260
Total Volume	0	315	1	316	520	1	0	521	188	97	0	285	1122
% Approach Total	0.0	99.7	0.3		99.8	0.2	0.0		66.0	34.0	0.0		
PHF	0.000	0.916	0.250	0.919	0.903	0.250	0.000	0.905	0.746	0.808	0.000	0.766	0.926
Cars	0	312	1	313	518	1	0	519	188	95	0	283	1115
Cars %	0.0	99.0	100.0	99.1	99.6	100.0	0.0	99.6	100.0	97.9	0.0	99.3	99.4
Heavy Vehicles	0	3	0	3	2	0	0	2	0	2	0	2	7
Heavy Vehicles %	0.0	1.0	0.0	0.9	0.4	0.0	0.0	0.4	0.0	2.1	0.0	0.7	0.6
Cars Enter Leg	0	312	1	313	518	1	0	519	188	95	0	283	1115
Heavy Enter Leg	0	3	0	3	2	0	0	2	0	2	0	2	7
Total Entering Leg	0	315	1	316	520	1	0	521	188	97	0	285	1122
Cars Exiting Leg				614				500				1	1115
Heavy Exiting Leg				4				3				0	7
Total Exiting Leg				618				503				1	1122

PDI File #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	74	0	74	139	0	0	139	31	28	0	59	272
4:15 PM	0	62	0	62	143	0	0	143	25	17	0	42	247
4:30 PM	0	43	0	43	133	0	0	133	41	21	0	62	238
4:45 PM	0	71	0	71	129	0	0	129	37	18	0	55	255
Total	0	250	0	250	544	0	0	544	134	84	0	218	1012
5:00 PM	0	81	0	81	138	0	0	138	35	24	0	59	278
5:15 PM	0	69	1	70	114	0	0	114	63	29	0	92	276
5:30 PM	0	84	0	84	144	0	0	144	53	20	0	73	301
5:45 PM	0	78	0	78	122	1	0	123	37	22	0	59	260
Total	0	312	1	313	518	1	0	519	188	95	0	283	1115
Grand Total	0	562	1	563	1062	1	0	1063	322	179	0	501	2127
Approach %	0.0	99.8	0.2		99.9	0.1	0.0		64.3	35.7	0.0		
Total %	0.0	26.4	0.0	26.5	49.9	0.0	0.0	50.0	15.1	8.4	0.0	23.6	
Exiting Leg Total				1242				884				1	2127

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	0	81	0	81	138	0	0	138	35	24	0	59	278
5:15 PM	0	69	1	70	114	0	0	114	63	29	0	92	276
5:30 PM	0	84	0	84	144	0	0	144	53	20	0	73	301
5:45 PM	0	78	0	78	122	1	0	123	37	22	0	59	260
Total Volume	0	312	1	313	518	1	0	519	188	95	0	283	1115
% Approach Total	0.0	99.7	0.3		99.8	0.2	0.0		66.4	33.6	0.0		
PHF	0.000	0.929	0.250	0.932	0.899	0.250	0.000	0.901	0.746	0.819	0.000	0.769	0.926
Entering Leg	0	312	1	313	518	1	0	519	188	95	0	283	1115
Exiting Leg				614				500				1	1115
Total				927				1019				284	2230

PDI File #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	2	0	2	2	0	0	2	0	0	0	0	4
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	4	0	4	0	0	0	0	0	0	0	0	4
4:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	0	8	0	8	3	0	0	3	0	0	0	0	11
5:00 PM	0	0	0	0	1	0	0	1	0	1	0	1	2
5:15 PM	0	1	0	1	1	0	0	1	0	1	0	1	3
5:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	3	2	0	0	2	0	2	0	2	7
Grand Total	0	11	0	11	5	0	0	5	0	2	0	2	18
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	100.0	0.0		
Total %	0.0	61.1	0.0	61.1	27.8	0.0	0.0	27.8	0.0	11.1	0.0	11.1	
Exiting Leg Total				7				11				0	18
Buses	0	7	0	7	2	0	0	2	0	0	0	0	9
% Buses	0.0	63.6	0.0	63.6	40.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	50.0
Exiting Leg Total				2				7				0	9
Single-Unit Trucks	0	4	0	4	3	0	0	3	0	1	0	1	8
% Single-Unit	0.0	36.4	0.0	36.4	60.0	0.0	0.0	60.0	0.0	50.0	0.0	50.0	44.4
Exiting Leg Total				4				4				0	8
Articulated Trucks	0	0	0	0	0	0	0	0	0	1	0	1	1
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	50.0	5.6
Exiting Leg Total				1				0				0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	2	0	2	2	0	0	2	0	0	0	0	4
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	4	0	4	0	0	0	0	0	0	0	0	4
4:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total Volume	0	8	0	8	3	0	0	3	0	0	0	0	11
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.500	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.688
Buses	0	5	0	5	1	0	0	1	0	0	0	0	6
Buses %	0.0	62.5	0.0	62.5	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	54.5
Single-Unit Trucks	0	3	0	3	2	0	0	2	0	0	0	0	5
Single-Unit %	0.0	37.5	0.0	37.5	66.7	0.0	0.0	66.7	0.0	0.0	0.0	0.0	45.5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	5	0	5	1	0	0	1	0	0	0	0	6
Single-Unit Trucks	0	3	0	3	2	0	0	2	0	0	0	0	5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	8	0	8	3	0	0	3	0	0	0	0	11
Buses				1				5				0	6
Single-Unit Trucks				2				3				0	5
Articulated Trucks				0				0				0	0
Total Exiting Leg				3				8				0	11

PDI File #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	67	0	67	129	0	0	129	30	26	0	56	252
4:15 PM	0	60	0	60	130	0	0	130	20	16	0	36	226
4:30 PM	0	42	0	42	114	0	0	114	38	19	0	57	213
4:45 PM	0	65	0	65	120	0	0	120	36	17	0	53	238
Total	0	234	0	234	493	0	0	493	124	78	0	202	929
5:00 PM	0	79	0	79	129	0	0	129	35	22	0	57	265
5:15 PM	0	64	1	65	108	0	0	108	61	29	0	90	263
5:30 PM	0	80	0	80	134	0	0	134	50	18	0	68	282
5:45 PM	0	76	0	76	109	1	0	110	34	21	0	55	241
Total	0	299	1	300	480	1	0	481	180	90	0	270	1051
Grand Total	0	533	1	534	973	1	0	974	304	168	0	472	1980
Approach %	0.0	99.8	0.2		99.9	0.1	0.0		64.4	35.6	0.0		
Total %	0.0	26.9	0.1	27.0	49.1	0.1	0.0	49.2	15.4	8.5	0.0	23.8	
Exiting Leg Total				1142				837				1	1980

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	0	79	0	79	129	0	0	129	35	22	0	57	265
5:15 PM	0	64	1	65	108	0	0	108	61	29	0	90	263
5:30 PM	0	80	0	80	134	0	0	134	50	18	0	68	282
5:45 PM	0	76	0	76	109	1	0	110	34	21	0	55	241
Total Volume	0	299	1	300	480	1	0	481	180	90	0	270	1051
% Approach Total	0.0	99.7	0.3		99.8	0.2	0.0		66.7	33.3	0.0		
PHF	0.000	0.934	0.250	0.938	0.896	0.250	0.000	0.897	0.738	0.776	0.000	0.750	0.932
Entering Leg	0	299	1	300	480	1	0	481	180	90	0	270	1051
Exiting Leg				571				479				1	1051
Total				871				960				271	2102

PDI File #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	7	0	7	10	0	0	10	1	2	0	3	20
4:15 PM	0	2	0	2	13	0	0	13	5	1	0	6	21
4:30 PM	0	1	0	1	18	0	0	18	3	2	0	5	24
4:45 PM	0	6	0	6	8	0	0	8	1	1	0	2	16
Total	0	16	0	16	49	0	0	49	10	6	0	16	81
5:00 PM	0	2	0	2	9	0	0	9	0	2	0	2	13
5:15 PM	0	5	0	5	5	0	0	5	2	0	0	2	12
5:30 PM	0	4	0	4	10	0	0	10	3	2	0	5	19
5:45 PM	0	2	0	2	13	0	0	13	3	1	0	4	19
Total	0	13	0	13	37	0	0	37	8	5	0	13	63
Grand Total	0	29	0	29	86	0	0	86	18	11	0	29	144
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		62.1	37.9	0.0		
Total %	0.0	20.1	0.0	20.1	59.7	0.0	0.0	59.7	12.5	7.6	0.0	20.1	
Exiting Leg Total				97				47				0	144

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	7	0	7	10	0	0	10	1	2	0	3	20
4:15 PM	0	2	0	2	13	0	0	13	5	1	0	6	21
4:30 PM	0	1	0	1	18	0	0	18	3	2	0	5	24
4:45 PM	0	6	0	6	8	0	0	8	1	1	0	2	16
Total Volume	0	16	0	16	49	0	0	49	10	6	0	16	81
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		62.5	37.5	0.0		
PHF	0.000	0.571	0.000	0.571	0.681	0.000	0.000	0.681	0.500	0.750	0.000	0.667	0.844
Entering Leg	0	16	0	16	49	0	0	49	10	6	0	16	81
Exiting Leg				55				26				0	81
Total				71				75				16	162

PDI File #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	5	0	5	1	0	0	1	0	0	0	0	6
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
5:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	2	1	0	0	1	0	0	0	0	3
Grand Total	0	7	0	7	2	0	0	2	0	0	0	0	9
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	77.8	0.0	77.8	22.2	0.0	0.0	22.2	0.0	0.0	0.0	0.0	
Exiting Leg Total				2				7				0	9

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	5	0	5	1	0	0	1	0	0	0	0	6
% 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	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	5	0	5	1	0	0	1	0	0	0	0	6
Exiting Leg				1				5				0	6
Total				6				6				0	12

PDI File #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street 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	1	0	0	1	0	0	0	0	1
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	3	0	3	2	0	0	2	0	0	0	0	5
5:00 PM	0	0	0	0	1	0	0	1	0	1	0	1	2
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	1	0	0	1	0	1	0	1	3
Grand Total	0	4	0	4	3	0	0	3	0	1	0	1	8
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	100.0	0.0		
Total %	0.0	50.0	0.0	50.0	37.5	0.0	0.0	37.5	0.0	12.5	0.0	12.5	
Exiting Leg Total				4				4				0	8

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	1	0	0	1	0	1	0	1	2
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	0.750
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 #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North				Central Street from South				Brook Street 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	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	1	0	1	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	0	0	0	0	0	0	0	0	1	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	1	0	1	1
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	
Exiting Leg Total				1				0				0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Central Street from North				Central Street from South				Brook Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
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
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	1	0	1	1
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	1
% Approach Total	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	0.250	0.000	0.250	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	1	0	1	1
Exiting Leg				1				0				0	1
Total				1				0				1	2

PDI File #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	Central Street from North						Central Street from South						Brook Street 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	1	0	0	0	1	1	0	0	0	0	1	0	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
4:30 PM	0	1	0	0	0	1	0	0	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	0	0	0	0
Total	0	2	0	0	0	2	1	0	0	0	0	1	0	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
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	1	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2
Grand Total	0	2	0	0	0	2	1	0	0	0	0	1	1	1	0	0	0	2	5
Approach %	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0	0.0		
Total %	0.0	40.0	0.0	0.0	0.0	40.0	20.0	0.0	0.0	0.0	0.0	20.0	20.0	20.0	0.0	0.0	0.0	40.0	
Exiting Leg Total						2						3						0	5

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North						Central Street from South						Brook Street 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	1	0	0	0	1	1	0	0	0	0	1	0	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
4:30 PM	0	1	0	0	0	1	0	0	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	0	0	0	0
Total Volume	0	2	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	3
% Approach Total	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.375
Entering Leg	0	2	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	3
Exiting Leg						1						2						0	3
Total						3						3						0	6

PDI File #: **186242 II**
Location: **N: Central Street S: Central Street**
Location: **W: Brook Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	Central Street from North						Central Street from South						Brook Street 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	1	1	2	2
4:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	3	5	6
4:30 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1	2	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
Total	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	5	6	11	13
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	2	4	5
5:30 PM	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	1	1	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	3	1	4	0	0	0	1	0	1	0	0	0	3	5	8	13
Grand Total	0	0	0	4	2	6	0	0	0	1	0	1	0	0	0	8	11	19	26
Approach %	0	0	0	66.667	33.333		0	0	0	100	0		0	0	0	42.105	57.895		
Total %	0	0	0	15.385	7.6923	23.077	0	0	0	3.8462	0	3.8462	0	0	0	30.769	42.308	73.077	
Exiting Leg Total						6						1						19	26

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Central Street from North						Central Street from South						Brook Street 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	1	1	2	2
4:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	3	5	6
4:30 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1	2	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
Total Volume	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	5	6	11	13
% Approach Total	0.0	0.0	0.0	50.0	50.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	45.5	54.5		
PHF	0.000	0.000	0.000	0.250	0.250	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.500	0.550	0.542
Entering Leg	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	5	6	11	13
Exiting Leg						2						0						11	13
Total						4						0						22	26

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	5	9	0	0	14	0	0	0	0	0	1	26	3	0	30	1	0	4	0	5	49
7:15 AM	8	21	0	0	29	0	1	0	0	1	1	44	1	0	46	2	0	6	0	8	84
7:30 AM	5	23	0	0	28	0	0	2	0	2	2	43	1	0	46	3	1	15	0	19	95
7:45 AM	2	35	0	0	37	0	1	0	0	1	2	21	1	0	24	1	2	5	0	8	70
Total	20	88	0	0	108	0	2	2	0	4	6	134	6	0	146	7	3	30	0	40	298
8:00 AM	12	38	1	0	51	0	0	0	0	0	0	35	2	0	37	1	1	6	0	8	96
8:15 AM	4	40	0	0	44	0	0	0	0	0	3	37	3	0	43	5	3	6	0	14	101
8:30 AM	17	47	0	0	64	0	0	1	0	1	1	40	6	0	47	3	1	15	0	19	131
8:45 AM	11	32	0	0	43	0	0	0	0	0	0	65	2	1	68	2	1	8	0	11	122
Total	44	157	1	0	202	0	0	1	0	1	4	177	13	1	195	11	6	35	0	52	450
Grand Total	64	245	1	0	310	0	2	3	0	5	10	311	19	1	341	18	9	65	0	92	748
Approach %	20.6	79.0	0.3	0.0		0.0	40.0	60.0	0.0		2.9	91.2	5.6	0.3		19.6	9.8	70.7	0.0		
Total %	8.6	32.8	0.1	0.0	41.4	0.0	0.3	0.4	0.0	0.7	1.3	41.6	2.5	0.1	45.6	2.4	1.2	8.7	0.0	12.3	
Exiting Leg Total					376					20					267					85	748
Cars	57	228	1	0	286	0	2	3	0	5	10	301	14	1	326	14	9	61	0	84	701
% Cars	89.1	93.1	100.0	0.0	92.3	0.0	100.0	100.0	0.0	100.0	100.0	96.8	73.7	100.0	95.6	77.8	100.0	93.8	0.0	91.3	93.7
Exiting Leg Total					362					20					246					73	701
Heavy Vehicles	7	17	0	0	24	0	0	0	0	0	0	10	5	0	15	4	0	4	0	8	47
% Heavy Vehicles	10.9	6.9	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	3.2	26.3	0.0	4.4	22.2	0.0	6.2	0.0	8.7	6.3
Exiting Leg Total					14					0					21					12	47

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
8:00 AM	12	38	1	0	51	0	0	0	0	0	0	35	2	0	37	1	1	6	0	8	96
8:15 AM	4	40	0	0	44	0	0	0	0	0	3	37	3	0	43	5	3	6	0	14	101
8:30 AM	17	47	0	0	64	0	0	1	0	1	1	40	6	0	47	3	1	15	0	19	131
8:45 AM	11	32	0	0	43	0	0	0	0	0	0	65	2	1	68	2	1	8	0	11	122
Total Volume	44	157	1	0	202	0	0	1	0	1	4	177	13	1	195	11	6	35	0	52	450
% Approach Total	21.8	77.7	0.5	0.0		0.0	0.0	100.0	0.0		2.1	90.8	6.7	0.5		21.2	11.5	67.3	0.0		
PHF	0.647	0.835	0.250	0.000	0.789	0.000	0.000	0.250	0.000	0.250	0.333	0.681	0.542	0.250	0.717	0.550	0.500	0.583	0.000	0.684	0.859
Cars	39	149	1	0	189	0	0	1	0	1	4	170	8	1	183	8	6	33	0	47	420
Cars %	88.6	94.9	100.0	0.0	93.6	0.0	0.0	100.0	0.0	100.0	100.0	96.0	61.5	100.0	93.8	72.7	100.0	94.3	0.0	90.4	93.3
Heavy Vehicles	5	8	0	0	13	0	0	0	0	0	0	7	5	0	12	3	0	2	0	5	30
Heavy Vehicles %	11.4	5.1	0.0	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0	4.0	38.5	0.0	6.2	27.3	0.0	5.7	0.0	9.6	6.7
Cars Enter Leg	39	149	1	0	189	0	0	1	0	1	4	170	8	1	183	8	6	33	0	47	420
Heavy Enter Leg	5	8	0	0	13	0	0	0	0	0	0	7	5	0	12	3	0	2	0	5	30
Total Entering Leg	44	157	1	0	202	0	0	1	0	1	4	177	13	1	195	11	6	35	0	52	450
Cars Exiting Leg					203					11					159					47	420
Heavy Exiting Leg					9					0					11					10	30
Total Exiting Leg					212					11					170					57	450

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	5	9	0	0	14	0	0	0	0	0	1	26	3	0	30	1	0	4	0	5	49
7:15 AM	6	16	0	0	22	0	1	0	0	1	1	44	1	0	46	2	0	5	0	7	76
7:30 AM	5	23	0	0	28	0	0	2	0	2	2	41	1	0	44	3	1	14	0	18	92
7:45 AM	2	31	0	0	33	0	1	0	0	1	2	20	1	0	23	0	2	5	0	7	64
Total	18	79	0	0	97	0	2	2	0	4	6	131	6	0	143	6	3	28	0	37	281
8:00 AM	11	38	1	0	50	0	0	0	0	0	0	32	2	0	34	0	1	6	0	7	91
8:15 AM	4	37	0	0	41	0	0	0	0	0	3	36	2	0	41	4	3	4	0	11	93
8:30 AM	14	44	0	0	58	0	0	1	0	1	1	37	2	0	40	3	1	15	0	19	118
8:45 AM	10	30	0	0	40	0	0	0	0	0	0	65	2	1	68	1	1	8	0	10	118
Total	39	149	1	0	189	0	0	1	0	1	4	170	8	1	183	8	6	33	0	47	420
Grand Total	57	228	1	0	286	0	2	3	0	5	10	301	14	1	326	14	9	61	0	84	701
Approach %	19.9	79.7	0.3	0.0		0.0	40.0	60.0	0.0		3.1	92.3	4.3	0.3		16.7	10.7	72.6	0.0		
Total %	8.1	32.5	0.1	0.0	40.8	0.0	0.3	0.4	0.0	0.7	1.4	42.9	2.0	0.1	46.5	2.0	1.3	8.7	0.0	12.0	
Exiting Leg Total					362					20					246					73	701

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
8:00 AM	11	38	1	0	50	0	0	0	0	0	0	32	2	0	34	0	1	6	0	7	91
8:15 AM	4	37	0	0	41	0	0	0	0	0	3	36	2	0	41	4	3	4	0	11	93
8:30 AM	14	44	0	0	58	0	0	1	0	1	1	37	2	0	40	3	1	15	0	19	118
8:45 AM	10	30	0	0	40	0	0	0	0	0	0	65	2	1	68	1	1	8	0	10	118
Total Volume	39	149	1	0	189	0	0	1	0	1	4	170	8	1	183	8	6	33	0	47	420
% Approach Total	20.6	78.8	0.5	0.0		0.0	0.0	100.0	0.0		2.2	92.9	4.4	0.5		17.0	12.8	70.2	0.0		
PHF	0.696	0.847	0.250	0.000	0.815	0.000	0.000	0.250	0.000	0.250	0.333	0.654	1.000	0.250	0.673	0.500	0.500	0.550	0.000	0.618	0.890
Entering Leg	39	149	1	0	189	0	0	1	0	1	4	170	8	1	183	8	6	33	0	47	420
Exiting Leg					203					11					159					47	420
Total					392					12					342					94	840

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	2	5	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	3
7:45 AM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	6
Total	2	9	0	0	11	0	0	0	0	0	0	3	0	0	3	1	0	2	0	3	17
8:00 AM	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	5
8:15 AM	0	3	0	0	3	0	0	0	0	0	0	1	1	0	2	1	0	2	0	3	8
8:30 AM	3	3	0	0	6	0	0	0	0	0	0	3	4	0	7	0	0	0	0	0	13
8:45 AM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	4
Total	5	8	0	0	13	0	0	0	0	0	0	7	5	0	12	3	0	2	0	5	30
Grand Total	7	17	0	0	24	0	0	0	0	0	0	10	5	0	15	4	0	4	0	8	47
Approach %	29.2	70.8	0.0	0.0		0.0	0.0	0.0	0.0		0.0	66.7	33.3	0.0		50.0	0.0	50.0	0.0		
Total %	14.9	36.2	0.0	0.0	51.1	0.0	0.0	0.0	0.0	0.0	0.0	21.3	10.6	0.0	31.9	8.5	0.0	8.5	0.0	17.0	
Exiting Leg Total					14					0					21					12	47
Buses	6	7	0	0	13	0	0	0	0	0	0	6	5	0	11	1	0	1	0	2	26
% Buses	85.7	41.2	0.0	0.0	54.2	0.0	0.0	0.0	0.0	0.0	0.0	60.0	100.0	0.0	73.3	25.0	0.0	25.0	0.0	25.0	55.3
Exiting Leg Total					7					0					8					11	26
Single-Unit Trucks	1	7	0	0	8	0	0	0	0	0	0	4	0	0	4	3	0	3	0	6	18
% Single-Unit	14.3	41.2	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	26.7	75.0	0.0	75.0	0.0	75.0	38.3
Exiting Leg Total					7					0					10					1	18
Articulated Trucks	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
% Articulated	0.0	17.6	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	0.0	0.0	0.0	0.0	0.0	6.4
Exiting Leg Total					0					0					3					0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:45 AM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	6
8:00 AM	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	5
8:15 AM	0	3	0	0	3	0	0	0	0	0	0	1	1	0	2	1	0	2	0	3	8
8:30 AM	3	3	0	0	6	0	0	0	0	0	0	3	4	0	7	0	0	0	0	0	13
Total Volume	4	10	0	0	14	0	0	0	0	0	0	8	5	0	13	3	0	2	0	5	32
% Approach Total	28.6	71.4	0.0	0.0		0.0	0.0	0.0	0.0		0.0	61.5	38.5	0.0		60.0	0.0	40.0	0.0		
PHF	0.333	0.625	0.000	0.000	0.583	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.313	0.000	0.464	0.750	0.000	0.250	0.000	0.417	0.615
Buses	3	6	0	0	9	0	0	0	0	0	0	5	5	0	10	1	0	0	0	1	20
Buses %	75.0	60.0	0.0	0.0	64.3	0.0	0.0	0.0	0.0	0.0	0.0	62.5	100.0	0.0	76.9	33.3	0.0	0.0	0.0	20.0	62.5
Single-Unit Trucks	1	3	0	0	4	0	0	0	0	0	0	3	0	0	3	2	0	2	0	4	11
Single-Unit %	25.0	30.0	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	0.0	37.5	0.0	0.0	23.1	66.7	0.0	100.0	0.0	80.0	34.4
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Articulated %	0.0	10.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
Buses	3	6	0	0	9	0	0	0	0	0	0	5	5	0	10	1	0	0	0	1	20
Single-Unit Trucks	1	3	0	0	4	0	0	0	0	0	0	3	0	0	3	2	0	2	0	4	11
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Entering Leg	4	10	0	0	14	0	0	0	0	0	0	8	5	0	13	3	0	2	0	5	32
Buses					5					0					7					8	20
Single-Unit Trucks					5					0					5					1	11
Articulated Trucks					0					0					1					0	1
Total Exiting Leg					10					0					13					9	32

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	5	8	0	0	13	0	0	0	0	0	1	24	2	0	27	0	0	3	0	3	43
7:15 AM	6	13	0	0	19	0	0	0	0	0	1	44	0	0	45	2	0	4	0	6	70
7:30 AM	5	18	0	0	23	0	0	2	0	2	2	37	0	0	39	1	1	13	0	15	79
7:45 AM	1	29	0	0	30	0	1	0	0	1	2	17	1	0	20	0	1	5	0	6	57
Total	17	68	0	0	85	0	1	2	0	3	6	122	3	0	131	3	2	25	0	30	249
8:00 AM	11	35	1	0	47	0	0	0	0	0	0	29	2	0	31	0	0	6	0	6	84
8:15 AM	4	36	0	0	40	0	0	0	0	0	3	35	2	0	40	4	2	3	0	9	89
8:30 AM	12	37	0	0	49	0	0	1	0	1	1	35	1	0	37	3	1	14	0	18	105
8:45 AM	9	29	0	0	38	0	0	0	0	0	0	60	2	0	62	1	1	7	0	9	109
Total	36	137	1	0	174	0	0	1	0	1	4	159	7	0	170	8	4	30	0	42	387
Grand Total	53	205	1	0	259	0	1	3	0	4	10	281	10	0	301	11	6	55	0	72	636
Approach %	20.5	79.2	0.4	0.0		0.0	25.0	75.0	0.0		3.3	93.4	3.3	0.0		15.3	8.3	76.4	0.0		
Total %	8.3	32.2	0.2	0.0	40.7	0.0	0.2	0.5	0.0	0.6	1.6	44.2	1.6	0.0	47.3	1.7	0.9	8.6	0.0	11.3	
Exiting Leg Total					336					17					219					64	636

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
8:00 AM	11	35	1	0	47	0	0	0	0	0	0	29	2	0	31	0	0	6	0	6	84
8:15 AM	4	36	0	0	40	0	0	0	0	0	3	35	2	0	40	4	2	3	0	9	89
8:30 AM	12	37	0	0	49	0	0	1	0	1	1	35	1	0	37	3	1	14	0	18	105
8:45 AM	9	29	0	0	38	0	0	0	0	0	0	60	2	0	62	1	1	7	0	9	109
Total Volume	36	137	1	0	174	0	0	1	0	1	4	159	7	0	170	8	4	30	0	42	387
% Approach Total	20.7	78.7	0.6	0.0		0.0	0.0	100.0	0.0		2.4	93.5	4.1	0.0		19.0	9.5	71.4	0.0		
PHF	0.750	0.926	0.250	0.000	0.888	0.000	0.000	0.250	0.000	0.250	0.333	0.663	0.875	0.000	0.685	0.500	0.500	0.536	0.000	0.583	0.888
Entering Leg	36	137	1	0	174	0	0	1	0	1	4	159	7	0	170	8	4	30	0	42	387
Exiting Leg					189					9					146					43	387
Total					363					10					316					85	774

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:00 AM	0	1	0	0	1	0	0	0	0	0	0	2	1	0	3	1	0	1	0	2	6
7:15 AM	0	2	0	0	2	0	1	0	0	1	0	0	1	0	1	0	0	1	0	1	5
7:30 AM	0	5	0	0	5	0	0	0	0	0	0	4	1	0	5	2	0	1	0	3	13
7:45 AM	1	2	0	0	3	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	7
Total	1	10	0	0	11	0	1	0	0	1	0	9	3	0	12	3	1	3	0	7	31
8:00 AM	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	7
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	4
8:30 AM	1	7	0	0	8	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	12
8:45 AM	1	1	0	0	2	0	0	0	0	0	0	5	0	1	6	0	0	1	0	1	9
Total	2	12	0	0	14	0	0	0	0	0	0	11	1	1	13	0	2	3	0	5	32
Grand Total	3	22	0	0	25	0	1	0	0	1	0	20	4	1	25	3	3	6	0	12	63
Approach %	12.0	88.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	80.0	16.0	4.0		25.0	25.0	50.0	0.0		
Total %	4.8	34.9	0.0	0.0	39.7	0.0	1.6	0.0	0.0	1.6	0.0	31.7	6.3	1.6	39.7	4.8	4.8	9.5	0.0	19.0	
Exiting Leg Total					26					3					26					8	63

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:15 AM	0	2	0	0	2	0	1	0	0	1	0	0	1	0	1	0	0	1	0	1	5
7:30 AM	0	5	0	0	5	0	0	0	0	0	0	4	1	0	5	2	0	1	0	3	13
7:45 AM	1	2	0	0	3	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	7
8:00 AM	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	7
Total Volume	1	12	0	0	13	0	1	0	0	1	0	10	2	0	12	2	2	2	0	6	32
% Approach Total	7.7	92.3	0.0	0.0		0.0	100.0	0.0	0.0		0.0	83.3	16.7	0.0		33.3	33.3	33.3	0.0		
PHF	0.250	0.600	0.000	0.000	0.650	0.000	0.250	0.000	0.000	0.250	0.000	0.625	0.500	0.000	0.600	0.250	0.500	0.500	0.000	0.500	0.615
Entering Leg	1	12	0	0	13	0	1	0	0	1	0	10	2	0	12	2	2	2	0	6	32
Exiting Leg					12					2					14					4	32
Total					25					3					26					10	64

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	2
7:45 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	2	4	0	0	6	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	8
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	4
8:30 AM	3	2	0	0	5	0	0	0	0	0	0	2	4	0	6	0	0	0	0	0	11
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	4	3	0	0	7	0	0	0	0	0	0	5	5	0	10	1	0	0	0	1	18
Grand Total	6	7	0	0	13	0	0	0	0	0	0	6	5	0	11	1	0	1	0	2	26
Approach %	46.2	53.8	0.0	0.0		0.0	0.0	0.0	0.0		0.0	54.5	45.5	0.0		50.0	0.0	50.0	0.0		
Total %	23.1	26.9	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	23.1	19.2	0.0	42.3	3.8	0.0	3.8	0.0	7.7	
Exiting Leg Total					7					0					8					11	26

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:45 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	4
8:30 AM	3	2	0	0	5	0	0	0	0	0	0	2	4	0	6	0	0	0	0	0	11
Total Volume	3	6	0	0	9	0	0	0	0	0	0	5	5	0	10	1	0	0	0	1	20
% Approach Total	33.3	66.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0		100.0	0.0	0.0	0.0		
PHF	0.250	0.500	0.000	0.000	0.450	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.313	0.000	0.417	0.250	0.000	0.000	0.000	0.250	0.455
Entering Leg	3	6	0	0	9	0	0	0	0	0	0	5	5	0	10	1	0	0	0	1	20
Exiting Leg					5					0					7					8	20
Total					14					0					17					9	40

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
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	1	0	0	1	1	0	0	0	1	3
Total	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	8
8:00 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	3
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	3
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
8:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
Total	1	3	0	0	4	0	0	0	0	0	0	2	0	0	2	2	0	2	0	4	10
Grand Total	1	7	0	0	8	0	0	0	0	0	0	4	0	0	4	3	0	3	0	6	18
Approach %	12.5	87.5	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		50.0	0.0	50.0	0.0		
Total %	5.6	38.9	0.0	0.0	44.4	0.0	0.0	0.0	0.0	0.0	0.0	22.2	0.0	0.0	22.2	16.7	0.0	16.7	0.0	33.3	
Exiting Leg Total					7					0					10					1	18

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
7:15 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
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	1	0	0	1	1	0	0	0	1	3
8:00 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	3
Total Volume	1	4	0	0	5	0	0	0	0	0	0	3	0	0	3	2	0	1	0	3	11
% Approach Total	20.0	80.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		66.7	0.0	33.3	0.0		
PHF	0.250	0.333	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.750	0.500	0.000	0.250	0.000	0.750	0.688
Entering Leg	1	4	0	0	5	0	0	0	0	0	0	3	0	0	3	2	0	1	0	3	11
Exiting Leg					4					0					6					1	11
Total					9					0					9					4	22

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	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
8:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Approach %	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		
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	0.0	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:

8:00 AM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	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
8:45 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	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Approach Total	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		
PHF	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Exiting Leg					0					0					2					0	2
Total					2					0					2					0	4

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	School Street							Ridge Street							School Street							Lupine Road							
	from North							from Northeast							from East							from South							
	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	U-Turn	CW-WB	CW-EB	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	2	0	0	0	0	2	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	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	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	2	0	0	0	0	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	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	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							2							0							0							0	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	School Street							Ridge Street							School Street							Lupine Road							
	from North							from Northeast							from East							from South							
	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	U-Turn	CW-WB	CW-EB	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	2	0	0	0	0	2	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	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	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	0.000	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	0.000	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	2	0	0	0	0	2	0	0	0	0	0	0	0	2
Exiting Leg							2							0							0							0	2
Total							2							0							2							0	4

PDI File #: **186242 J**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street							Ridge Street							School Street							Lupine Road							
	from North							from Northeast							from East							from South							
	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	U-Turn	CW-WB	CW-EB	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	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	2	1	3	3
8:30 AM	0	0	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	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	2	0	2	0	0	0	0	1	0	1	0	0	0	0	2	1	3	7
Grand Total	0	0	0	0	1	0	1	0	0	0	0	3	0	3	0	0	0	0	1	0	1	0	0	0	0	2	1	3	8
Approach %	0	0	0	0	100	0		0	0	0	0	100	0		0	0	0	0	100	0		0	0	0	0	66.7	33.3		
Total %	0	0	0	0	12.5	0	12.5	0	0	0	0	37.5	0	37.5	0	0	0	0	12.5	0	12.5	0	0	0	0	25	12.5	37.5	
Exiting Leg Total							1							3							1							3	8

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	School Street							Ridge Street							School Street							Lupine Road							
	from North							from Northeast							from East							from South							
	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	U-Turn	CW-WB	CW-EB	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	3
8:30 AM	0	0	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	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	2	0	2	0	0	0	0	1	0	1	0	0	0	0	2	1	3	7
% Approach Total	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	100.0	0.0		0.0	0.0	0.0	0.0	66.7	33.3		
PHF	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.583
Entering Leg	0	0	0	0	1	0	1	0	0	0	0	2	0	2	0	0	0	0	1	0	1	0	0	0	0	2	1	3	7
Exiting Leg							1							2							1							3	7
Total							2							4							2							6	14

PDI File #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	12	18	0	0	30	0	0	0	0	0	0	55	4	0	59	4	0	14	0	18	107
4:15 PM	16	21	0	0	37	0	0	0	0	0	1	52	5	0	58	1	1	10	0	12	107
4:30 PM	8	25	0	0	33	0	0	0	0	0	0	50	1	0	51	1	0	16	0	17	101
4:45 PM	11	17	0	0	28	0	0	0	0	0	1	55	3	0	59	0	1	11	0	12	99
Total	47	81	0	0	128	0	0	0	0	0	2	212	13	0	227	6	2	51	0	59	414
5:00 PM	14	30	0	0	44	0	0	0	0	0	2	48	0	0	50	5	0	11	0	16	110
5:15 PM	11	41	0	0	52	0	0	0	0	0	1	55	3	0	59	1	2	14	1	18	129
5:30 PM	9	31	0	0	40	0	0	0	0	0	3	74	1	0	78	6	1	23	0	30	148
5:45 PM	18	19	1	0	38	0	0	0	0	0	5	54	4	0	63	9	2	12	0	23	124
Total	52	121	1	0	174	0	0	0	0	0	11	231	8	0	250	21	5	60	1	87	511
Grand Total	99	202	1	0	302	0	0	0	0	0	13	443	21	0	477	27	7	111	1	146	925
Approach %	32.8	66.9	0.3	0.0		0.0	0.0	0.0	0.0		2.7	92.9	4.4	0.0		18.5	4.8	76.0	0.7		
Total %	10.7	21.8	0.1	0.0	32.6	0.0	0.0	0.0	0.0	0.0	1.4	47.9	2.3	0.0	51.6	2.9	0.8	12.0	0.1	15.8	
Exiting Leg Total					554					21					229					121	925
Cars	97	196	1	0	294	0	0	0	0	0	13	434	20	0	467	27	7	109	1	144	905
% Cars	98.0	97.0	100.0	0.0	97.4	0.0	0.0	0.0	0.0	0.0	100.0	98.0	95.2	0.0	97.9	100.0	100.0	98.2	100.0	98.6	97.8
Exiting Leg Total					543					21					223					118	905
Heavy Vehicles	2	6	0	0	8	0	0	0	0	0	0	9	1	0	10	0	0	2	0	2	20
% Heavy Vehicles	2.0	3.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	2.0	4.8	0.0	2.1	0.0	0.0	1.8	0.0	1.4	2.2
Exiting Leg Total					11					0					6					3	20

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
5:00 PM	14	30	0	0	44	0	0	0	0	0	2	48	0	0	50	5	0	11	0	16	110
5:15 PM	11	41	0	0	52	0	0	0	0	0	1	55	3	0	59	1	2	14	1	18	129
5:30 PM	9	31	0	0	40	0	0	0	0	0	3	74	1	0	78	6	1	23	0	30	148
5:45 PM	18	19	1	0	38	0	0	0	0	0	5	54	4	0	63	9	2	12	0	23	124
Total Volume	52	121	1	0	174	0	0	0	0	0	11	231	8	0	250	21	5	60	1	87	511
% Approach Total	29.9	69.5	0.6	0.0		0.0	0.0	0.0	0.0		4.4	92.4	3.2	0.0		24.1	5.7	69.0	1.1		
PHF	0.722	0.738	0.250	0.000	0.837	0.000	0.000	0.000	0.000	0.000	0.550	0.780	0.500	0.000	0.801	0.583	0.625	0.652	0.250	0.725	0.863
Cars	52	118	1	0	171	0	0	0	0	0	11	227	8	0	246	21	5	59	1	86	503
Cars %	100.0	97.5	100.0	0.0	98.3	0.0	0.0	0.0	0.0	0.0	100.0	98.3	100.0	0.0	98.4	100.0	100.0	98.3	100.0	98.9	98.4
Heavy Vehicles	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	8
Heavy Vehicles %	0.0	2.5	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.6	0.0	0.0	1.7	0.0	1.1	1.6
Cars Enter Leg	52	118	1	0	171	0	0	0	0	0	11	227	8	0	246	21	5	59	1	86	503
Heavy Enter Leg	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	8
Total Entering Leg	52	121	1	0	174	0	0	0	0	0	11	231	8	0	250	21	5	60	1	87	511
Cars Exiting Leg					286					17					139					61	503
Heavy Exiting Leg					5					0					3					0	8
Total Exiting Leg					291					17					142					61	511

PDI File #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	12	17	0	0	29	0	0	0	0	0	0	54	3	0	57	4	0	14	0	18	104
4:15 PM	15	20	0	0	35	0	0	0	0	0	1	51	5	0	57	1	1	9	0	11	103
4:30 PM	8	25	0	0	33	0	0	0	0	0	0	48	1	0	49	1	0	16	0	17	99
4:45 PM	10	16	0	0	26	0	0	0	0	0	1	54	3	0	58	0	1	11	0	12	96
Total	45	78	0	0	123	0	0	0	0	0	2	207	12	0	221	6	2	50	0	58	402
5:00 PM	14	30	0	0	44	0	0	0	0	0	2	48	0	0	50	5	0	10	0	15	109
5:15 PM	11	39	0	0	50	0	0	0	0	0	1	55	3	0	59	1	2	14	1	18	127
5:30 PM	9	31	0	0	40	0	0	0	0	0	3	72	1	0	76	6	1	23	0	30	146
5:45 PM	18	18	1	0	37	0	0	0	0	0	5	52	4	0	61	9	2	12	0	23	121
Total	52	118	1	0	171	0	0	0	0	0	11	227	8	0	246	21	5	59	1	86	503
Grand Total	97	196	1	0	294	0	0	0	0	0	13	434	20	0	467	27	7	109	1	144	905
Approach %	33.0	66.7	0.3	0.0		0.0	0.0	0.0	0.0		2.8	92.9	4.3	0.0		18.8	4.9	75.7	0.7		
Total %	10.7	21.7	0.1	0.0	32.5	0.0	0.0	0.0	0.0	0.0	1.4	48.0	2.2	0.0	51.6	3.0	0.8	12.0	0.1	15.9	
Exiting Leg Total					543					21					223					118	905

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
5:00 PM	14	30	0	0	44	0	0	0	0	0	2	48	0	0	50	5	0	10	0	15	109
5:15 PM	11	39	0	0	50	0	0	0	0	0	1	55	3	0	59	1	2	14	1	18	127
5:30 PM	9	31	0	0	40	0	0	0	0	0	3	72	1	0	76	6	1	23	0	30	146
5:45 PM	18	18	1	0	37	0	0	0	0	0	5	52	4	0	61	9	2	12	0	23	121
Total Volume	52	118	1	0	171	0	0	0	0	0	11	227	8	0	246	21	5	59	1	86	503
% Approach Total	30.4	69.0	0.6	0.0		0.0	0.0	0.0	0.0		4.5	92.3	3.3	0.0		24.4	5.8	68.6	1.2		
PHF	0.722	0.756	0.250	0.000	0.855	0.000	0.000	0.000	0.000	0.000	0.550	0.788	0.500	0.000	0.809	0.583	0.625	0.641	0.250	0.717	0.861
Entering Leg	52	118	1	0	171	0	0	0	0	0	11	227	8	0	246	21	5	59	1	86	503
Exiting Leg					286					17					139					61	503
Total					457					17					385					147	1006

PDI File #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)**

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	3
4:15 PM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4
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	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Total	2	3	0	0	5	0	0	0	0	0	0	5	1	0	6	0	0	1	0	1	12
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
5:45 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Total	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	8
Grand Total	2	6	0	0	8	0	0	0	0	0	0	9	1	0	10	0	0	2	0	2	20
Approach %	25.0	75.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	90.0	10.0	0.0		0.0	0.0	100.0	0.0		
Total %	10.0	30.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	45.0	5.0	0.0	50.0	0.0	0.0	10.0	0.0	10.0	
Exiting Leg Total					11					0					6					3	20
Buses	0	6	0	0	6	0	0	0	0	0	0	6	1	0	7	0	0	1	0	1	14
% Buses	0.0	100.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	100.0	0.0	70.0	0.0	0.0	50.0	0.0	50.0	70.0
Exiting Leg Total					7					0					6					1	14
Single-Unit Trucks	2	0	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	6
% Single-Unit	100.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	30.0	0.0	0.0	50.0	0.0	50.0	30.0
Exiting Leg Total					4					0					0					2	6
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	3
4:15 PM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4
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	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Total Volume	2	3	0	0	5	0	0	0	0	0	0	5	1	0	6	0	0	1	0	1	12
% Approach Total	40.0	60.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	83.3	16.7	0.0		0.0	0.0	100.0	0.0		
PHF	0.500	0.750	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.250	0.000	0.750	0.000	0.000	0.250	0.000	0.250	0.750
Buses	0	3	0	0	3	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	8
Buses %	0.0	100.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	100.0	0.0	83.3	0.0	0.0	0.0	0.0	0.0	66.7
Single-Unit Trucks	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4
Single-Unit %	100.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	16.7	0.0	0.0	100.0	0.0	100.0	33.3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	3	0	0	3	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	8
Single-Unit Trucks	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	2	3	0	0	5	0	0	0	0	0	0	5	1	0	6	0	0	1	0	1	12
Buses					4					0					3					1	8
Single-Unit Trucks					2					0					0					2	4
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					6					0					3					3	12

PDI File #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	9	15	0	0	24	0	0	0	0	0	0	48	3	0	51	4	0	13	0	17	92
4:15 PM	12	18	0	0	30	0	0	0	0	0	1	46	5	0	52	1	1	9	0	11	93
4:30 PM	7	20	0	0	27	0	0	0	0	0	0	42	1	0	43	1	0	14	0	15	85
4:45 PM	9	16	0	0	25	0	0	0	0	0	1	49	2	0	52	0	1	10	0	11	88
Total	37	69	0	0	106	0	0	0	0	0	2	185	11	0	198	6	2	46	0	54	358
5:00 PM	13	28	0	0	41	0	0	0	0	0	1	47	0	0	48	5	0	8	0	13	102
5:15 PM	10	39	0	0	49	0	0	0	0	0	1	51	3	0	55	1	2	14	1	18	122
5:30 PM	9	28	0	0	37	0	0	0	0	0	3	69	1	0	73	5	1	20	0	26	136
5:45 PM	17	16	1	0	34	0	0	0	0	0	5	49	4	0	58	8	2	12	0	22	114
Total	49	111	1	0	161	0	0	0	0	0	10	216	8	0	234	19	5	54	1	79	474
Grand Total	86	180	1	0	267	0	0	0	0	0	12	401	19	0	432	25	7	100	1	133	832
Approach %	32.2	67.4	0.4	0.0		0.0	0.0	0.0	0.0		2.8	92.8	4.4	0.0		18.8	5.3	75.2	0.8		
Total %	10.3	21.6	0.1	0.0	32.1	0.0	0.0	0.0	0.0	0.0	1.4	48.2	2.3	0.0	51.9	3.0	0.8	12.0	0.1	16.0	
Exiting Leg Total					501					20					205					106	832

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
5:00 PM	13	28	0	0	41	0	0	0	0	0	1	47	0	0	48	5	0	8	0	13	102
5:15 PM	10	39	0	0	49	0	0	0	0	0	1	51	3	0	55	1	2	14	1	18	122
5:30 PM	9	28	0	0	37	0	0	0	0	0	3	69	1	0	73	5	1	20	0	26	136
5:45 PM	17	16	1	0	34	0	0	0	0	0	5	49	4	0	58	8	2	12	0	22	114
Total Volume	49	111	1	0	161	0	0	0	0	0	10	216	8	0	234	19	5	54	1	79	474
% Approach Total	30.4	68.9	0.6	0.0		0.0	0.0	0.0	0.0		4.3	92.3	3.4	0.0		24.1	6.3	68.4	1.3		
PHF	0.721	0.712	0.250	0.000	0.821	0.000	0.000	0.000	0.000	0.000	0.500	0.783	0.500	0.000	0.801	0.594	0.625	0.675	0.250	0.760	0.871
Entering Leg	49	111	1	0	161	0	0	0	0	0	10	216	8	0	234	19	5	54	1	79	474
Exiting Leg					270					16					130					58	474
Total					431					16					364					137	948

PDI File #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	2	2	0	0	4	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	11
4:15 PM	3	2	0	0	5	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	9
4:30 PM	1	5	0	0	6	0	0	0	0	0	0	5	0	0	5	0	0	2	0	2	13
4:45 PM	1	0	0	0	1	0	0	0	0	0	0	5	1	0	6	0	0	1	0	1	8
Total	7	9	0	0	16	0	0	0	0	0	0	20	1	0	21	0	0	4	0	4	41
5:00 PM	1	2	0	0	3	0	0	0	0	0	1	1	0	0	2	0	0	2	0	2	7
5:15 PM	1	0	0	0	1	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	5
5:30 PM	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	1	0	3	0	4	10
5:45 PM	1	2	0	0	3	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	7
Total	3	7	0	0	10	0	0	0	0	0	1	11	0	0	12	2	0	5	0	7	29
Grand Total	10	16	0	0	26	0	0	0	0	0	1	31	1	0	33	2	0	9	0	11	70
Approach %	38.5	61.5	0.0	0.0		0.0	0.0	0.0	0.0		3.0	93.9	3.0	0.0		18.2	0.0	81.8	0.0		
Total %	14.3	22.9	0.0	0.0	37.1	0.0	0.0	0.0	0.0	0.0	1.4	44.3	1.4	0.0	47.1	2.9	0.0	12.9	0.0	15.7	
Exiting Leg Total					40					1					18					11	70

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	2	2	0	0	4	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	11
4:15 PM	3	2	0	0	5	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	9
4:30 PM	1	5	0	0	6	0	0	0	0	0	0	5	0	0	5	0	0	2	0	2	13
4:45 PM	1	0	0	0	1	0	0	0	0	0	0	5	1	0	6	0	0	1	0	1	8
Total Volume	7	9	0	0	16	0	0	0	0	0	0	20	1	0	21	0	0	4	0	4	41
% Approach Total	43.8	56.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	95.2	4.8	0.0		0.0	0.0	100.0	0.0		
PHF	0.583	0.450	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.833	0.250	0.000	0.875	0.000	0.000	0.500	0.000	0.500	0.788
Entering Leg	7	9	0	0	16	0	0	0	0	0	0	20	1	0	21	0	0	4	0	4	41
Exiting Leg					24					0					9					8	41
Total					40					0					30					12	82

PDI File #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	3
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	0	3	0	0	3	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	8
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
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	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	6
Grand Total	0	6	0	0	6	0	0	0	0	0	0	6	1	0	7	0	0	1	0	1	14
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	85.7	14.3	0.0		0.0	0.0	100.0	0.0		
Total %	0.0	42.9	0.0	0.0	42.9	0.0	0.0	0.0	0.0	0.0	0.0	42.9	7.1	0.0	50.0	0.0	0.0	7.1	0.0	7.1	
Exiting Leg Total					7					0					6					1	14

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	3
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total Volume	0	3	0	0	3	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	8
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	80.0	20.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.750	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.667
Entering Leg	0	3	0	0	3	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	8
Exiting Leg					4					0					3					1	8
Total					7					0					8					1	16

PDI File #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 2018**
Start Time: **4:00 PM**
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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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	3
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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	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	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	2	0	0	2	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Grand Total	2	0	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	6
Approach %	100.0	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	0.0		
Total %	33.3	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	16.7	0.0	16.7	
Exiting Leg Total					4					0					0					2	6

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	3
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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4
% Approach Total	100.0	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	0.0		
PHF	0.500	0.000	0.000	0.000	0.500	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	0.333
Entering Leg	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4
Exiting Leg					2					0					0					2	4
Total					4					0					1					3	8

PDI File #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	School Street					Ridge Street					School Street					Lupine Road					
	from North					from Northeast					from East					from South					
	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Left	U-Turn	Total	Right	Bear Righ	Thru	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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)

	School Street							Ridge Street							School Street							Lupine Road							
	from North							from Northeast							from East							from South							
	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	U-Turn	CW-WB	CW-EB	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	School Street							Ridge Street							School Street							Lupine Road							
	from North							from Northeast							from East							from South							
	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	U-Turn	CW-WB	CW-EB	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 #: **186242 JJ**
Location: **N: School Street S: Lupine Road NE: Ridge Street**
Location: **E: School Street**
City, State: **Andover, MA**
Client: **Design Consultants/ S. Siragusa**
Site Code: **TBA**
Count Date: **Wednesday, May 16, 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

	School Street							Ridge Street							School Street							Lupine Road							
	from North							from Northeast							from East							from South							
	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	U-Turn	CW-WB	CW-EB	Total	Total
4:00 PM	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	1	1	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	0	0	0	0	1	1	2	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	1	1	2	2
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	2	3	5	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	0	0	0	0	1	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	2	2	4	6
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	2	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	3	4	7	9
Grand Total	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	1	1	0	0	0	0	5	7	12	15
Approach %	0	0	0	0	0	0		0	0	0	0	50	50		0	0	0	0	0	100		0	0	0	0	41.7	58.3		
Total %	0	0	0	0	0	0	0	0	0	0	0	6.67	6.67	13.3	0	0	0	0	0	6.67	6.67	0	0	0	0	33.3	46.7	80	
Exiting Leg Total							0							2							1							12	15

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	School Street							Ridge Street							School Street							Lupine Road							
	from North							from Northeast							from East							from South							
	Thru	Left	Hard Left	U-Turn	CW-EB	CW-WB	Total	Hard Righ	Bear Left	Hard Left	U-Turn	CW-SEB	CW-NWB	Total	Hard Righ	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Bear Righ	Thru	U-Turn	CW-WB	CW-EB	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	1	1	2	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	2	2	4	6
Total Volume	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	4	3	7	9
% Approach Total	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	100.0		0.0	0.0	0.0	0.0	57.1	42.9		
PHF	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	0.250	0.250	0.000	0.000	0.000	0.000	0.500	0.375	0.438	0.375
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	4	3	7	9
Exiting Leg							0							1							1							7	9
Total							0							2							2							14	18

Massachusetts Highway Department
502: Monthly Hourly Volume for May 2016

Location ID:	**502**	**Seasonal Factor Group:**	**U3**
County:	**Essex**	**Daily Factor Group:**	
Funcationl Class	**3**	**Axle Factor Group:**	**U3**
Location:	**TURNPIKE STREET**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1	**323**	**219**	**144**	**112**	**98**	**212**	**469**	**756**	**1257**	**1513**	**2084**	**2123**	**2489**	**2454**	**2359**	**2203**	**1999**	1881	1710	1296	1023	682	469	288	28163
2	140	84	81	122	317	1190	2476	3267	3179	2332	2155	2165	2326	2300	2627	3028	3243	3322	2690	1640	1127	879	542	391	41623
3	197	77	95	120	328	1232	2568	3456	3470	2572	2170	2250	2371	2501	2819	3237	3308	3482	2837	1789	1347	961	610	421	44218
4	193	83	99	109	334	1228	2591	3281	3323	2668	2215	2412	2486	2569	2806	3401	3414	3502	3158	2001	1420	1037	714	434	45478
5																									
6	234	173	100	158	305	1140	2367	3099	3047	2646	2417	2668	2820	2812	2954	3369	3506	3355	2798	2061	1520	1174	942	688	46353
7	393	155	155	101	138	353	755	1152	1568	1987	2249	2525	2820	2744	2715	2752	2503	2356	2013	1711	1337	1093	904	626	35105
8	405	255	120	93	91	178	448	694	953	1475	1841	2219	2437	2410	2364	2195	2139	2104	1912	1748	1323	877	525	386	29192
9	157	123	89	132	308	1295	2580	3416	3360	2535	2202	2215	2423	2461	2928	3308	3385	3462	2972	2302	1387	1057	655	450	45202
10	197	108	94	158	337	1258	2690	3641	3478	2646	2306	2370	2533	2539	2952	3375	3494	3717	3002	1931	1449	1097	711	481	46564
11	193	114	102	133	336	1243	2696	3458	3293	2593	2372	2372	2415	2623	3038	3309	3485	3680	3390	2235	1592	1145	745	465	47027
12	230	137	123	147	334	1216	2710	3620	3315	2564	2351	2451	2477	2603	2984	3316	3565	3805	3177	2194	1639	1126	781	526	47391
13	218	121	111	141	324	1197	2417	3103	3074	2354	2308	2546	2703	2774	3057	3371	3526	3533	2801	1863	1287	1096	907	594	45426
14	309	193	102	103	179	391	836	1246	1783	2155	2460	2664	2709	2700	2466	2579	2338	2252	1988	1551	1396	1160	937	738	35235
15	355	217	146	100	86	227	461	715	1102	1568	1846	2301	2396	2259	2363	2442	2269	2020	1725	1567	1055	696	489	311	28716
16	116	89	70	133	322	1281	2673	3406	3273	2500	2194	2231	2448	2377	2903	3180	3317	3384	2723	1794	1309	935	577	378	43613
17	183	110	90	132	340	1279	2725	3534	3365	2570	2271	2357	2540	2550	3006	3321	3551	3528	3007	1828	1385	1038	648	437	45795
18	179	100	104	117	341	1224	2681	3266	3066	2709	2406	2245	2502	2539	2901	3307	3519	3546	2958	2010	1546	1137	712	457	45572
19	206	88	92	114	362	1254	2620	3452	3121	2535	2149	2285	2411	2488	2811	3511	3440	3602	3148	1967	1503	1143	723	453	45478
20	194	118	114	126	308	1229	2469	3244	2997	2566	2305	2514	2623	2607	3134	3351	3644	3499	2702	1921	1487	1326	1026	768	46272
21	398	225	138	106	154	404	802	1334	1702	2121	2437	2675	2695	2641	2551	2609	2435	2352	2026	1665	1482	1130	960	633	35675
22	367	200	109	89	83	227	522	920	1612	1871	1961	2207	2421	2790	2708	2469	2207	1945	1672	1805	1333	840	551	319	31228
23	150	106	74	136	355	1281	2678	3511	3386	2432	2253	2294	2389	2383	2855	3233	3462	3598	2800	1717	1310	940	554	377	44274
24	168	108	117	129	332	1330	2655	3514	3378	2763	2279	2308	2441	2488	2862	3349	3505	3732	3034	1863	1503	982	713	459	46012
25	213	110	111	133	343	1296	2667	3601	3373	2578	2261	2397	2399	2555	2864	3291	3475	3615	2986	2026	1566	1152	655	458	46125
26	224	96	139	145	366	1304	2763	3505	3249	2704	2339	2415	2502	2507	2930	3324	3447	3673	2929	2092	1500	1125	688	475	46441
27	265	124	103	108	297	1156	2348	2791	2875	2351	2242	2494	2597	2900	3218	3427	3221	2977	2216	1609	1356	1147	854	601	43277
28	275	175	117	111	140	327	752	1048	1440	1833	2064	2182	2172	2150	1995	1879	1720	1747	1604	1357	1207	1046	785	621	28747
29	307	182	116	104	79	204	411	586	823	1128	1491	1715	1932	2072	1967	1709	1741	1584	1530	1344	1063	859	612	448	24007
30	221	140	78	73	106	221	435	484	622	997	1297	1590	1825	1780	2002	1918	1752	1647	1463	1239	1079	738	482	325	22514
31	159	95	91	129	317	1305	2778	3582	3322	2574	2238	2295	2569	2416	2917	3260	3292	3623	2822	2000	1474	991	659	420	45328

May Average	40201.7
AADT	39114
Seasonal Adjustment	-0.02706

APPENDIX C – SAFETY ANALYSIS

Essex Street at Shawsheen Road and Red Spring Road

Crash Date	Crash Time	Crash Hour	City/Town	Crash Severity	Number of Vehicles	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel	Road Surface	Ambient Light	Weather Conditio	X	Y	Vehicle Configuration	Non Motorist Type	Crash Number
1/9/2012	2:30 PM	02:00PM to 02:59PM	ANDOVER	Property damage only	2	Angle	V1: Turning left / V2:Entering traffic lane	V1:W / V2:E	Dry	Daylight	Clear/Clear	228921.2995	934144.556	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V2:(Passenger car)		2964869
4/9/2012	1:09 PM	01:00PM to 01:59PM	ANDOVER	Property damage only	2	Sideswipe, opposite direction	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:W / V2:E	Dry	Daylight	Clear/Clear	228930.3302	934103.84	V1:(Passenger car) V2:(Tractor/semi-trailer)		3024872
5/1/2012	11:35 AM	11:00AM to 11:59AM	ANDOVER	Property damage only	2	Angle	V1: Travelling straight ahead / V2:Turning left	V1:S / V2:W	Wet	Daylight	Cloudy/Rain	228930.7113	934127.99	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V2:(Passenger car)		3060592
12/30/2015	1:34 AM	01:00AM to 01:59AM	ANDOVER	Property damage only	3	Single vehicle crash	V1: Turning right / V2:Parked / V3:Parked	V1:W / V2:E / V3:E	Snow	Dark - lighted roadway	Cloudy/Other	228930.3445	934134.783	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V2:(Light truck(van, mini-van,		4133006
11/10/2016	7:10 PM	07:00PM to 07:59PM	ANDOVER	Property damage only	2	Sideswipe, opposite direction	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:S / V2:N	Dry	Dark - lighted roadway	Clear/Clear	228930.7	934128	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V2:()		4295002

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Andover COUNT DATE : May-18

DISTRICT : 4 UNSIGNALIZED : **X** SIGNALIZED :

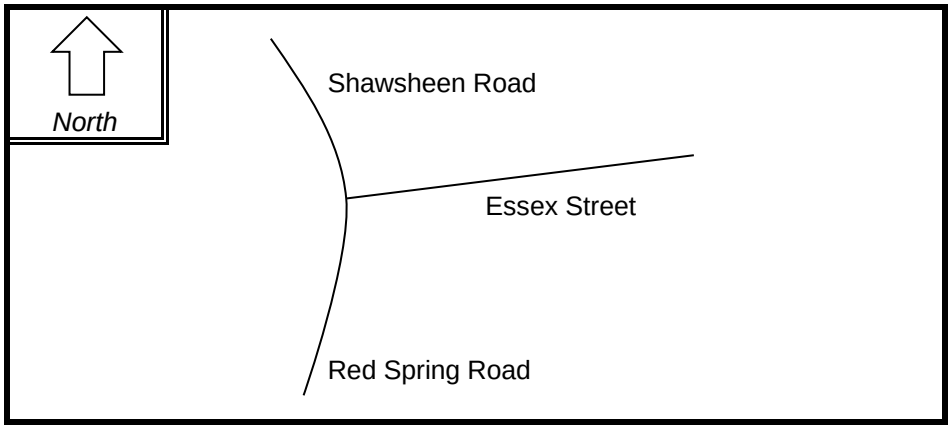
~ INTERSECTION DATA ~

MAJOR STREET : Essex Street

MINOR STREET(S) : Shawsheen Road

Red Spring Road

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (PM) :						**1,306**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **14,511**

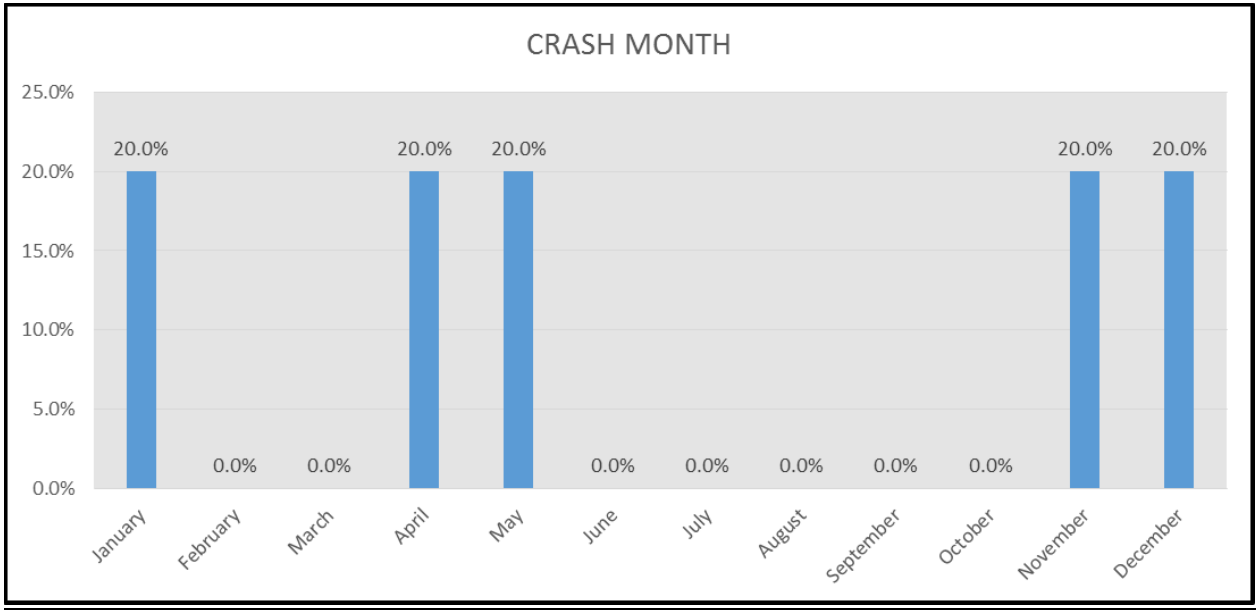
TOTAL # OF CRASHES : 5 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.00**

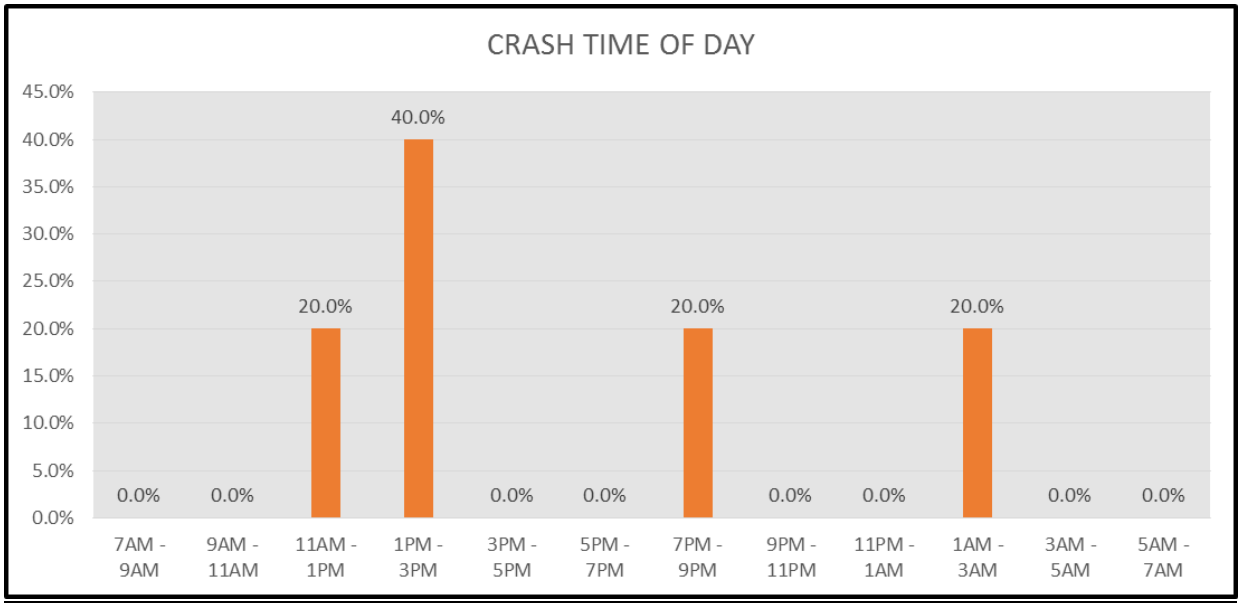
CRASH RATE CALCULATION : 0.19

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

Comments : MassDOT District 4 Average Crash Rate for Unsignalized Intersections = 0.57

Project Title & Date: Historic Mill District, Andover Mar-19


CRASH MONTH
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
20.0%
0.0%
0.0%
20.0%
20.0%
0.0%
0.0%
0.0%
0.0%
0.0%
20.0%
20.0%
January
February
March
April
May
June
July
August
September
October
November
December


CRASH TIME OF DAY
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
0.0%
0.0%
20.0%
40.0%
0.0%
0.0%
20.0%
0.0%
0.0%
20.0%
0.0%
0.0%
7AM - 9AM
9AM - 11AM
11AM - 1PM
1PM - 3PM
3PM - 5PM
5PM - 7PM
7PM - 9PM
9PM - 11PM
11PM - 1AM
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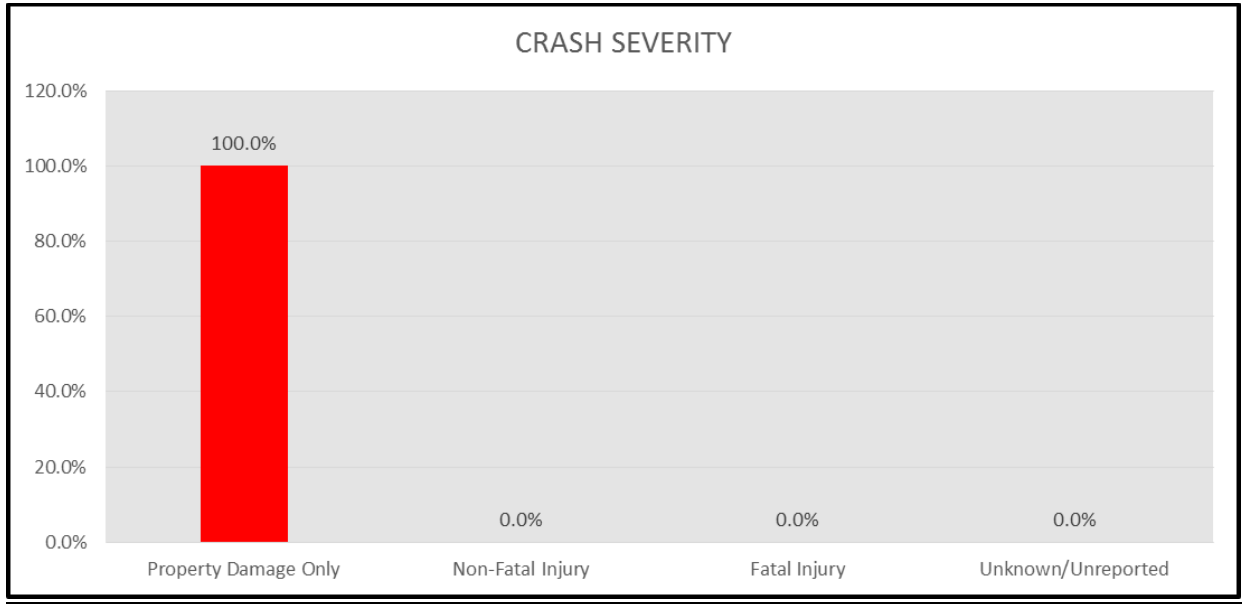
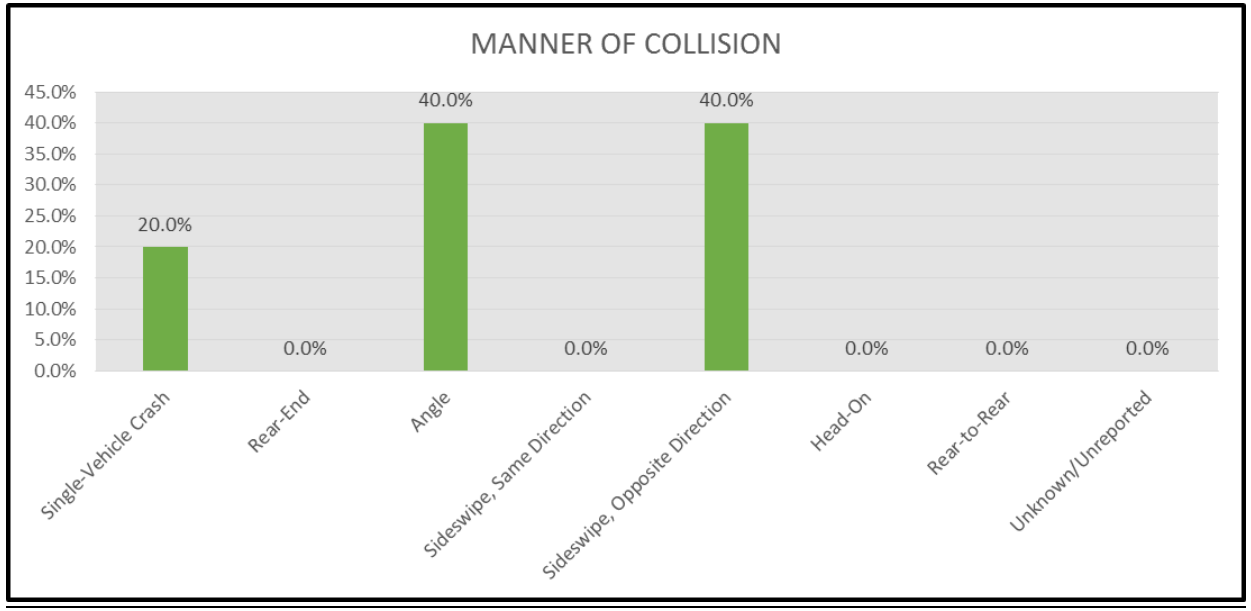
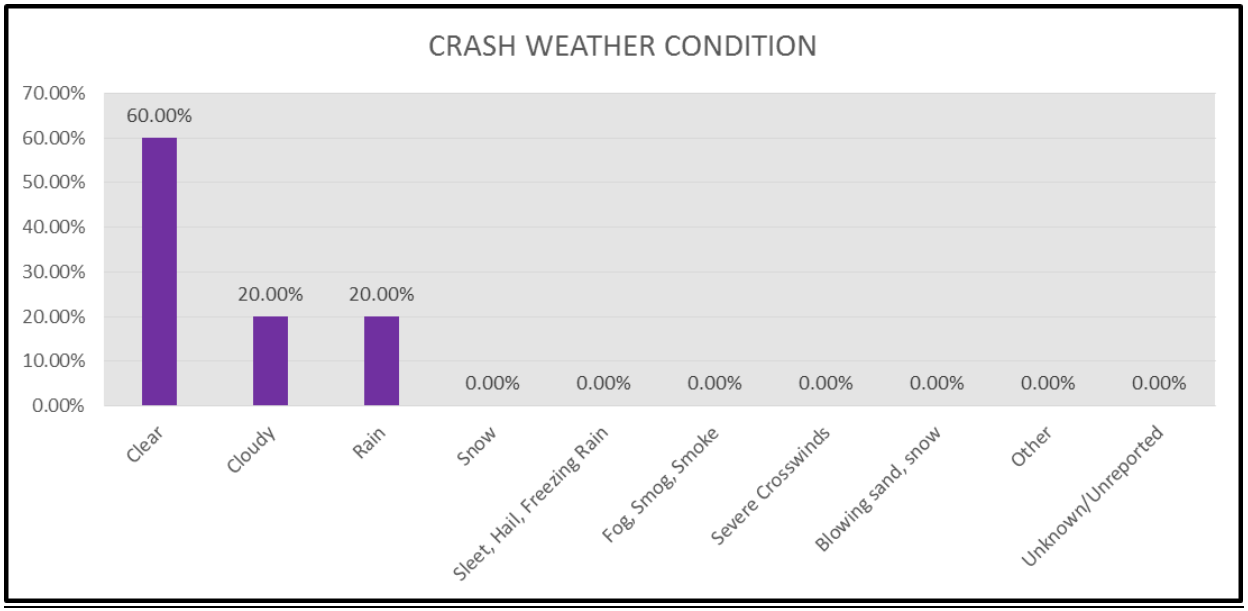
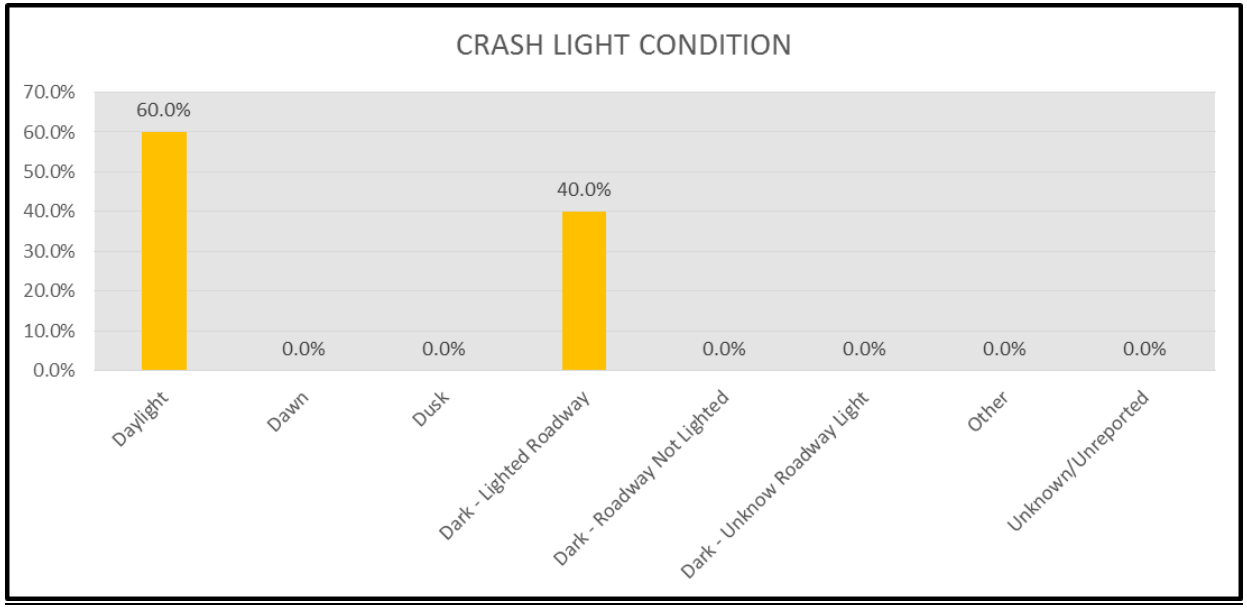
3AM - 5AM
5AM - 7AM


CRASH SEVERITY
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
100.0%
0.0%
0.0%
0.0%
Property Damage Only
Non-Fatal Injury
Fatal Injury
Unknown/Unreported


MANNER OF COLLISION
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
20.0%
0.0%
40.0%
0.0%
40.0%
0.0%
0.0%
0.0%
Single-Vehicle Crash
Rear-End
Angle
Sideswipe, Same Direction
Sideswipe, Opposite Direction
Head-On
Rear-to-Rear
Unknown/Unreported


CRASH WEATHER CONDITION
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
60.00%
20.00%
20.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
Clear
Cloudy
Rain
Snow
Sleet, Hail, Freezing Rain
Fog, Smog, Smoke
Severe Crosswinds
Blowing sand, snow
Other
Unknown/Unreported


CRASH LIGHT CONDITION
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60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
60.0%
0.0%
0.0%
40.0%
0.0%
0.0%
0.0%
0.0%
Daylight
Dawn
Dusk
Dark - Lighted Roadway
Dark - Roadway Not Lighted
Dark - Unknow Roadway Light
Other
Unknown/Unreported

Essex Street at Railroad Street/Pearson Street/Dundee Park Drive

Crash Date	Crash Time	Crash Hour	City/Town	Crash Severity	Number of Vehicles	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition	X	Y	Vehicle Configuration	Non Motorist Type	Crash Number
5/1/2012	11:35 AM	11:00AM to 11:59AM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Turning left	V1:S / V2:W	Wet	Daylight	Cloudy/Rain	228930.7113	934127.99	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		3060592
12/30/2015	1:34 AM	01:00AM to 01:59AM	ANDOVER	Property damage only (none injured)	3	Single vehicle crash	V1: Turning right / V2:Parked / V3:Parked	V1:W / V2:E / V3:E	Snow	Dark - lighted roadway	Cloudy/Other	228930.3445	934134.783	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		4133006
11/10/2016	7:10 PM	07:00PM to 07:59PM	ANDOVER	Property damage only (none injured)	2	Sideswipe, opposite	V1: Slowing or stopped in traffic / V2:Travelling	V1:S / V2:N	Dry	Dark - lighted roadway	Clear/Clear	228930.7	934128	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		4295002

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Andover COUNT DATE : May-18

DISTRICT : 4 UNSIGNALIZED : **X** SIGNALIZED :

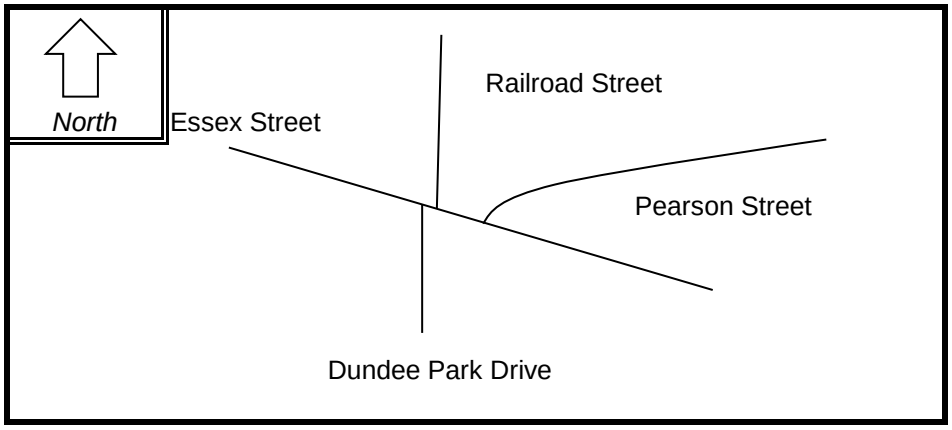
~ INTERSECTION DATA ~

MAJOR STREET : Essex Street

MINOR STREET(S) : Railroad Street

Pearson Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SWB	NWB	NEB	SEB		
PEAK HOURLY VOLUMES (PM) :						1,347

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **14,967**

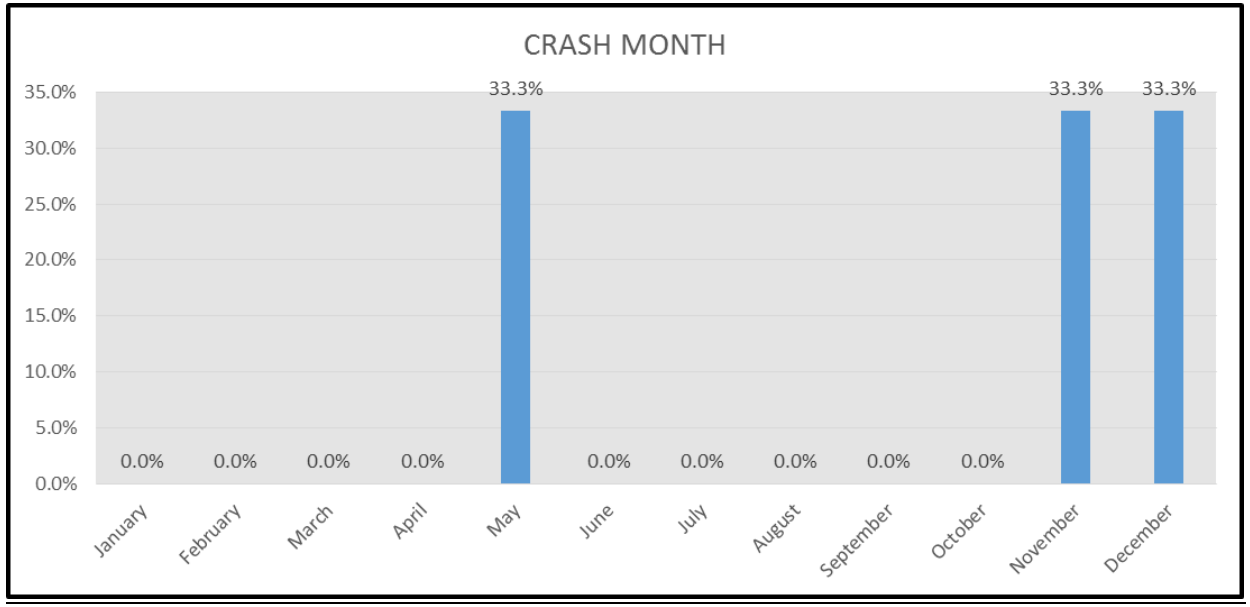
TOTAL # OF CRASHES : 3 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.60**

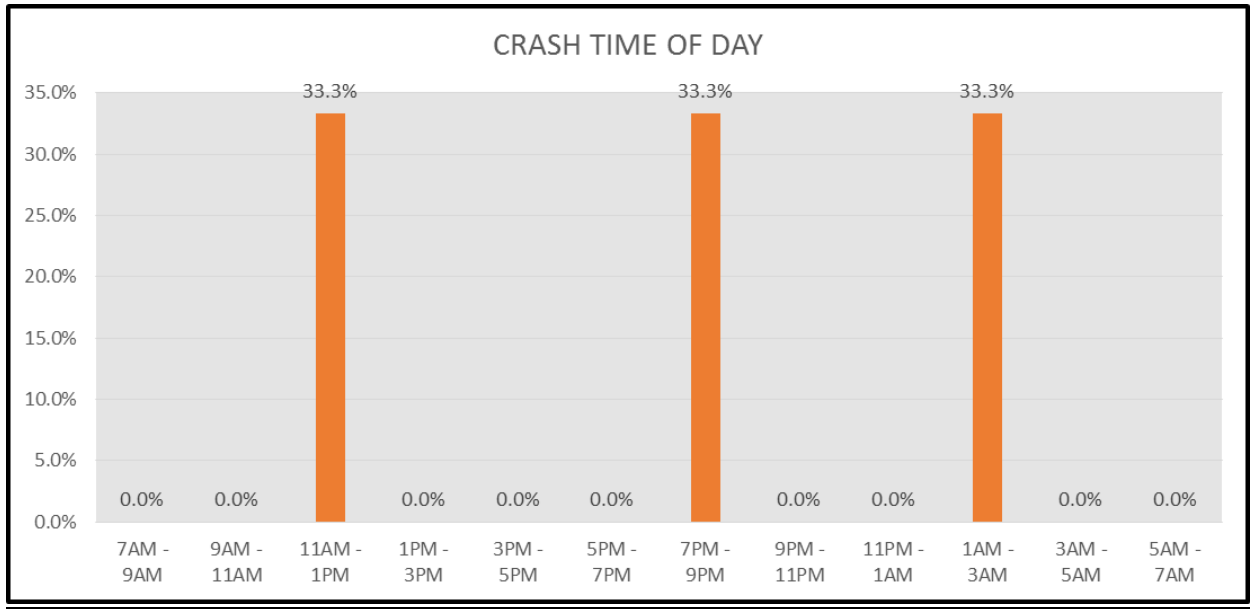
CRASH RATE CALCULATION : 0.11

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

Comments : MassDOT District 4 Average Crash Rate for Unsignalized Intersections = 0.57

Project Title & Date: Historic Mill District, Andover Mar-19


CRASH MONTH
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
0.0%
0.0%
0.0%
0.0%
33.3%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
33.3%
33.3%
January
February
March
April
May
June
July
August
September
October
November
December


CRASH TIME OF DAY
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
0.0%
0.0%
33.3%
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33.3%
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7AM - 9AM
9AM - 11AM
11AM - 1PM
1PM - 3PM
3PM - 5PM
5PM - 7PM
7PM - 9PM
9PM - 11PM
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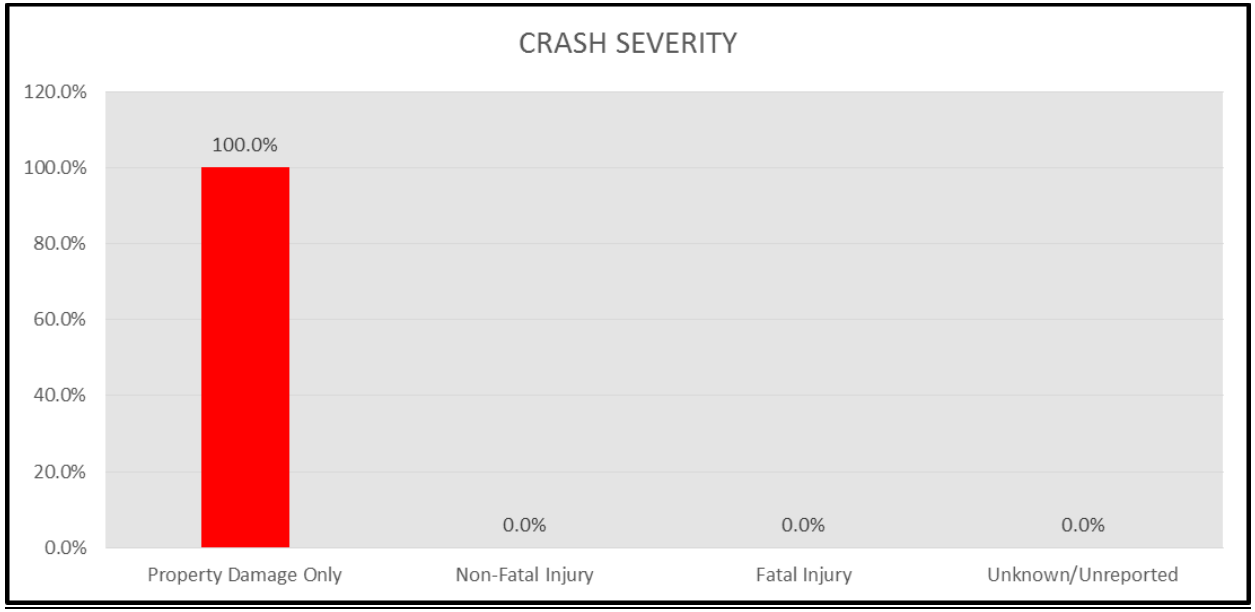
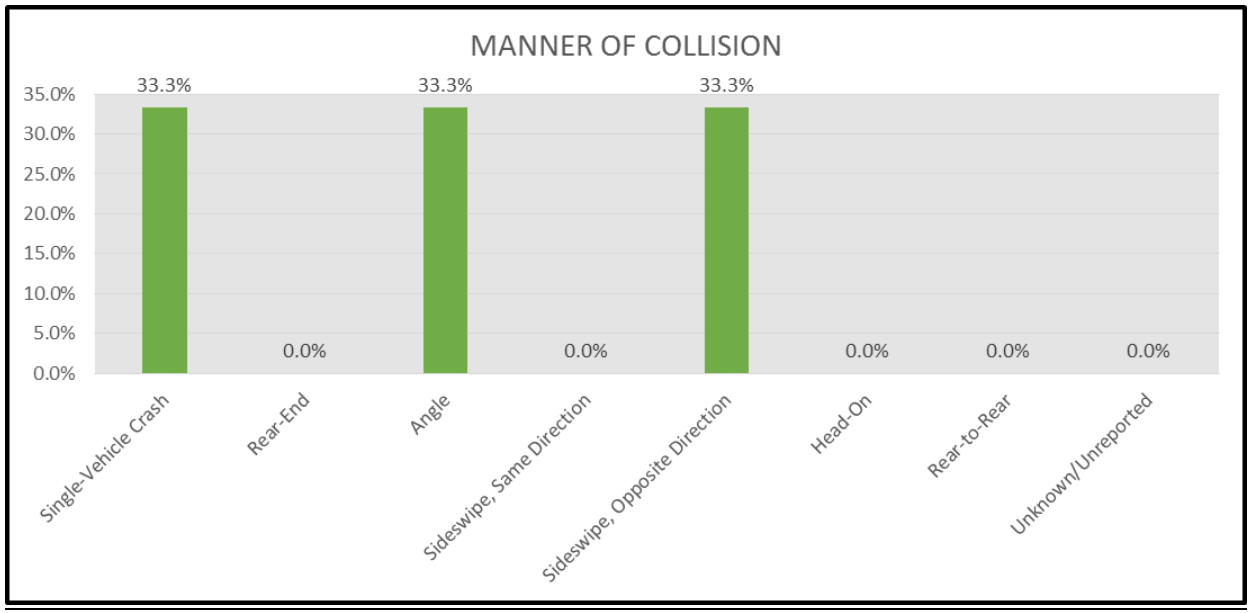
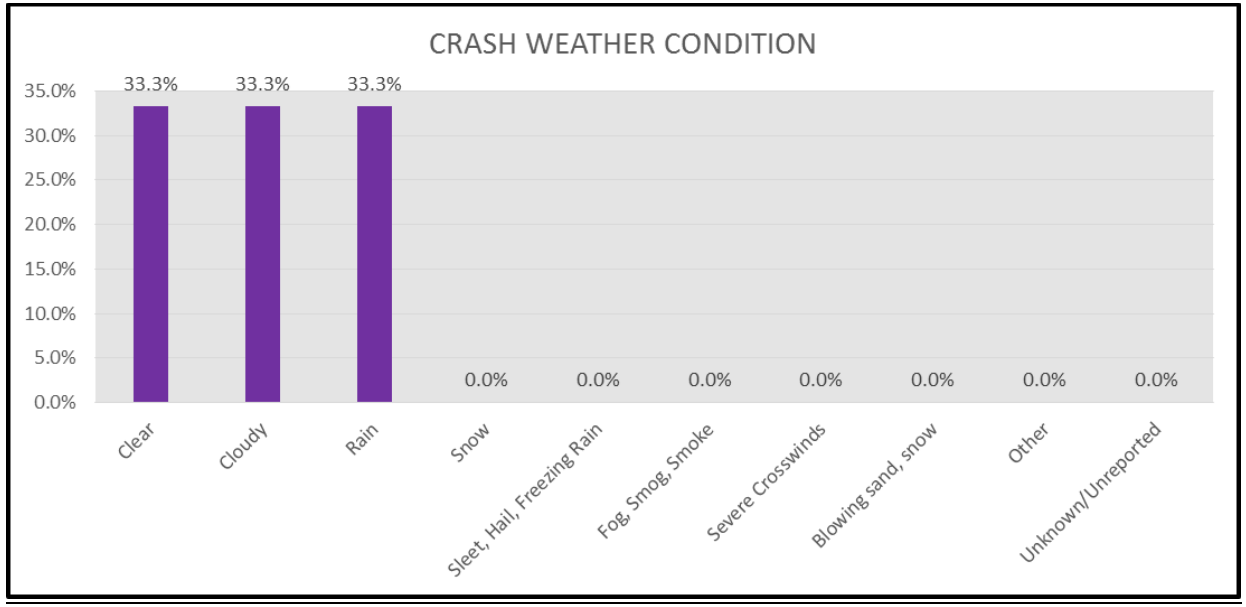
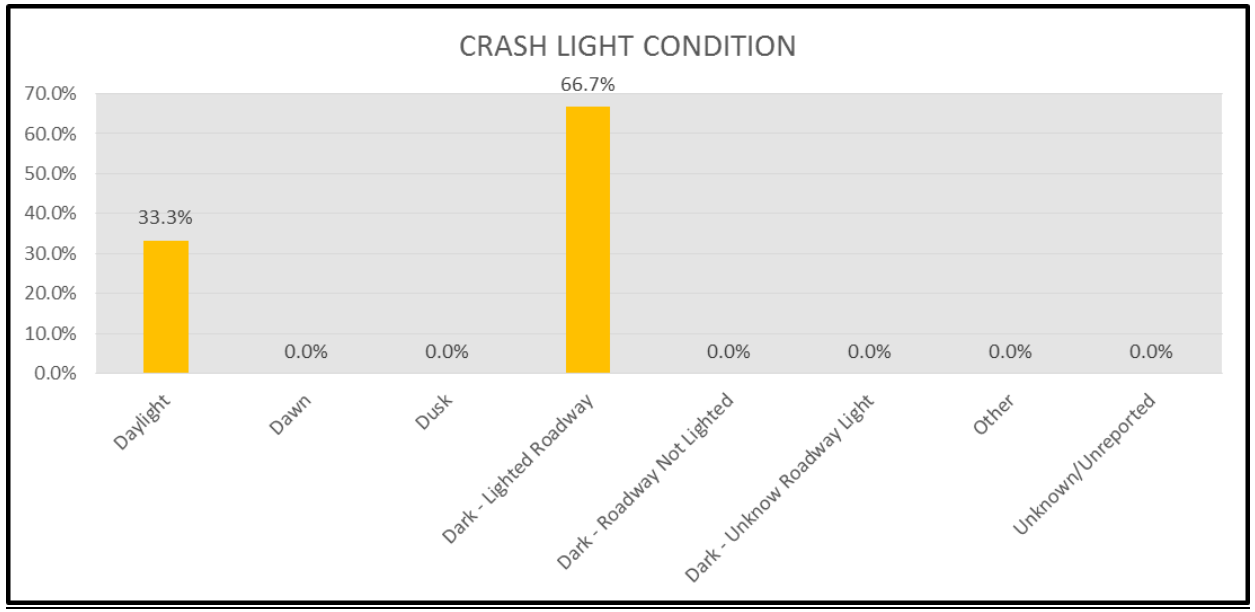
3AM - 5AM
5AM - 7AM


CRASH SEVERITY
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
100.0%
0.0%
0.0%
0.0%
Property Damage Only
Non-Fatal Injury
Fatal Injury
Unknown/Unreported


MANNER OF COLLISION
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
33.3%
0.0%
33.3%
0.0%
33.3%
0.0%
0.0%
0.0%
Single-Vehicle Crash
Rear-End
Angle
Sideswipe, Same Direction
Sideswipe, Opposite Direction
Head-On
Rear-to-Rear
Unknown/Unreported


CRASH WEATHER CONDITION
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
33.3%
33.3%
33.3%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
Clear
Cloudy
Rain
Snow
Sleet, Hail, Freezing Rain
Fog, Smog, Smoke
Severe Crosswinds
Blowing sand, snow
Other
Unknown/Unreported


CRASH LIGHT CONDITION
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
33.3%
0.0%
0.0%
66.7%
0.0%
0.0%
0.0%
0.0%
Daylight
Dawn
Dusk
Dark - Lighted Roadway
Dark - Roadway Not Lighted
Dark - Unknow Roadway Light
Other
Unknown/Unreported

Essex Street at School Street

Crash Date	Crash Time	Crash Hour	City/Town	Crash Severity	Number of Vehicles	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition	X	Y	Vehicle Configuration	Non Motorist Type	Crash Number
3/1/2012	5:22 PM	05:00PM to 05:59PM	ANDOVER	Property damage only (none injured)	2	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling	V1:N / V2:N	Snow	Dark - lighted roadway	Snow/Snow	229128.3783	934103.042	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		2986029
3/1/2012	6:01 PM	06:00PM to 06:59PM	ANDOVER	Property damage only (none injured)	2	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling	V1:N / V2:N	Snow	Dark - lighted roadway	Snow/Snow	229128.3783	934103.042	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		2986130
8/10/2013	5:38 PM	05:00PM to 05:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Entering traffic	V1:W / V2:W	Dry	Daylight	Clear	229128.3783	934103.042	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		3563259
10/9/2014	7:22 PM	07:00PM to 07:59PM	ANDOVER	Property damage only (none injured)	2	Sideswipe, opposite	V1: Travelling straight ahead / V2:Travelling	V1:W / V2:E	Dry	Dark - roadway not	Clear	229128.3783	934103.042	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		3957410
4/10/2015	5:08 PM	05:00PM to 05:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Entering traffic	V1:S / V2:E	Dry	Daylight	Cloudy/Cloudy	229128.3783	934103.042	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		4033792
12/7/2016	6:57 PM	06:00PM to 06:59PM	ANDOVER	Property damage only (none injured)	2	Rear-end	V1: Turning left / V2:Travelling straight ahead	V1:E / V2:E	Wet	Dark - lighted roadway	Cloudy/Cloudy	229128.4	934103.1	V1:(Passenger car) V2:(Passenger car)		4297069
12/12/2016	6:52 PM	06:00PM to 06:59PM	ANDOVER	Property damage only (none injured)	1	Single vehicle crash	V1: Backing	V1:N	Wet	Dark - lighted roadway	Clear	229128.4	934103.1	V1:(Passenger car)		4299640

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Andover COUNT DATE : May-18

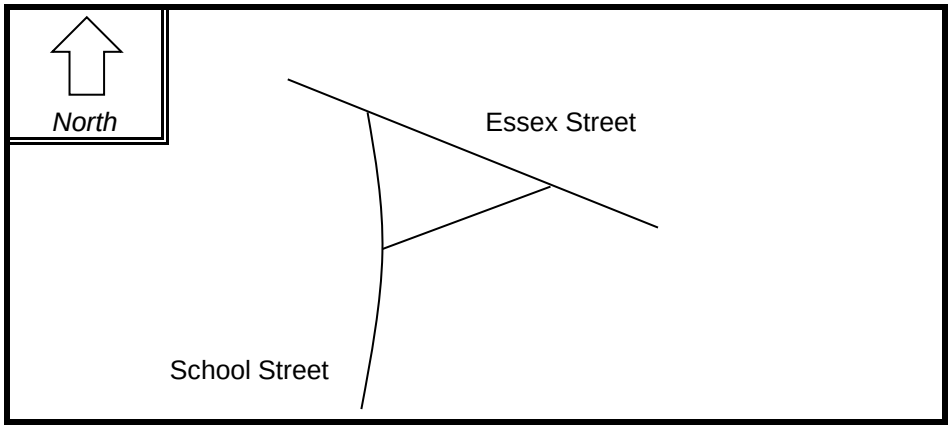
DISTRICT : 4 UNSIGNALIZED : **X** SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Essex Street

MINOR STREET(S) : School Street

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (PM) :						**928**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **10,311**

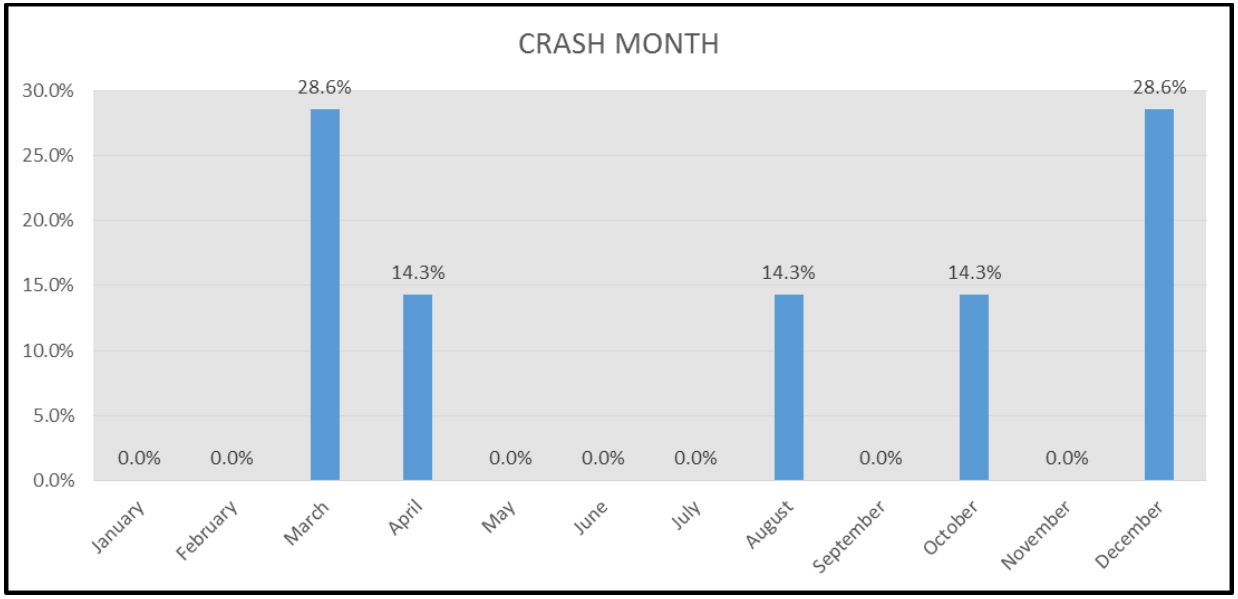
TOTAL # OF CRASHES : 7 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.40**

CRASH RATE CALCULATION : 0.37

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

Comments : MassDOT District 4 Average Crash Rate for Unsignalized Intersections = 0.57

Project Title & Date: Historic Mill District, Andover Mar-19


CRASH MONTH
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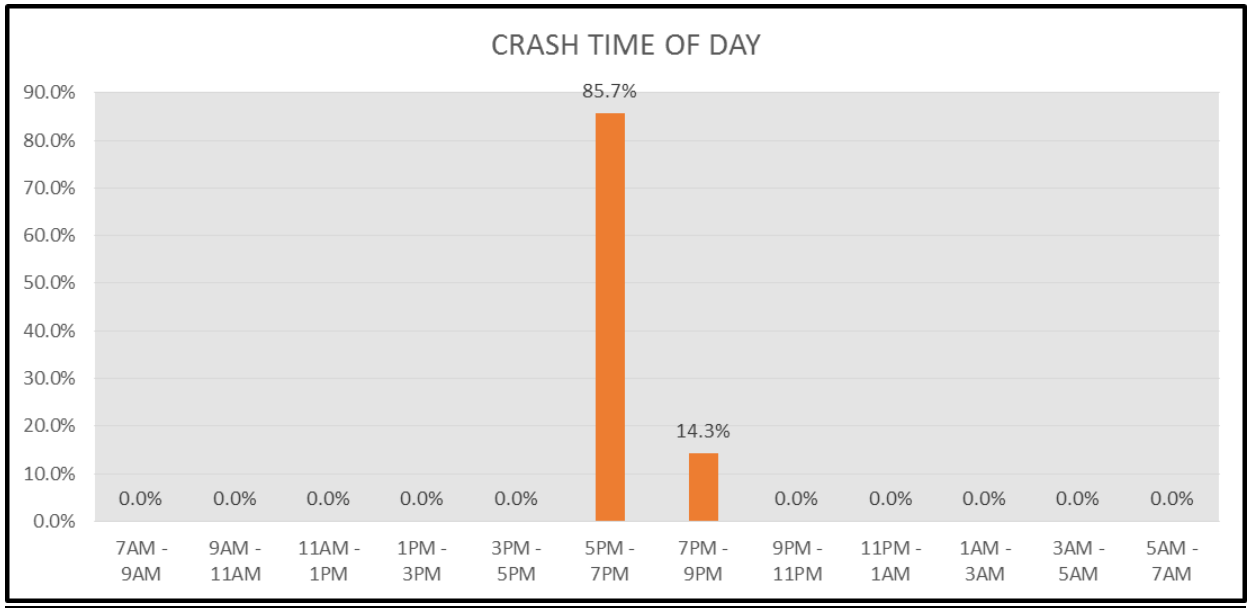
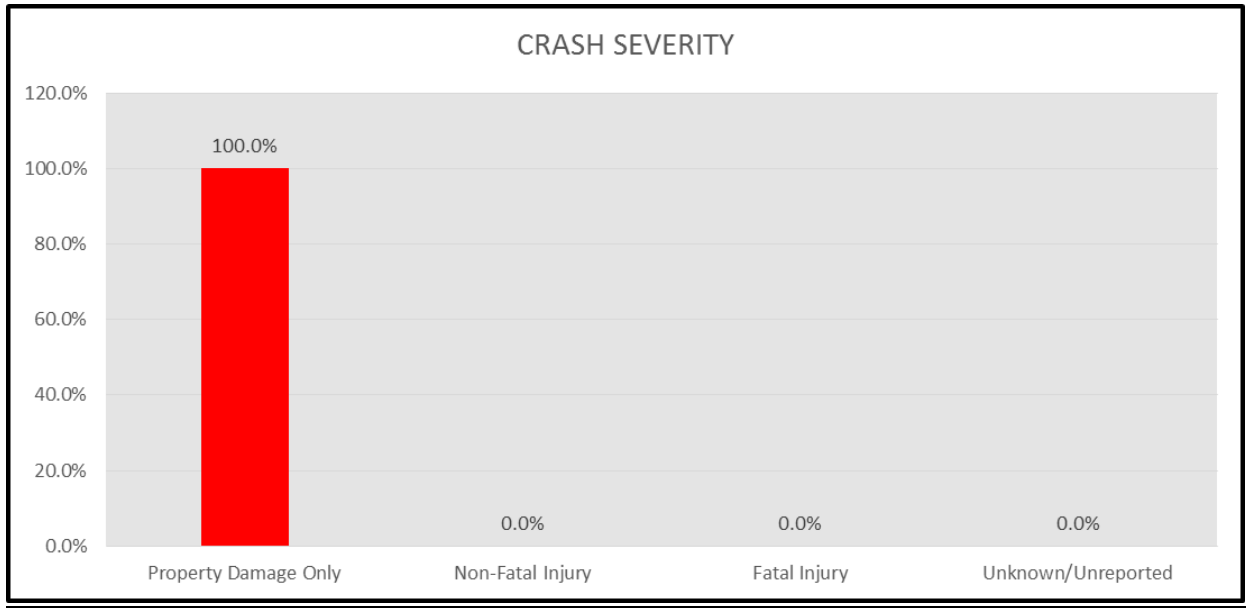
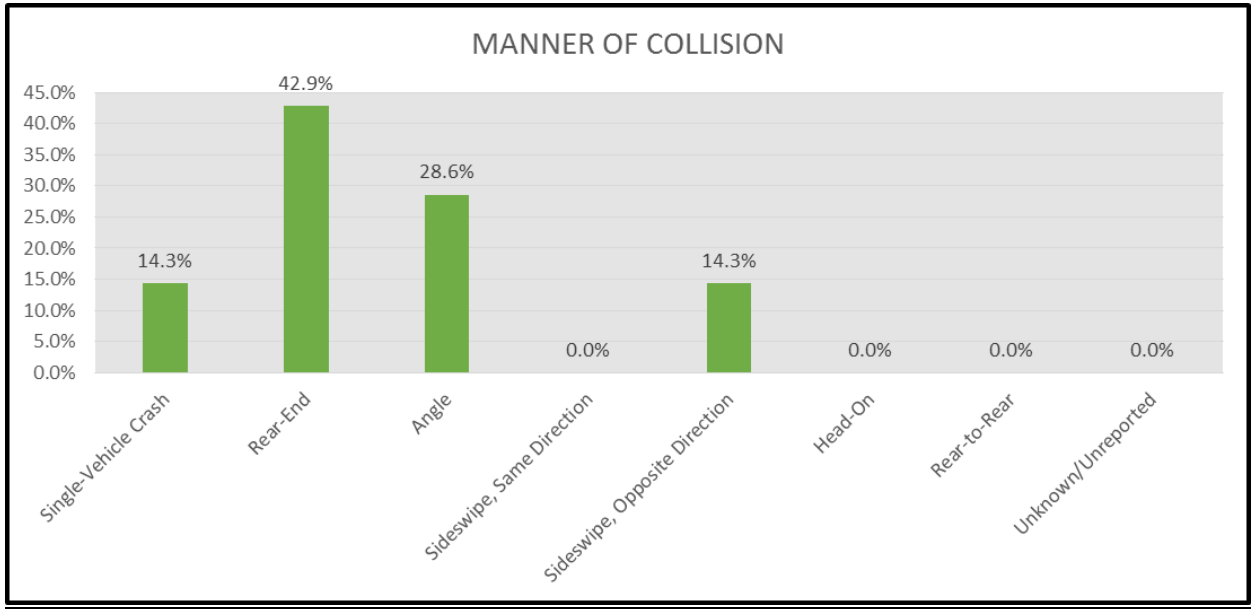
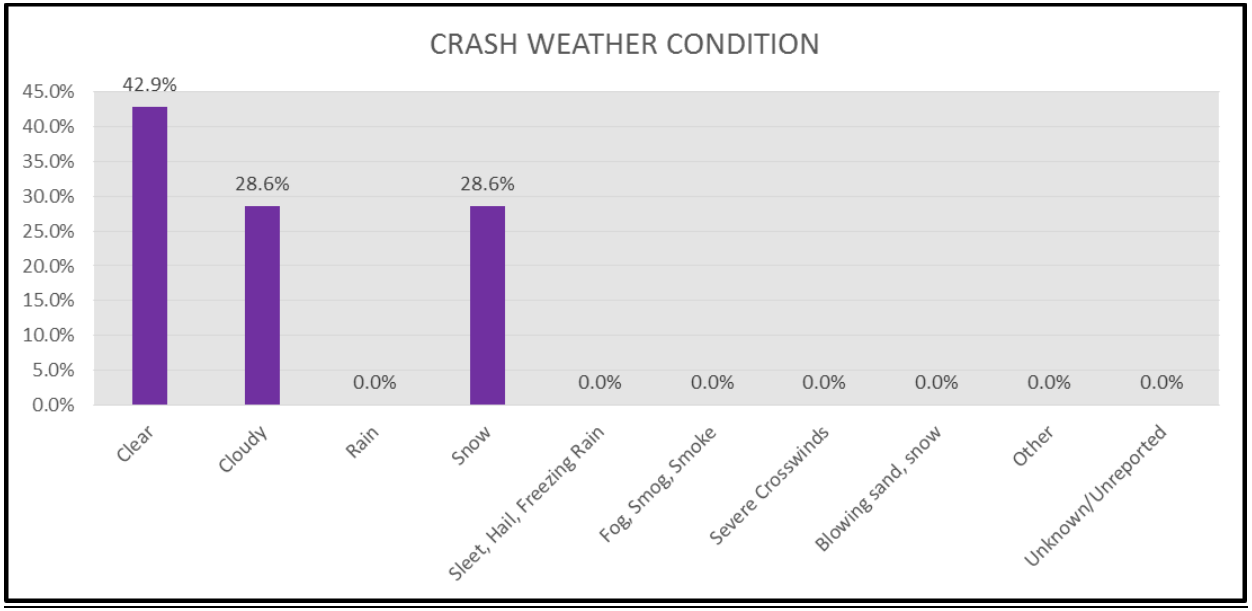
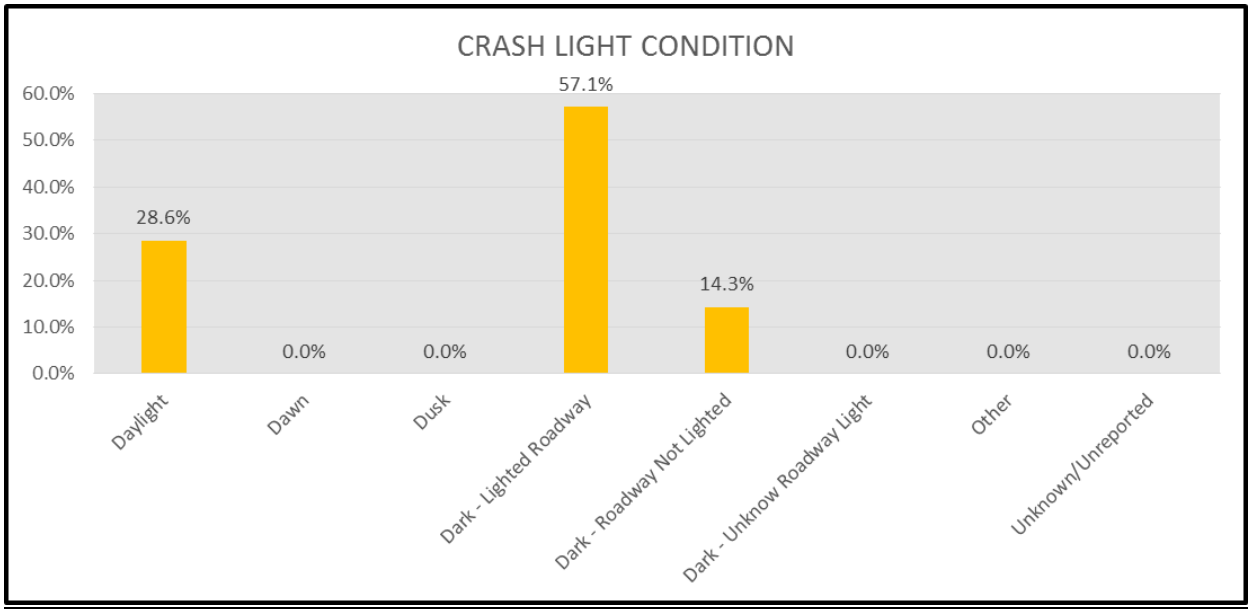
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
0.0%
0.0%
28.6%
14.3%
0.0%
0.0%
0.0%
14.3%
0.0%
14.3%
0.0%
28.6%
January
February
March
April
May
June
July
August
September
October
November
December


CRASH TIME OF DAY
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
85.7%
14.3%
0.0%
0.0%
0.0%
0.0%
0.0%
7AM - 9AM
9AM - 11AM
11AM - 1PM
1PM - 3PM
3PM - 5PM
5PM - 7PM
7PM - 9PM
9PM - 11PM
11PM - 1AM
1AM - 3AM
3AM - 5AM
5AM - 7AM


CRASH SEVERITY
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
100.0%
0.0%
0.0%
0.0%
Property Damage Only
Non-Fatal Injury
Fatal Injury
Unknown/Unreported


MANNER OF COLLISION
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
14.3%
42.9%
28.6%
0.0%
14.3%
0.0%
0.0%
0.0%
Single-Vehicle Crash
Rear-End
Angle
Sideswipe, Same Direction
Sideswipe, Opposite Direction
Head-On
Rear-to-Rear
Unknown/Unreported


CRASH WEATHER CONDITION
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
42.9%
28.6%
0.0%
28.6%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
Clear
Cloudy
Rain
Snow
Sleet, Hail, Freezing Rain
Fog, Smog, Smoke
Severe Crosswinds
Blowing sand, snow
Other
Unknown/Unreported


CRASH LIGHT CONDITION
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
28.6%
0.0%
0.0%
57.1%
14.3%
0.0%
0.0%
0.0%
Daylight
Dawn
Dusk
Dark - Lighted Roadway
Dark - Roadway Not Lighted
Dark - Unknow Roadway Light
Other
Unknown/Unreported

Essex Street at Brook Street and Ridge Street

Crash Date	Crash Time	Crash Hour	City/Town	Crash Severity	Number of Vehicles	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition	X	Y	Vehicle Configuration	Non Motorist Type	Crash Number
8/2/2012	3:07 PM	03:00PM to 03:59PM	ANDOVER	Property damage only (none injured)	2	Sideswipe, same direction	V1: Travelling straight ahead / V2:Travelling	V1:N / V2:N	Dry	Daylight	Clear/Clear	229186.6874	934069.5	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		3235193
5/15/2013	5:22 PM	05:00PM to 05:59PM	ANDOVER	Not Reported	2	Sideswipe, opposite	V1: Parked / V2:Not reported	V1:N / V2:8	Dry	Daylight	Cloudy	229189.4051	934069.642	V1:(Passenger car) V2:(Unknown vehicle configuration)		3422211
1/4/2015	10:48 AM	10:00AM to 10:59AM	ANDOVER	Property damage only (none injured)	1	Single vehicle crash	V1: Turning right	V1:W	Wet	Daylight	Rain/Cloudy	229186.6874	934069.5	V1:(Tractor/semi-trailer)		3993938
2/16/2015	10:14 AM	10:00AM to 10:59AM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Turning right / V2:Turning left	V1:N / V2:W	Wet	Daylight	Clear/Clear	229186.6874	934069.5	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		4009762
3/24/2015	7:36 AM	07:00AM to 07:59AM	ANDOVER	Property damage only (none injured)	2	Rear-end	V1: Backing / V2:Slowing or stopped in traffic	V1:N / V2:N	Dry	Daylight	Clear	229185.8732	934068.366	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		4033776
4/18/2016	6:14 PM	06:00PM to 06:59PM	ANDOVER	Non-fatal injury	2	Angle	V1: Turning left / V2:Travelling straight ahead	V1:W / V2:W	Dry	Daylight	Clear/Clear	229186.7	934069.5	V1:(Passenger car) V2:(Passenger car)		4181006
8/1/2016	5:39 PM	05:00PM to 05:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Entering traffic	V1:N / V2:E	Dry	Daylight	Cloudy/Cloudy	229186.7	934069.5	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		4228605
8/15/2016	11:36 AM	11:00AM to 11:59AM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Turning left / V2:Turning left	V1:S / V2:W	Dry	Daylight	Clear/Clear	229186.7	934069.5	V1:(Passenger car) V2:(Passenger car)		4233743
11/16/2016	10:56 AM	10:00AM to 10:59AM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Travelling	V1:E / V2:S	Wet	Daylight	Cloudy/Rain	229186.7	934069.5	V1:(Passenger car) V2:(Passenger car)		4296966

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Andover COUNT DATE : May-18

DISTRICT : 4 UNSIGNALIZED : **X** SIGNALIZED :

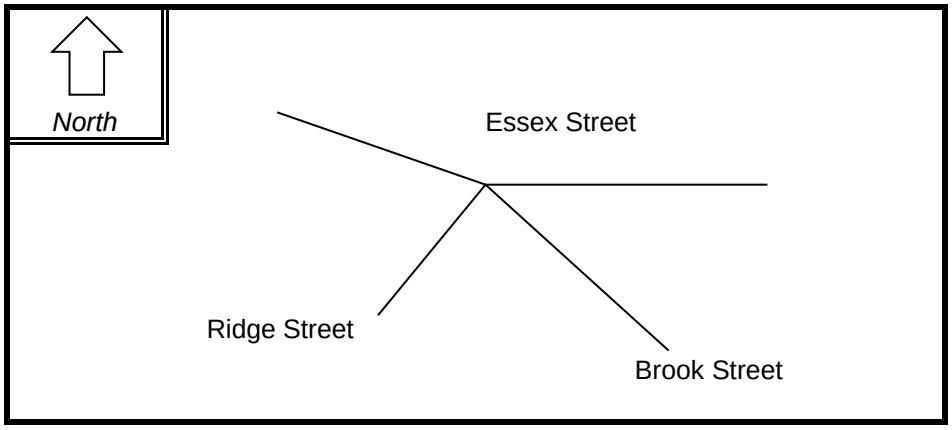
~ INTERSECTION DATA ~

MAJOR STREET : Essex Street

MINOR STREET(S) : Ridge Street

Brook Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (PM) :						**530**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **5,889**

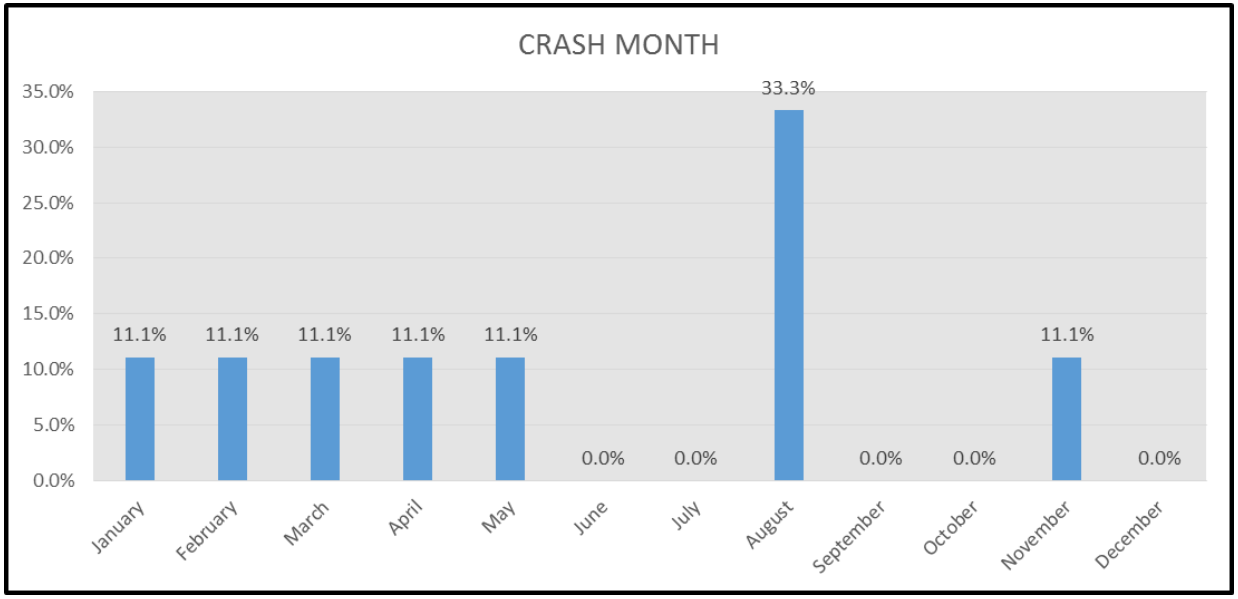
TOTAL # OF CRASHES : 9 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.80**

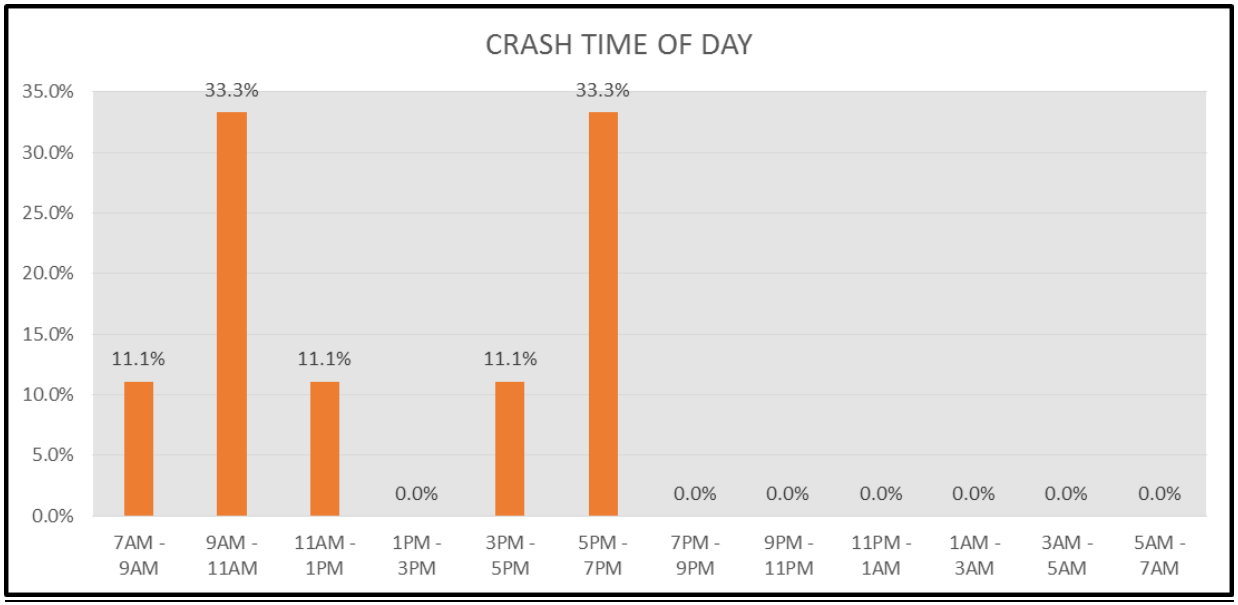
CRASH RATE CALCULATION : 0.84

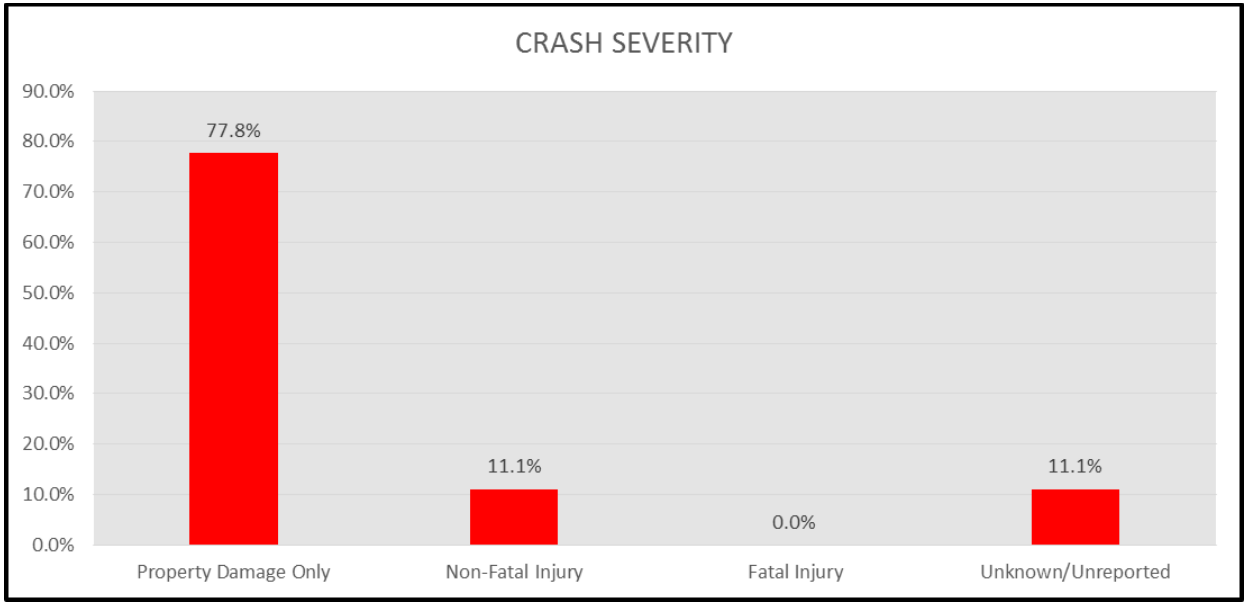
$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

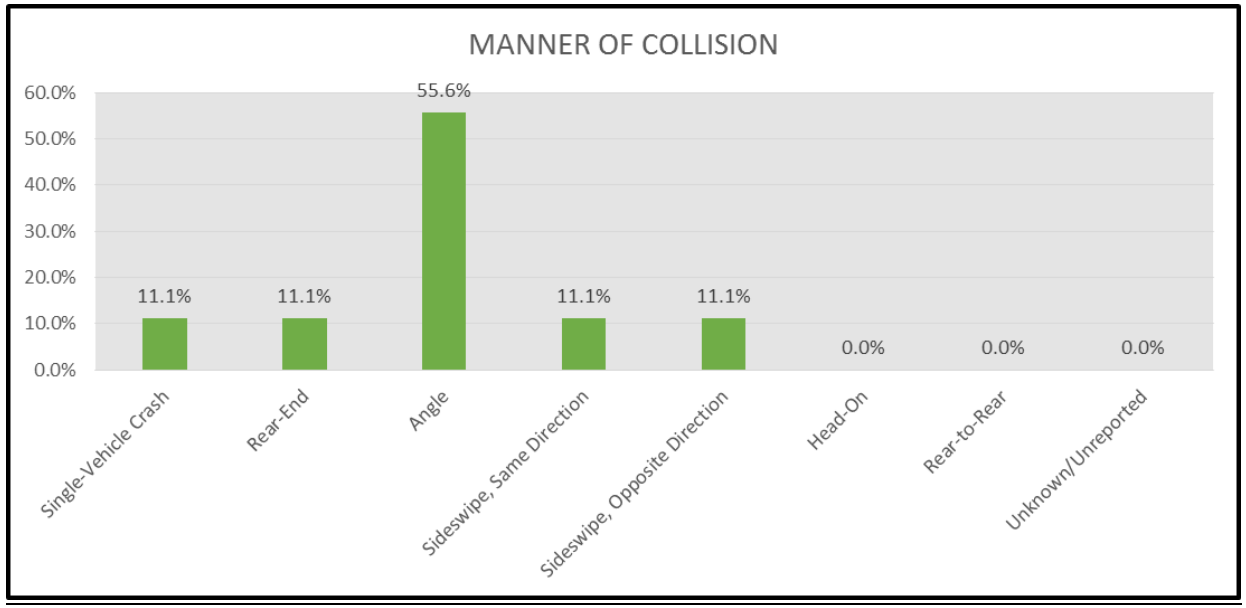
Comments : MassDOT District 4 Average Crash Rate for Unsignalized Intersections = 0.57

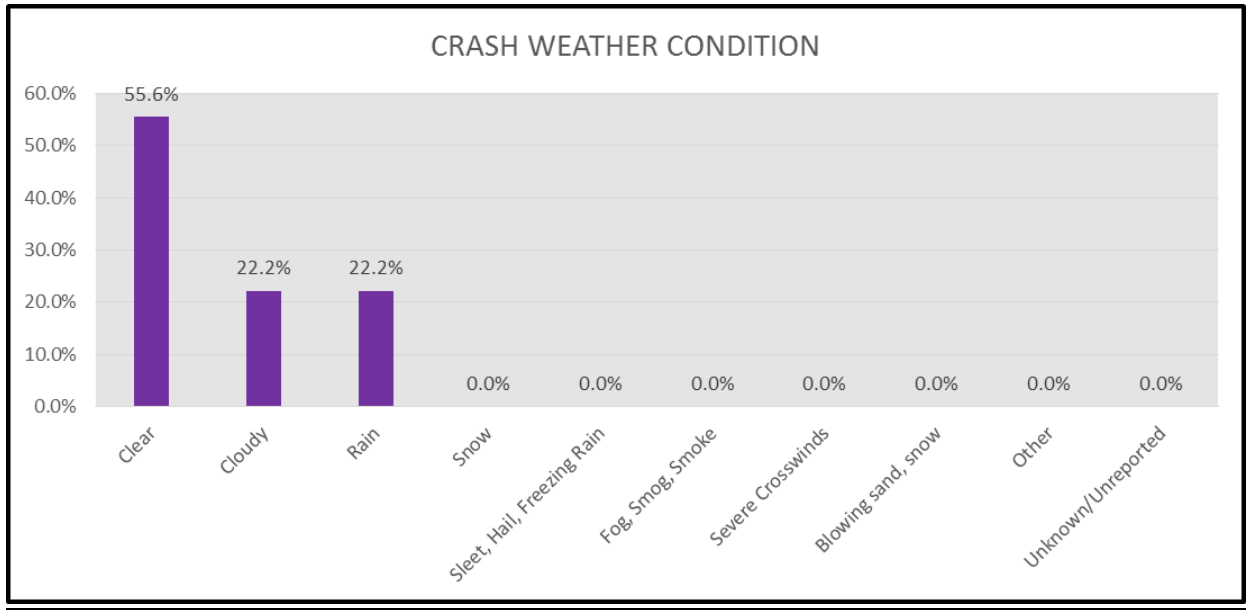
Project Title & Date: Historic Mill District, Andover Mar-19

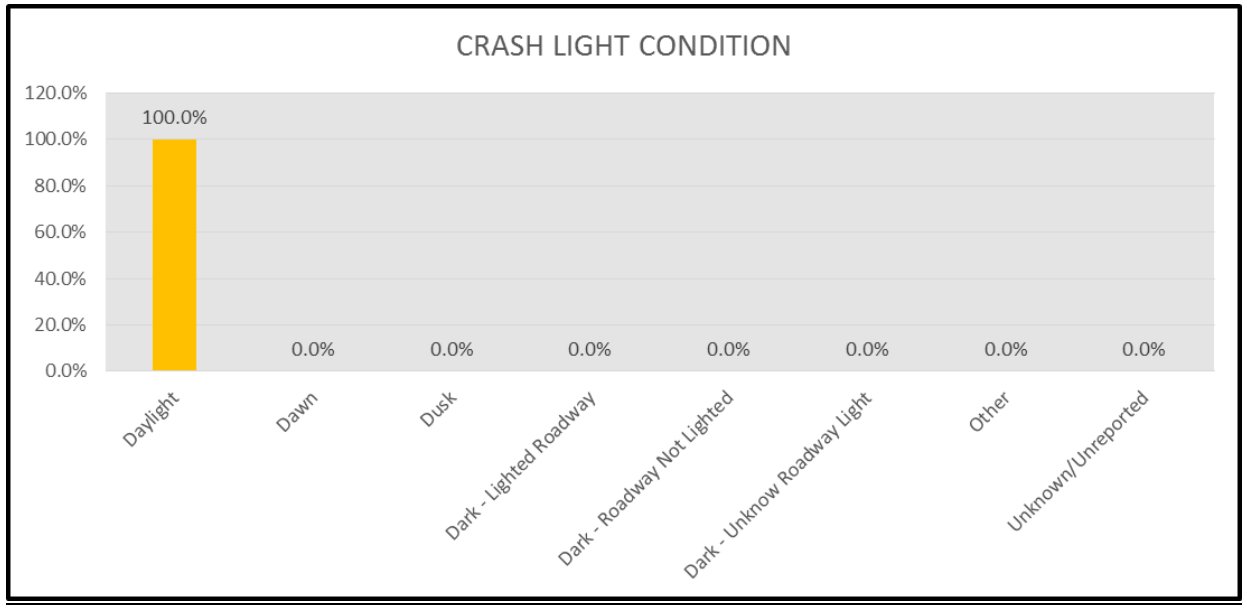

CRASH MONTH
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
11.1%
11.1%
11.1%
11.1%
11.1%
0.0%
0.0%
33.3%
0.0%
0.0%
11.1%
0.0%
January
February
March
April
May
June
July
August
September
October
November
December


CRASH TIME OF DAY
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
11.1%
33.3%
11.1%
0.0%
11.1%
33.3%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
7AM - 9AM
9AM - 11AM
11AM - 1PM
1PM - 3PM
3PM - 5PM
5PM - 7PM
7PM - 9PM
9PM - 11PM
11PM - 1AM
1AM - 3AM
3AM - 5AM
5AM - 7AM


CRASH SEVERITY
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
77.8%
11.1%
0.0%
11.1%
Property Damage Only
Non-Fatal Injury
Fatal Injury
Unknown/Unreported


MANNER OF COLLISION
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
11.1%
11.1%
55.6%
11.1%
11.1%
0.0%
0.0%
0.0%
Single-Vehicle Crash
Rear-End
Angle
Sideswipe, Same Direction
Sideswipe, Opposite Direction
Head-On
Rear-to-Rear
Unknown/Unreported


CRASH WEATHER CONDITION
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
55.6%
22.2%
22.2%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
Clear
Cloudy
Rain
Snow
Sleet, Hail, Freezing Rain
Fog, Smog, Smoke
Severe Crosswinds
Blowing sand, snow
Other
Unknown/Unreported


CRASH LIGHT CONDITION
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
100.0%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
Daylight
Dawn
Dusk
Dark - Lighted Roadway
Dark - Roadway Not Lighted
Dark - Unknow Roadway Light
Other
Unknown/Unreported

Central Street at Brook Street

Crash Date	Crash Time	Crash Hour	City/Town	Crash Severity	Number of Vehicles	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition	X	Y	Vehicle Configuration	Non Motorist Type	Crash Number
1/12/2012	10:32 AM	10:00AM to 10:59AM	ANDOVER	Property damage only (none injured)	2	Rear-end	V1: Travelling straight ahead / V2:Parked	V1:E / V2:8	Wet	Daylight	Sleet, hail (freezing rain or drizzle)	229368.8089	933903.593	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		2969840
7/9/2012	12:05 PM	12:00PM to 12:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Turning left	V1:N / V2:W	Dry	Daylight	Clear/Clear	229369.8124	933905.813	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		3182610
11/6/2012	11:13 PM	11:00PM to 11:59PM	ANDOVER	Property damage only (none injured)	1	Single vehicle crash	V1: Turning right	V1:S	Dry	Dark - unknown roadway	Clear/Clear	229369.8124	933905.813	V1:(Passenger car)		3294252
7/11/2013	7:57 PM	07:00PM to 07:59PM	ANDOVER	Non-fatal injury	2	Angle	V1: Travelling straight ahead / V2:Turning left	V1:S / V2:E	Dry	Daylight	Clear/Clear	229371.5347	933909.607	V1:(Passenger car) V2:(Passenger car)		3510957
8/15/2013	7:43 AM	07:00AM to 07:59AM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Turning left / V2:Travelling straight ahead	V1:W / V2:W	Dry	Daylight	Clear	229371.5347	933909.607	V1:(Passenger car) V2:(Passenger car)		3563262
2/18/2014	1:10 PM	01:00PM to 01:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Parked	V1:E / V2:E	Ice	Daylight	Cloudy/Snow	229371.5347	933909.607	V1:(Passenger car) V2:(Passenger car)		3738342
8/5/2014	6:13 PM	06:00PM to 06:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Turning left	V1:W / V2:S	Dry	Daylight	Clear	229371.5347	933909.607	V1:(Passenger car) V2:(Passenger car)		3905296
12/2/2014	2:05 PM	02:00PM to 02:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Turning right	V1:W / V2:S	Dry	Daylight	Cloudy/Cloudy	229371.5347	933909.607	V1:(Passenger car) V2:(Passenger car)		3980208
12/19/2014	12:51 PM	12:00PM to 12:59PM	ANDOVER	Property damage only (none injured)	2	Rear-end	V1: Travelling straight ahead / V2:Travelling	V1:W / V2:W	Dry	Daylight	Cloudy	229371.5347	933909.607	V1:(Truck/trailer) V2:(Passenger car)		3989924
1/25/2015	4:05 PM	04:00PM to 04:59PM	ANDOVER	Property damage only (none injured)	3	Sideswipe, same direction	V1: Travelling straight ahead / V2:Parked /	V1:W / V2:8 / V3:8	Wet	Dusk	Clear/Clear	229368.8089	933903.593	V1:(Passenger car) V2:(Passenger car) V3:(Passenger car)		3999471
11/12/2015	12:36 PM	12:00PM to 12:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Turning left	V1:W / V2:E	Wet	Daylight	Cloudy/Rain	229368.8089	933903.593	V1:(Passenger car) V2:(Passenger car)		4111115
12/24/2015	3:23 PM	03:00PM to 03:59PM	ANDOVER	Property damage only (none injured)	2	Sideswipe, same direction	V1: Backing / V2:Travelling straight ahead	V1:N / V2:S	Wet	Daylight	Cloudy	229368.8089	933903.593	V1:(Passenger car) V2:(Passenger car)		4132997
2/23/2016	4:07 PM	04:00PM to 04:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Entering traffic	V1:W / V2:S	Dry	Daylight	Cloudy/Cloudy	229371.5	933909.6	V1:(Passenger car) V2:(Passenger car)		4157499
9/27/2016	10:00 AM	10:00AM to 10:59AM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Entering traffic	V1:W / V2:S	Wet	Daylight	Cloudy/Cloudy	229371.5	933909.6	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		4260405

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Andover COUNT DATE : May-18

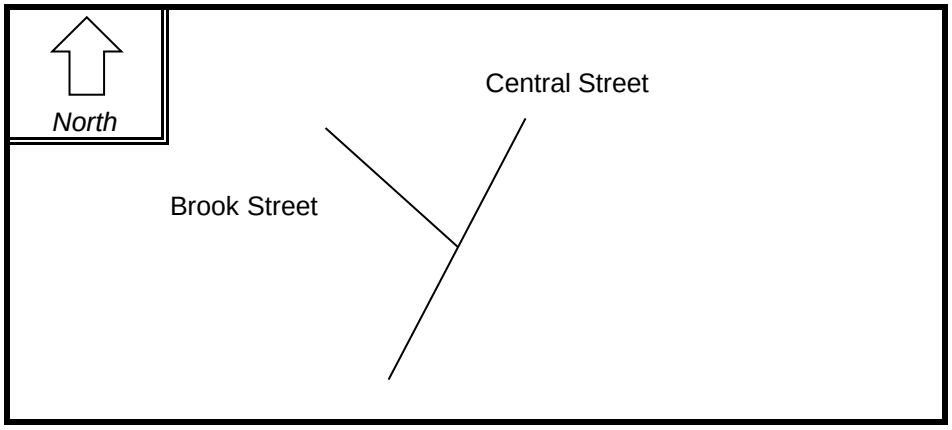
DISTRICT : 4 UNSIGNALIZED : **X** SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Central Street

MINOR STREET(S) : Brook Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (PM) :						**1,122**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **12,467**

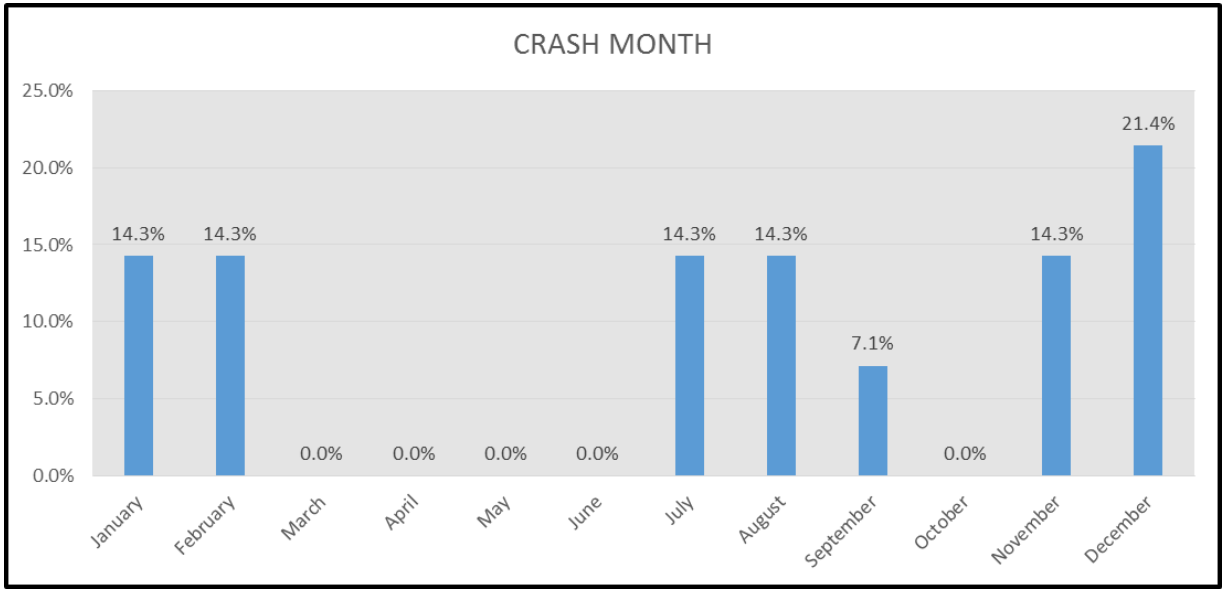
TOTAL # OF CRASHES : 14 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **2.80**

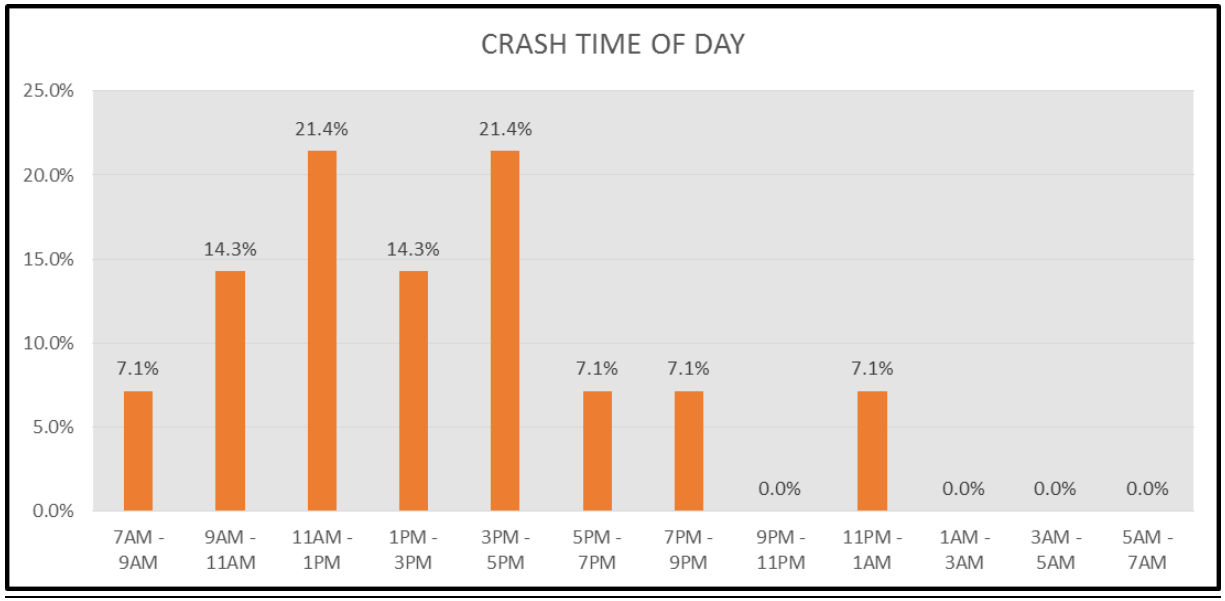
CRASH RATE CALCULATION : 0.62

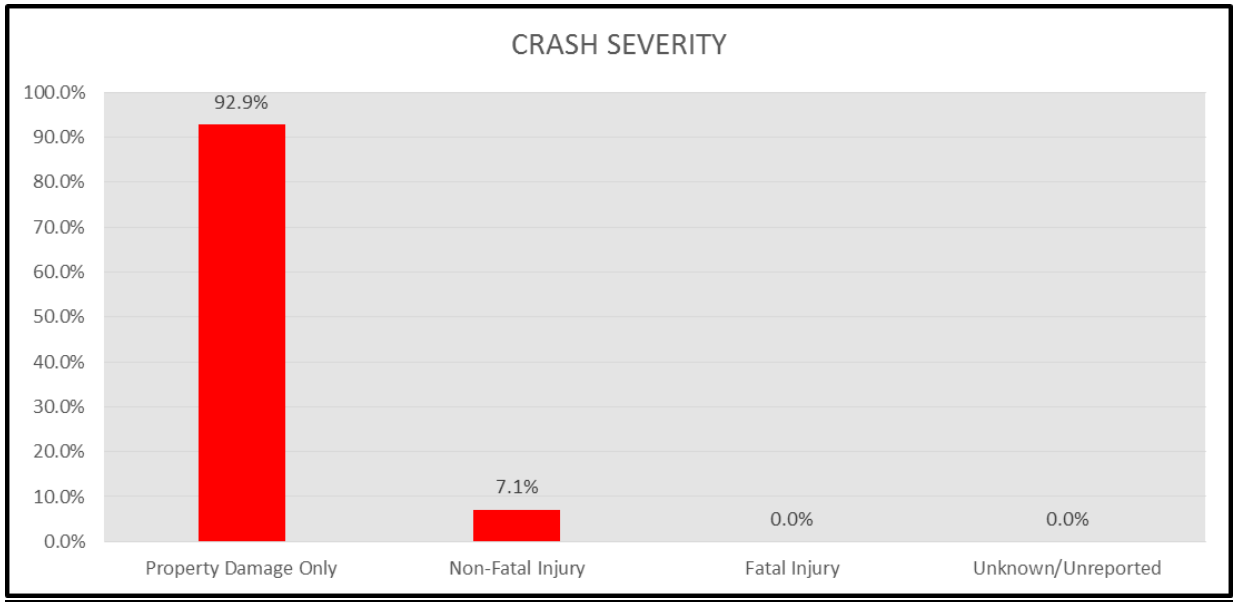
$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

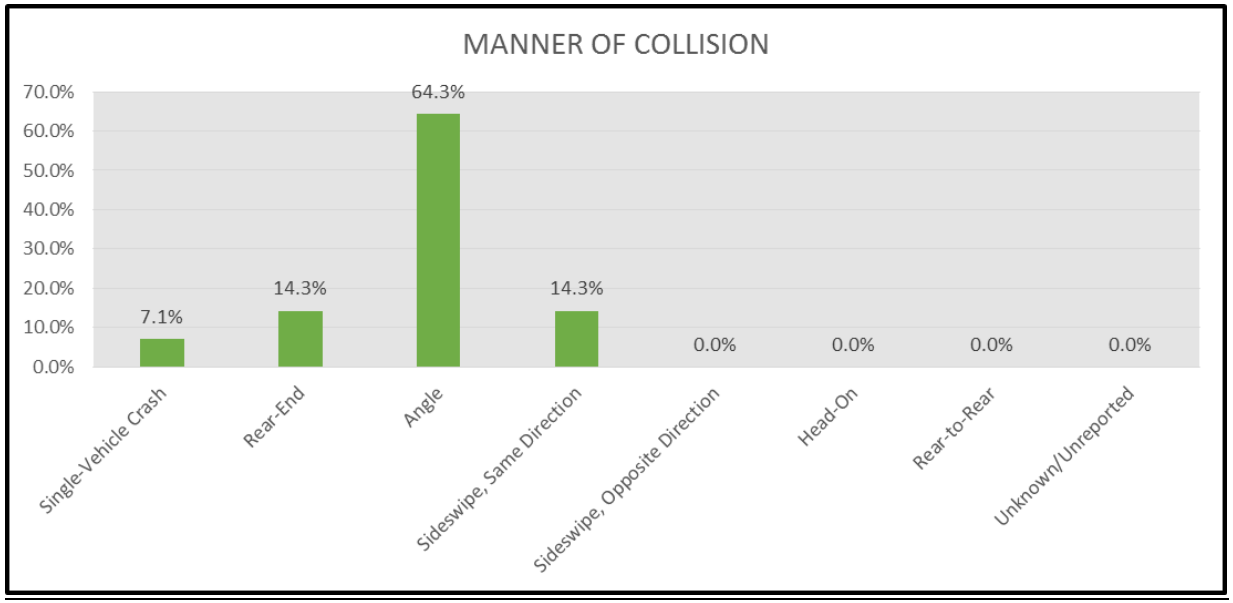
Comments : MassDOT District 4 Average Crash Rate for Unsignalized Intersections = 0.57

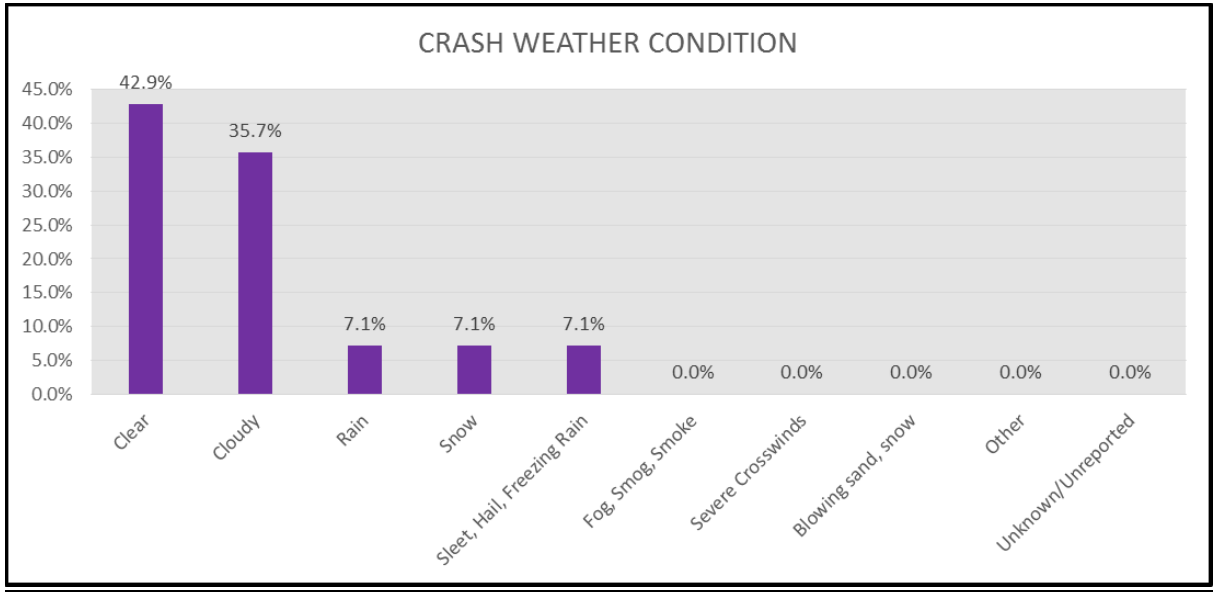
Project Title & Date: Historic Mill District, Andover Mar-19

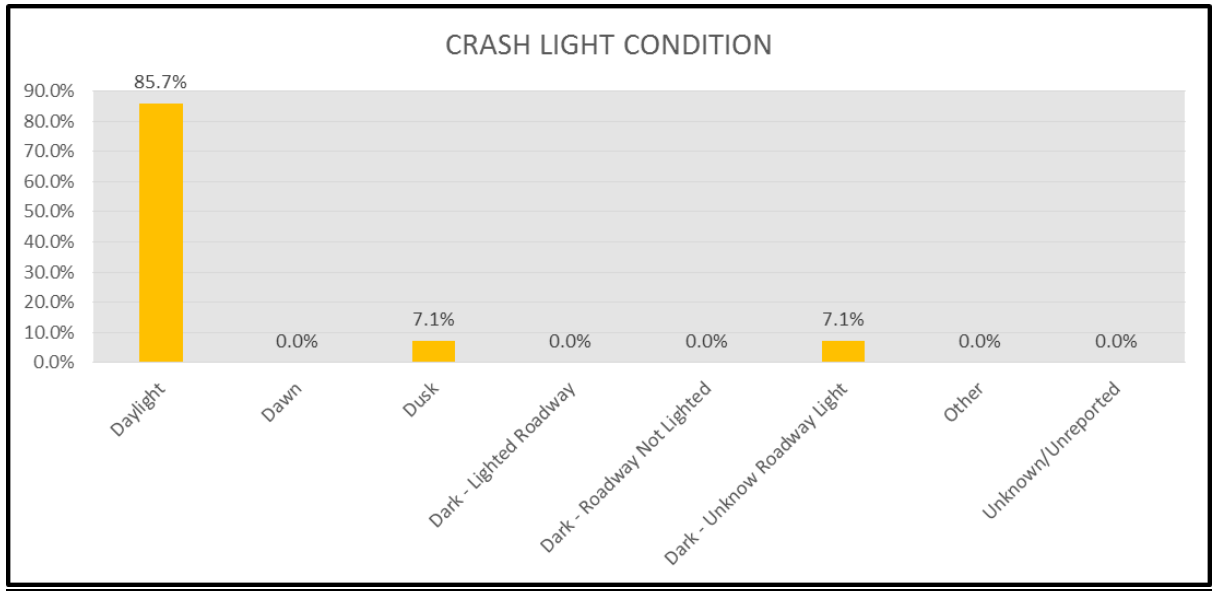

CRASH MONTH
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
14.3%
14.3%
0.0%
0.0%
0.0%
0.0%
14.3%
14.3%
7.1%
0.0%
14.3%
21.4%
January
February
March
April
May
June
July
August
September
October
November
December


CRASH TIME OF DAY
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
7.1%
14.3%
21.4%
14.3%
21.4%
7.1%
7.1%
0.0%
7.1%
0.0%
0.0%
0.0%
7AM - 9AM
9AM - 11AM
11AM - 1PM
1PM - 3PM
3PM - 5PM
5PM - 7PM
7PM - 9PM
9PM - 11PM
11PM - 1AM
1AM - 3AM
3AM - 5AM
5AM - 7AM


CRASH SEVERITY
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
92.9%
7.1%
0.0%
0.0%
Property Damage Only
Non-Fatal Injury
Fatal Injury
Unknown/Unreported


MANNER OF COLLISION
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
7.1%
14.3%
64.3%
14.3%
0.0%
0.0%
0.0%
0.0%
Single-Vehicle Crash
Rear-End
Angle
Sideswipe, Same Direction
Sideswipe, Opposite Direction
Head-On
Rear-to-Rear
Unknown/Unreported


CRASH WEATHER CONDITION
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
42.9%
35.7%
7.1%
7.1%
7.1%
0.0%
0.0%
0.0%
0.0%
0.0%
Clear
Cloudy
Rain
Snow
Sleet, Hail, Freezing Rain
Fog, Smog, Smoke
Severe Crosswinds
Blowing sand, snow
Other
Unknown/Unreported


CRASH LIGHT CONDITION
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
85.7%
0.0%
7.1%
0.0%
0.0%
7.1%
0.0%
0.0%
Daylight
Dawn
Dusk
Dark - Lighted Roadway
Dark - Roadway Not Lighted
Dark - Unknow Roadway Light
Other
Unknown/Unreported

North Main Street (Route 28) at Lewis Street

Crash Date	Crash Time	Crash Hour	City/Town	Crash Severity	Number of Vehicles	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition	X	Y	Vehicle Configuration	Non Motorist Type	Crash Number
8/1/2013	4:40 PM	04:00PM to 04:59PM	ANDOVER	Non-fatal injury	1	Single vehicle crash	V1: Travelling straight ahead	V1:N	Dry	Daylight	Cloudy/Cloudy	229326.1602	934283.769	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)	P2:Skater	3546090
8/28/2013	10:55 AM	10:00AM to 10:59AM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Slowing or stopped in traffic / V2:Backing	V1:N / V2:S	Dry	Daylight	Clear/Clear	229326.1602	934283.769	V1:(Passenger car) V2:(Passenger car)		3577532
11/19/2014	8:08 AM	08:00AM to 08:59AM	ANDOVER	Property damage only (none injured)	2	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling	V1:S / V2:S	Dry	Daylight	Clear/Clear	229328.3315	934276.623	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		3977558
2/5/2016	12:33 PM	12:00PM to 12:59PM	ANDOVER	Property damage only (none injured)	1	Single vehicle crash	V1: Travelling straight ahead	V1:S	Snow	Daylight	Snow	229326.2	934283.8	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		4147195
6/10/2015	3:09 PM	03:00PM to 03:59PM	ANDOVER	Property damage only (none injured)	2	Sideswipe, same direction	V1: Travelling straight ahead / V2:Parked	V1:N / V2:N	Dry	Daylight	Clear/Clear	229326.1602	934283.769	V1:(Passenger car) V2:(Passenger car)		4152914
5/4/2016	2:24 PM	02:00PM to 02:59PM	ANDOVER	Non-fatal injury	2	Angle	V1: Entering traffic lane / V2:Travelling straight ahead	V1:S / V2:S	Wet	Daylight	Clear	229326.2	934283.8	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		4193267
10/29/2016	12:58 PM	12:00PM to 12:59PM	ANDOVER	Property damage only (none injured)	2	Sideswipe, same direction	V1: Parked / V2:Other	V1:N / V2:N	Wet	Daylight	Cloudy/Cloudy	229326.2	934283.8	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		4271550

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Andover COUNT DATE : May-18

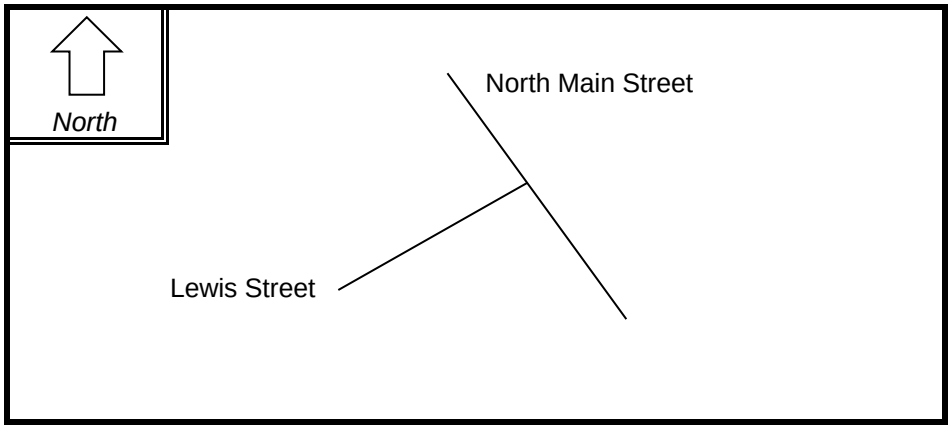
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED : **X**

~ INTERSECTION DATA ~

MAJOR STREET : North Main Street

MINOR STREET(S) : Lewis Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (PM) :						1,113

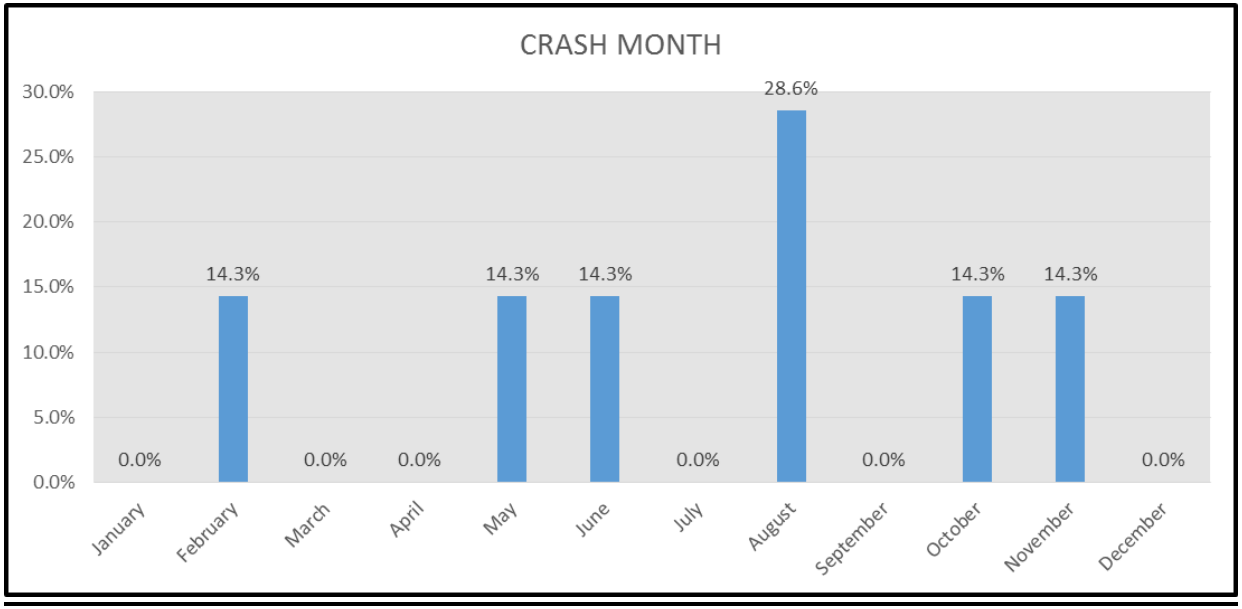
" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **12,367**

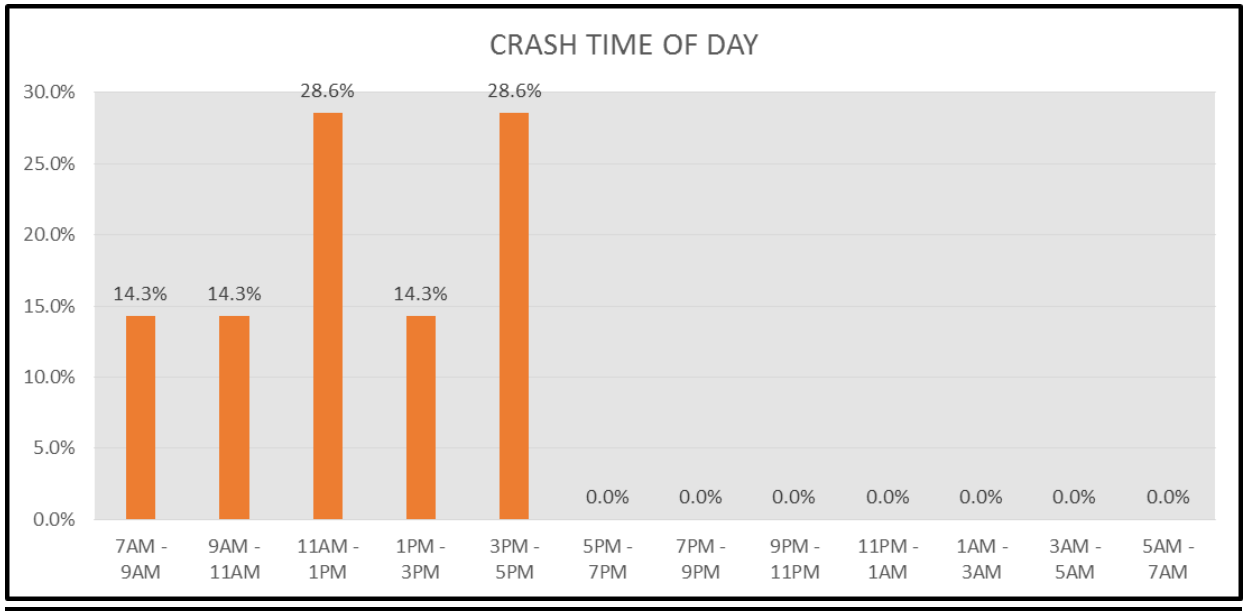
TOTAL # OF CRASHES : 7 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.40**

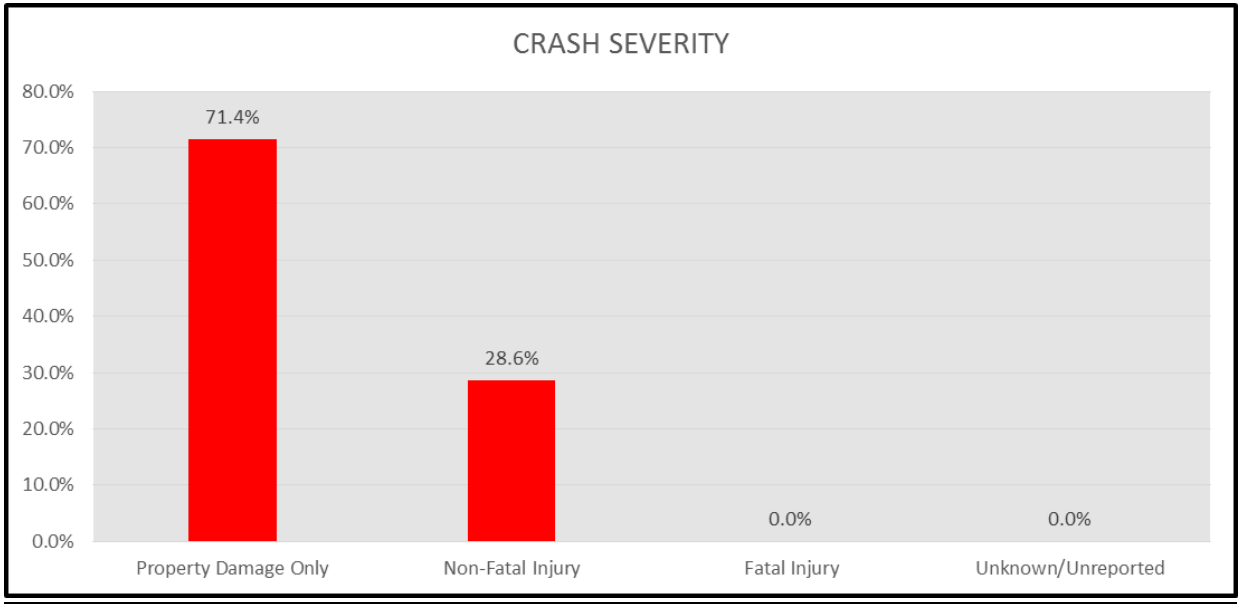
CRASH RATE CALCULATION : 0.31 RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

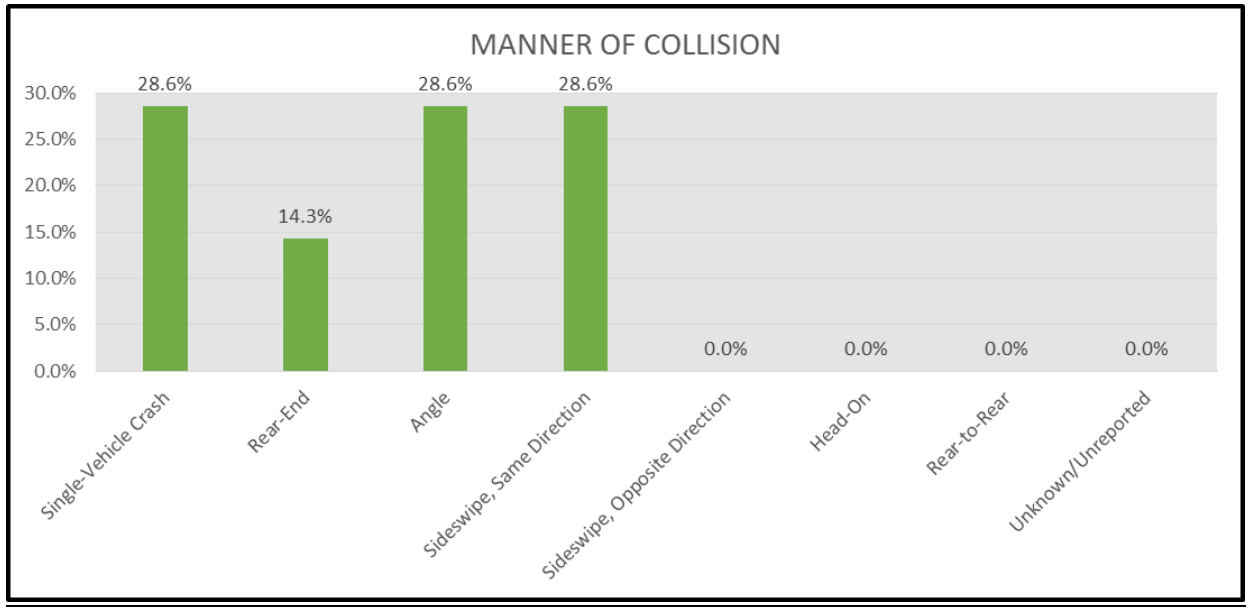
Comments : MassDOT District 4 Average Crash Rate for Signalized Intersections = 0.73

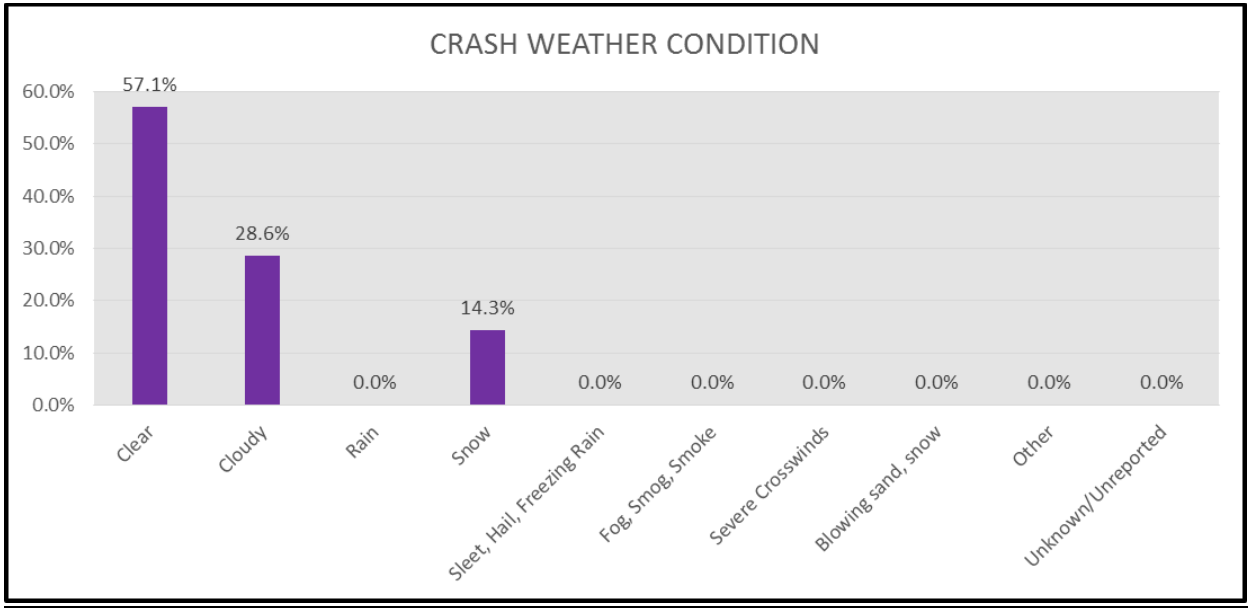
Project Title & Date: Historic Mill District, Andover Mar-19

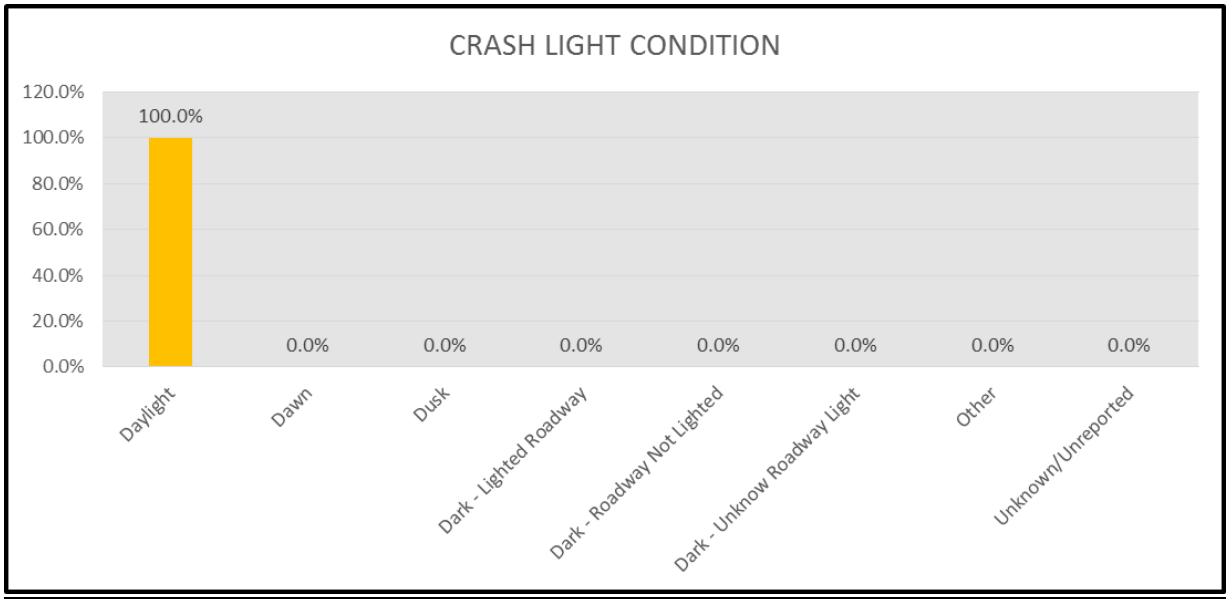

CRASH MONTH
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
0.0%
14.3%
0.0%
0.0%
14.3%
14.3%
0.0%
28.6%
0.0%
14.3%
14.3%
0.0%
January
February
March
April
May
June
July
August
September
October
November
December


CRASH TIME OF DAY
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
14.3%
14.3%
28.6%
14.3%
28.6%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
7AM - 9AM
9AM - 11AM
11AM - 1PM
1PM - 3PM
3PM - 5PM
5PM - 7PM
7PM - 9PM
9PM - 11PM
11PM - 1AM
1AM - 3AM
3AM - 5AM
5AM - 7AM


CRASH SEVERITY
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
71.4%
28.6%
0.0%
0.0%
Property Damage Only
Non-Fatal Injury
Fatal Injury
Unknown/Unreported


MANNER OF COLLISION
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
28.6%
14.3%
28.6%
28.6%
0.0%
0.0%
0.0%
0.0%
Single-Vehicle Crash
Rear-End
Angle
Sideswipe, Same Direction
Sideswipe, Opposite Direction
Head-On
Rear-to-Rear
Unknown/Unreported


CRASH WEATHER CONDITION
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
57.1%
28.6%
0.0%
14.3%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
Clear
Cloudy
Rain
Snow
Sleet, Hail, Freezing Rain
Fog, Smog, Smoke
Severe Crosswinds
Blowing sand, snow
Other
Unknown/Unreported


CRASH LIGHT CONDITION
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
100.0%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
Daylight
Dawn
Dusk
Dark - Lighted Roadway
Dark - Roadway Not Lighted
Dark - Unknow Roadway Light
Other
Unknown/Unreported

North Main Street (Route 28) at Pearson Street

Crash Date	Crash Time	Crash Hour	City/Town	Crash Severity	Number of Vehicles	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Road Surface	Ambient Light	Weather Condition	X	Y	Vehicle Configuration	Non Motorist Type	Crash Number
7/11/2012	7:06 AM	07:00AM to 07:59AM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Turning left / V2:Turning left	V1:W / V2:N	Dry	Daylight	Clear	229382.3982	934176.899	V1:(Passenger car) V2:(Passenger car)		3201900
10/2/2012	2:47 PM	02:00PM to 02:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Turning right	V1:S / V2:E	Wet	Daylight	Rain/Cloudy	229392.5543	934174.256	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		3271114
3/28/2013	3:27 PM	03:00PM to 03:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Entering traffic	V1:S / V2:E	Dry	Daylight	Cloudy/Cloudy	229392.5543	934174.256	V1:(Passenger car) V2:(Passenger car)		3378916
7/2/2013	9:00 AM	09:00AM to 09:59AM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Turning left	V1:S / V2:W	Dry	Daylight	Cloudy/Cloudy	229392.5543	934174.256	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		3495831
4/14/2014	2:20 PM	02:00PM to 02:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Entering traffic	V1:E / V2:N	Dry	Daylight	Cloudy	229382.3982	934176.899	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		3789757
7/23/2014	11:18 PM	11:00PM to 11:59PM	ANDOVER	Property damage only (none injured)	1	Sideswipe, same direction	V1: Parked	V1:N	Wet	Dark - lighted roadway	Rain	229392.5543	934174.256	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		3889227
7/14/2015	1:32 PM	01:00PM to 01:59PM	ANDOVER	Property damage only (none injured)	2	Rear-end	V1: Travelling straight ahead / V2:Slowing or	V1:S / V2:S	Dry	Daylight	Clear	229392.5543	934174.256	V1:(Passenger car) V2:(Passenger car)		4068654
1/3/2016	3:42 PM	03:00PM to 03:59PM	ANDOVER	Non-fatal injury	2	Rear-end	V1: Slowing or stopped in traffic / V2:Slowing or	V1:E / V2:E	Dry	Daylight	Clear	229389.9	934178.5	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		4133012
2/8/2016	8:55 AM	08:00AM to 08:59AM	ANDOVER	Property damage only (none injured)	2	Rear-end	V1: Parked / V2:Backing	V1:S / V2:N	Wet	Daylight	Cloudy/Cloudy	229392.5	934174.2	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		4152891
5/9/2016	5:01 PM	05:00PM to 05:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Travelling straight ahead / V2:Entering traffic	V1:S / V2:E	Dry	Daylight	Clear/Clear	229392.5	934174.2	V1:(Passenger car) V2:(Passenger car)		4193273
6/13/2016	3:03 PM	03:00PM to 03:59PM	ANDOVER	Non-fatal injury	2	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling	V1:N / V2:N	Dry	Daylight	Clear	229389.1	934179.9	V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires)		4207208
8/31/2016	3:24 PM	03:00PM to 03:59PM	ANDOVER	Property damage only (none injured)	2	Angle	V1: Turning left / V2:Travelling straight ahead	V1:N / V2:S	Dry	Daylight	Cloudy	229392.5	934174.2	V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with		4241108
5/24/2016	8:38 AM	08:00AM to 08:59AM	ANDOVER	Non-fatal injury	2	Angle	V1: Slowing or stopped in traffic / V2:Slowing or	V1:E / V2:S	Dry	Daylight	Clear/Clear	229389.9	934178.5	V1:(Passenger car) V2:(Passenger car)		4472640

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Andover COUNT DATE : May-18

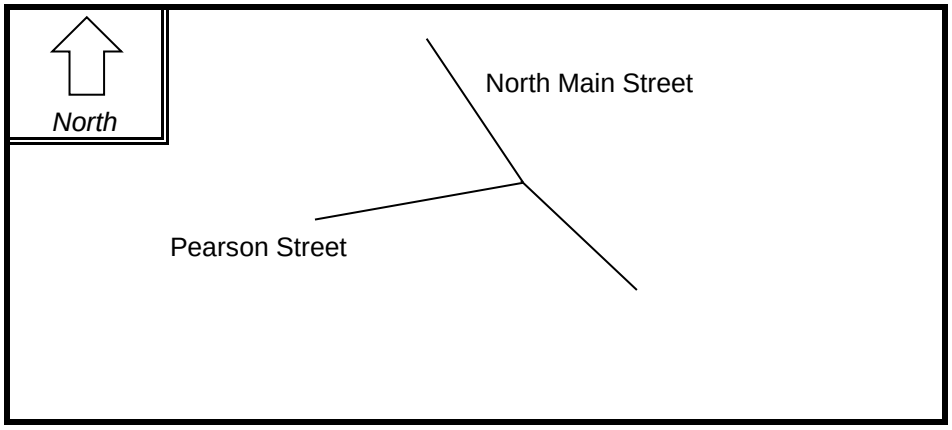
DISTRICT : 4 UNSIGNALIZED : **X** SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : North Main Street

MINOR STREET(S) : Pearson Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (PM) :						1,246

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **13,844**

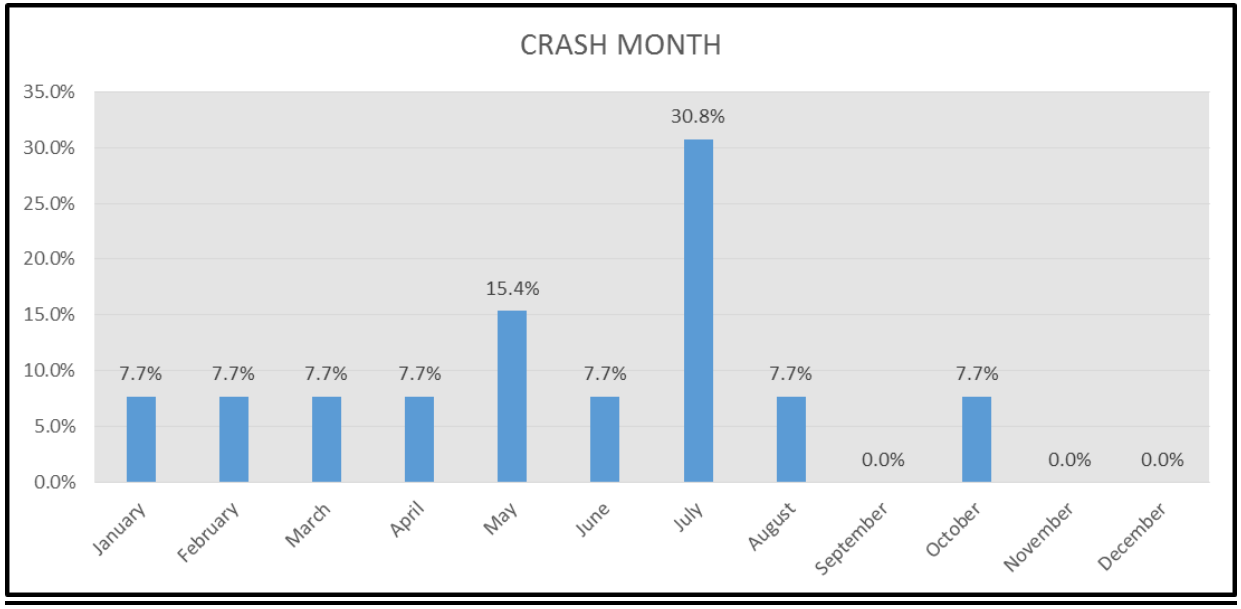
TOTAL # OF CRASHES : 13 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **2.60**

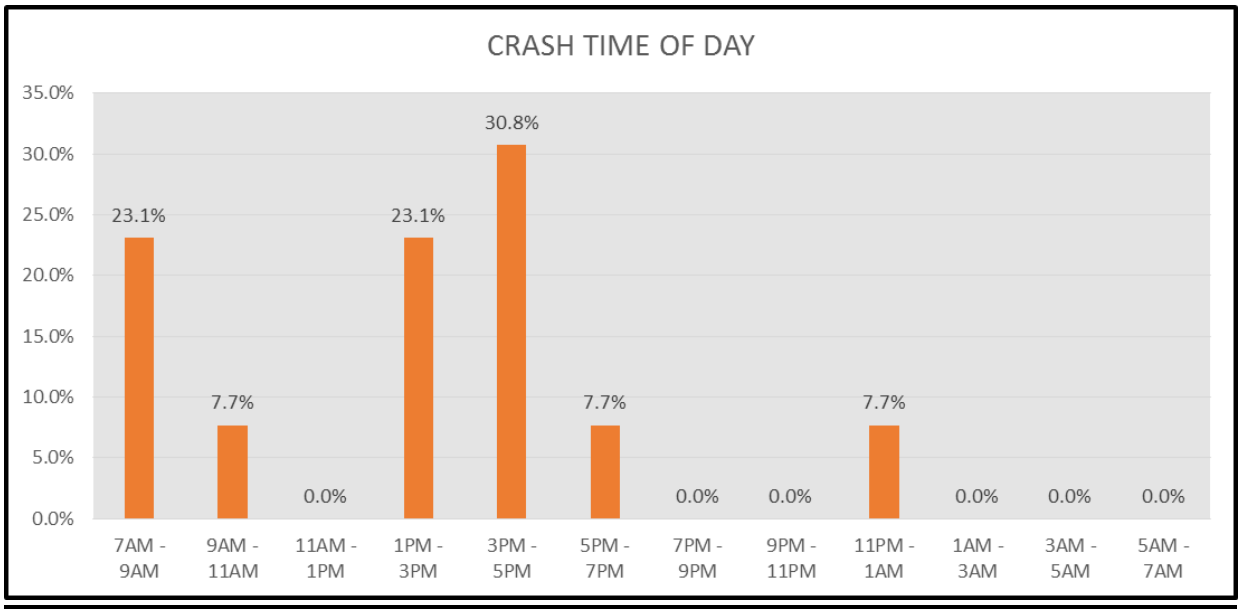
CRASH RATE CALCULATION : 0.51

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

Comments : MassDOT District 4 Average Crash Rate for Unsignalized Intersections = 0.57

Project Title & Date: Historic Mill District, Andover Mar-19


CRASH MONTH
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
7.7%
7.7%
7.7%
7.7%
15.4%
7.7%
30.8%
7.7%
0.0%
7.7%
0.0%
0.0%
January
February
March
April
May
June
July
August
September
October
November
December


CRASH TIME OF DAY
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
23.1%
7.7%
0.0%
23.1%
30.8%
7.7%
0.0%
0.0%
7.7%
0.0%
0.0%
0.0%
7AM - 9AM
9AM - 11AM
11AM - 1PM
1PM - 3PM
3PM - 5PM
5PM - 7PM
7PM - 9PM
9PM - 11PM
11PM - 1AM
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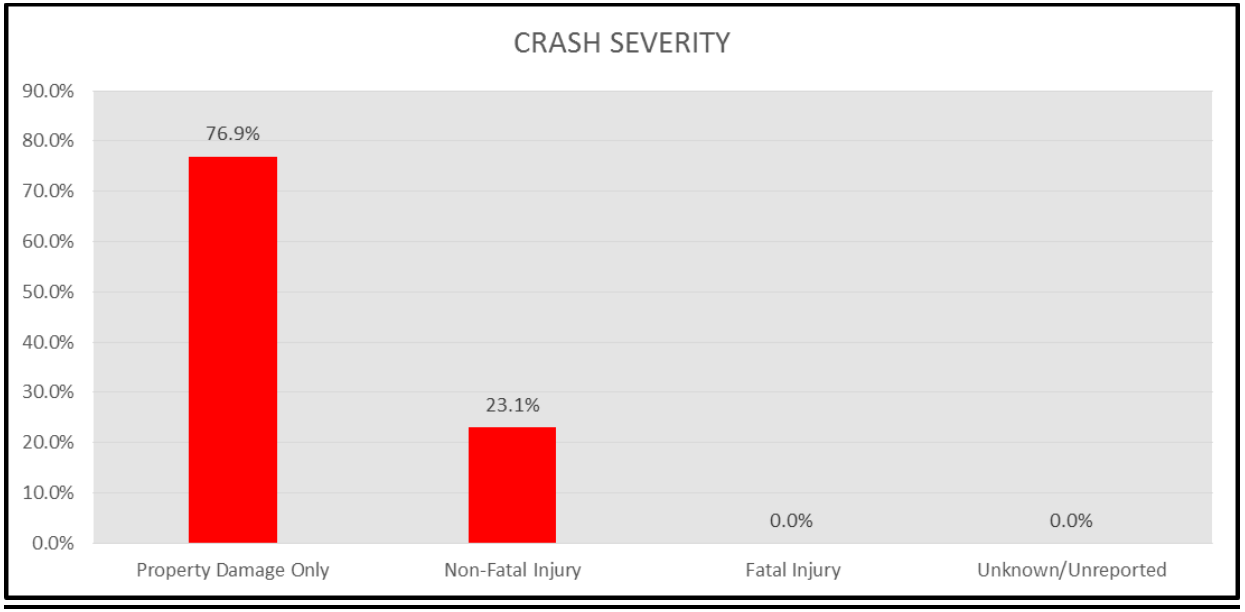
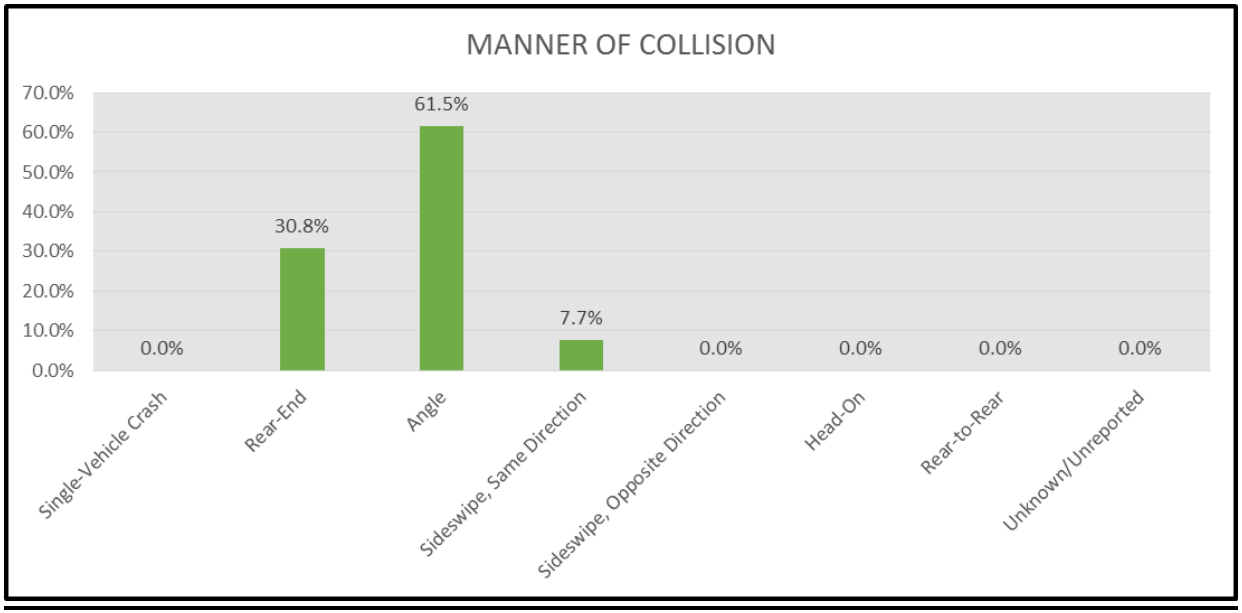
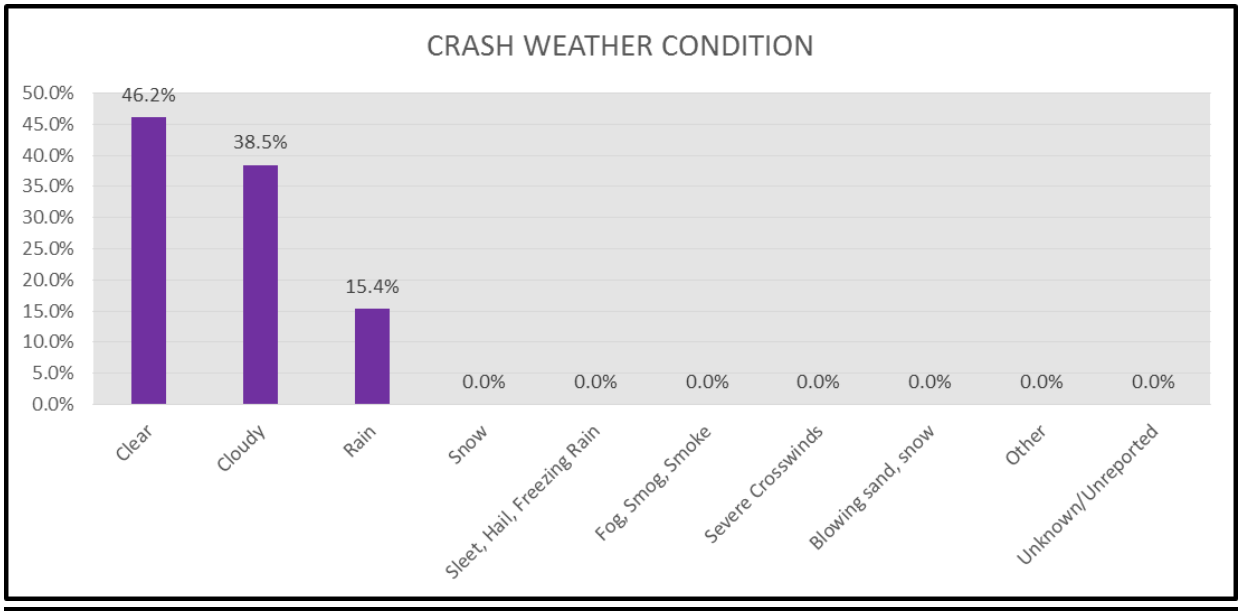
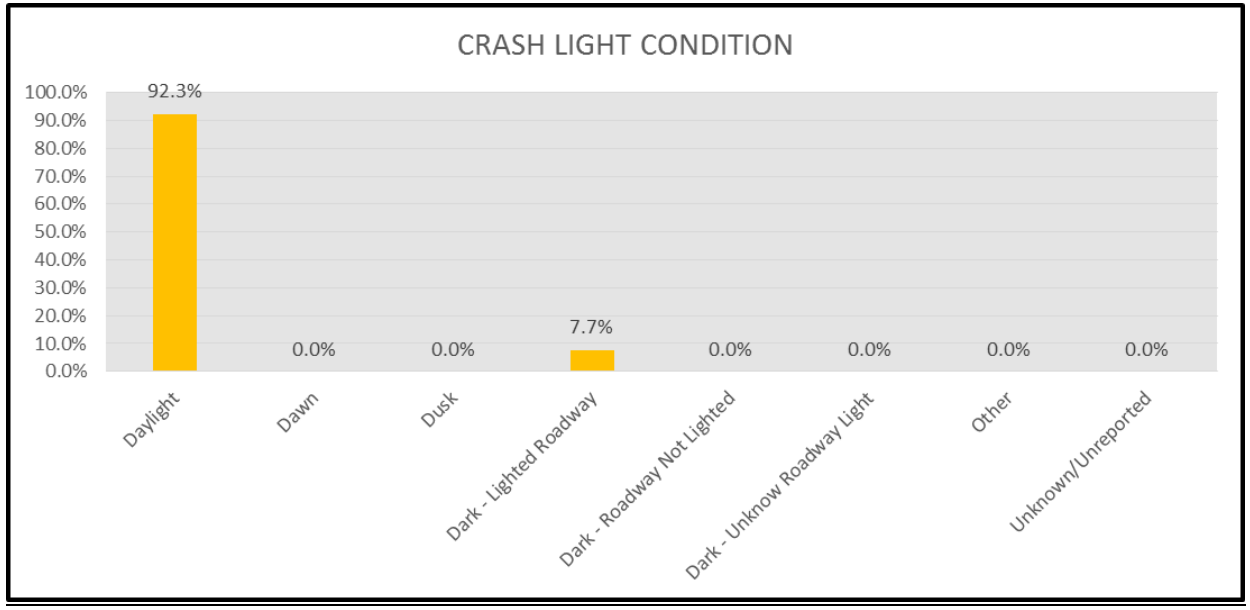
3AM - 5AM
5AM - 7AM


CRASH SEVERITY
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
76.9%
23.1%
0.0%
0.0%
Property Damage Only
Non-Fatal Injury
Fatal Injury
Unknown/Unreported


MANNER OF COLLISION
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
0.0%
30.8%
61.5%
7.7%
0.0%
0.0%
0.0%
0.0%
Single-Vehicle Crash
Rear-End
Angle
Sideswipe, Same Direction
Sideswipe, Opposite Direction
Head-On
Rear-to-Rear
Unknown/Unreported


CRASH WEATHER CONDITION
50.0%
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
46.2%
38.5%
15.4%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
0.0%
Clear
Cloudy
Rain
Snow
Sleet, Hail, Freezing Rain
Fog, Smog, Smoke
Severe Crosswinds
Blowing sand, snow
Other
Unknown/Unreported


CRASH LIGHT CONDITION
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
92.3%
0.0%
0.0%
7.7%
0.0%
0.0%
0.0%
0.0%
Daylight
Dawn
Dusk
Dark - Lighted Roadway
Dark - Roadway Not Lighted
Dark - Unknow Roadway Light
Other
Unknown/Unreported

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Andover COUNT DATE : May-18

DISTRICT : 4 UNSIGNALIZED : **X** SIGNALIZED :

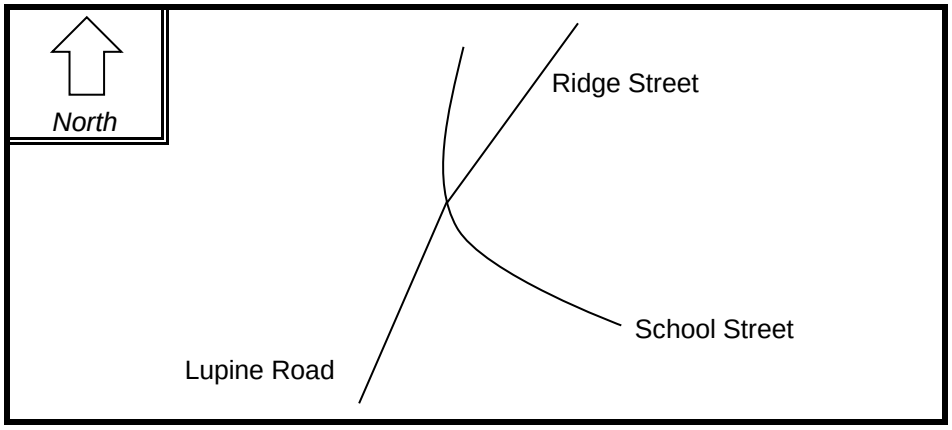
~ INTERSECTION DATA ~

MAJOR STREET : School Street

MINOR STREET(S) : Ridge Street

Lupine Road

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (PM) :						**511**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **5,678**

TOTAL # OF CRASHES : 0 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.00**

CRASH RATE CALCULATION : 0.00

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

Comments : MassDOT District 4 Average Crash Rate for Unsignalized Intersections = 0.57

Project Title & Date: Historic Mill District, Andover Mar-19

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Andover COUNT DATE : May-18

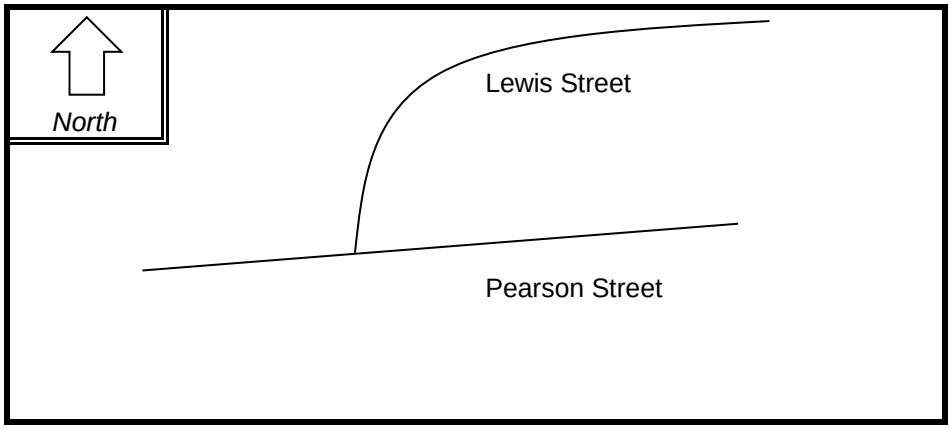
DISTRICT : 4 UNSIGNALIZED : **X** SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Pearson Street

MINOR STREET(S) : Lewis Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (PM) :						153

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **1,700**

TOTAL # OF CRASHES : 0 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.00**

CRASH RATE CALCULATION : 0.00

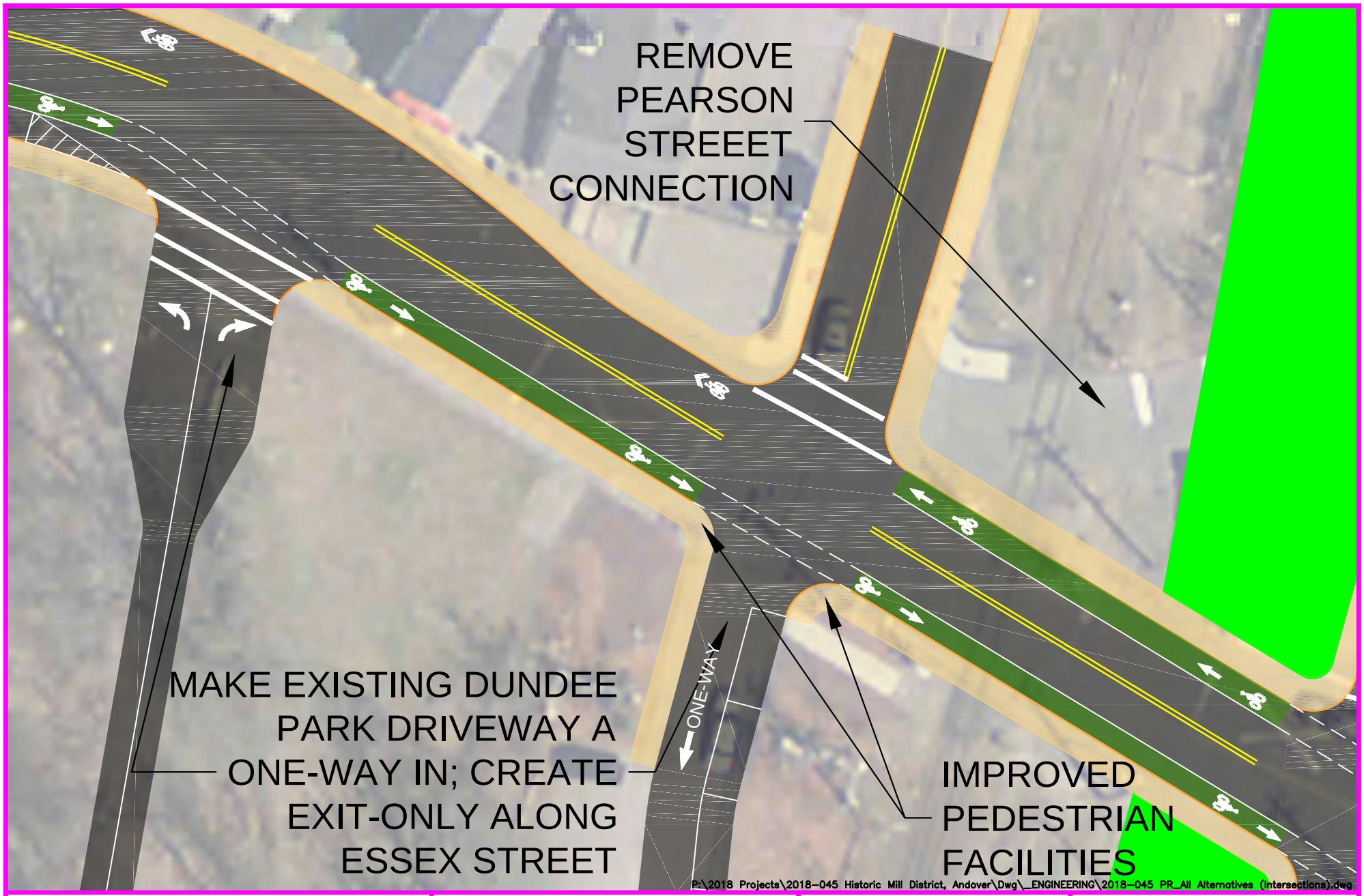
$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments : MassDOT District 4 Average Crash Rate for Unsignalized Intersections = 0.57

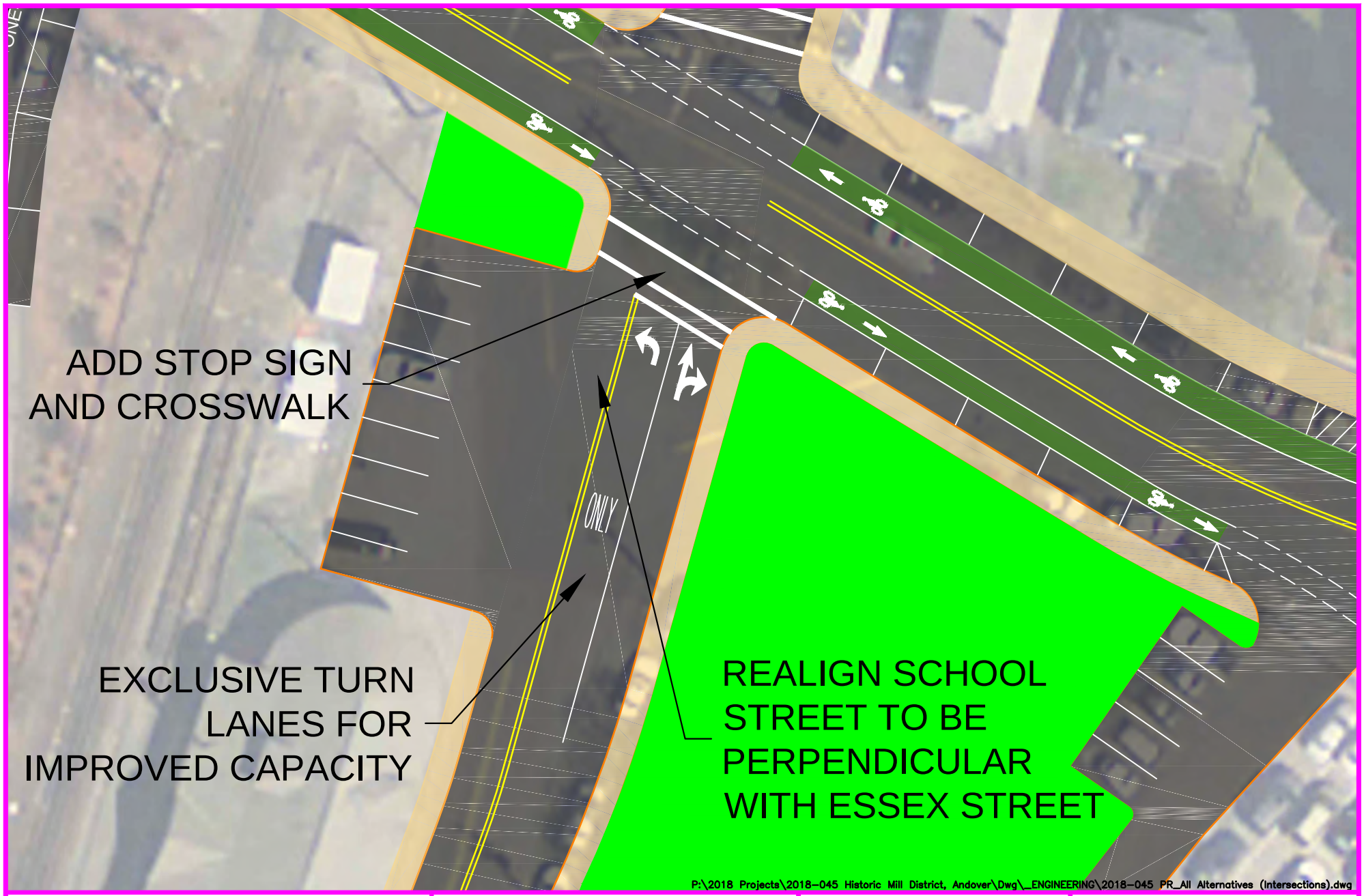
Project Title & Date: Historic Mill District, Andover Mar-19

APPENDIX D – GEOMETRIC ALTERNATIVE OPTIONS

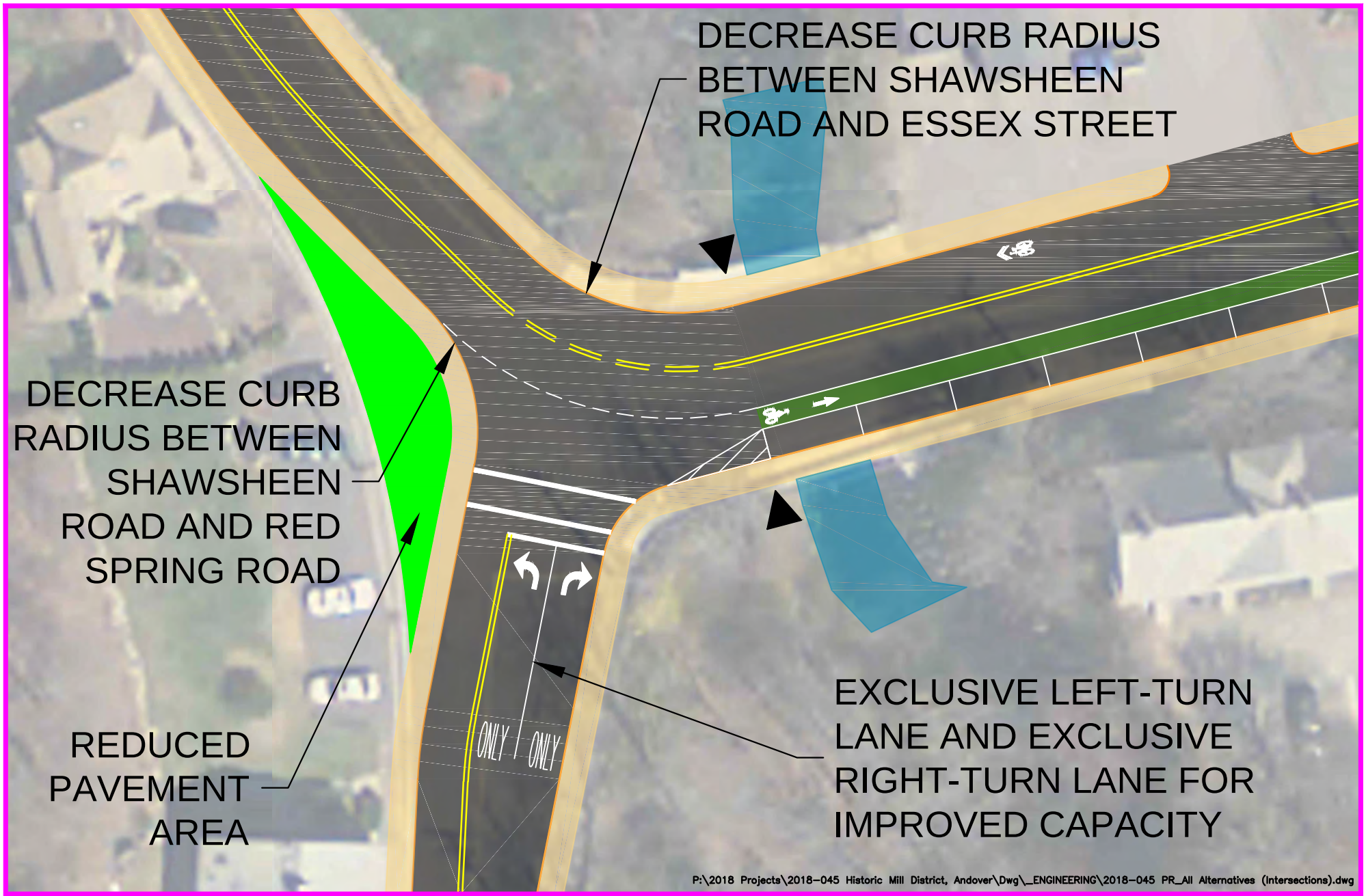
ALL ALTERNATIVES



DCi Design Consultants Inc. Somerville - Quincy - Newburyport www.dci-ma.com	HISTORIC MILL DISTRICT ANDOVER, MA	ESSEX STREET AT RAILROAD ST/ PEARSON ST/DUNDEE PARK DR.	PROJECT NO.: 2018-045
			DATE: APRIL 2019
			SCALE: N.T.S.



DCi Design Consultants Inc. Somerville - Quincy - Newburyport www.dci-ma.com	HISTORIC MILL DISTRICT ANDOVER, MA	ESSEX STREET AT SHAWSHEEN RD AND RED SPRING RD	PROJECT NO.: 2018-045
			DATE: APRIL 2019
			SCALE: N.T.S.



Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

HISTORIC MILL DISTRICT
ANDOVER, MA

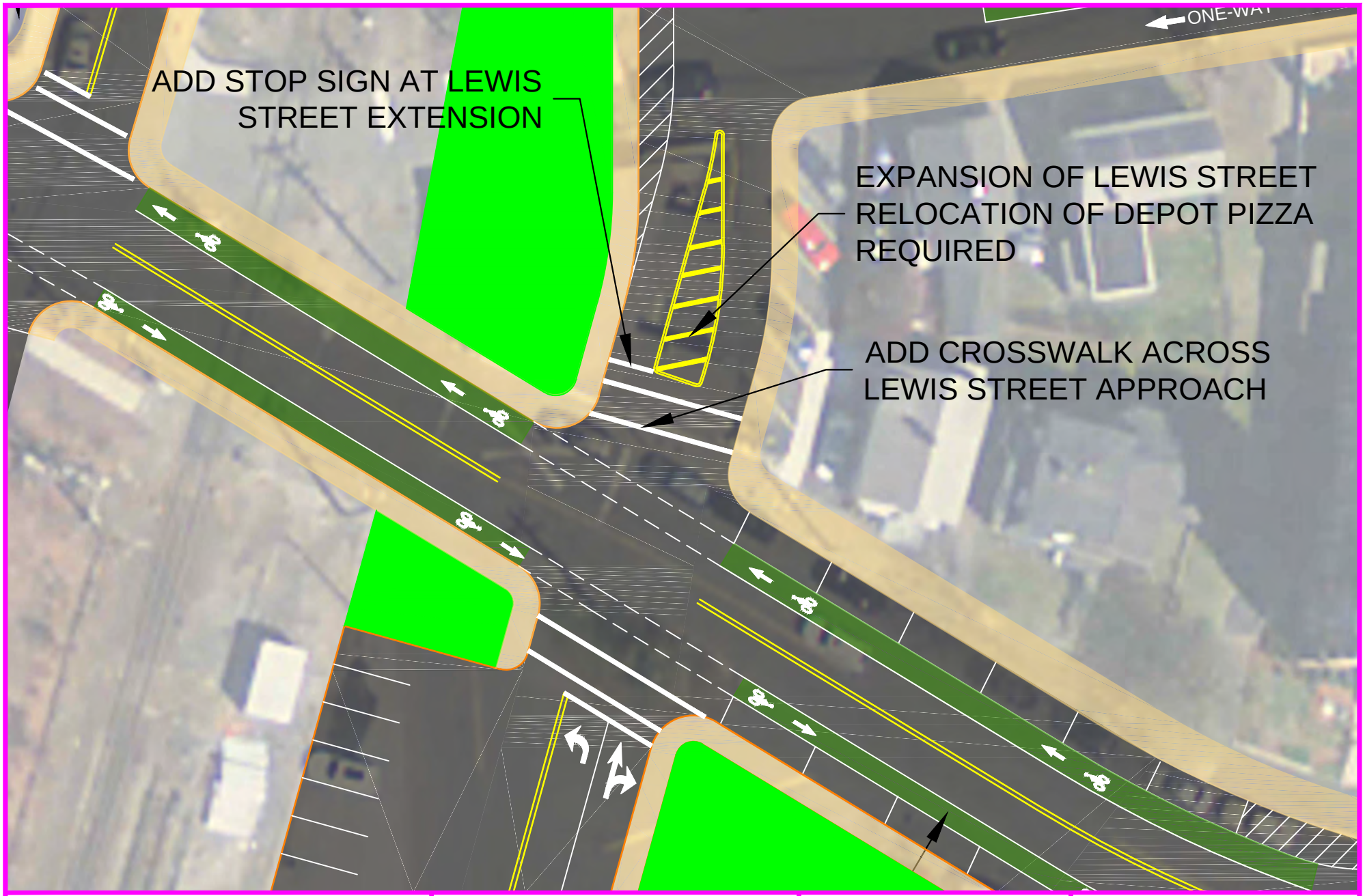
ESSEX STREET AT SHAWSHEEN RD AND RED SPRING RD

PROJECT NO.: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

ALTERNATIVE 1



DCi Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

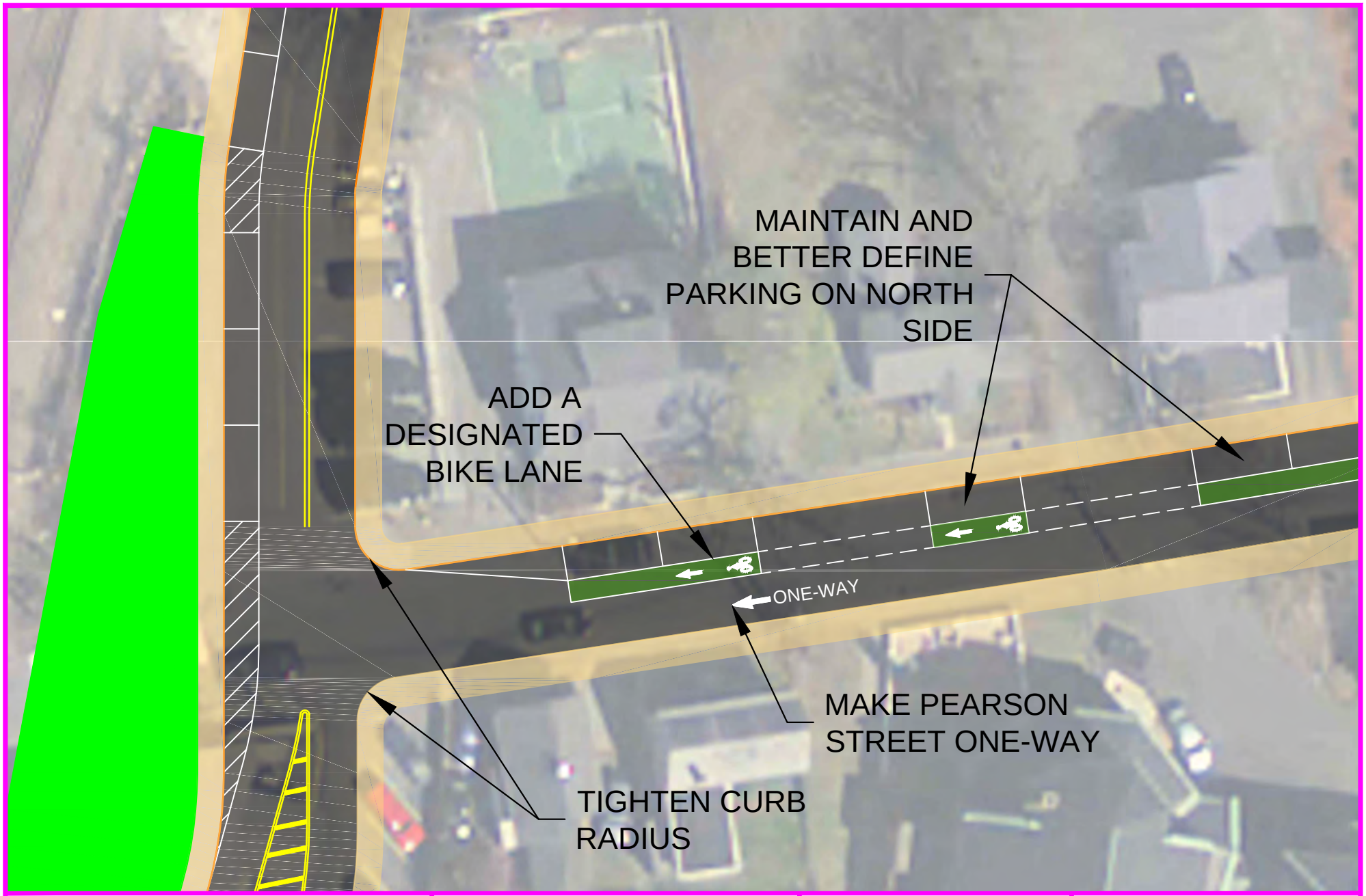
HISTORIC MILL DISTRICT
ANDOVER, MA

ESSEX STREET AT SCHOOL STREET AND LEWIS STREET EXT

PROJECT NO.: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.



Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

HISTORIC MILL DISTRICT
ANDOVER, MA

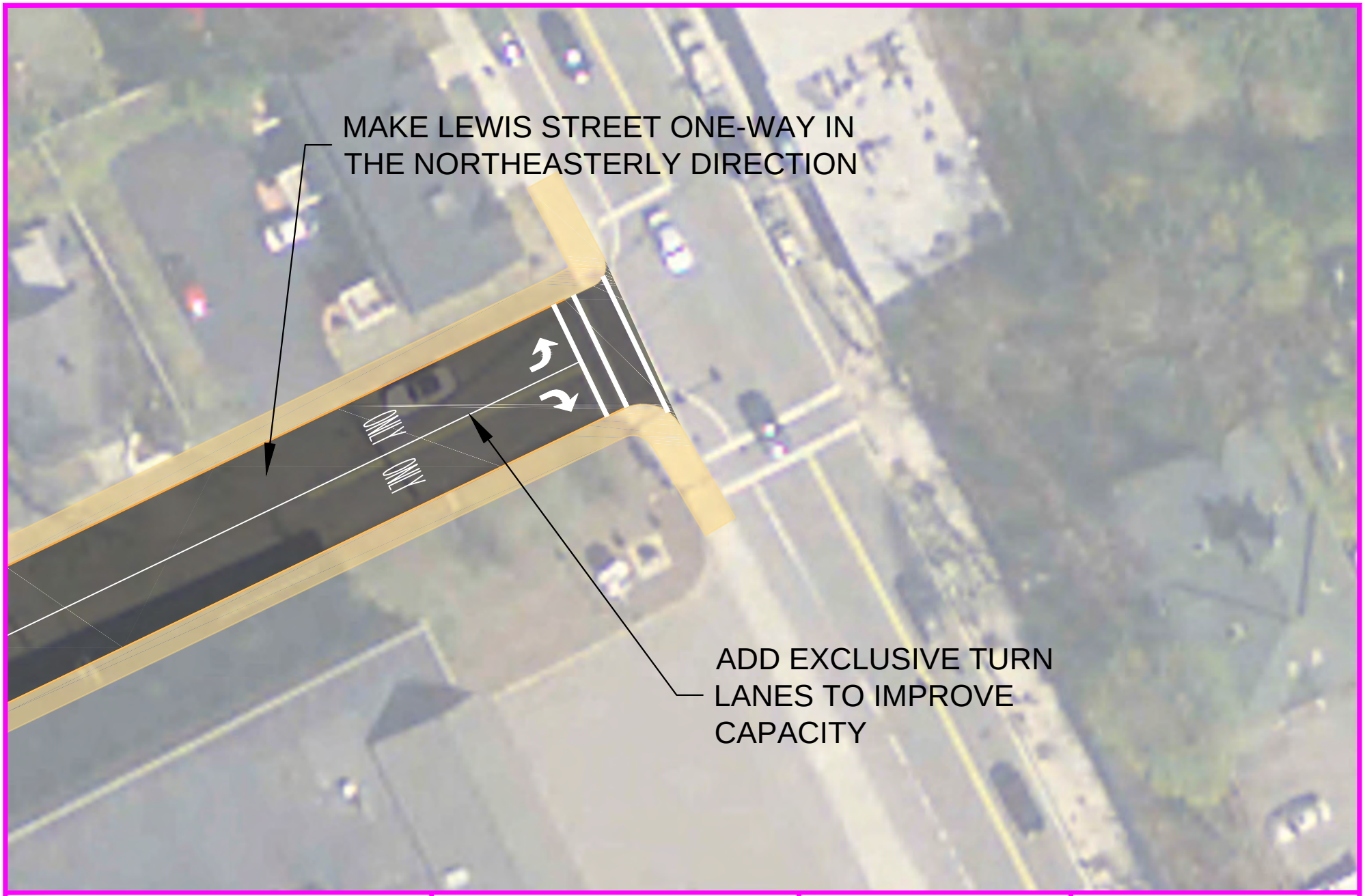
PEARSON STREET AT
LEWIS STREET

PROJECT NO.: 2018-045

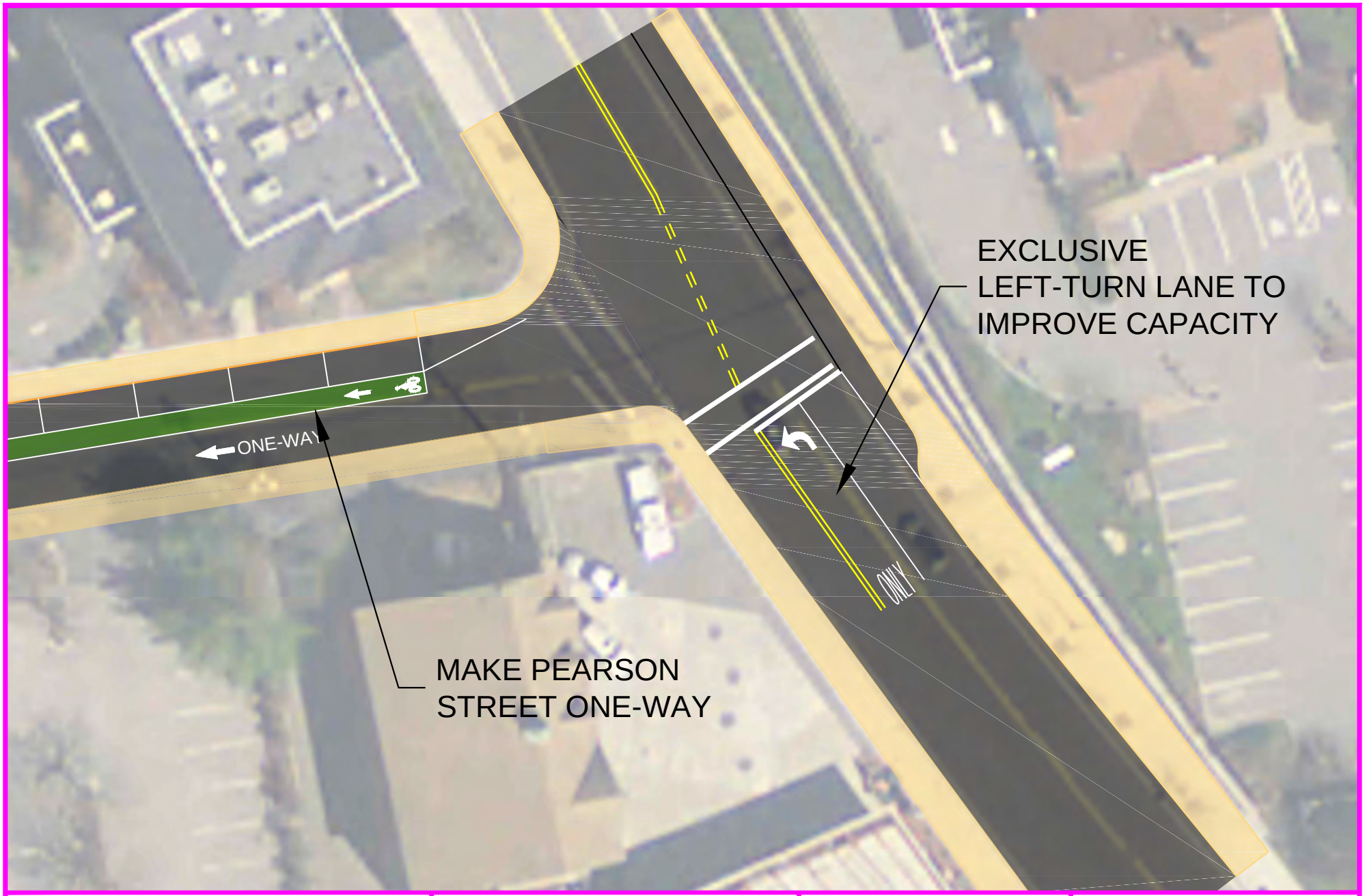
DATE: APRIL 2019

SCALE: N.T.S.

ALTERNATIVE 1A



DCi Design Consultants Inc. Somerville - Quincy - Newburyport www.dci-ma.com	HISTORIC MILL DISTRICT ANDOVER, MA	NORTH MAIN STREET AT LEWIS STREET	PROJECT NO.: 2018-045
			DATE: APRIL 2019
			SCALE: N.T.S.



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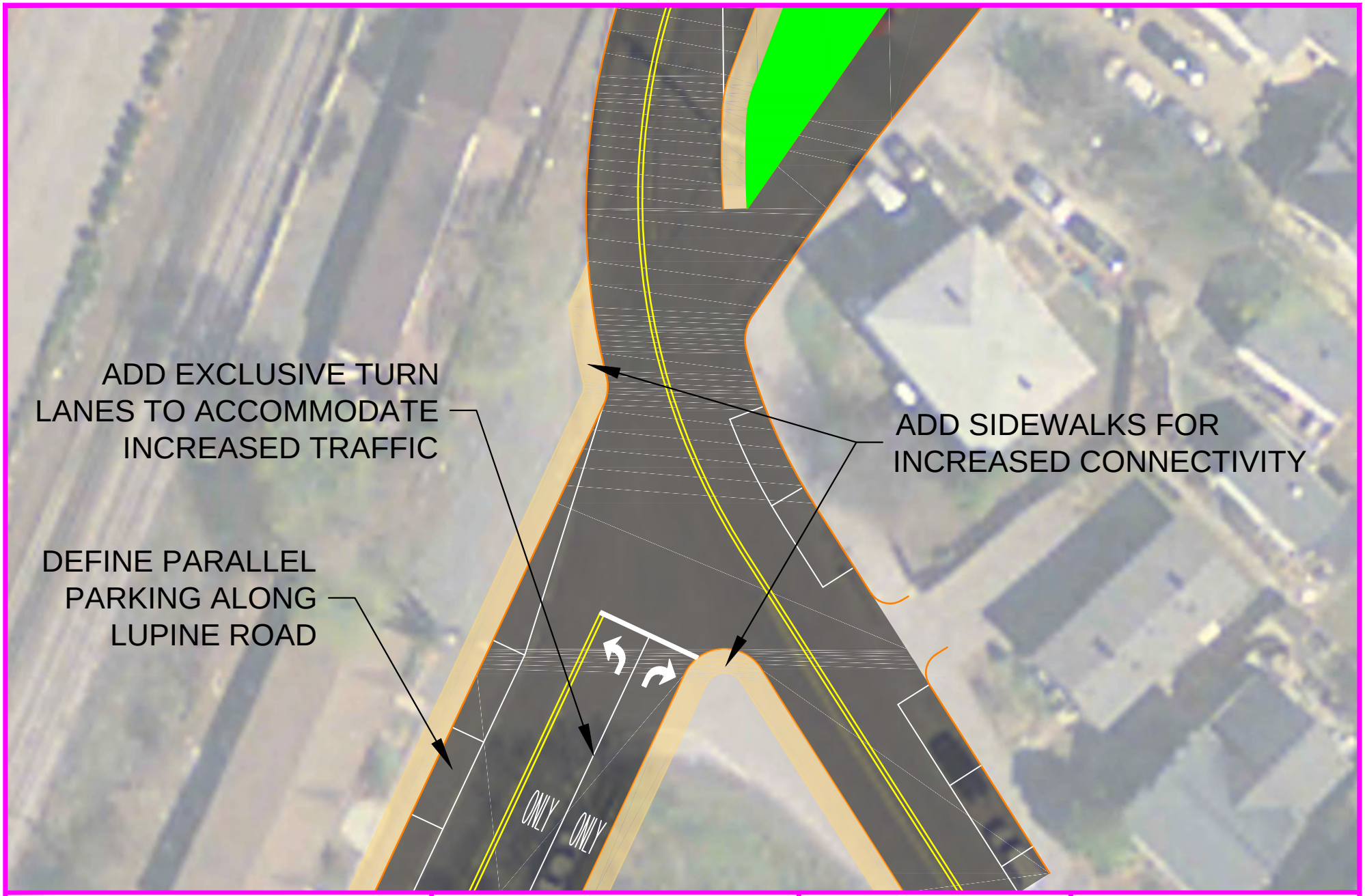
HISTORIC MILL DISTRICT
ANDOVER, MA

NORTH MAIN STREET
AT PEARSON STREET

PROJECT NO.: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.



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HISTORIC MILL DISTRICT
ANDOVER, MA

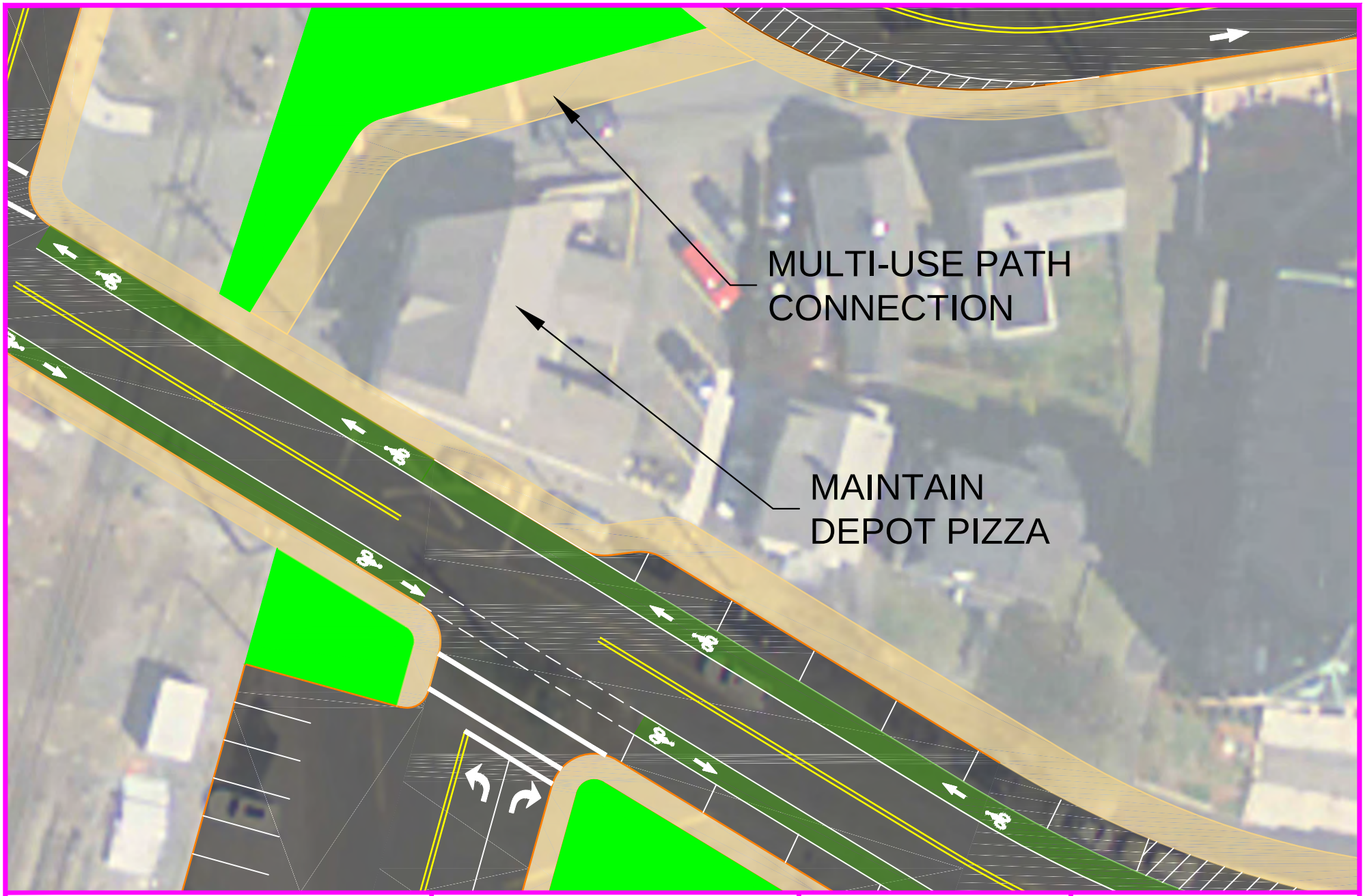
SCHOOL STREET AT
LUPINE ROAD

PROJECT NO.: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

ALTERNATIVE 2



Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

HISTORIC MILL DISTRICT
ANDOVER, MA

ESSEX STREET AT
SCHOOL STREET

PROJECT NO.: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.

ALTERNATIVE 2A

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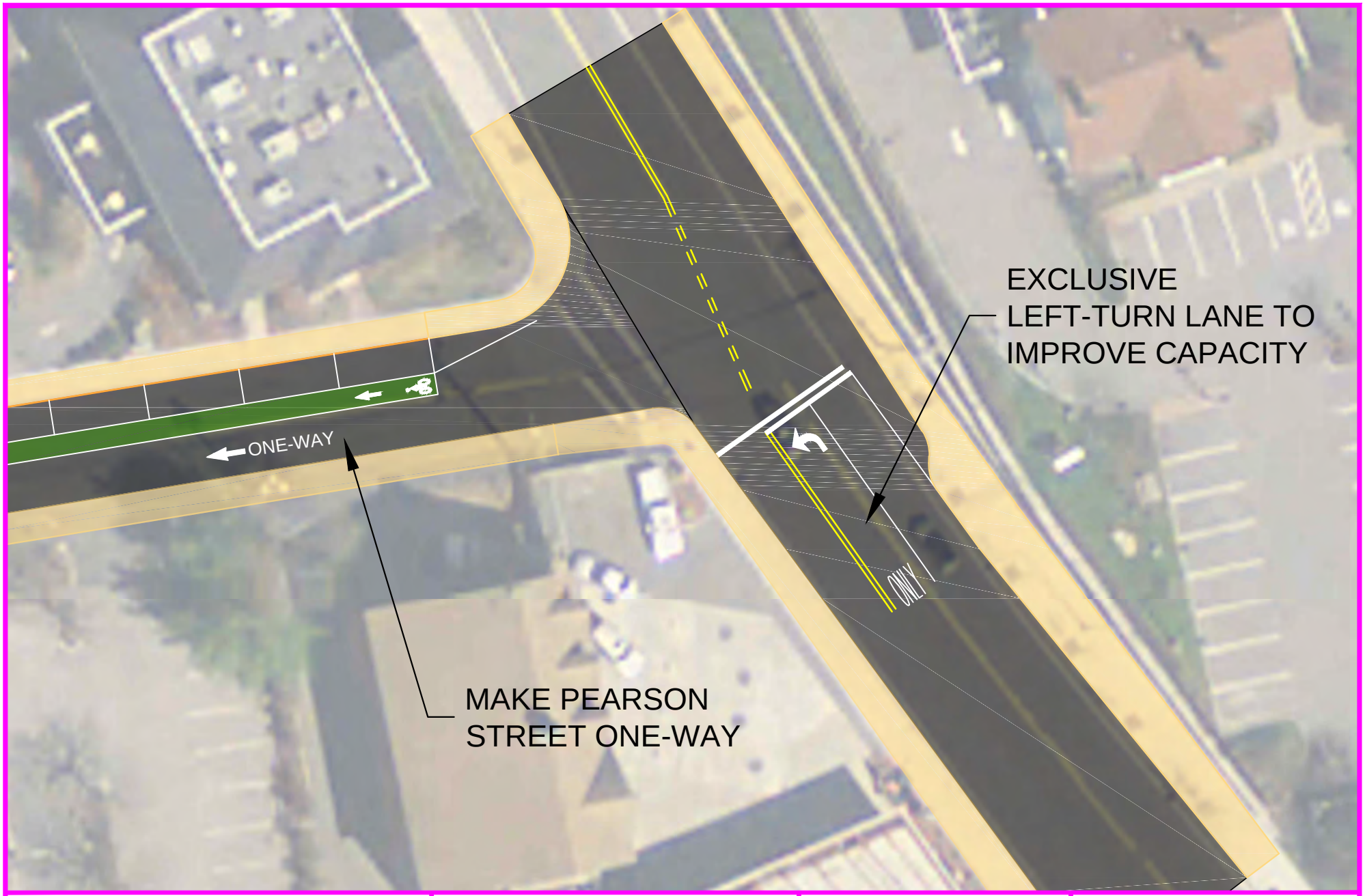
			DATE: APRIL 2019
			SCALE: N.T.S.



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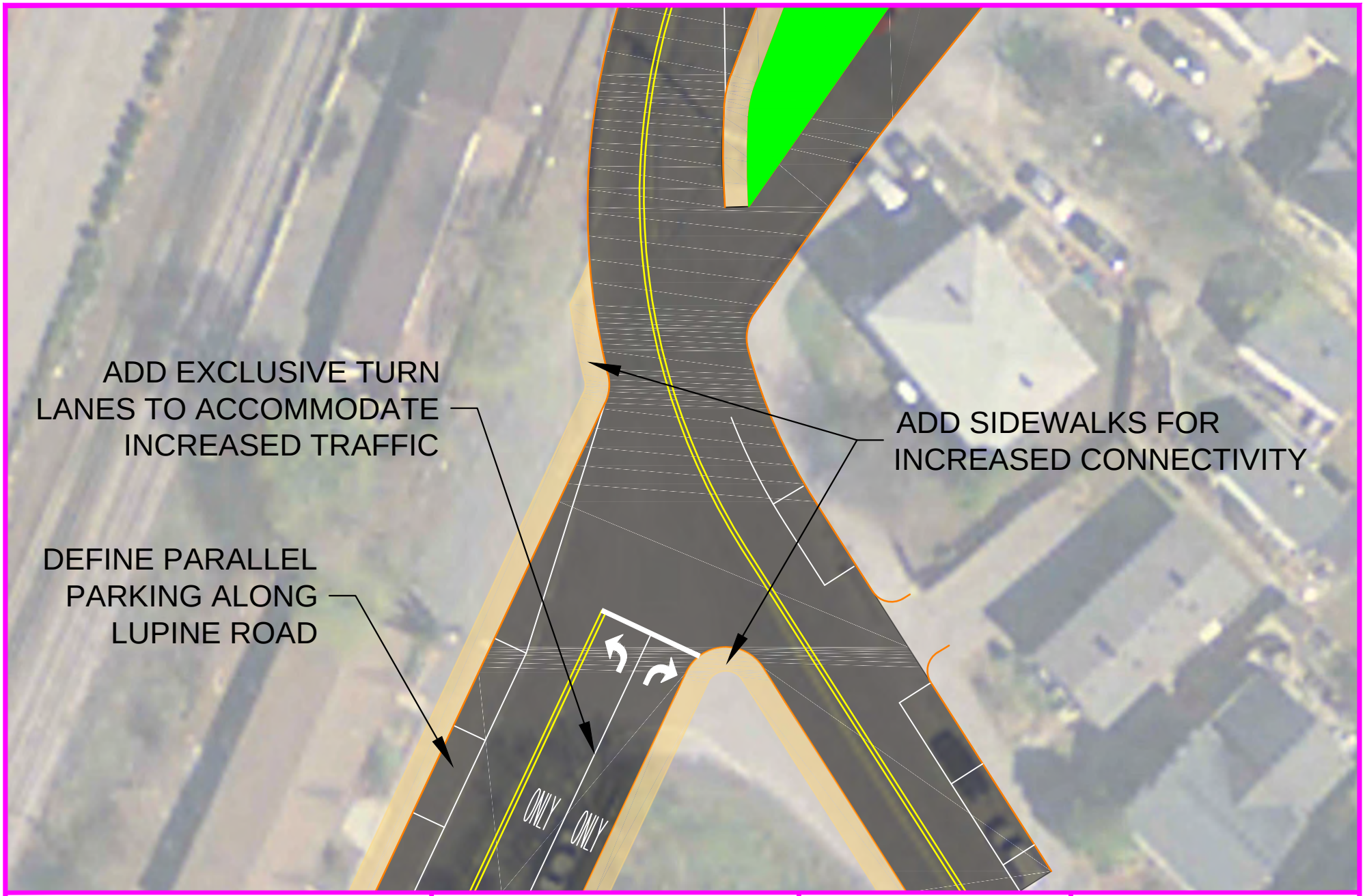
HISTORIC MILL DISTRICT
ANDOVER, MA

NORTH MAIN STREET
AT PEARSON STREET

PROJECT NO.: 2018-045

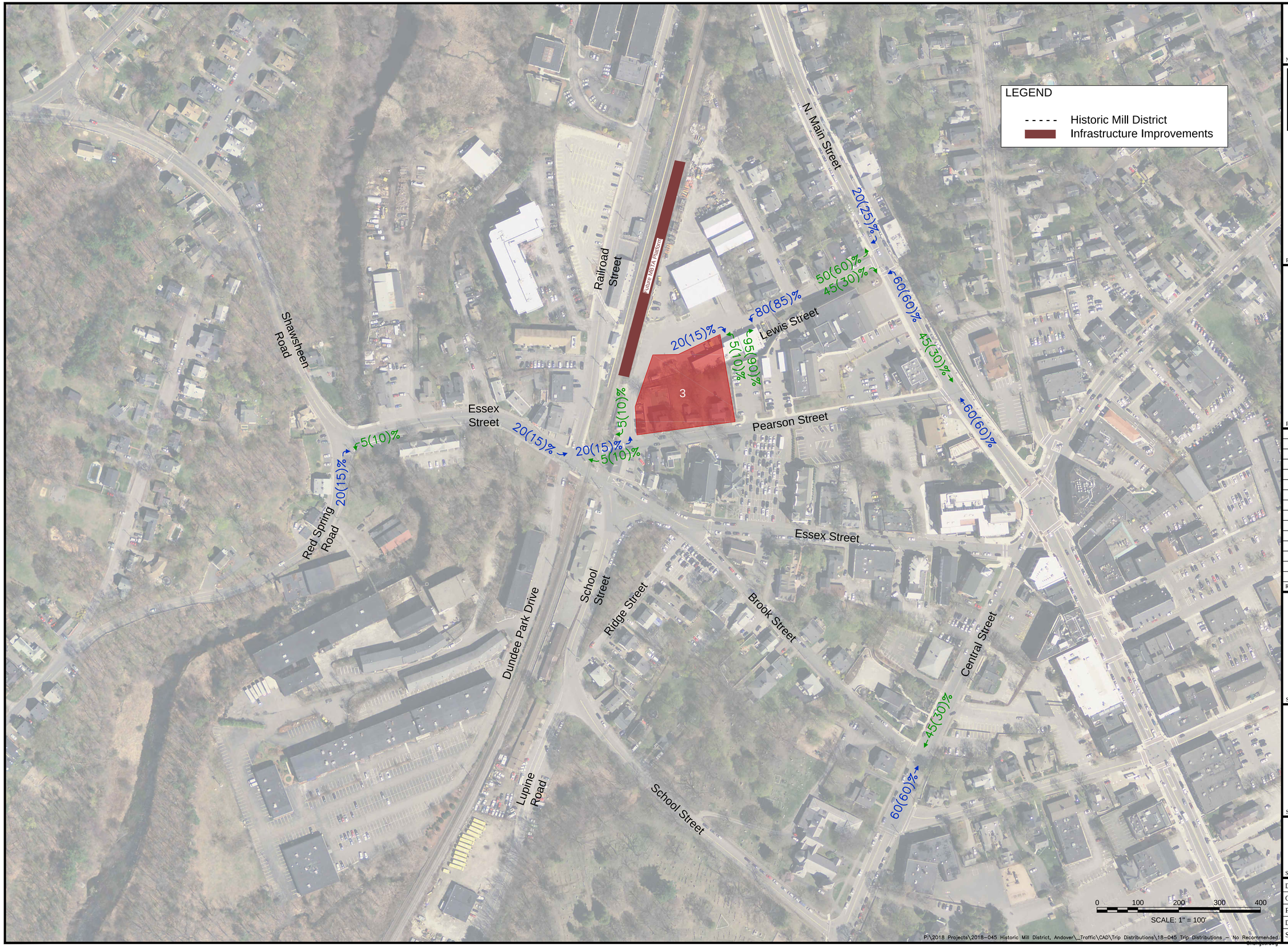
DATE: APRIL 2019

SCALE: N.T.S.



DCi Design Consultants Inc. Somerville - Quincy - Newburyport www.dci-ma.com	HISTORIC MILL DISTRICT ANDOVER, MA	SCHOOL STREET AT LUPINE ROAD	PROJECT NO.: 2018-045
			DATE: APRIL 2019
			SCALE: N.T.S.

APPENDIX E – NO RECOMMENDED CHANGES



NORTH

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

STAMP:

Trip Distribution - No Recommended Changes

SHEET NAME:

SHT NO:

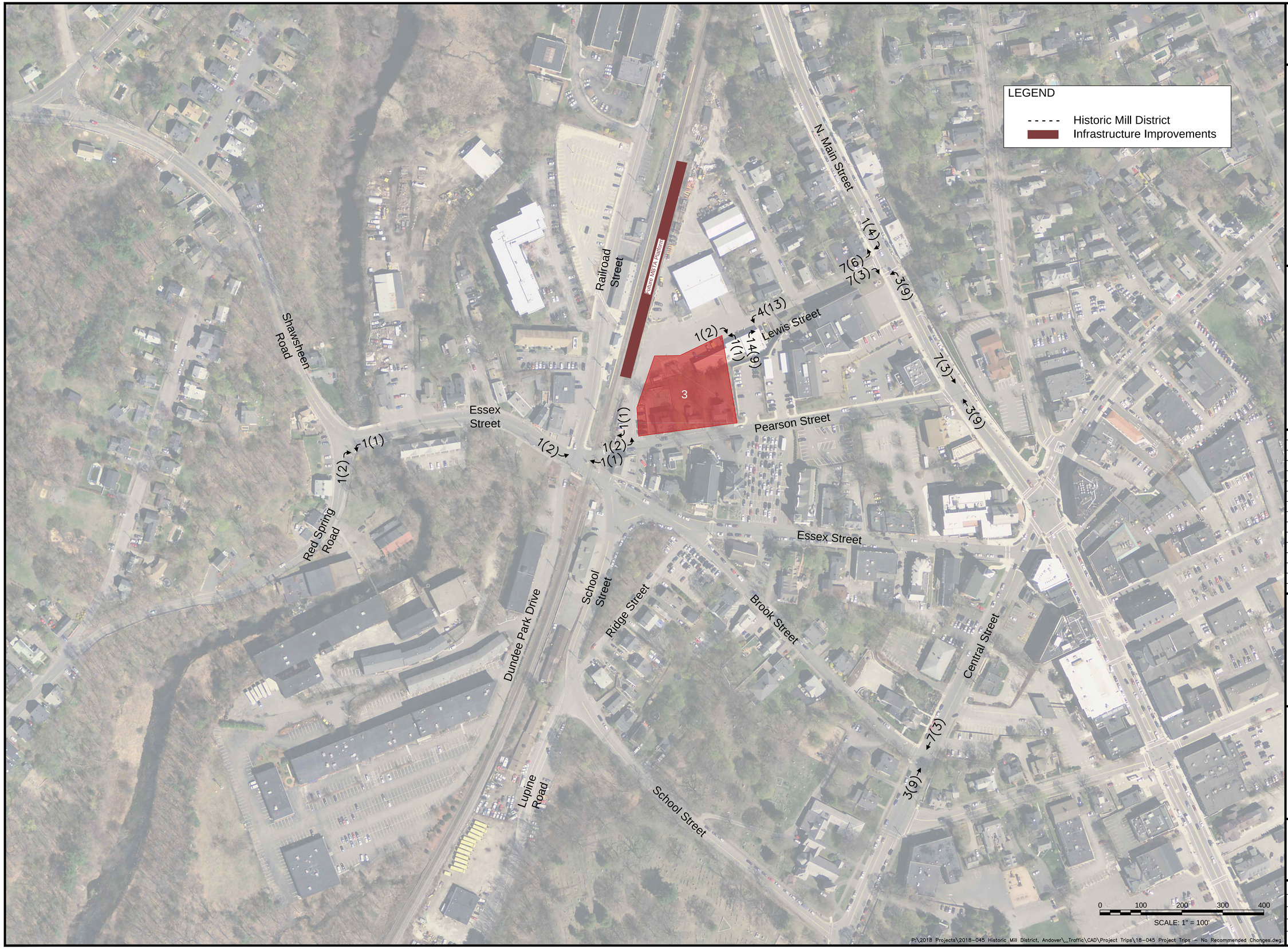
DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

SCALE: 1" = 100'



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

STAMP:

Site-Generated Trips - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
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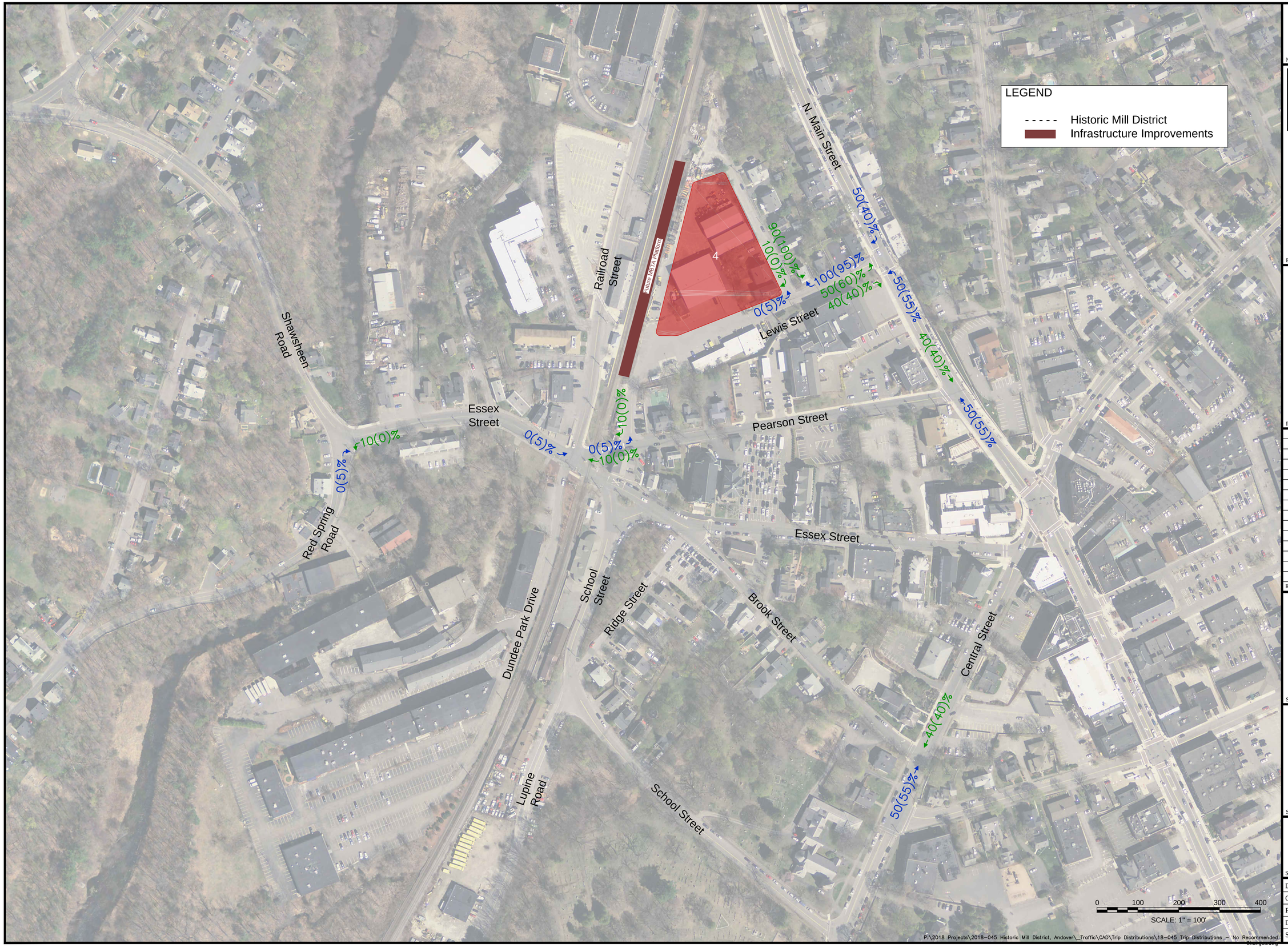

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 4

STAMP:

Trip Distribution - No Recommended Changes

SHEET NAME:

SHT NO:

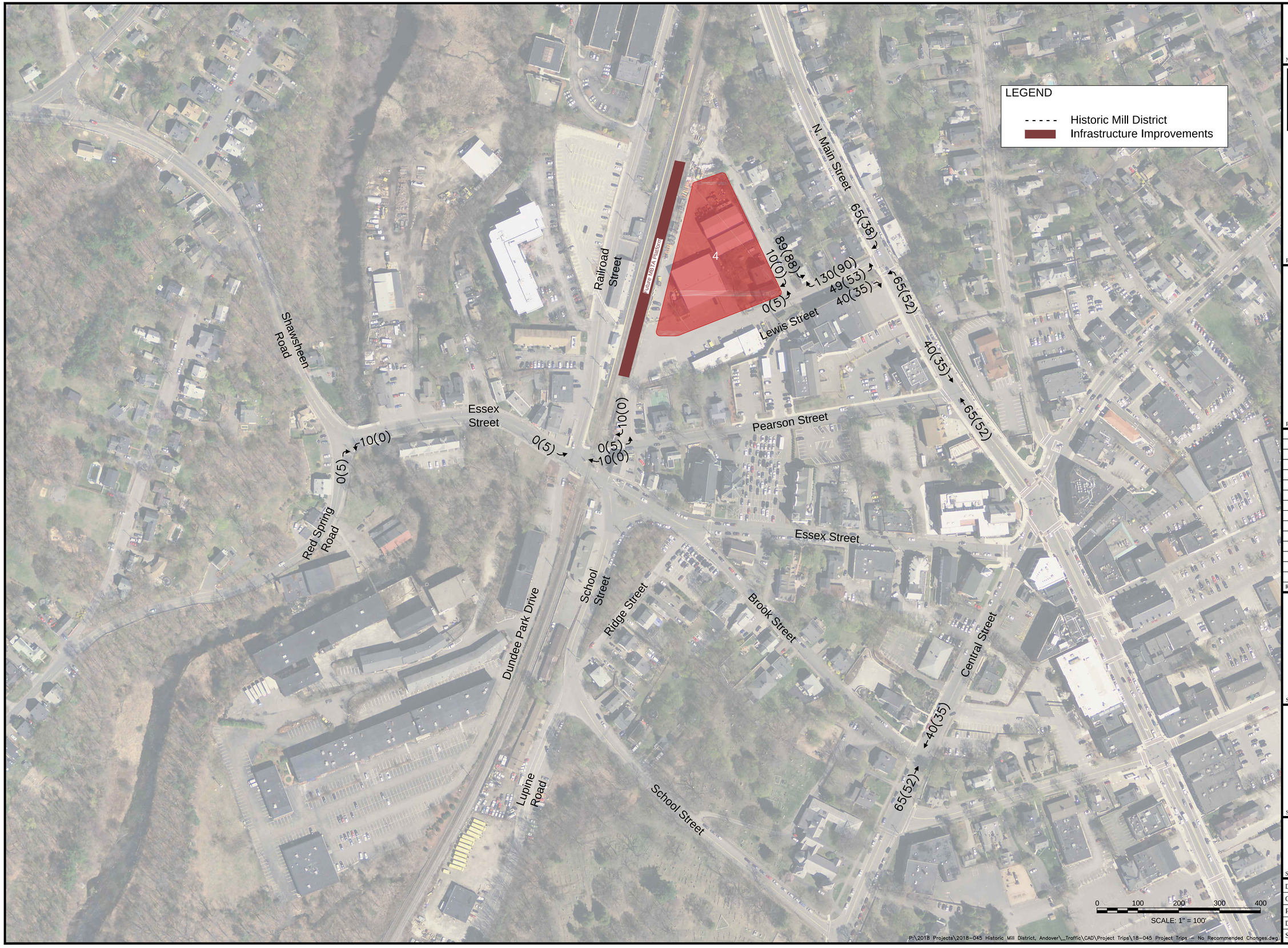
DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

SCALE: 1" = 100'



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 4

STAMP:

Site-Generated Trips - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
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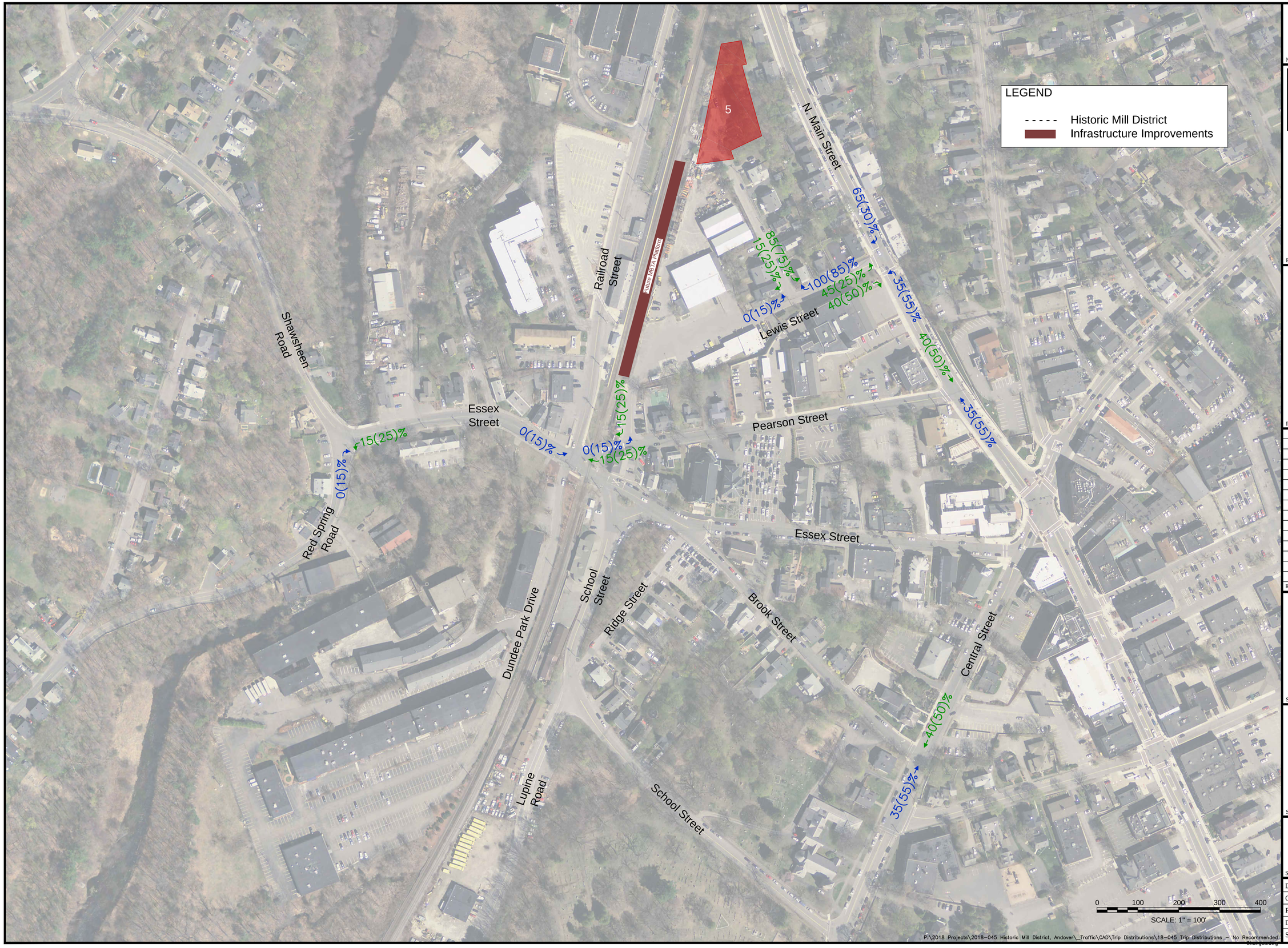

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 5

STAMP:

Trip Distribution - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -

CHK BY: -

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DATE: -

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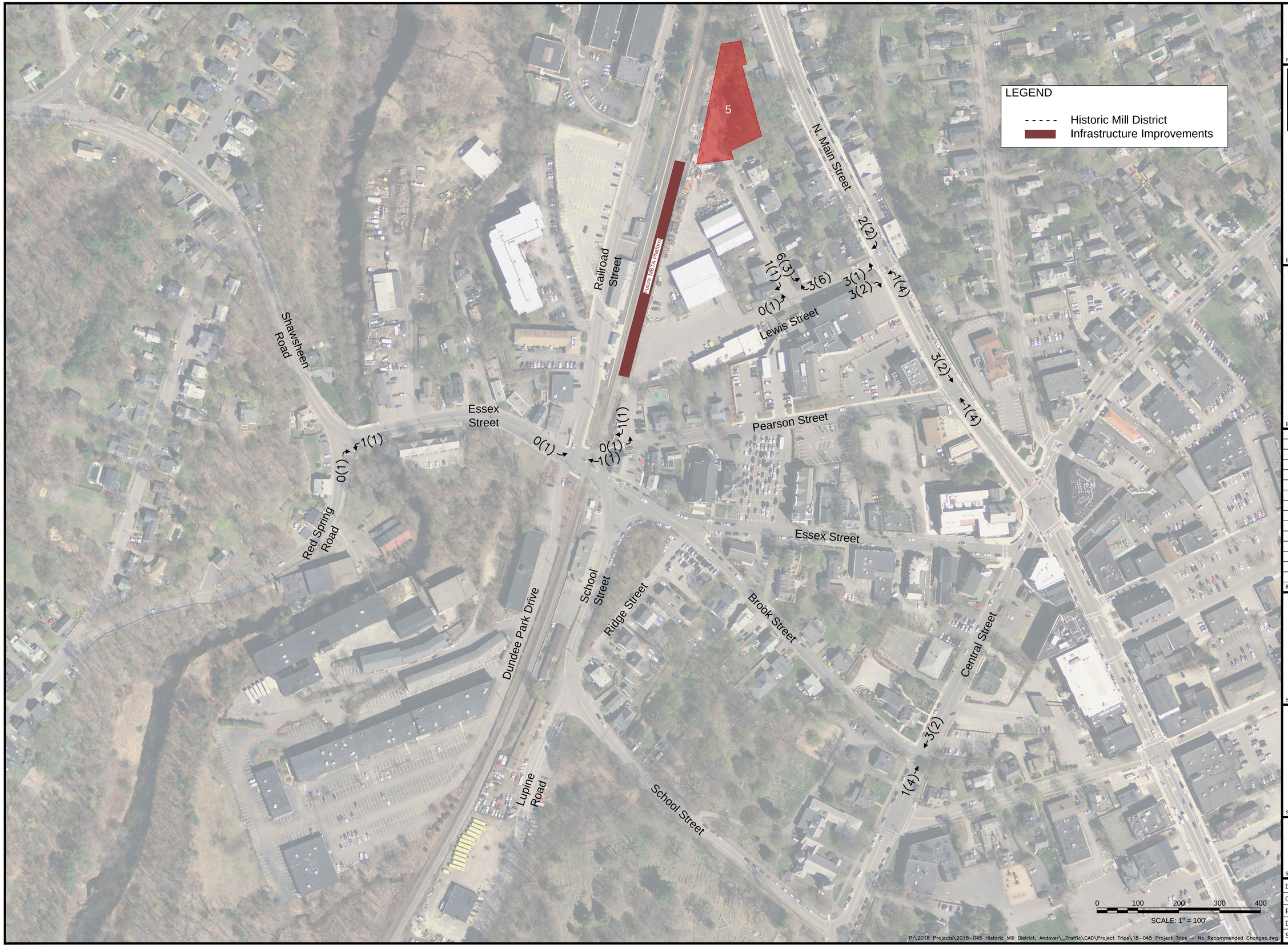

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 5

STAMP:

Site-Generated Trips - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 6

STAMP:

Trip Distribution - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -

CHK BY: -

PROJ NO: -

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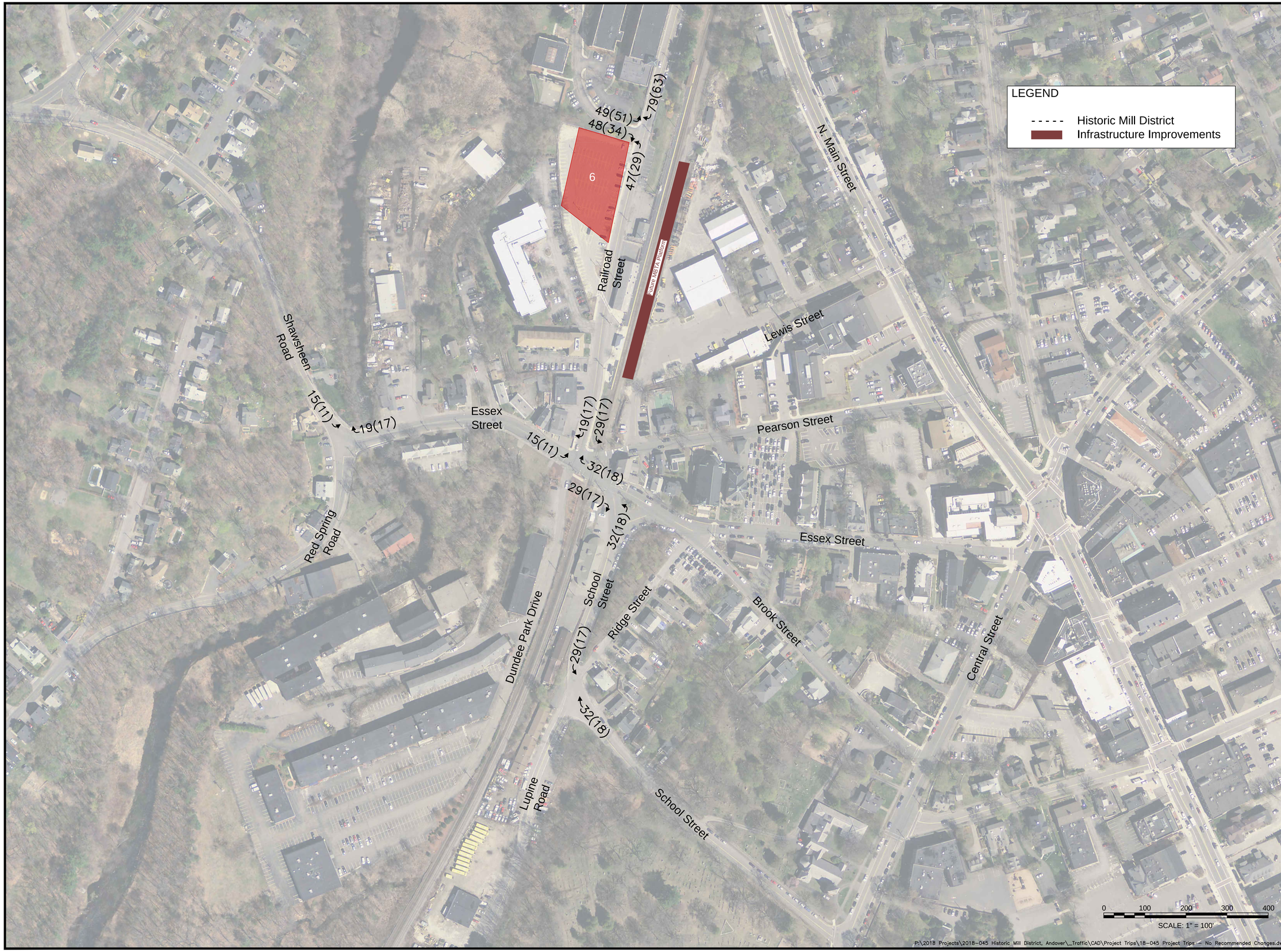

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 6

STAMP:

Site-Generated Trips - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
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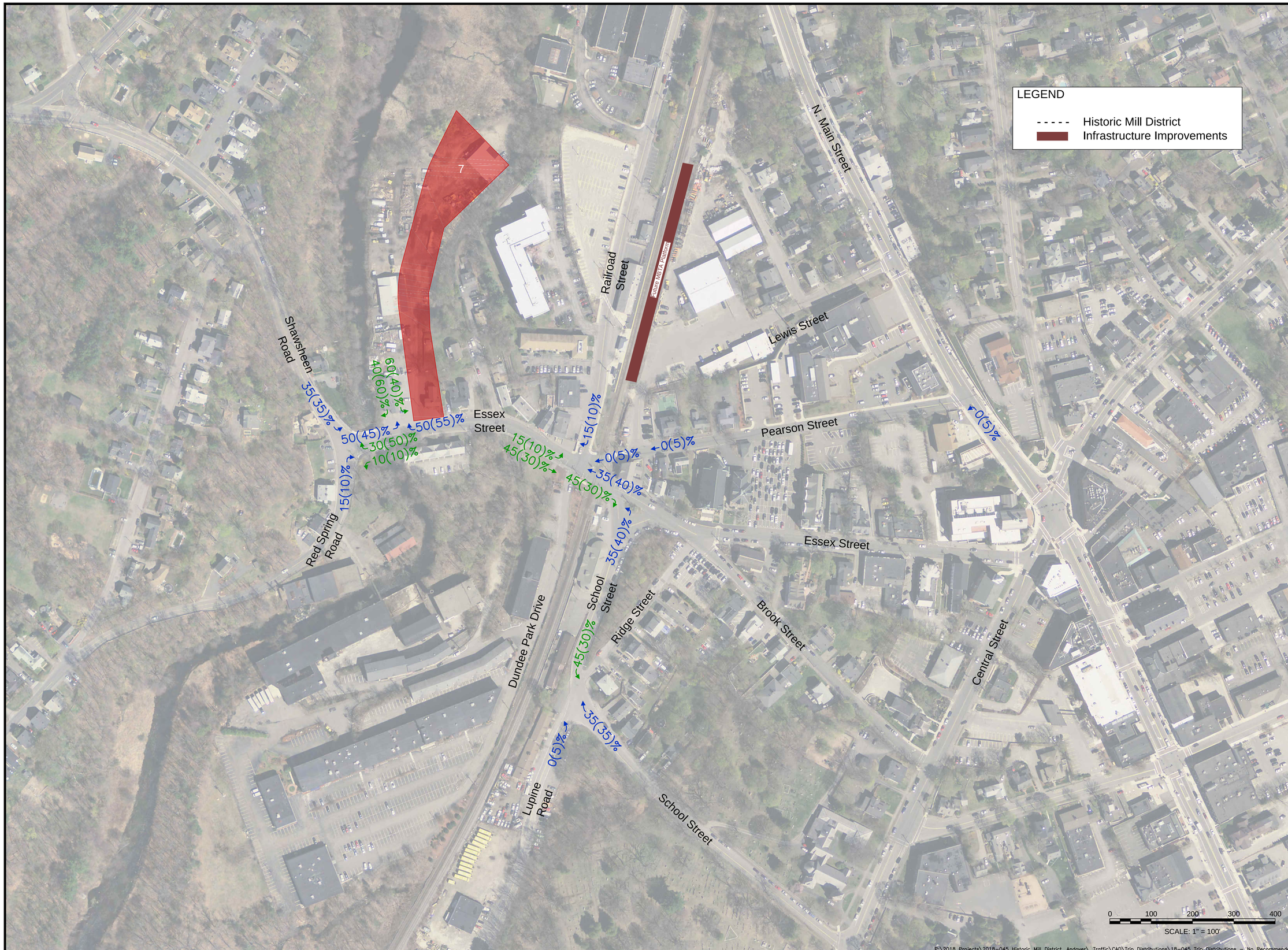

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 7

STAMP:

Trip Distribution - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

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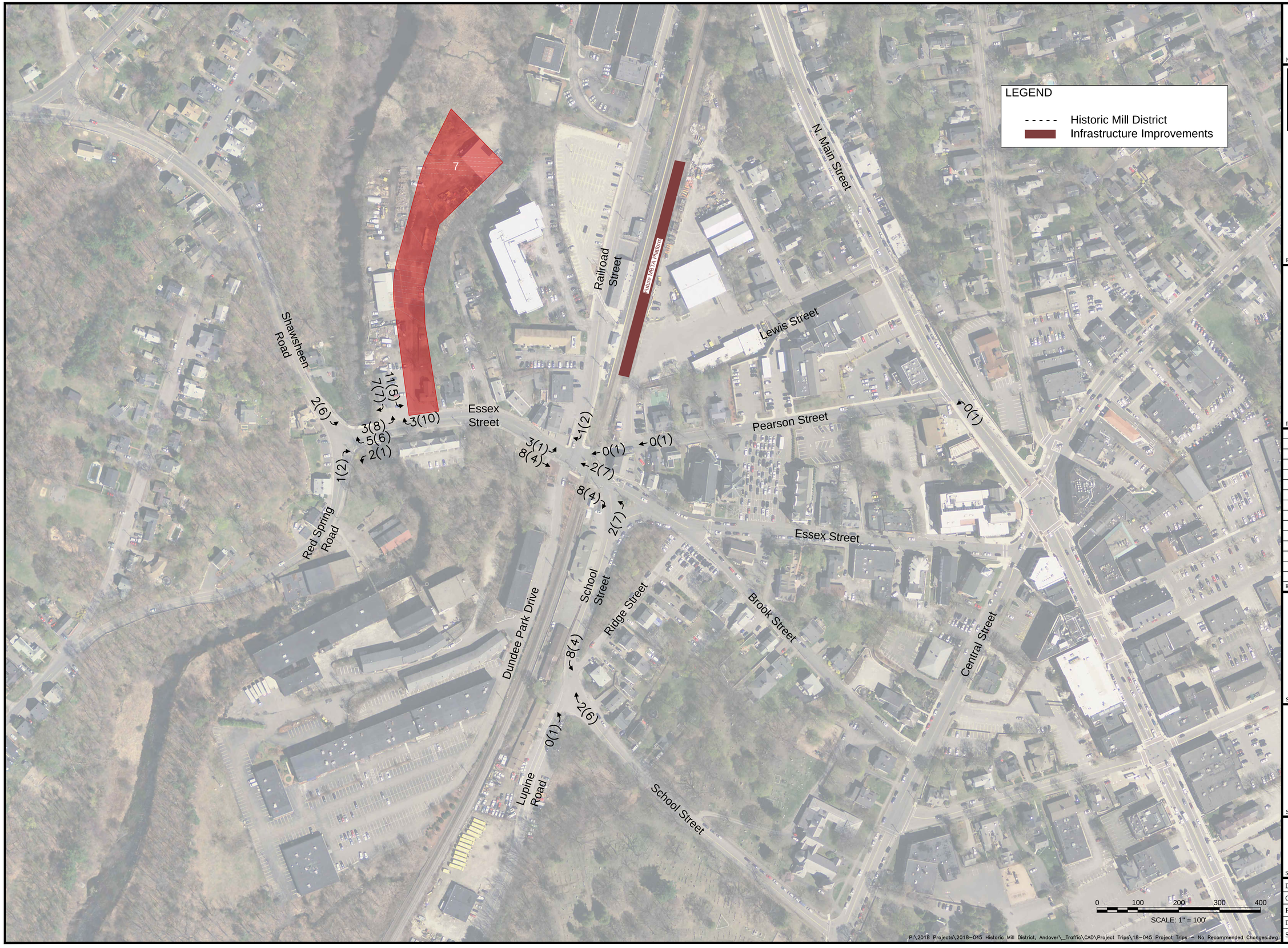

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 7

STAMP:

Site-Generated Trips - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 8

STAMP:

Trip Distribution - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -

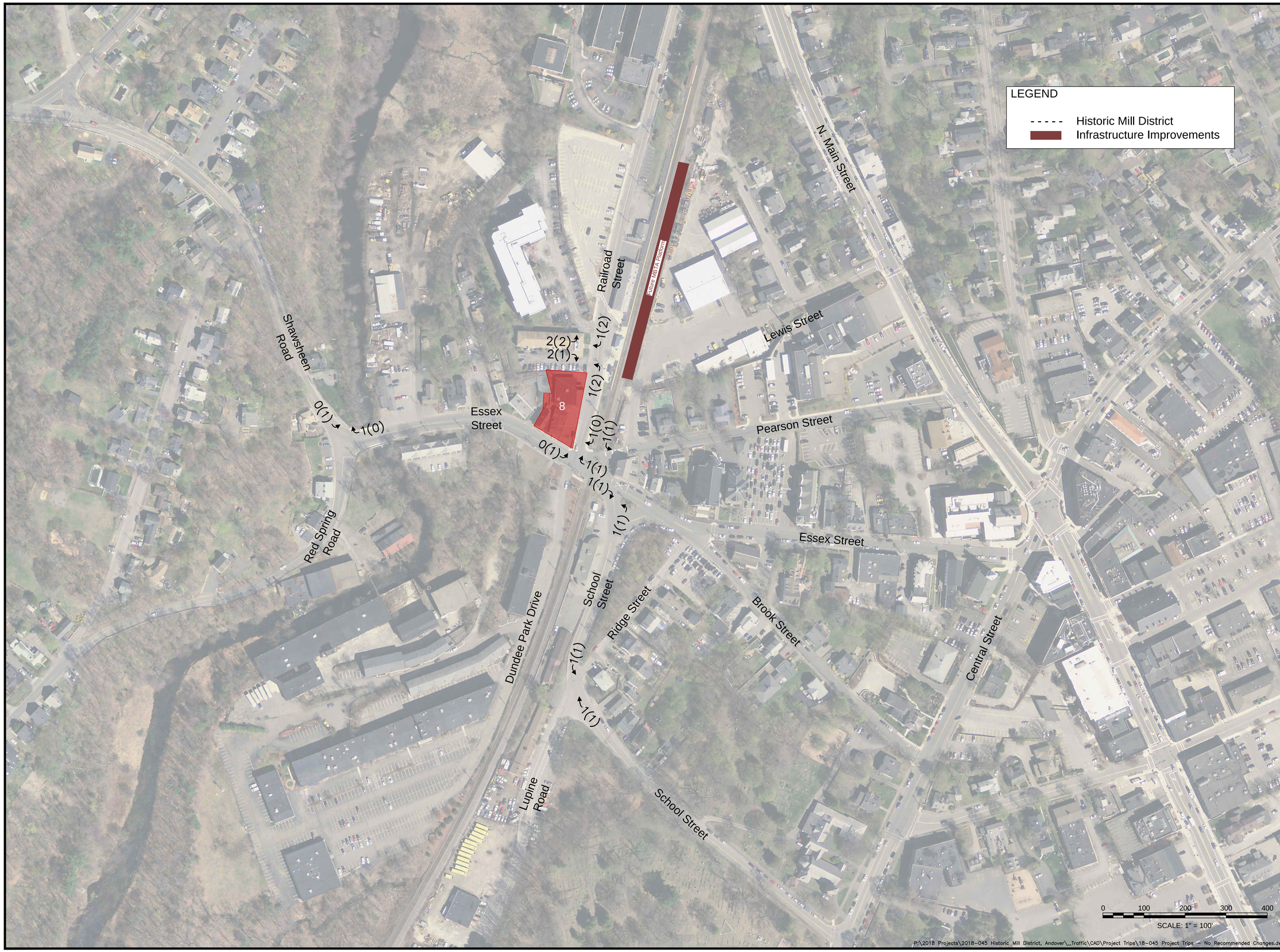
CHK BY: -

PROJ NO: -

DATE: -

SCALE: 1" = 100'

P:\2018 Projects\2018-045 Historic Mill District, Andover_Traffic\CAD\Trip Distributions\18-045 Trip Distributions - No Recommended



NORTH

Design Consultants Inc.
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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 8

STAMP:

Site-Generated Trips - No Recommended Changes

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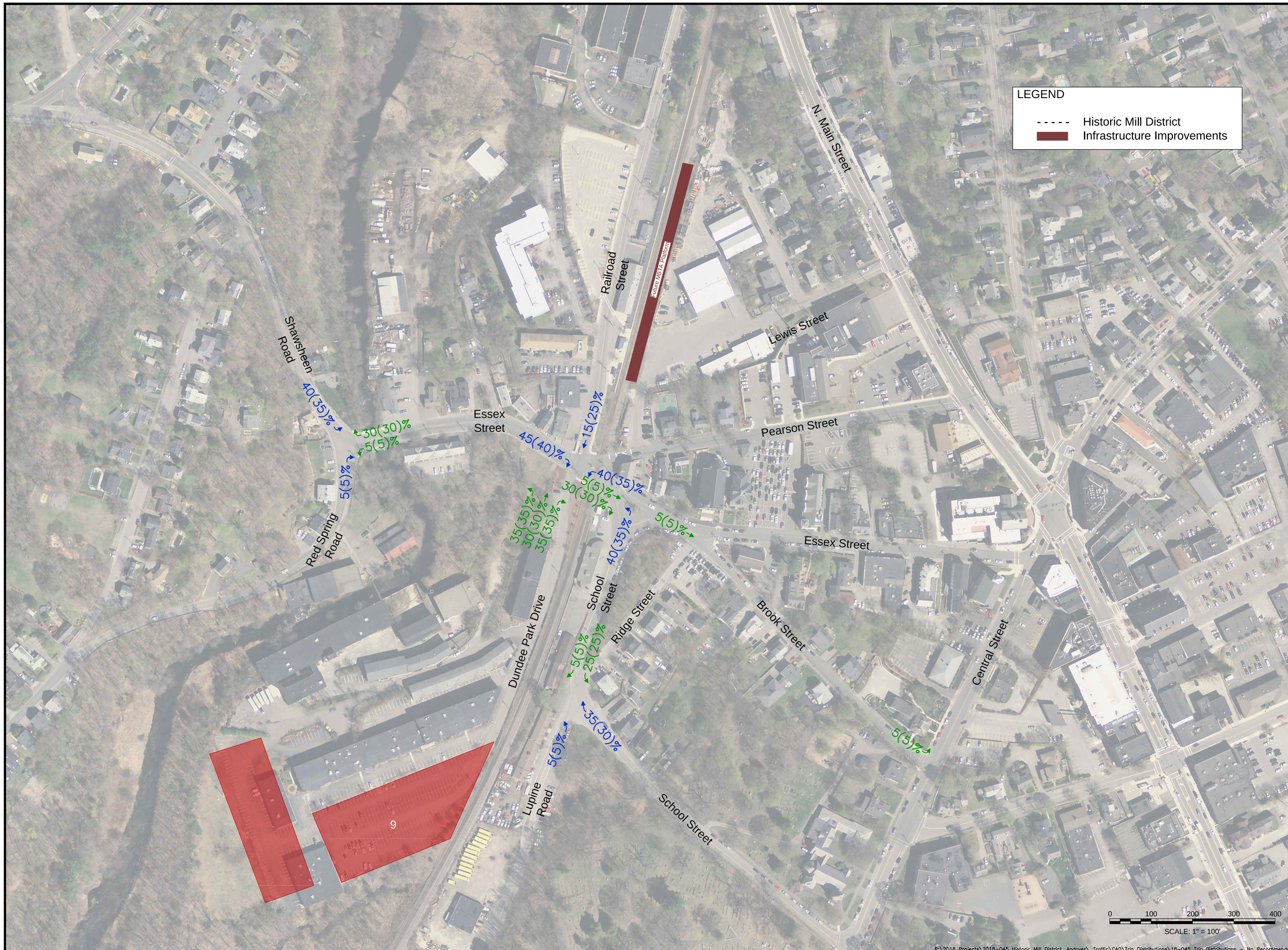

NORTH

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

Trip Distribution - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -

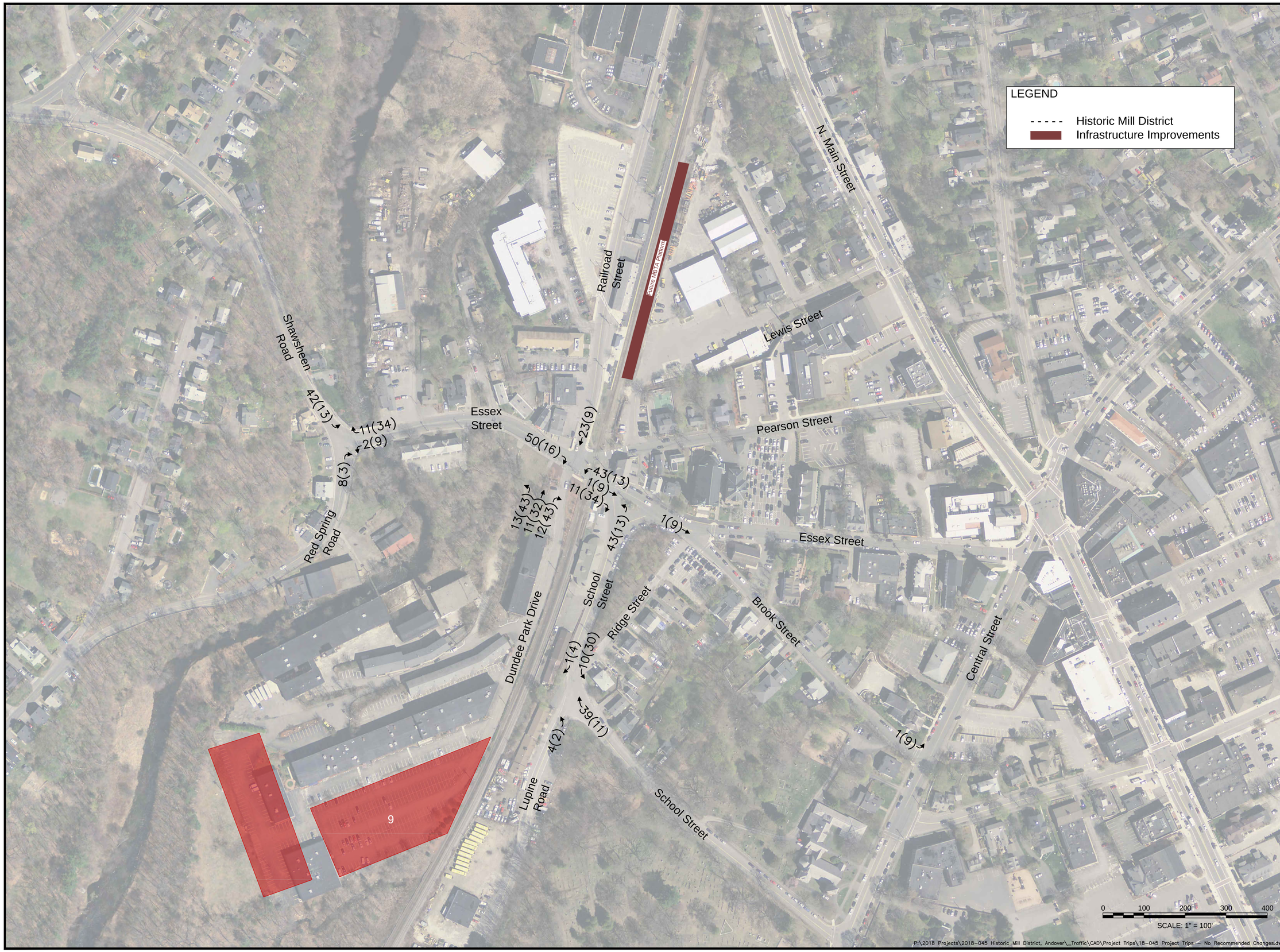
CHK BY: -

PROJ NO: -

DATE: -

SCALE: 1" = 100'

P:\2018 Projects\2018-045 Historic Mill District, Andover_Traffic\CAD\Trip Distributions\18-045 Trip Distributions - No Recommended



NORTH

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

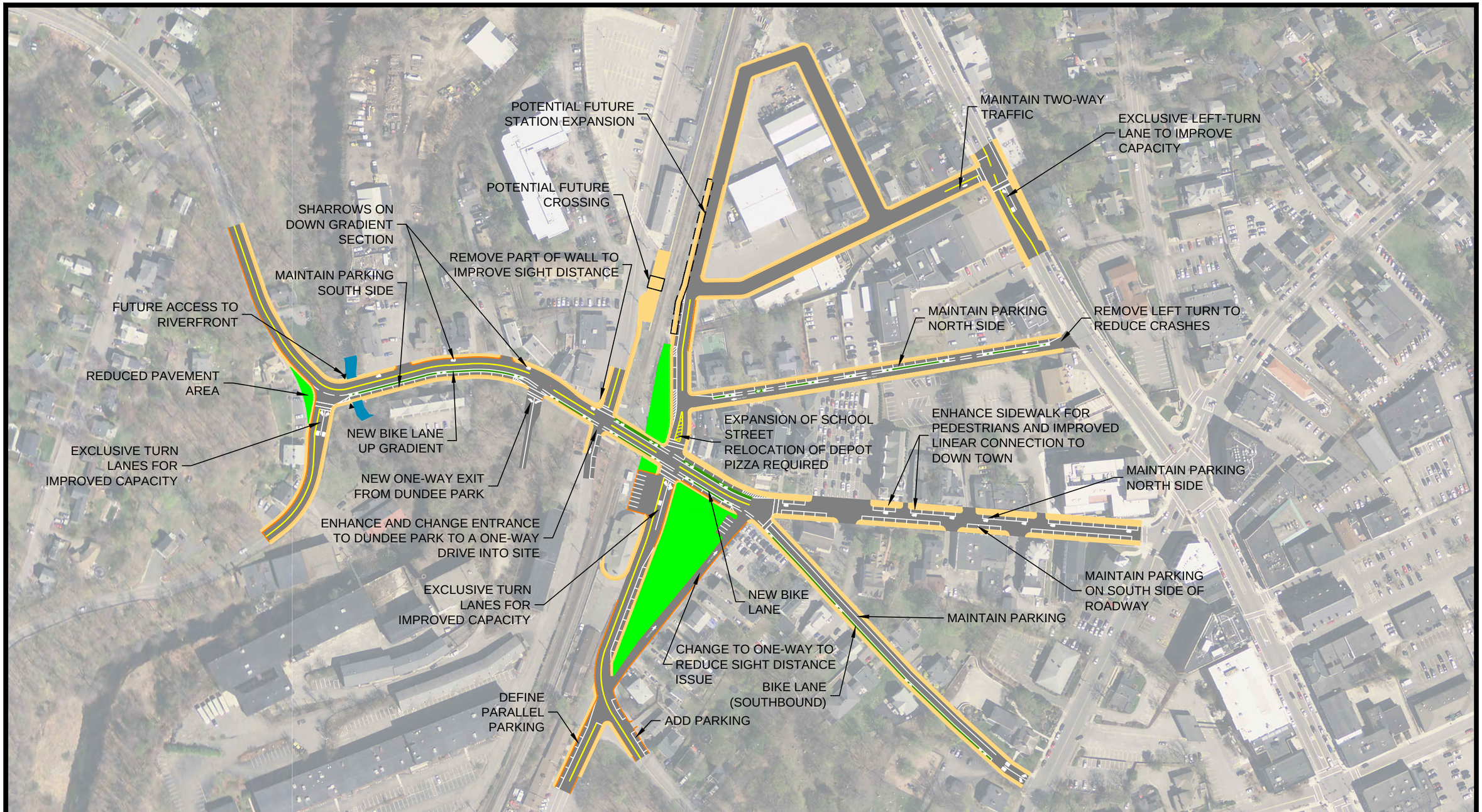
Site-Generated Trips - No Recommended Changes

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'

APPENDIX F – ALTERNATIVE 1



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Somerville - Quincy - Newburyport
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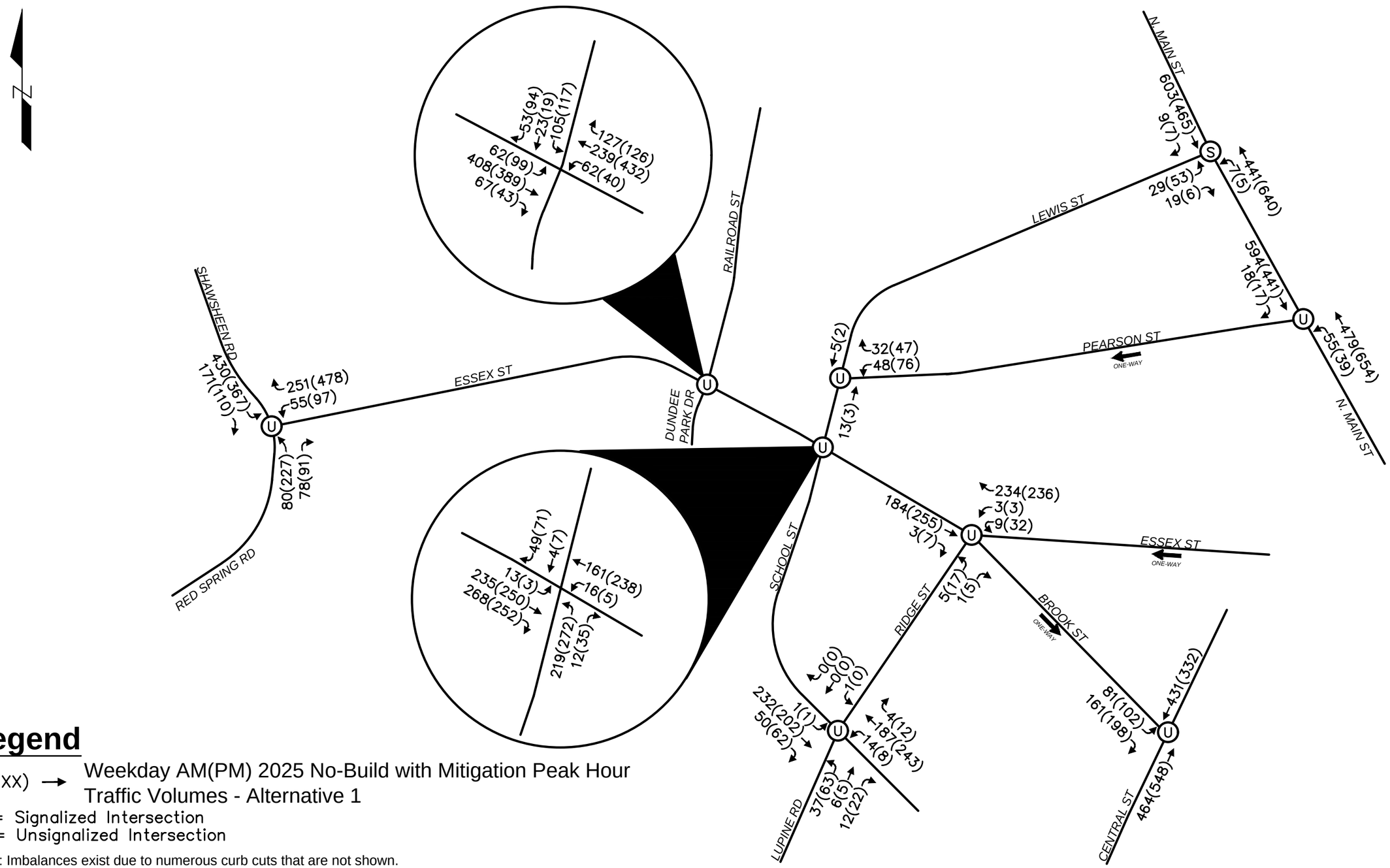
ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

Alternative 1 Geometric Changes

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.



Legend

XX(XX) → Weekday AM(PM) 2025 No-Build with Mitigation Peak Hour Traffic Volumes - Alternative 1

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_ALTERNATIVE 1.DWG

Design Consultants Inc.
Somerville - Quincy - Newburyport
www.dci-ma.com

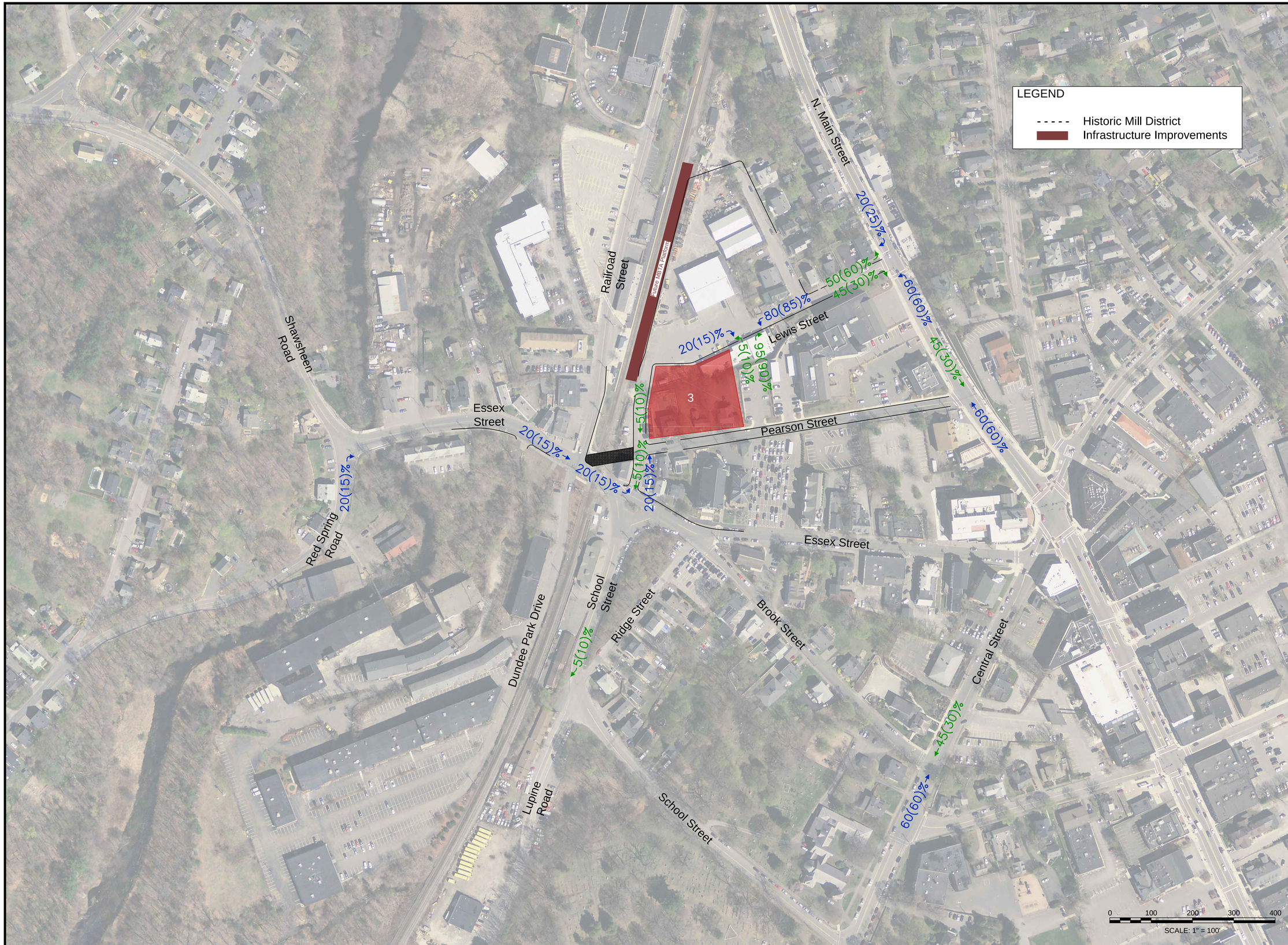
ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

2025 No-Build Weekday Peak Hour Traffic Volumes - Alternative 1

PROJECT NO: 2018-045

DATE: MARCH 2019

SCALE: N.T.S.



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

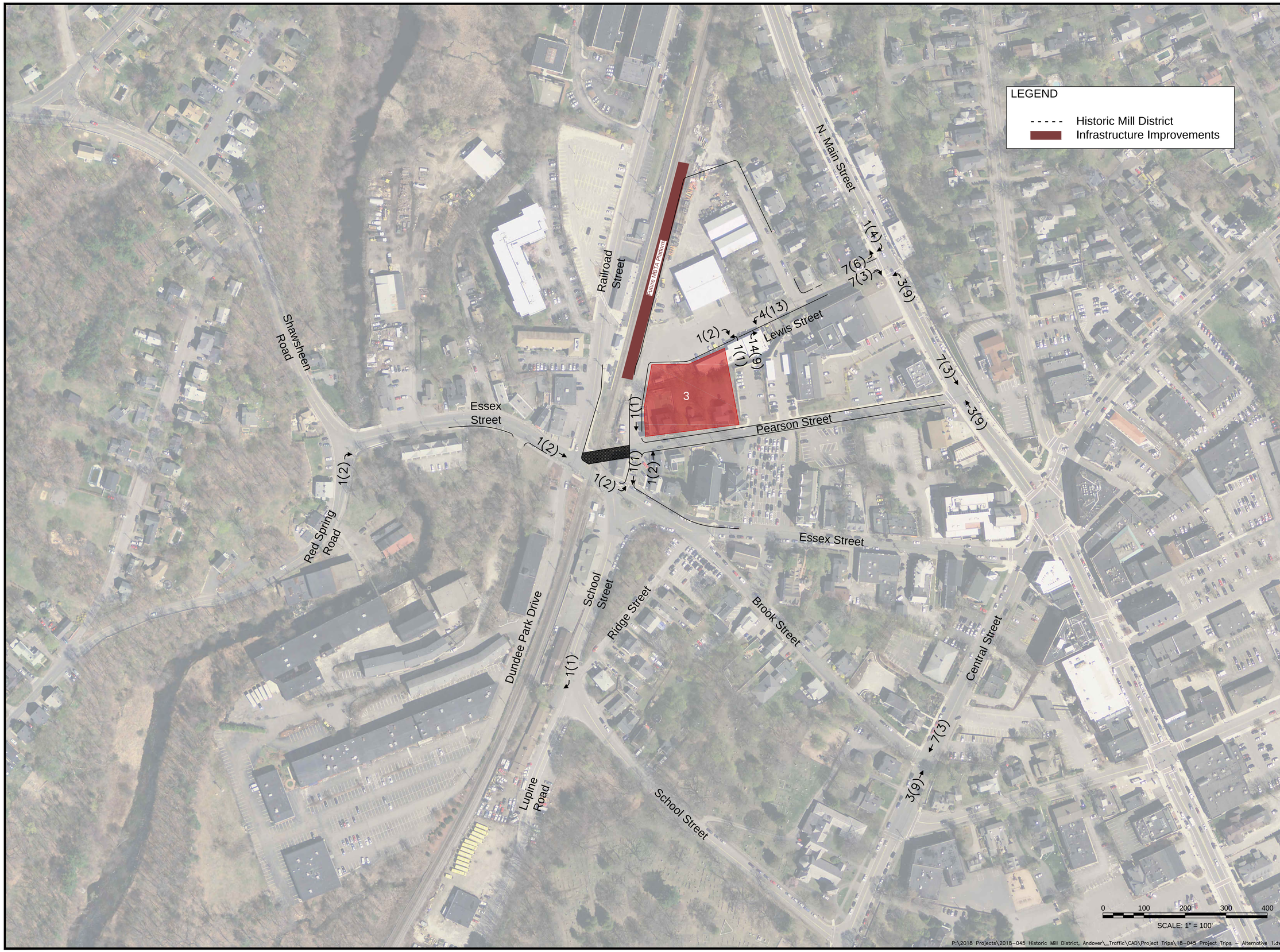
STAMP:

Trip Distribution - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'



NORTH

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Somerville - Quincy - Newburyport
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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

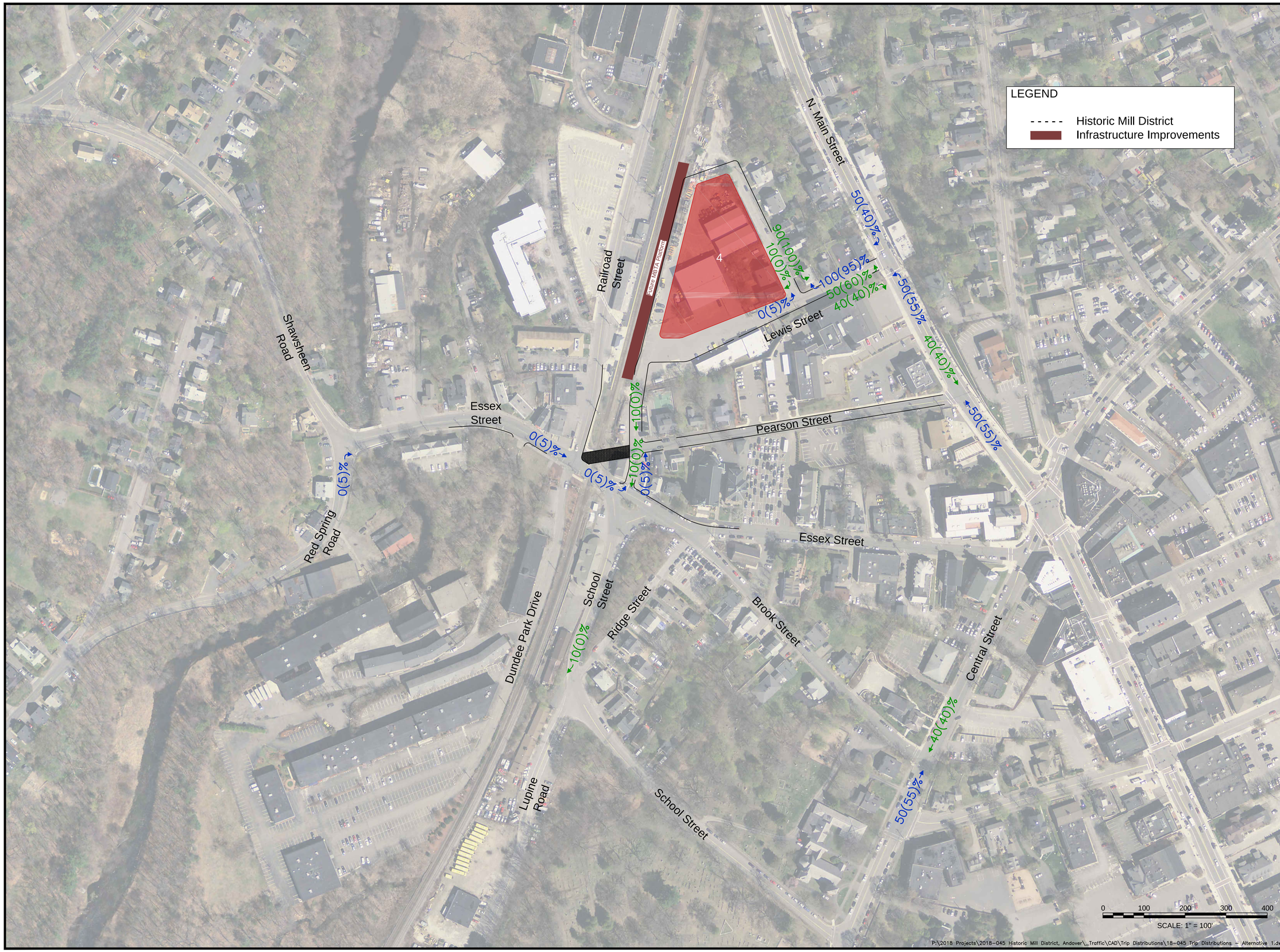
STAMP:

Full Build Out Trips - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 4

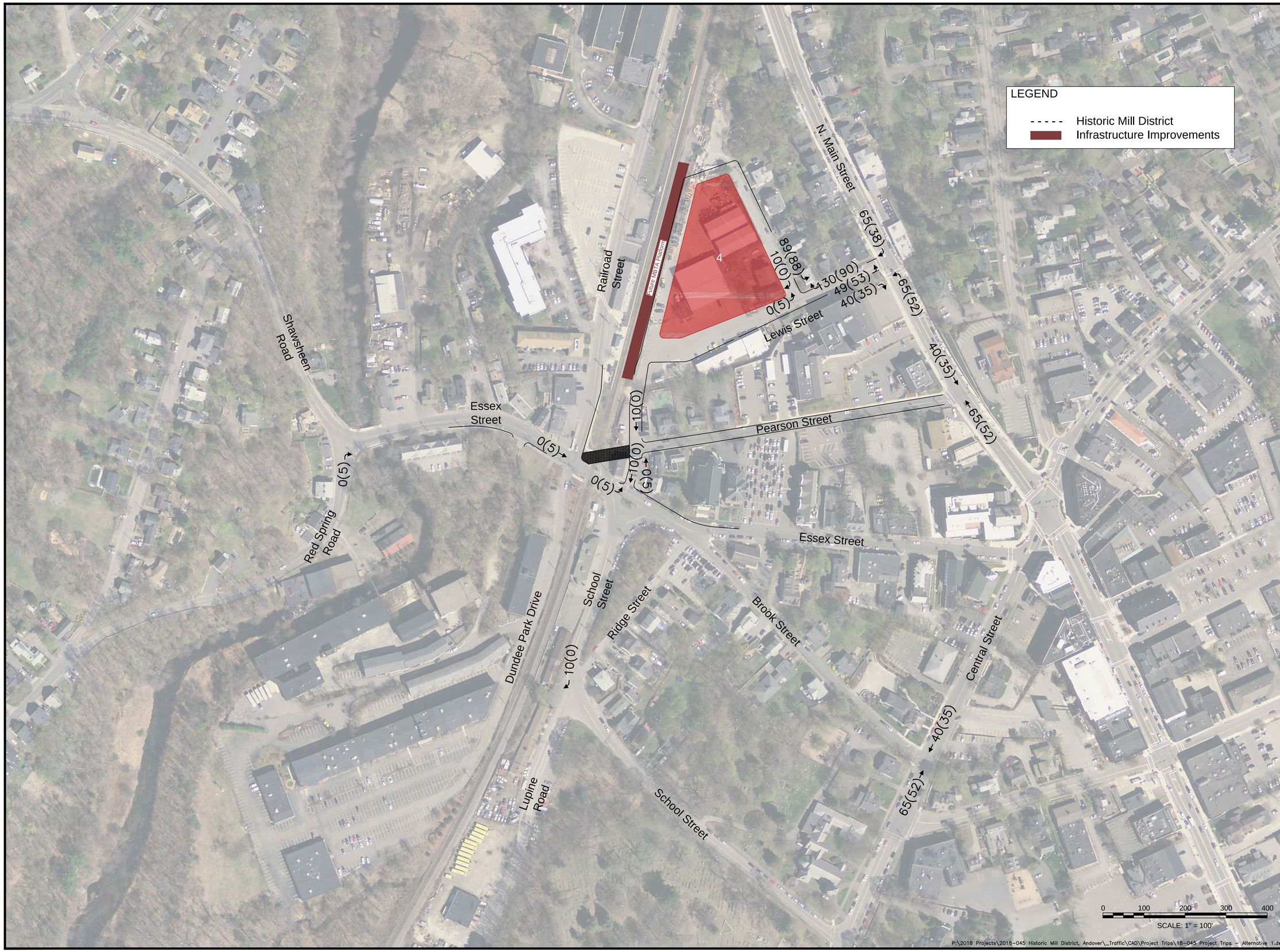
STAMP:

Trip Distribution - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 4

STAMP:

Full Build Out Trips - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
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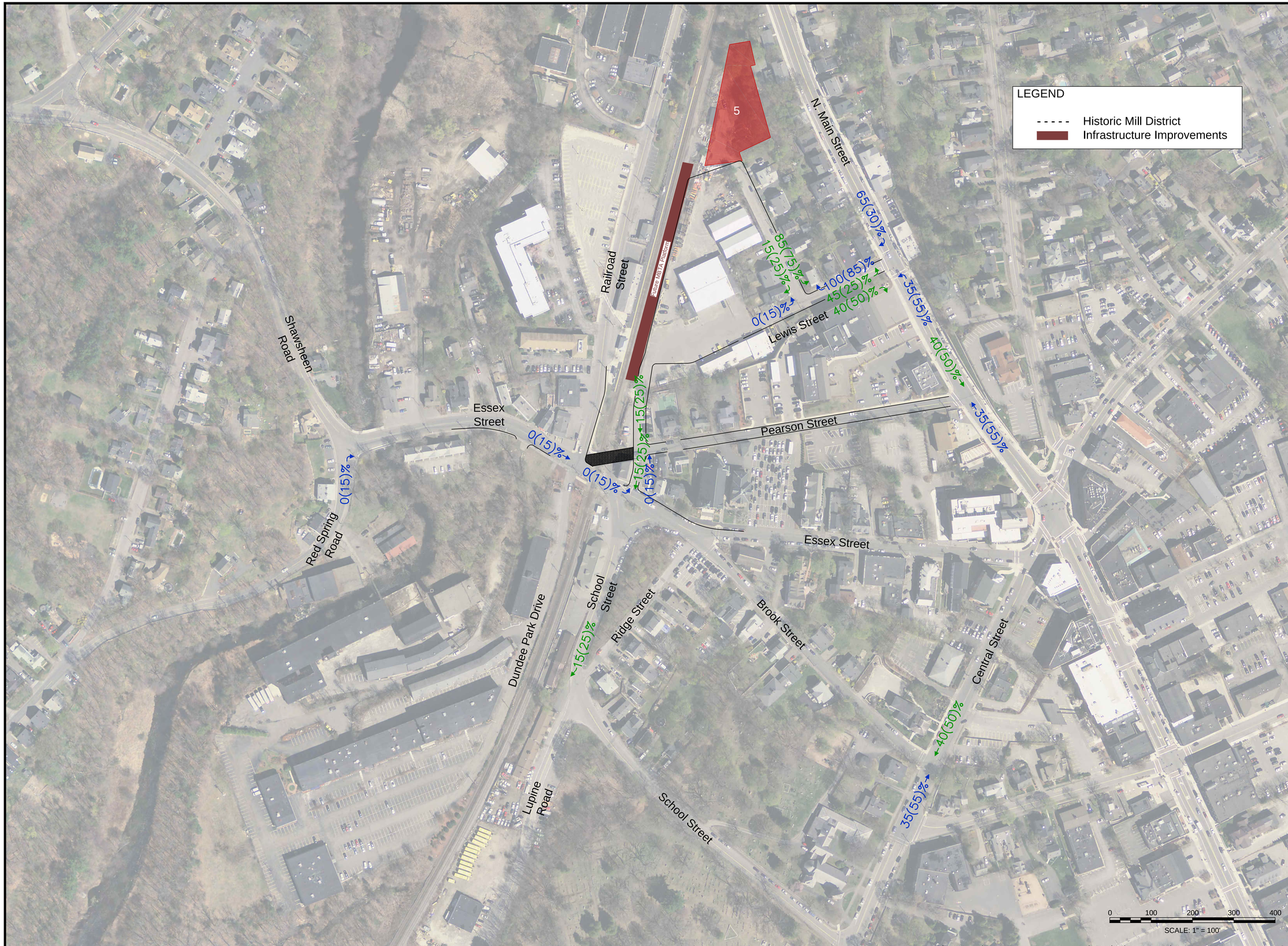

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 5

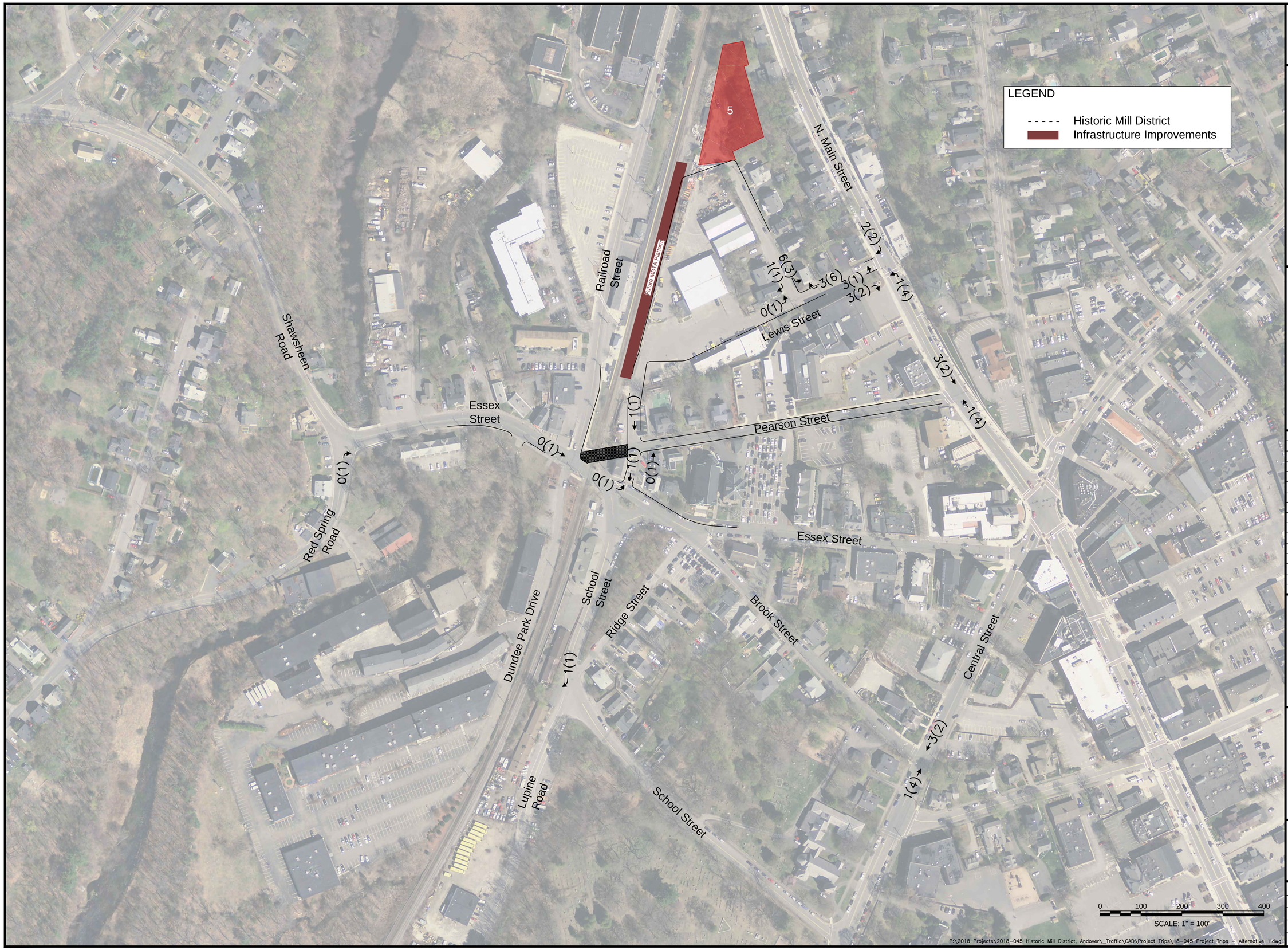
STAMP:

Trip Distribution - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 5

STAMP:

Full Build Out Trips - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -

CHK BY: -

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DATE: -

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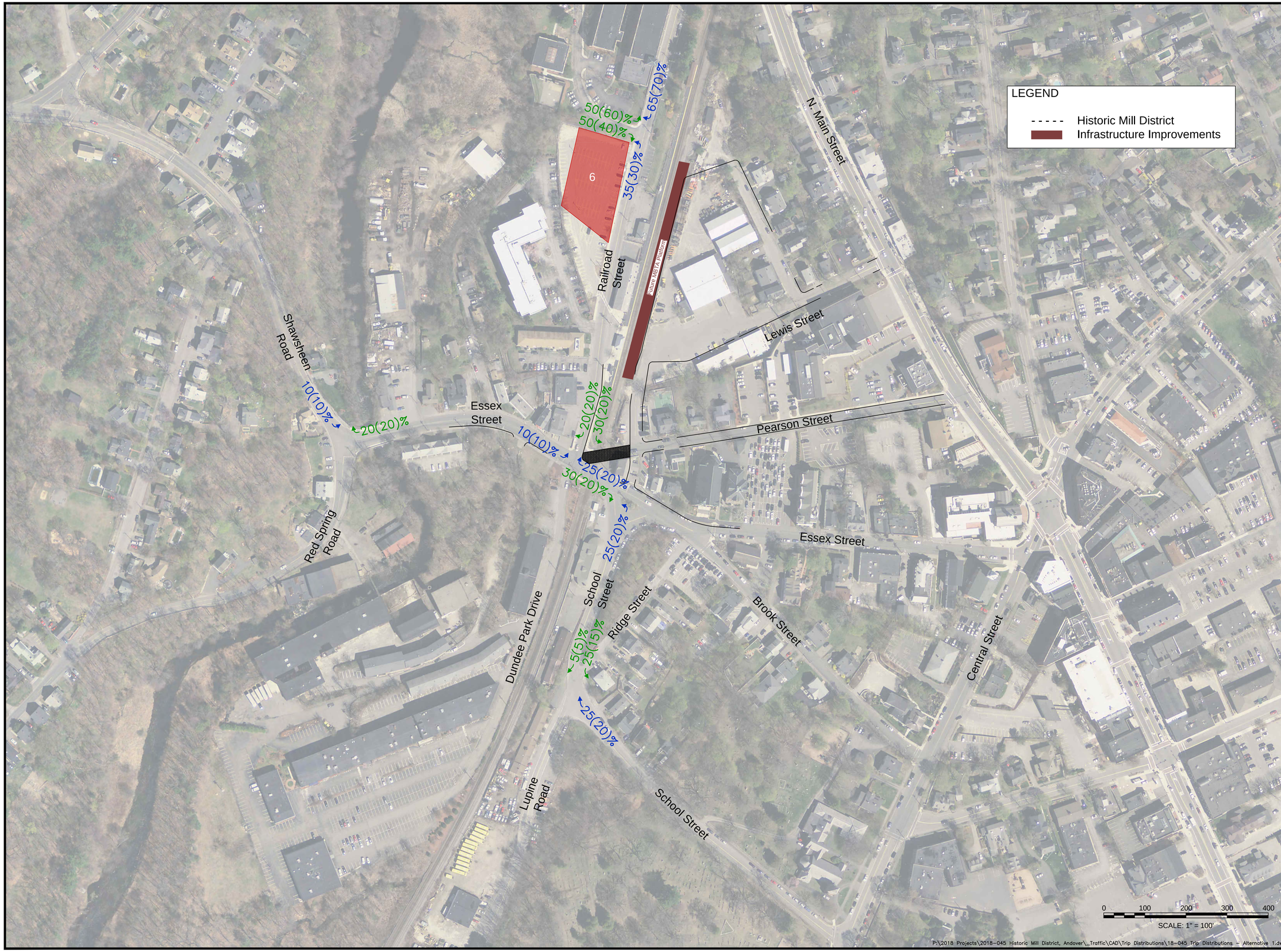

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 6

STAMP:

Trip Distribution - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
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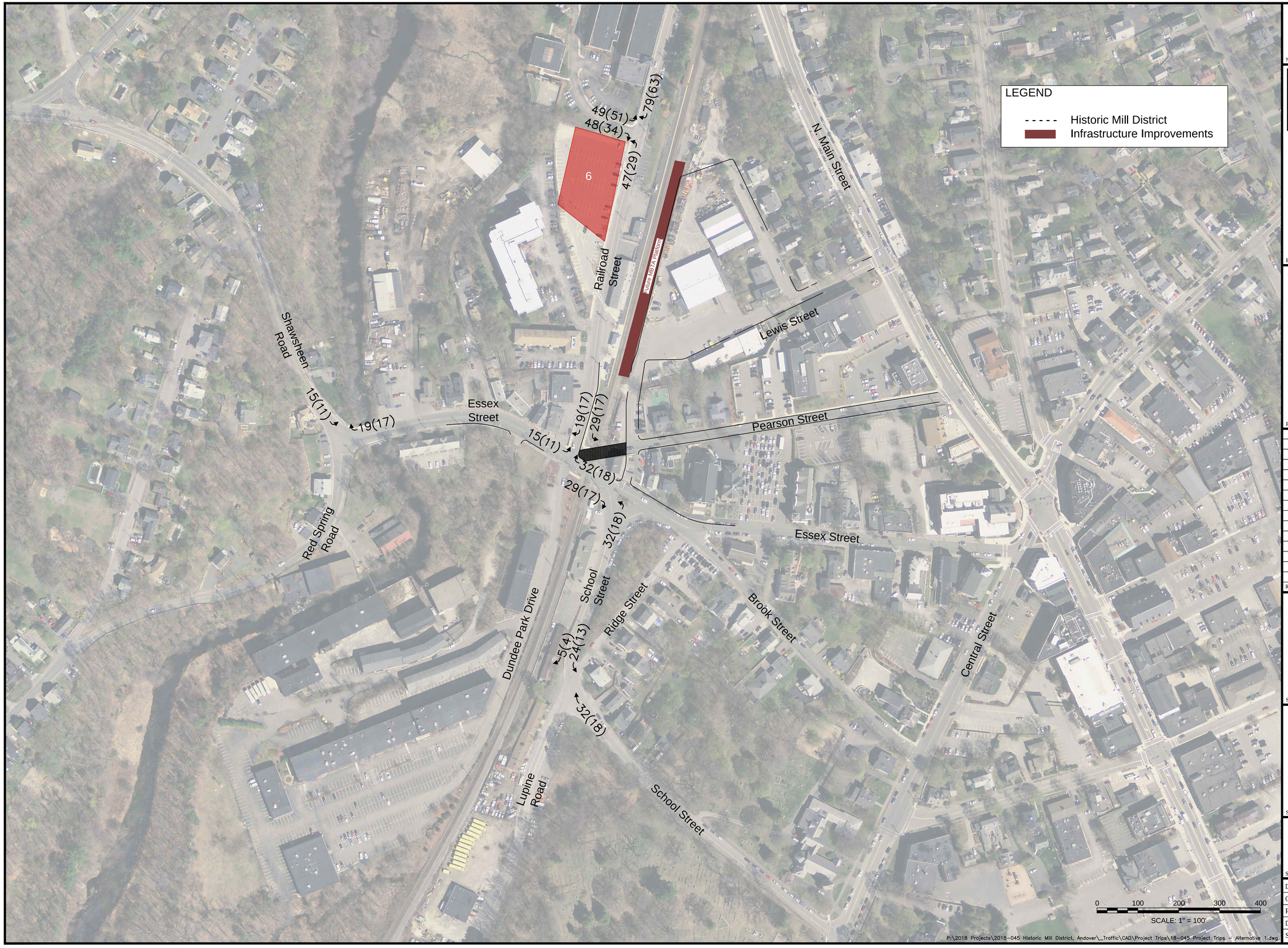

N

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 6

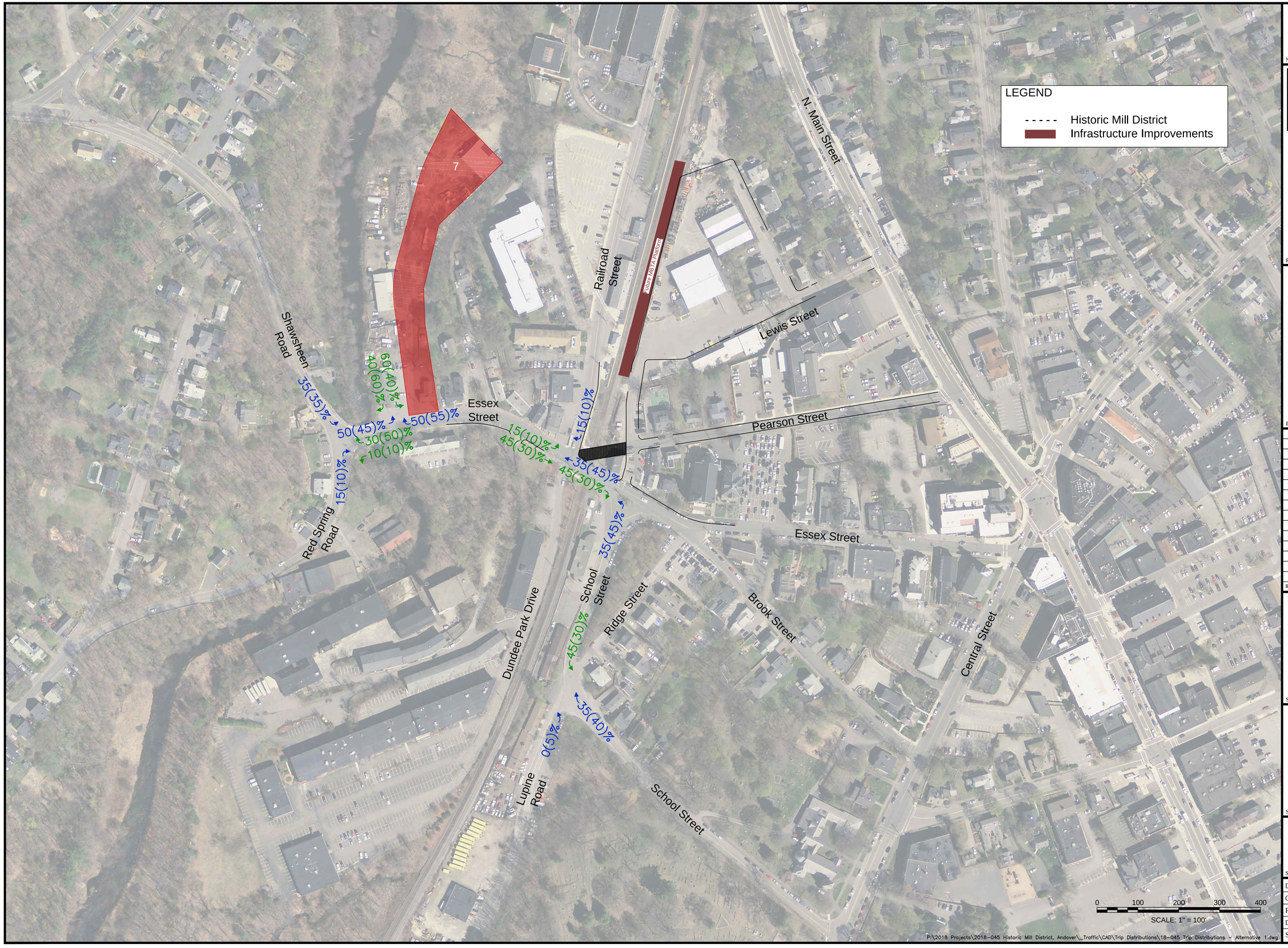
STAMP:

Full Build Out Trips - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'



N

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 7

STAMP:

Trip Distribution - Alternative 1

SHEET NAME:

SHT NO:

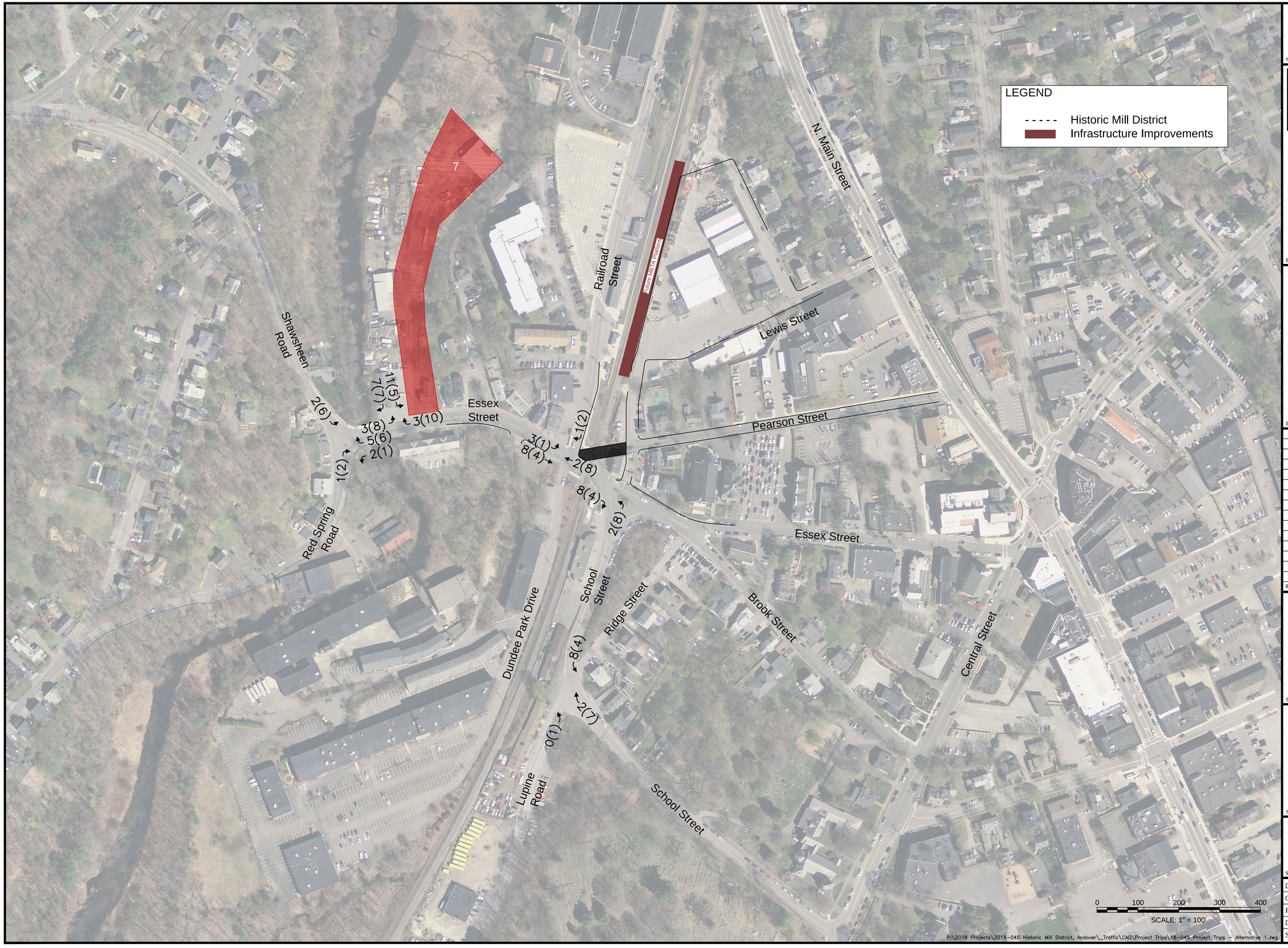
DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

SCALE: 1" = 100'



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 7

STAMP:

Full Build Out Trips - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

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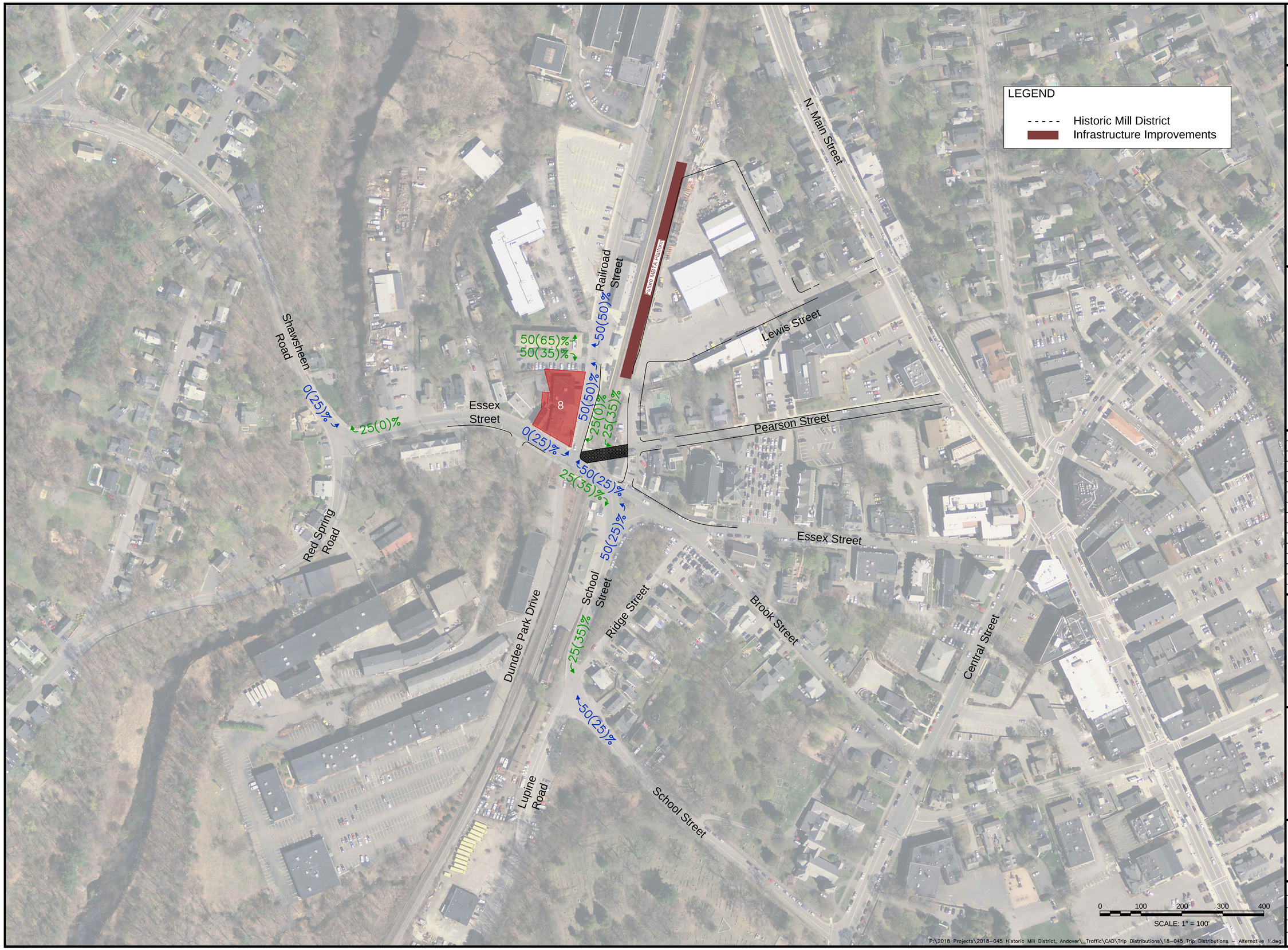

NORTH

Design Consultants Inc.
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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 8

STAMP:

Trip Distribution - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
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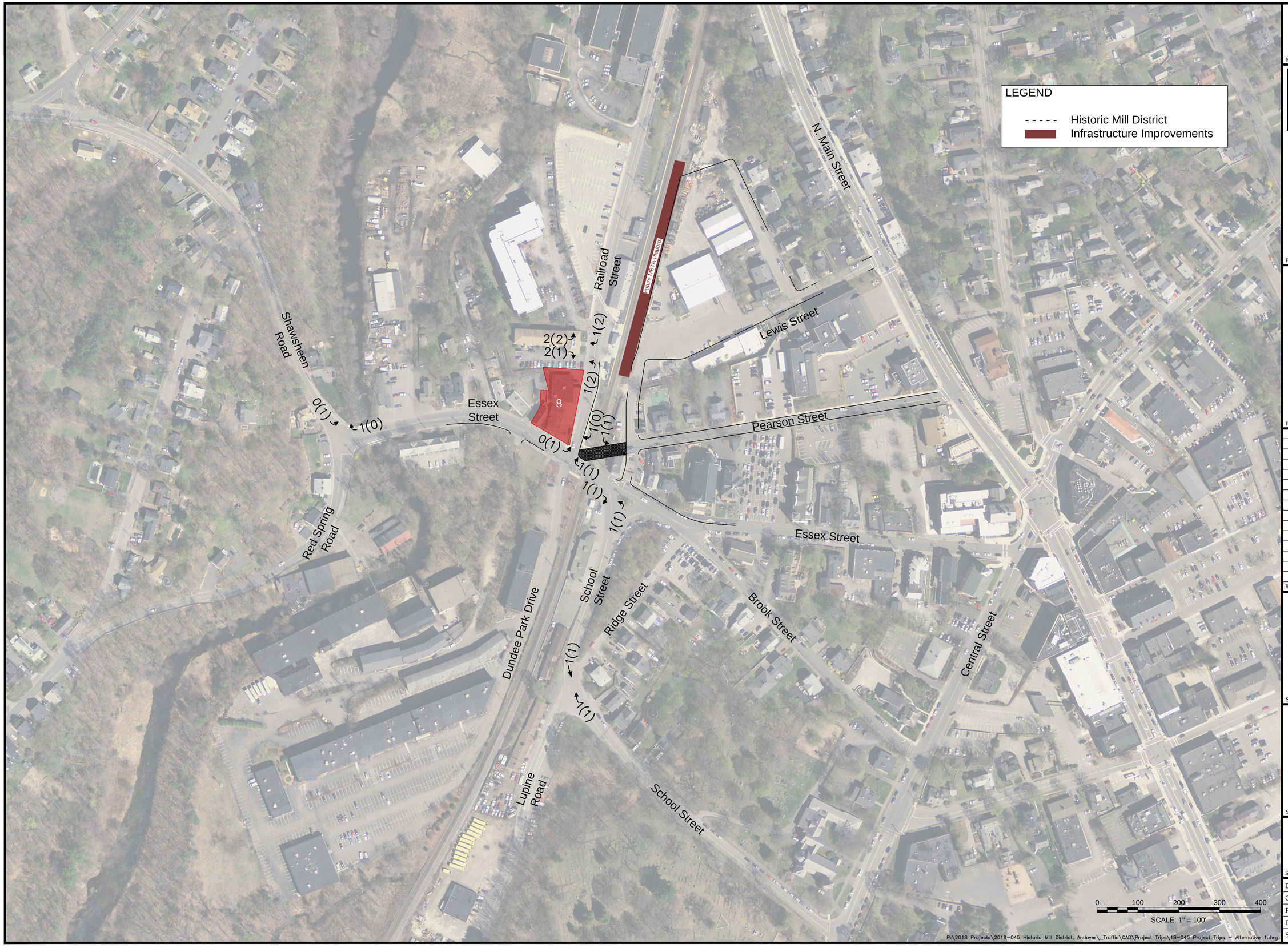

N

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 8

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Full Build Out Trips - Alternative 1

SHEET NAME:

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DR BY: -

CHK BY: -

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DATE: -

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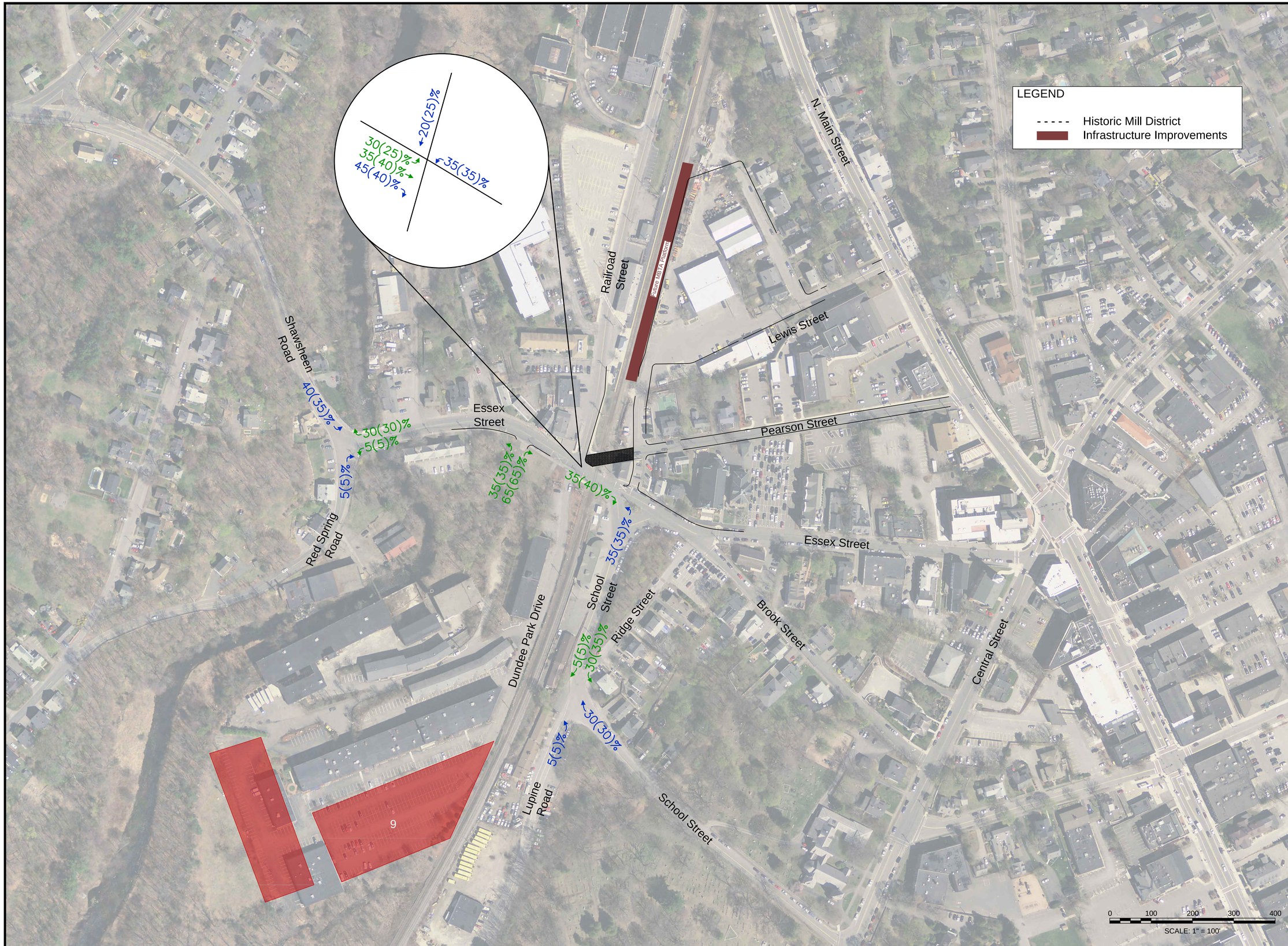

N

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

Trip Distribution - Alternative 1

SHEET NAME:

SHT NO:

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CHK BY: -
PROJ NO: -
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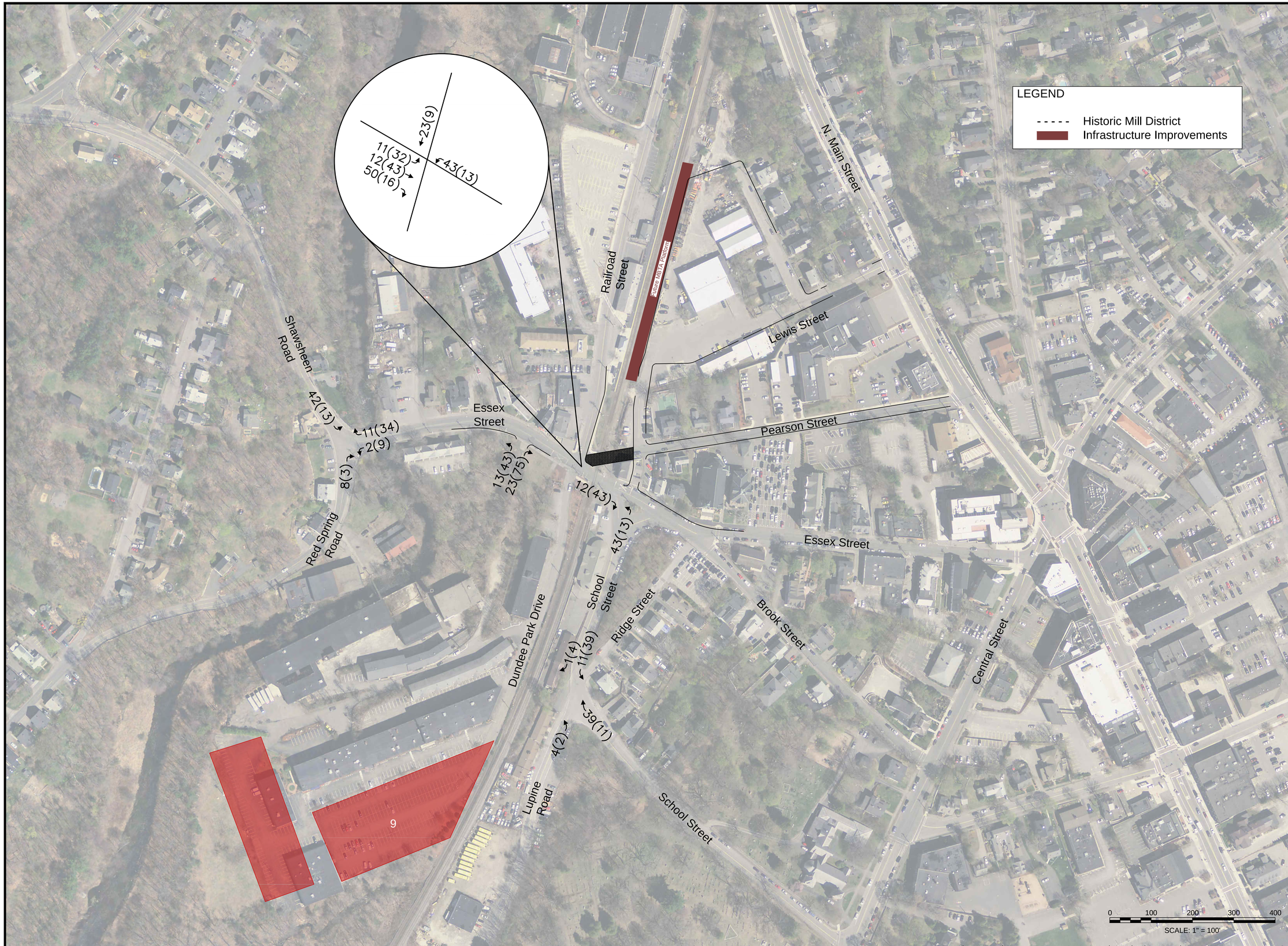

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

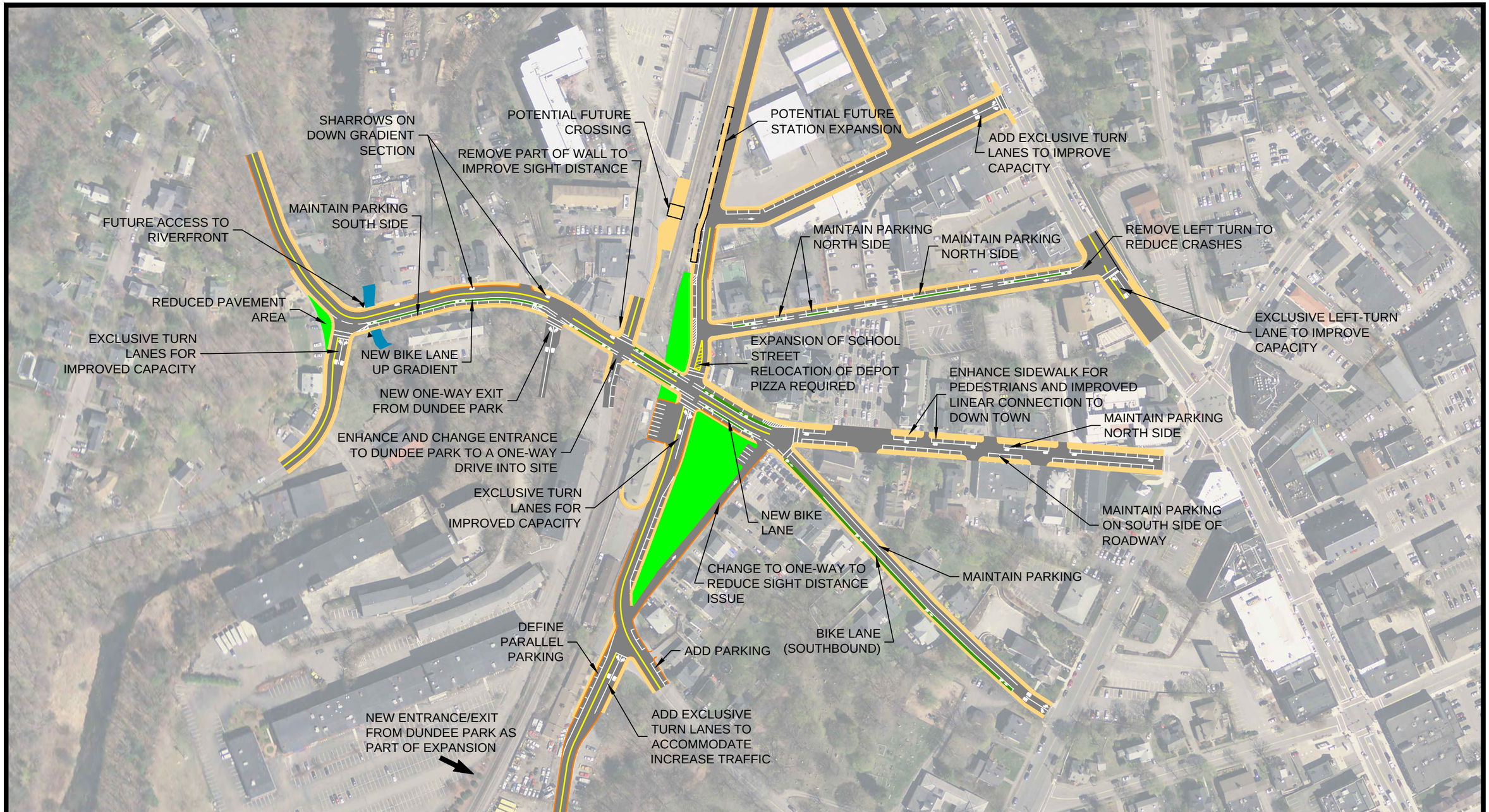
Full Build Out Trips - Alternative 1

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'

APPENDIX G – ALTERNATIVE 1A



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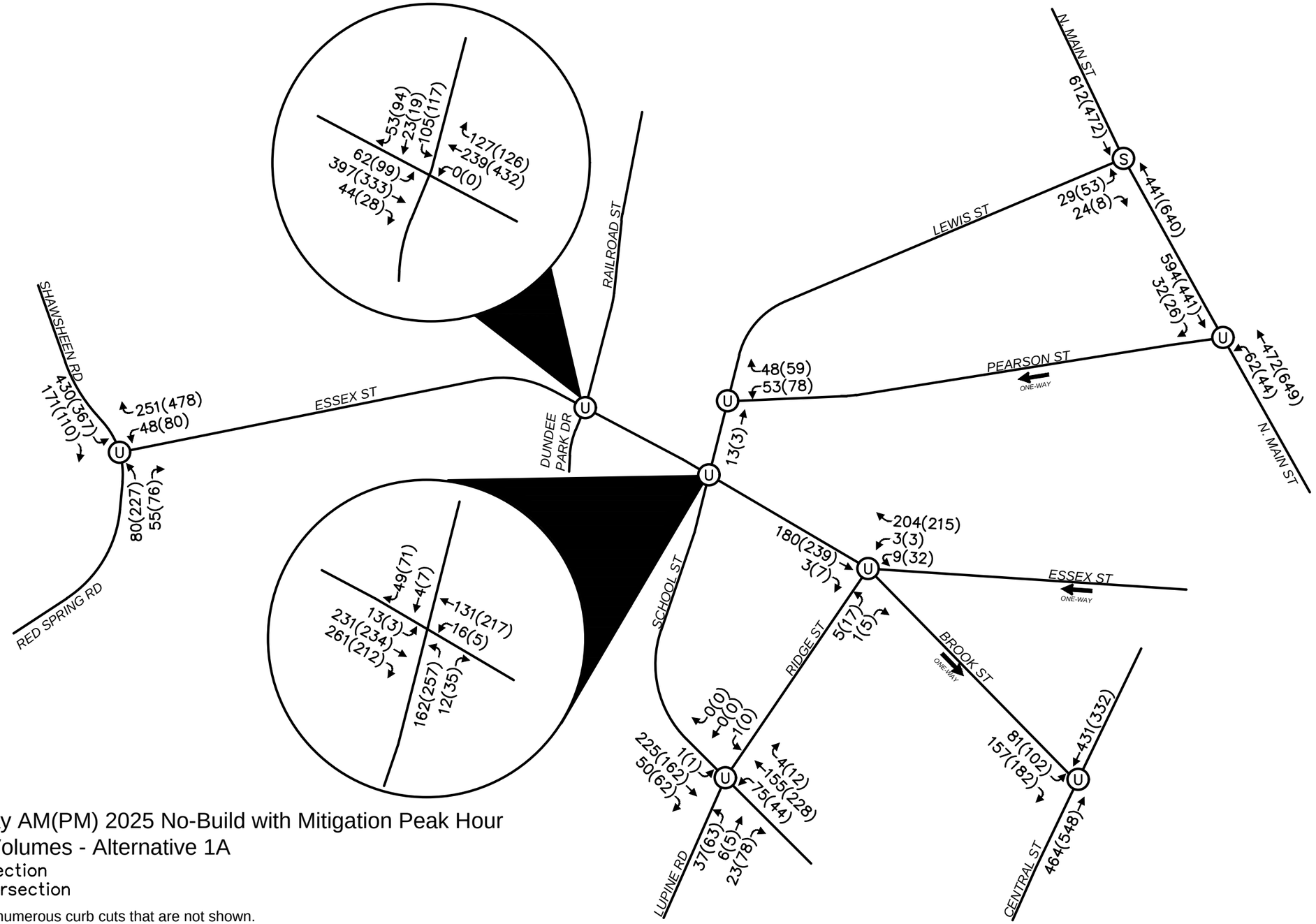
ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

Alternative 1A Geometric Changes

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.



Legend

XX(XX) → Weekday AM(PM) 2025 No-Build with Mitigation Peak Hour Traffic Volumes - Alternative 1A

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_ALTERNATIVE 1A.DWG

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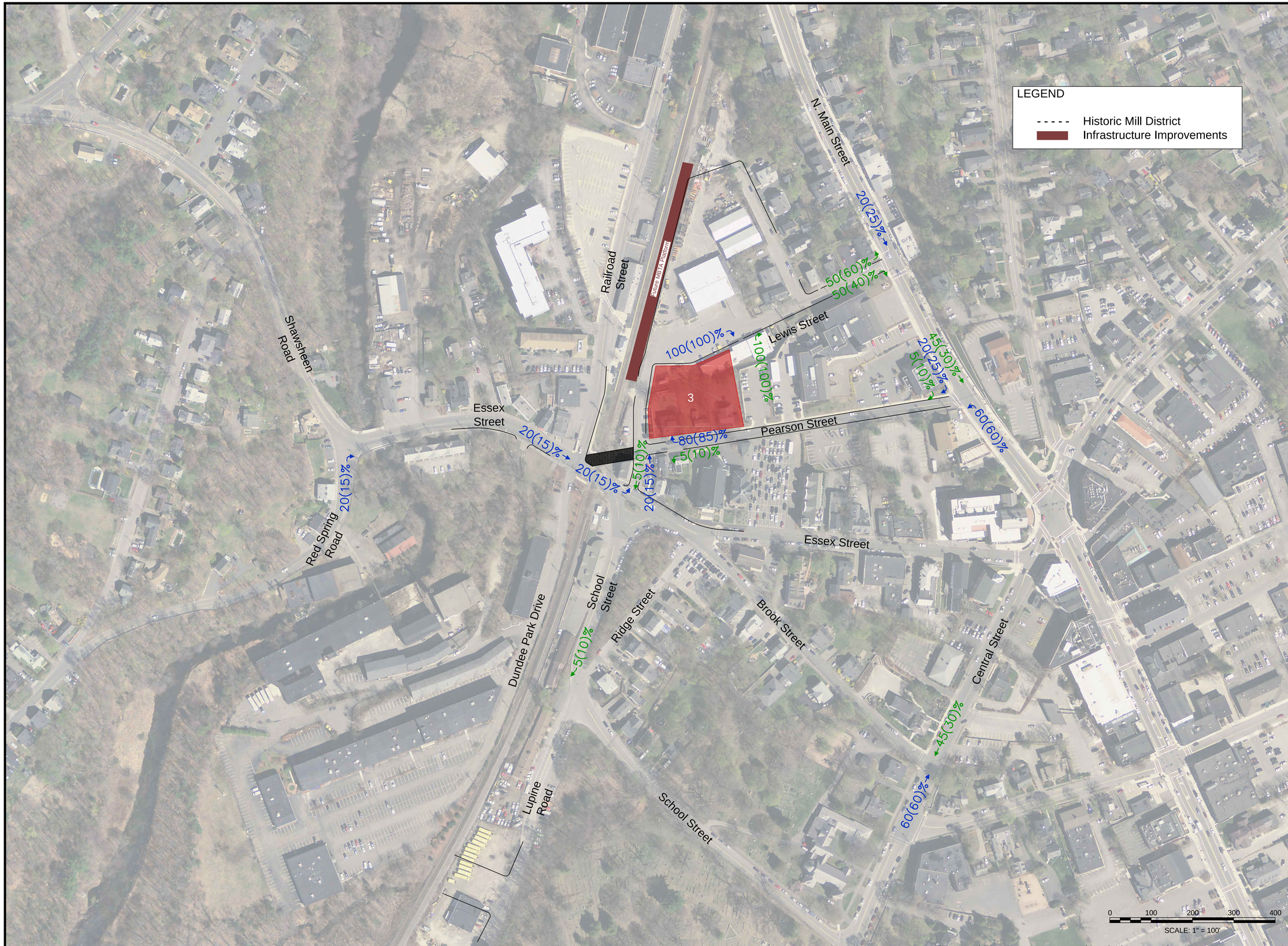
ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

2025 No-Build Weekday Peak Hour Traffic Volumes - Alternative 1A

PROJECT NO: 2018-045

DATE: MARCH 2019

SCALE: N.T.S.



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

STAMP:

Trip Distribution - Alternative 1A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
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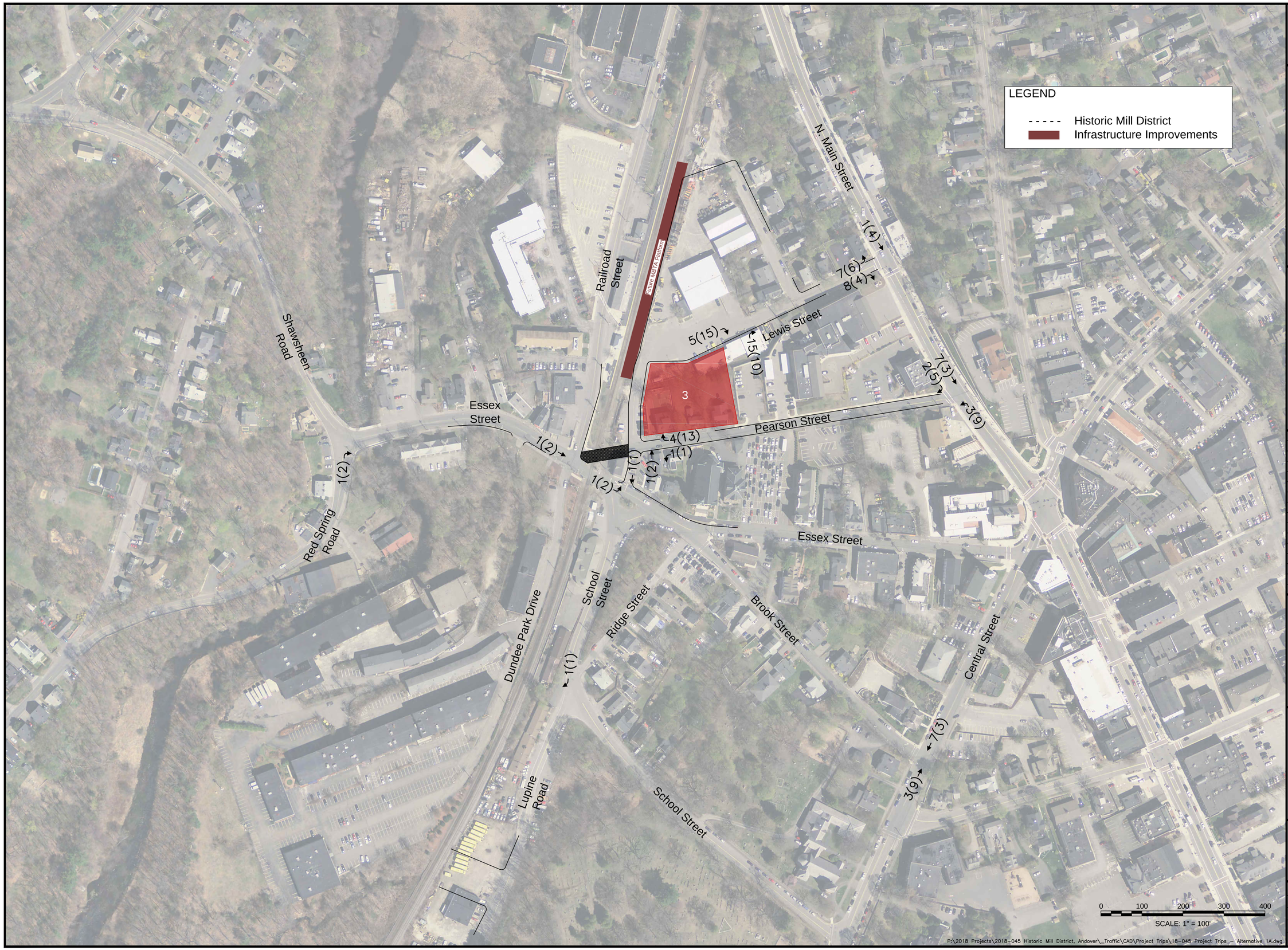

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

STAMP:

Full Build Out Trips - Alternative 1A

SHEET NAME:

SHT NO:

DR BY: -

CHK BY: -

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DATE: -

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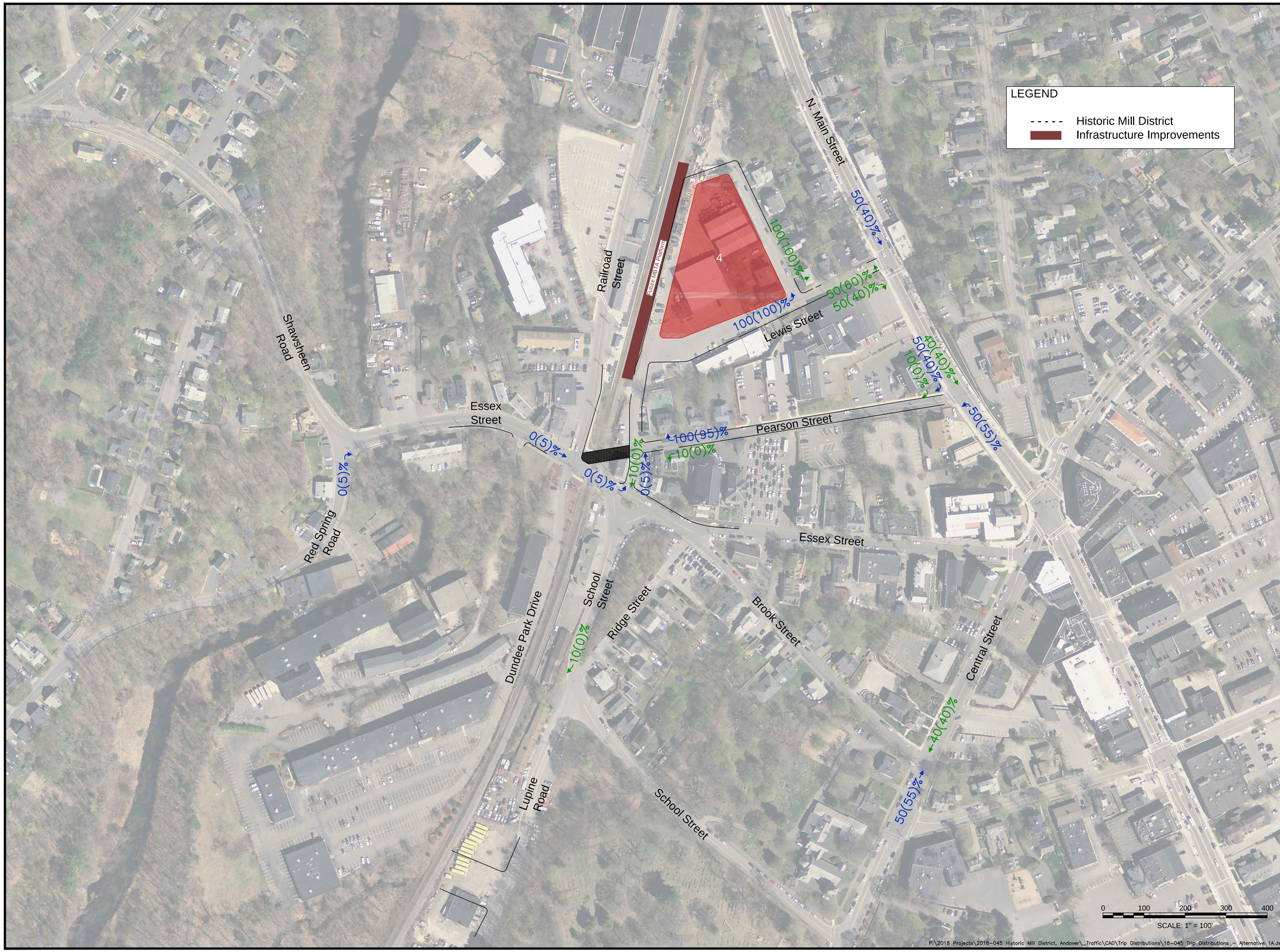

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 4

STAMP:

Trip Distribution - Alternative 1A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
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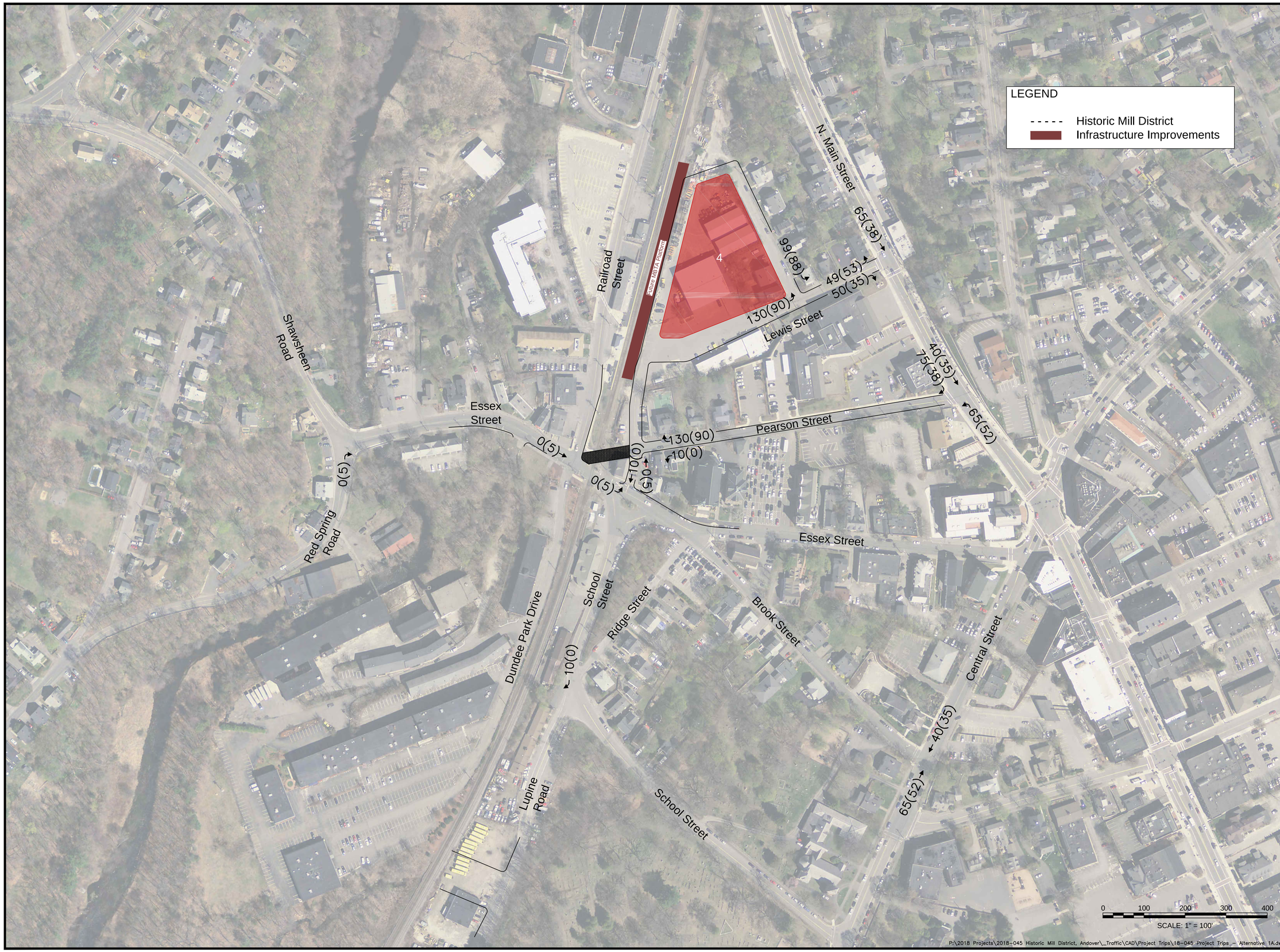

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 4

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Full Build Out Trips - Alternative 1A

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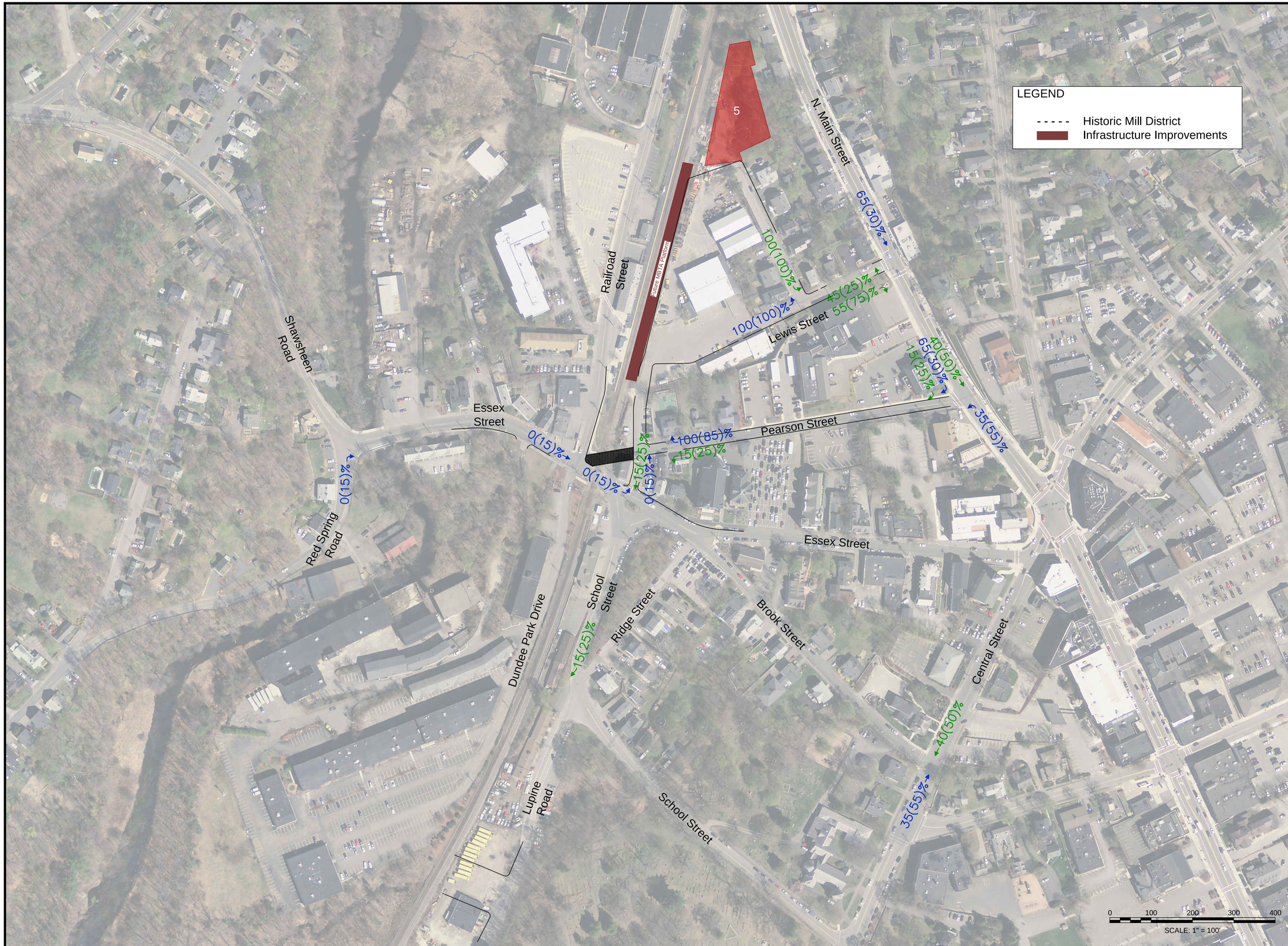

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 5

STAMP:

Trip Distribution - Alternative 1A

SHEET NAME:

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DR BY: -
CHK BY: -
PROJ NO: -
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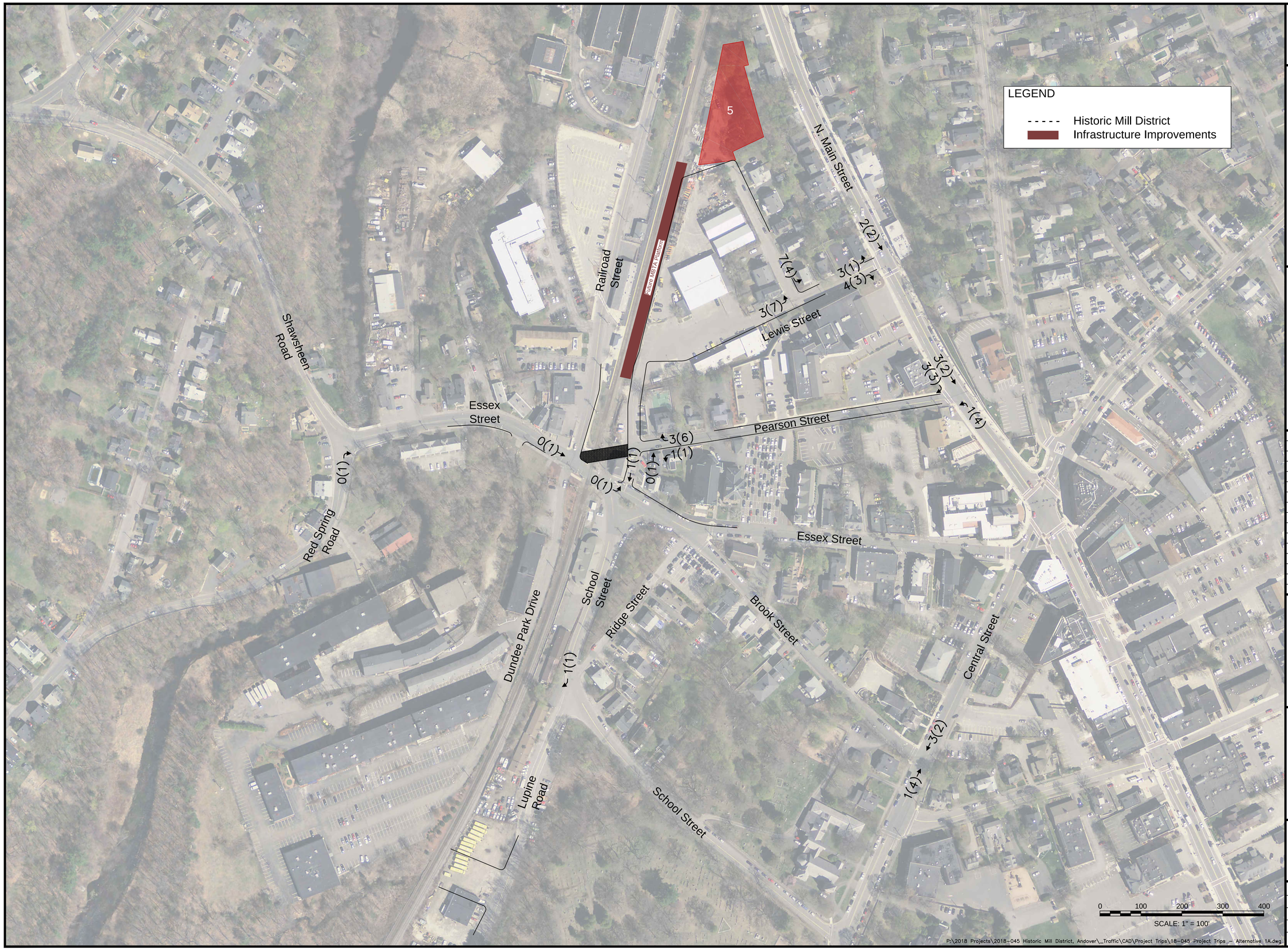

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 5

STAMP:

Full Build Out Trips - Alternative 1A

SHEET NAME:

SHT NO:

DR BY: -

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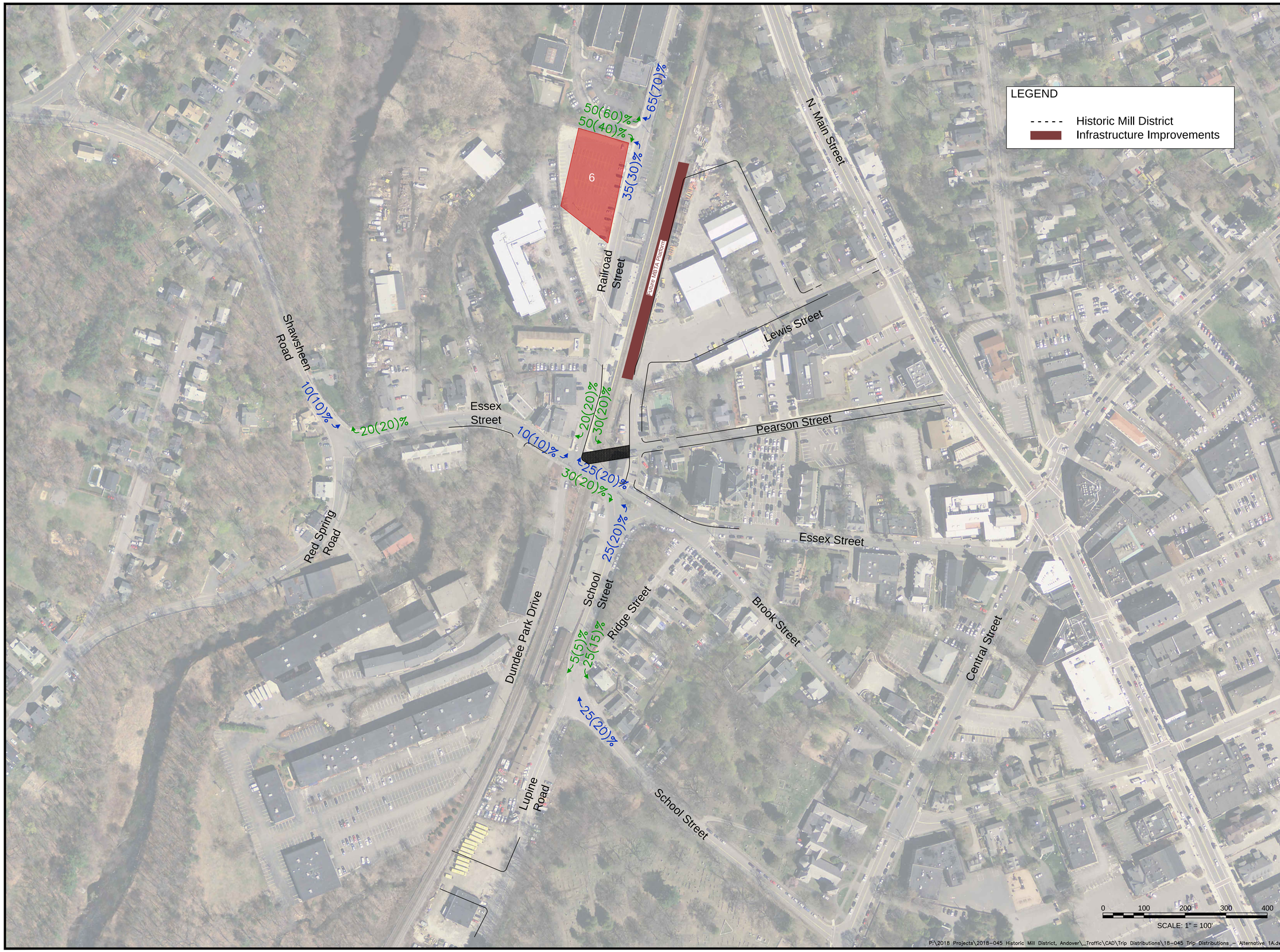

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 6

STAMP:

Trip Distribution - Alternative 1A

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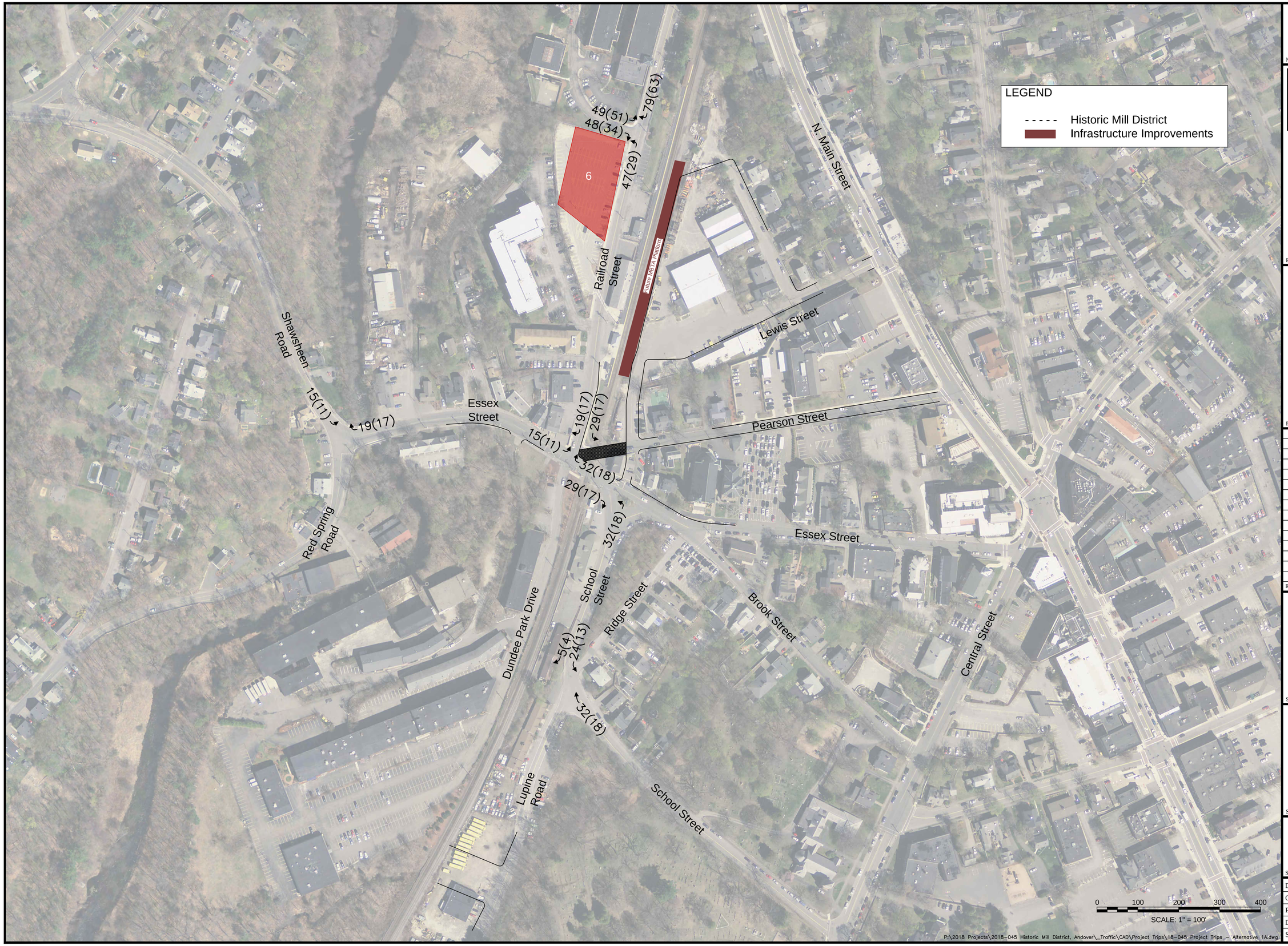

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PROJECT TEAM

PROJECT INFO

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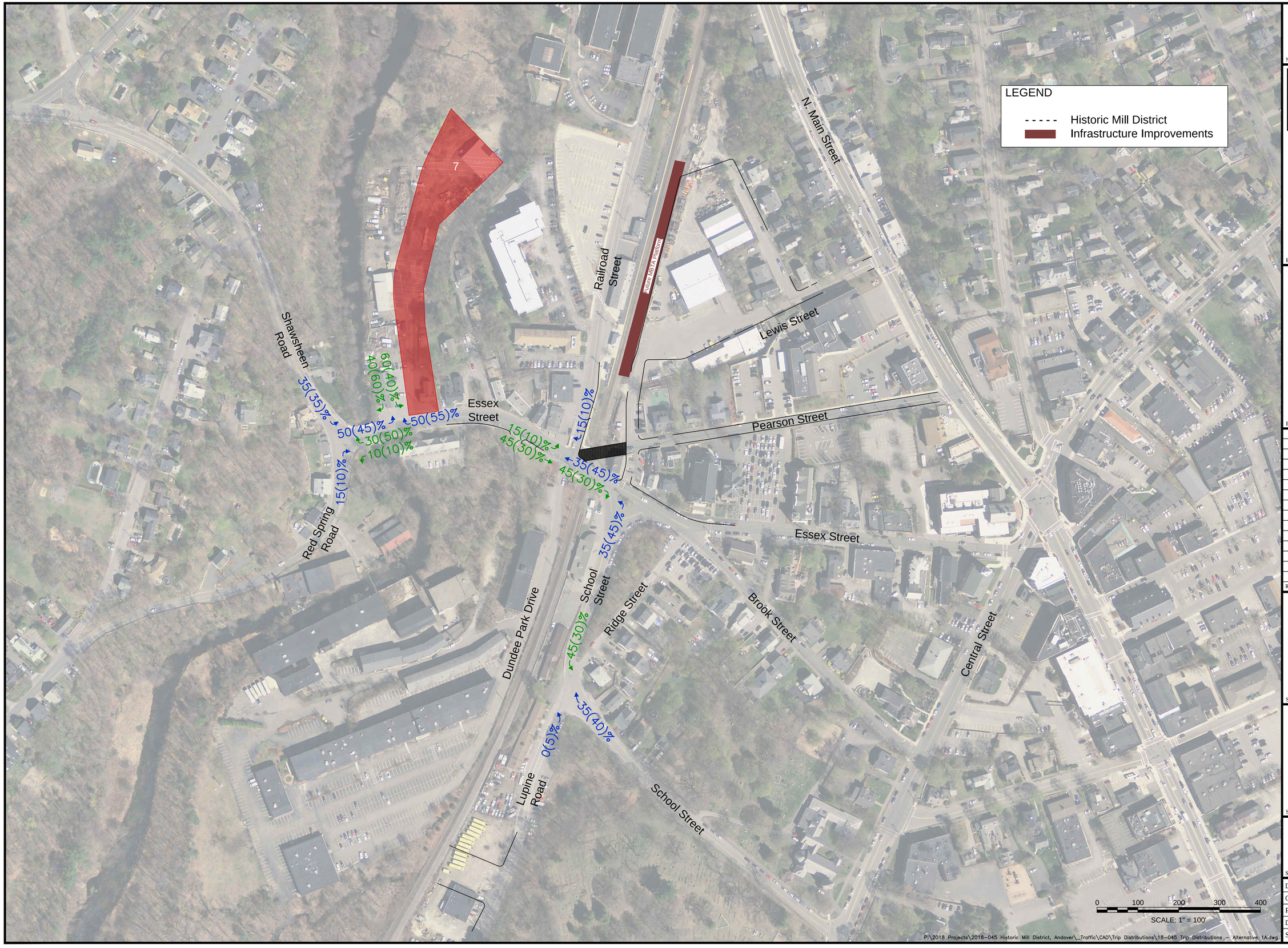

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 7

STAMP:

Trip Distribution - Alternative 1A

SHEET NAME:

SHT NO:

DR BY: -

CHK BY: -

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DATE: -

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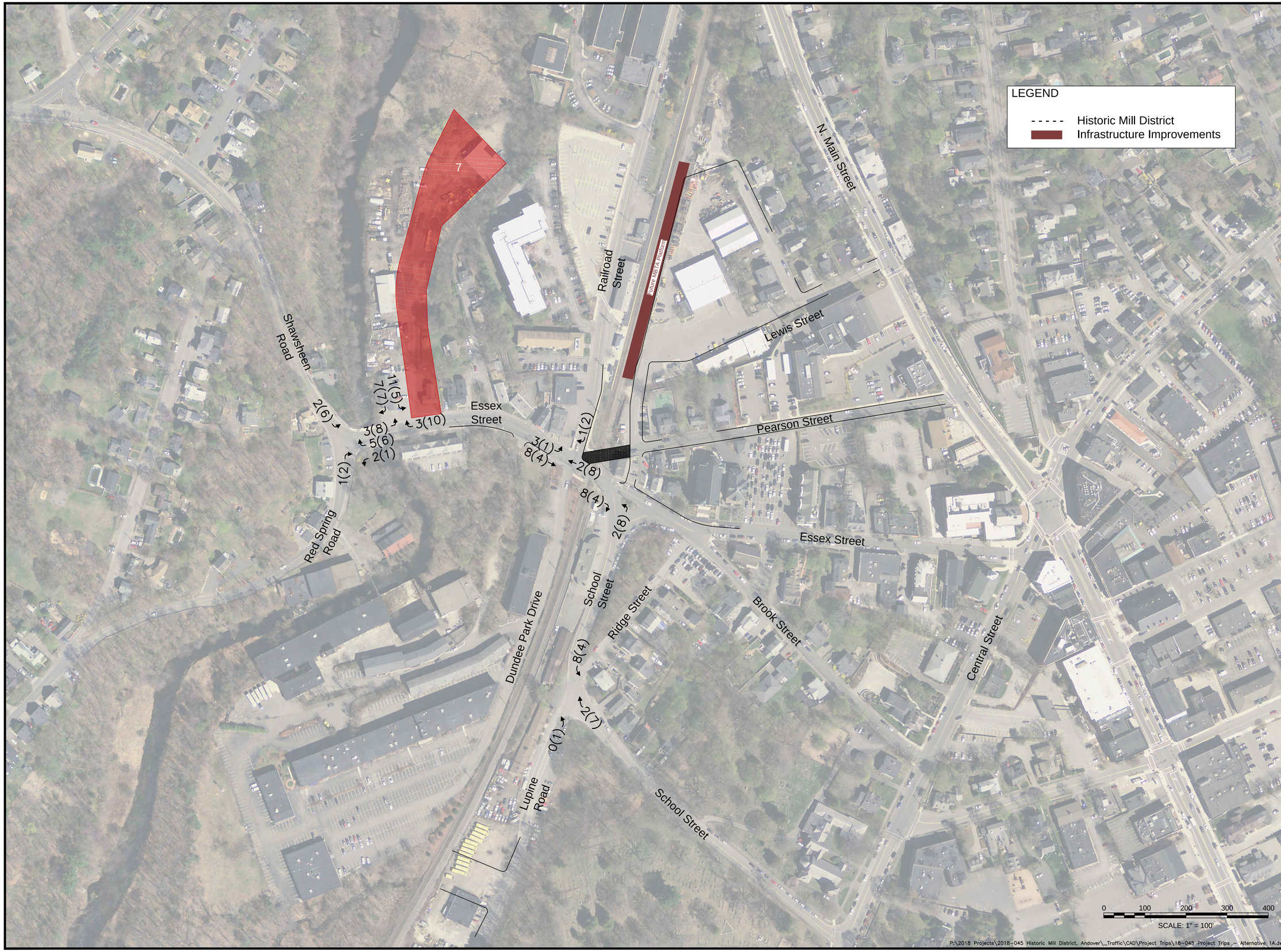

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PROJECT TEAM

PROJECT INFO

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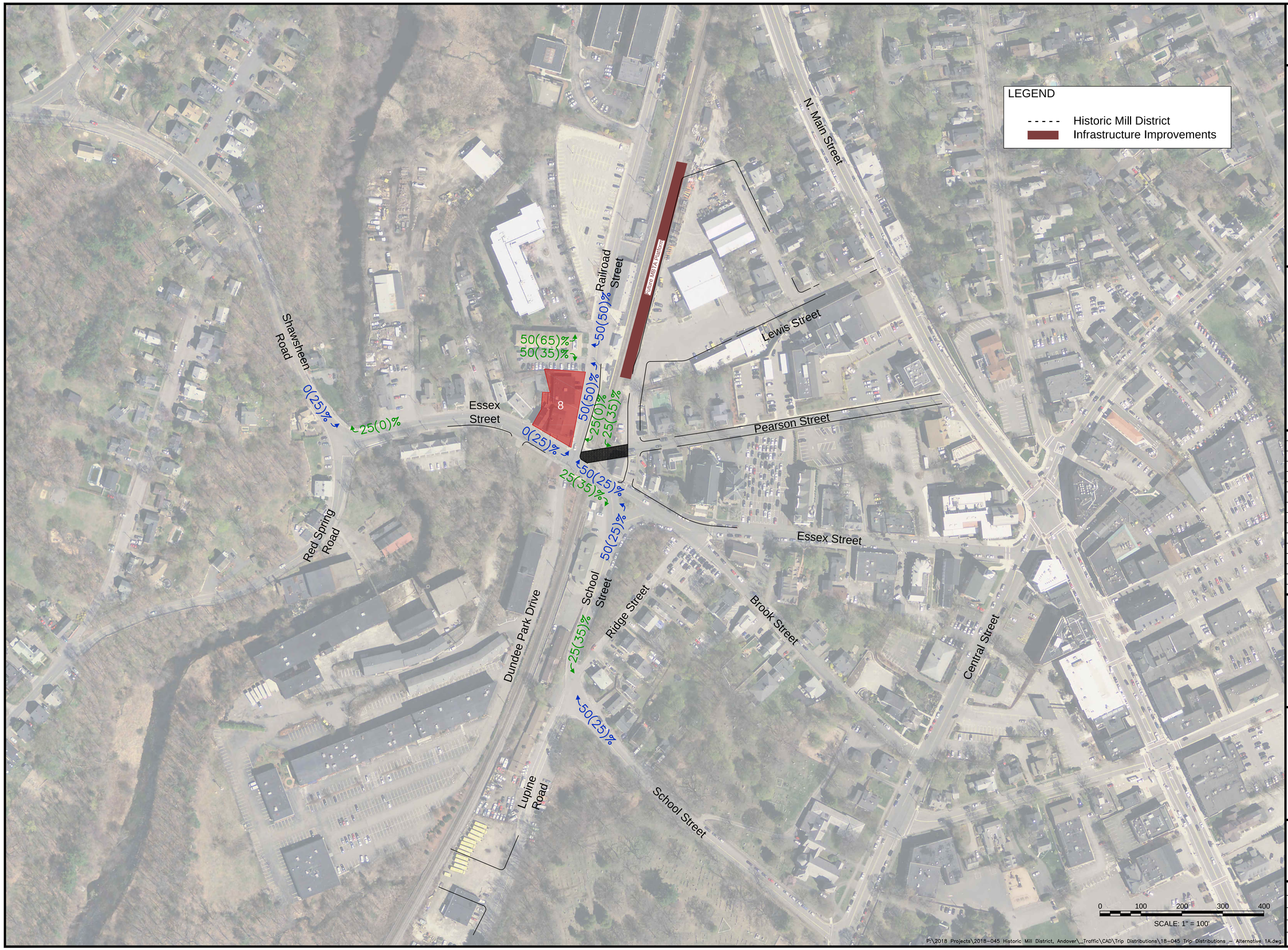

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 8

STAMP:

Trip Distribution - Alternative 1A

SHEET NAME:

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CHK BY: -
PROJ NO: -
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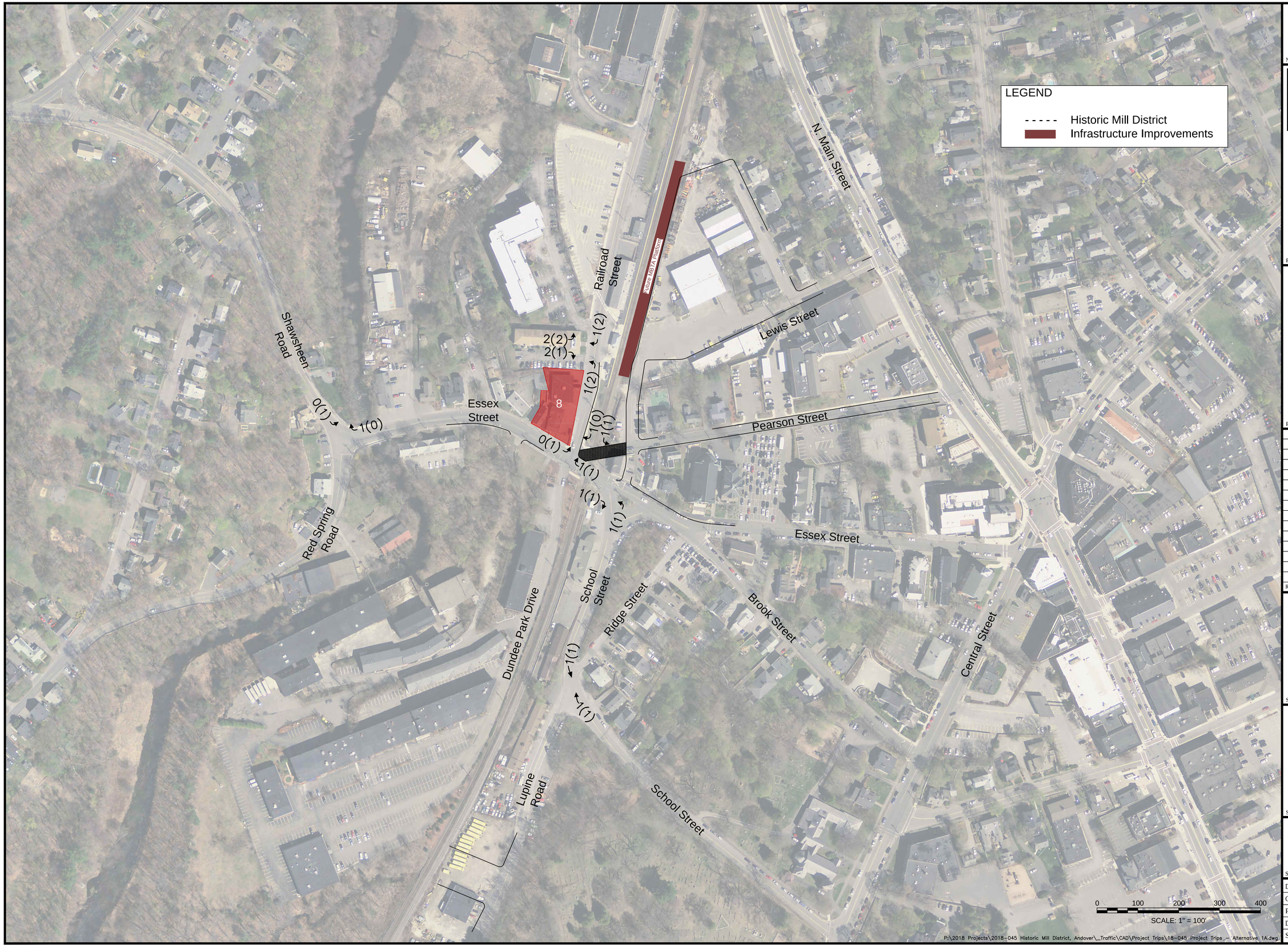

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PROJECT TEAM

PROJECT INFO

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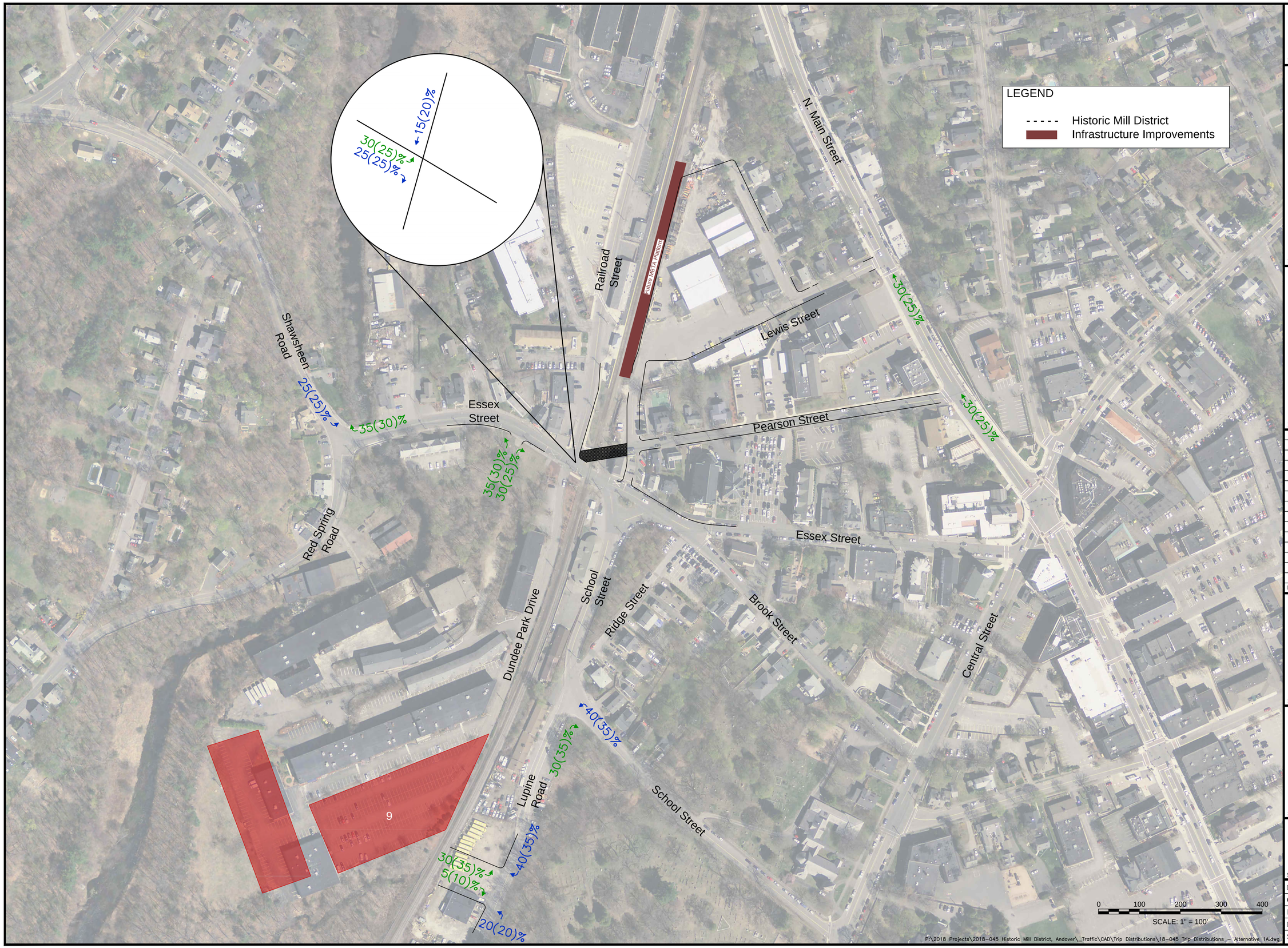

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

Trip Distribution - Alternative 1A

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CHK BY: -
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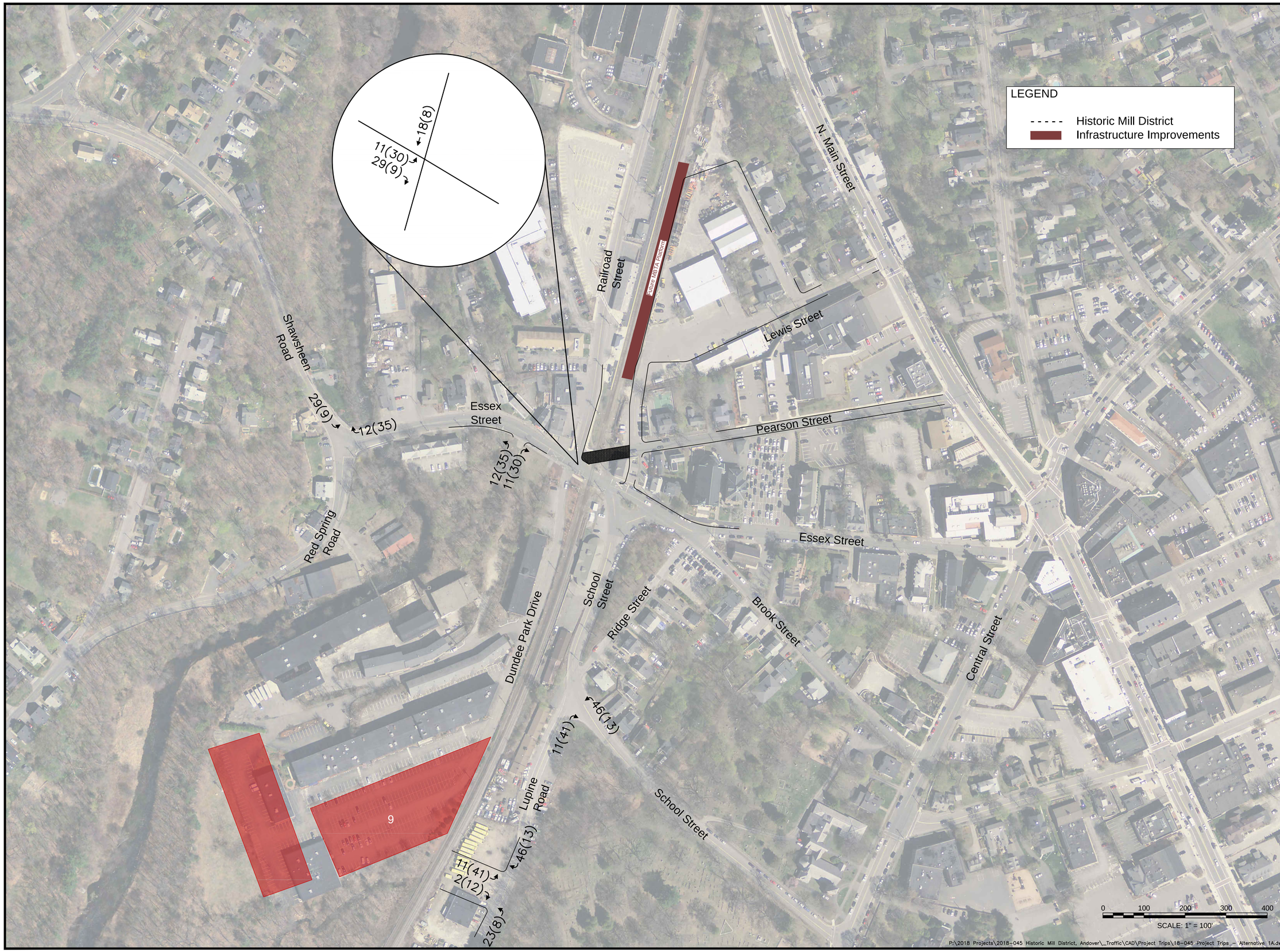

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

Full Build Out Trips - Alternative 1A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'

APPENDIX H – ALTERNATIVE 2

Design Consultants Inc.
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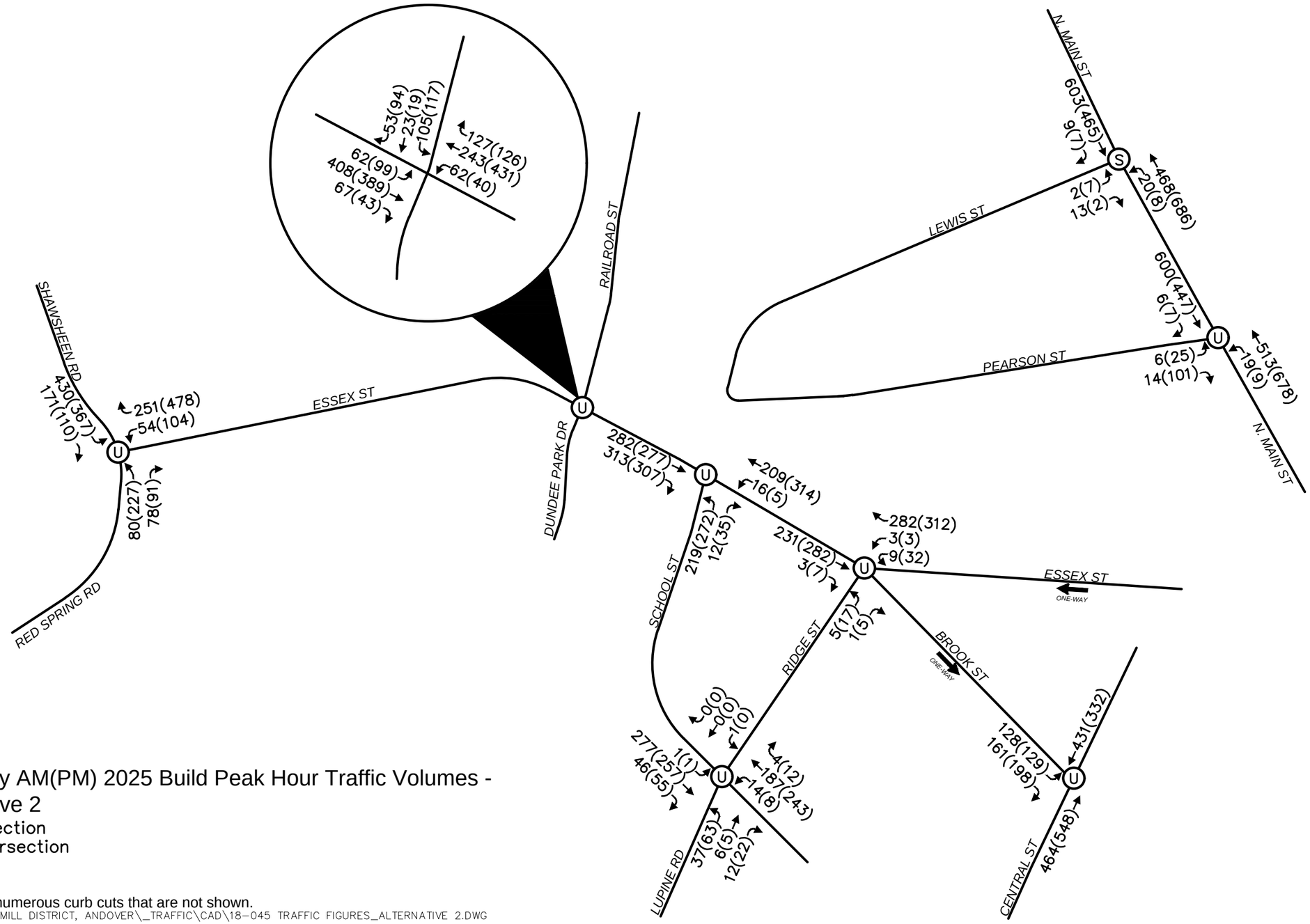
ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

Alternative 2 Geometric Changes

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.



Legend

XX(XX) → Weekday AM(PM) 2025 Build Peak Hour Traffic Volumes - Alternative 2

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_ALTERNATIVE 2.DWG

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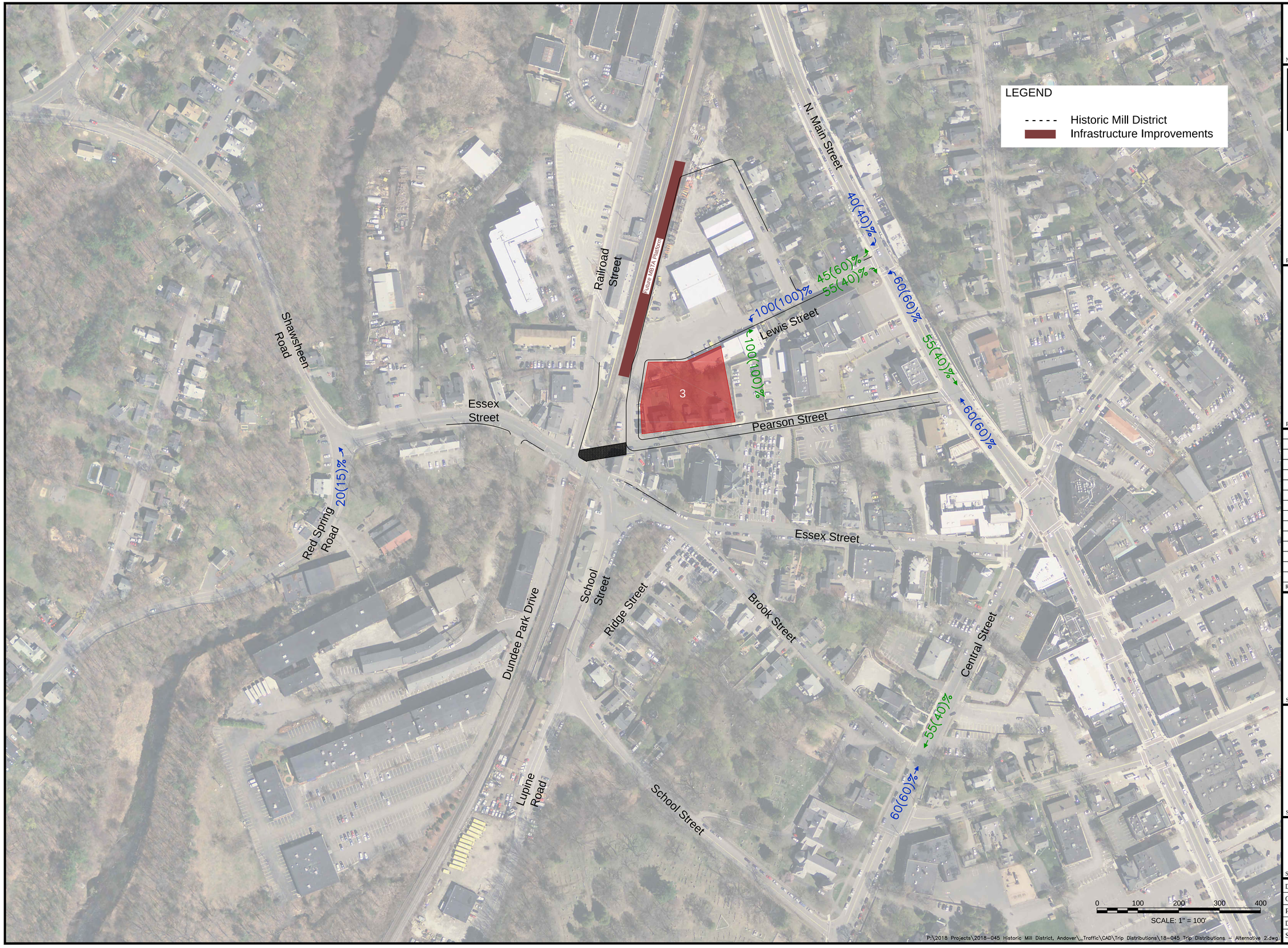
ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

2025 No-Build Traffic Volumes - Alternative 2

PROJECT NO: 2018-045

DATE: MARCH 2019

SCALE: N.T.S.



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Somerville - Quincy - Newburyport
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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

STAMP:

Trip Distribution - Alternative 2

SHEET NAME:

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CHK BY: -
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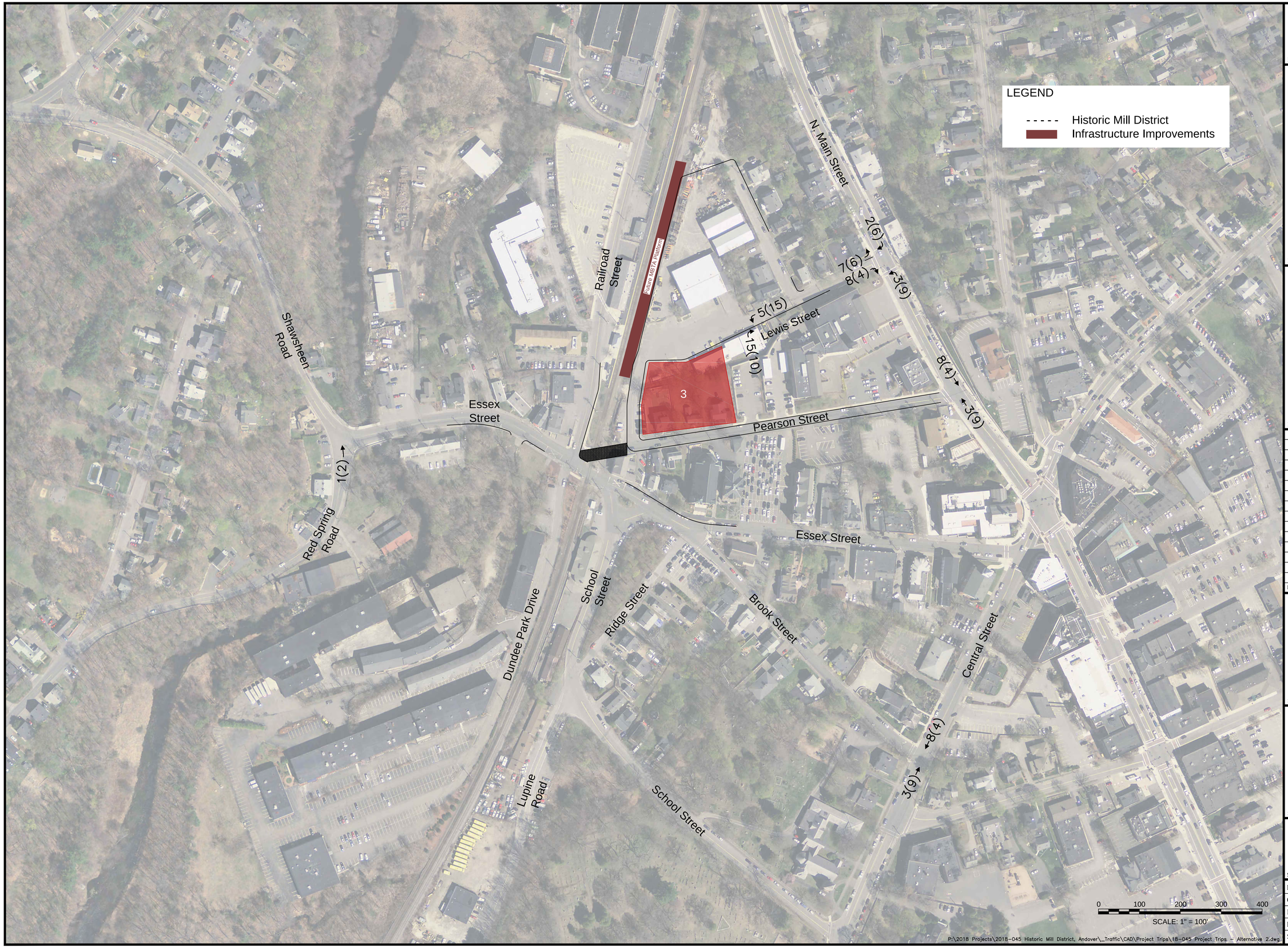

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

STAMP:

Full Build Out Trips - Alternative 2

SHEET NAME:

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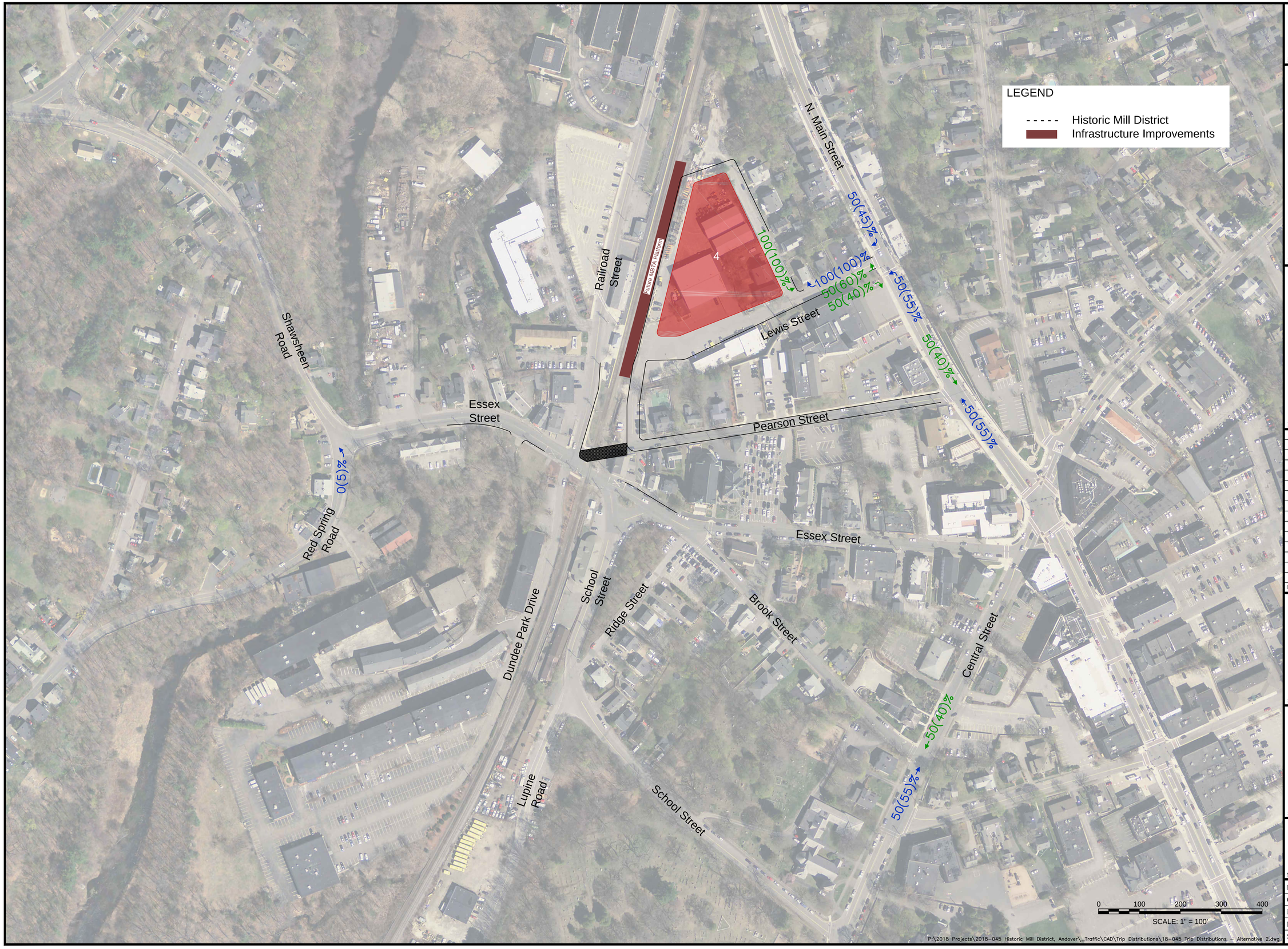

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 4

STAMP:

Trip Distribution - Alternative 2

SHEET NAME:

SHT NO:

DR BY: -

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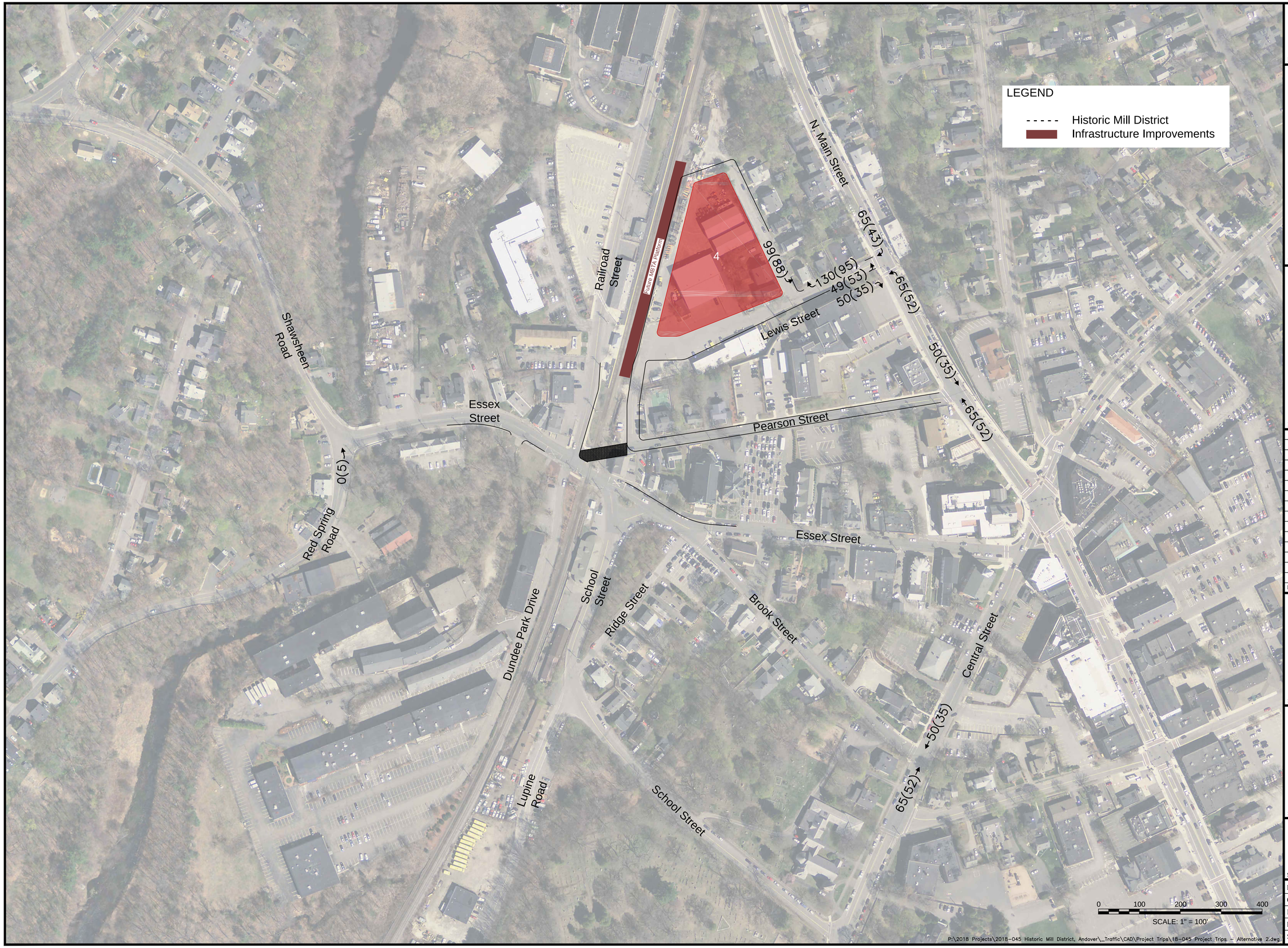

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PROJECT TEAM

PROJECT INFO

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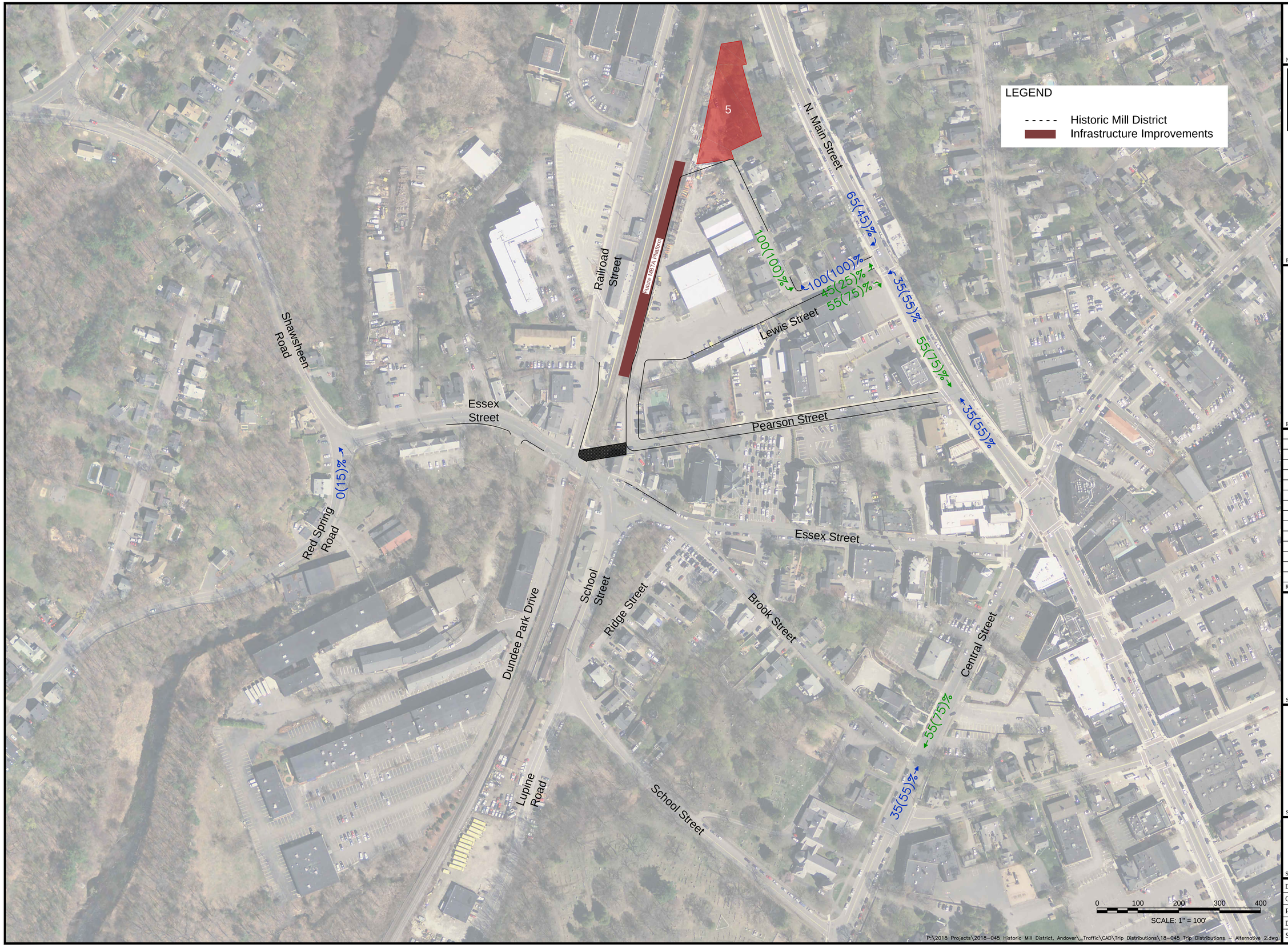

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 5

STAMP:

Trip Distribution - Alternative 2

SHEET NAME:

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CHK BY: -
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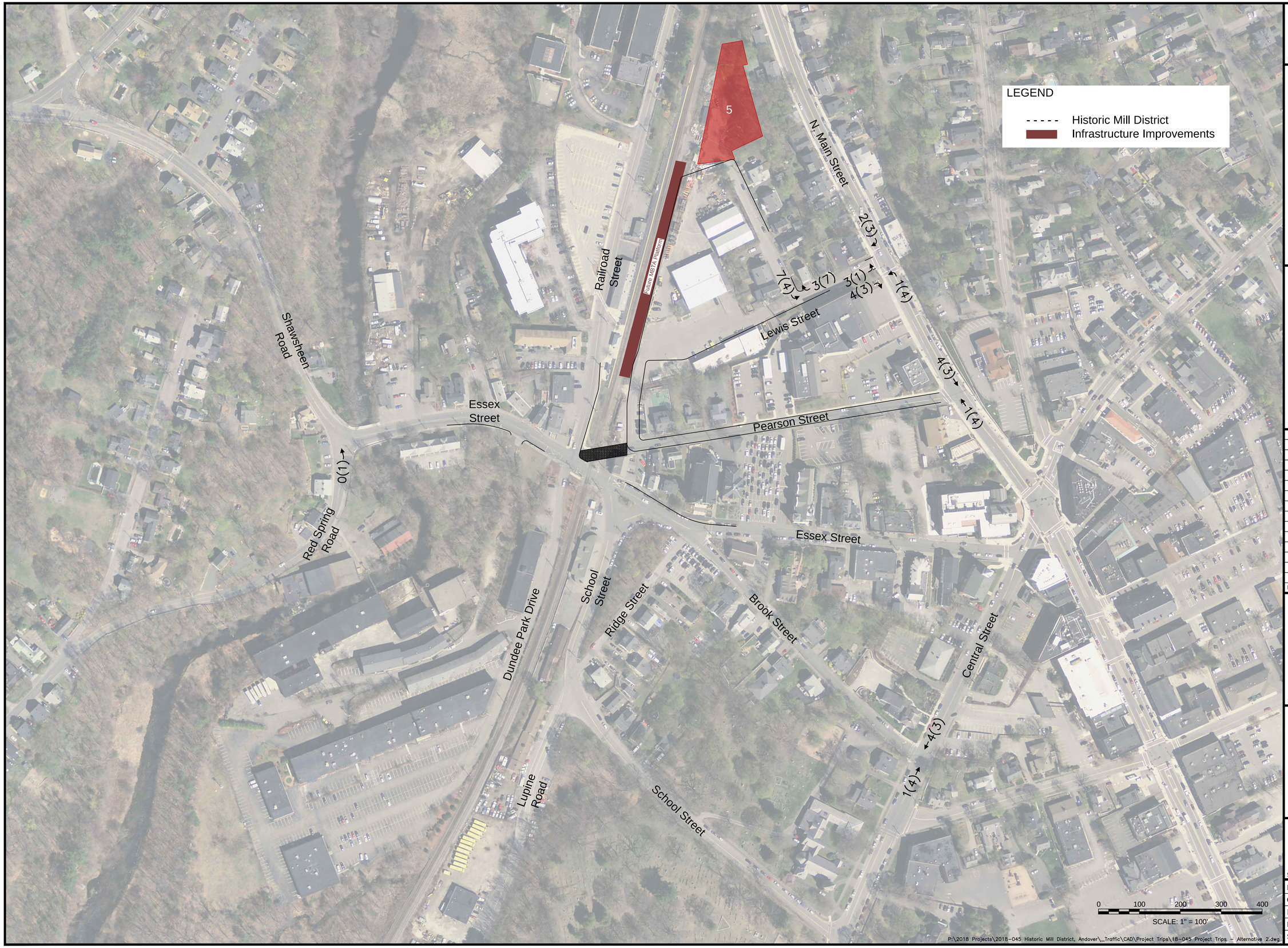

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PROJECT TEAM

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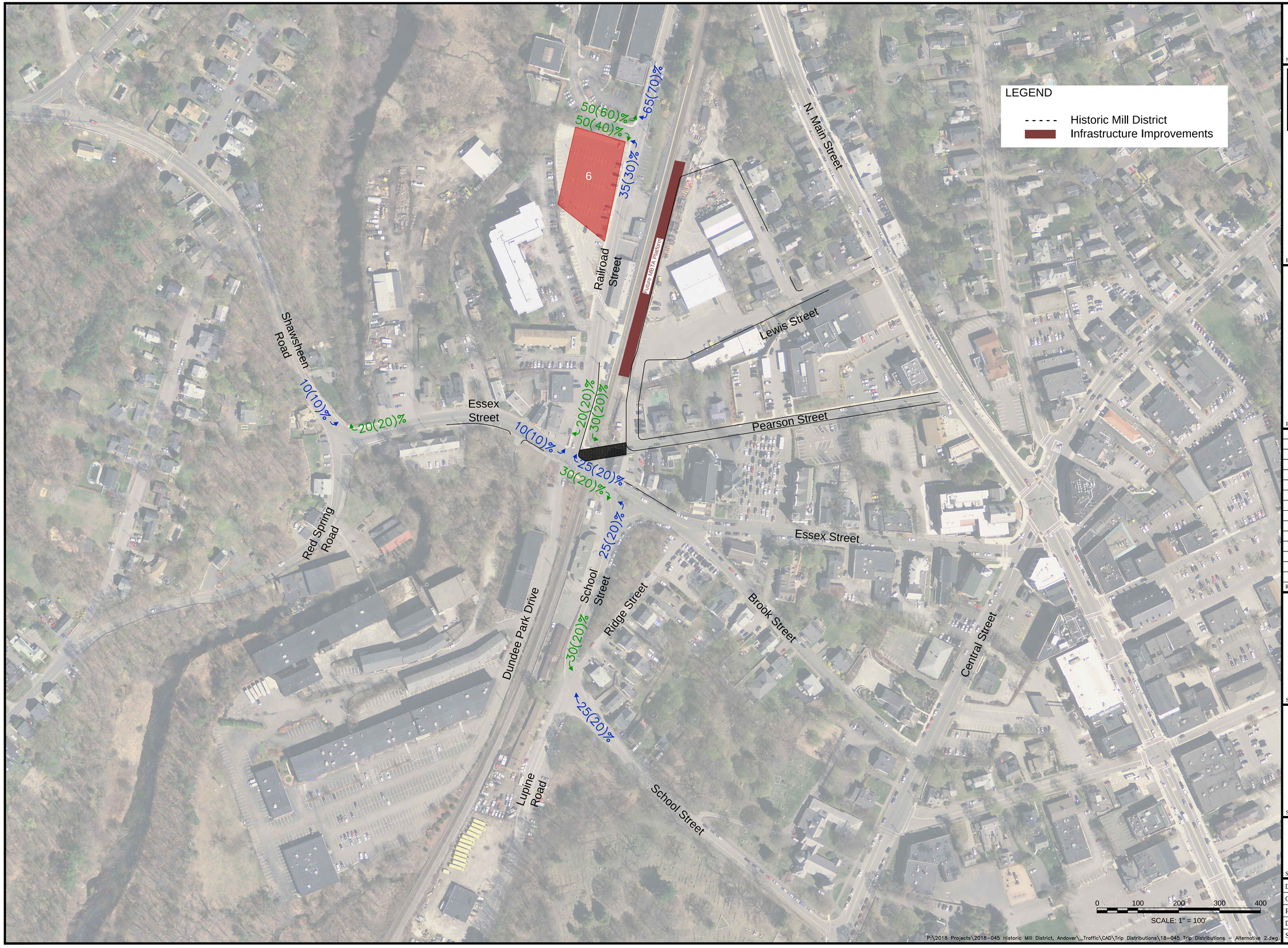

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Design Consultants Inc.
Somerville - Quincy - Newburyport
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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 6

STAMP:

Trip Distribution - Alternative 2

SHEET NAME:

SHT NO:

DR BY: -

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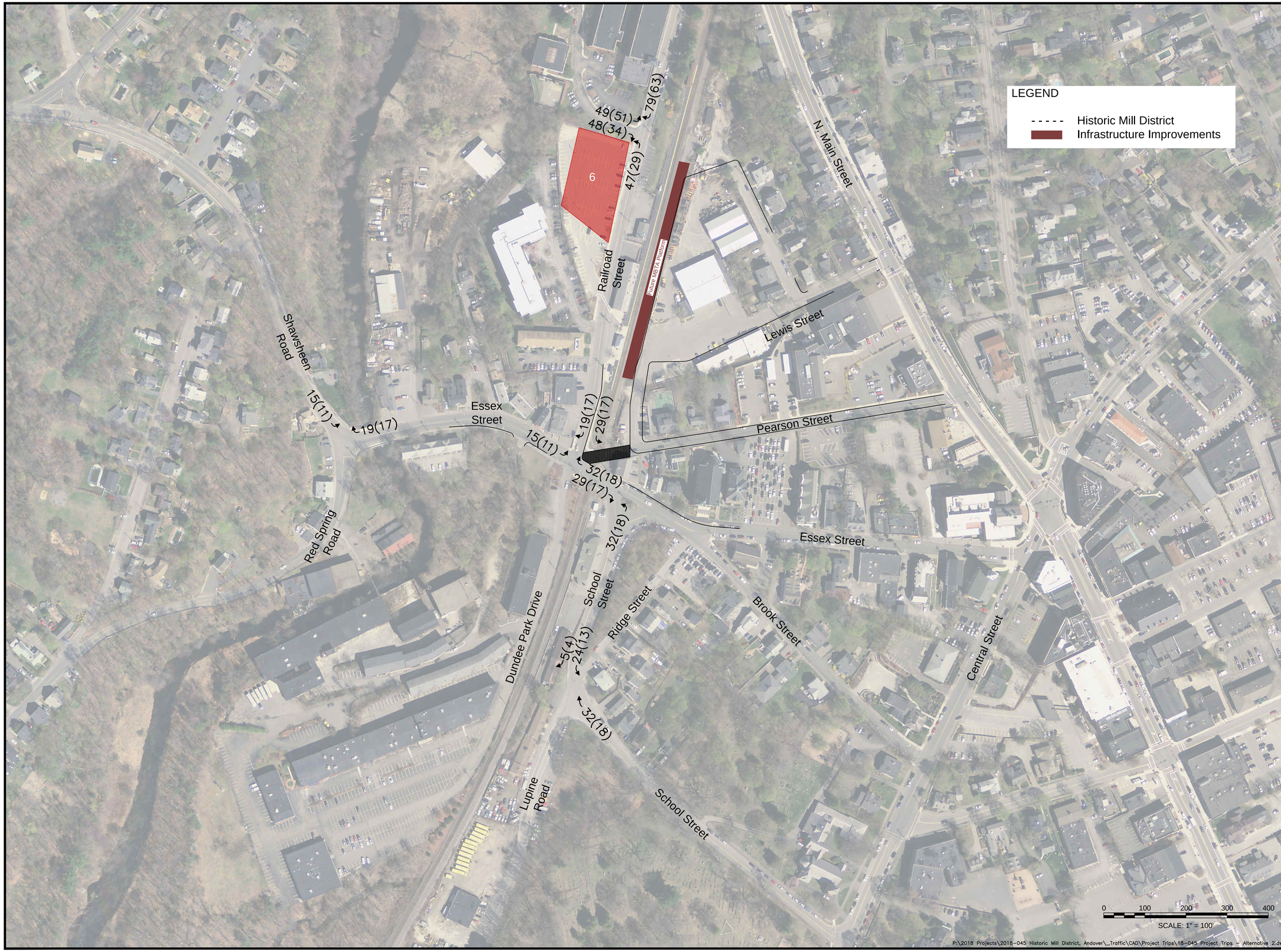

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 6

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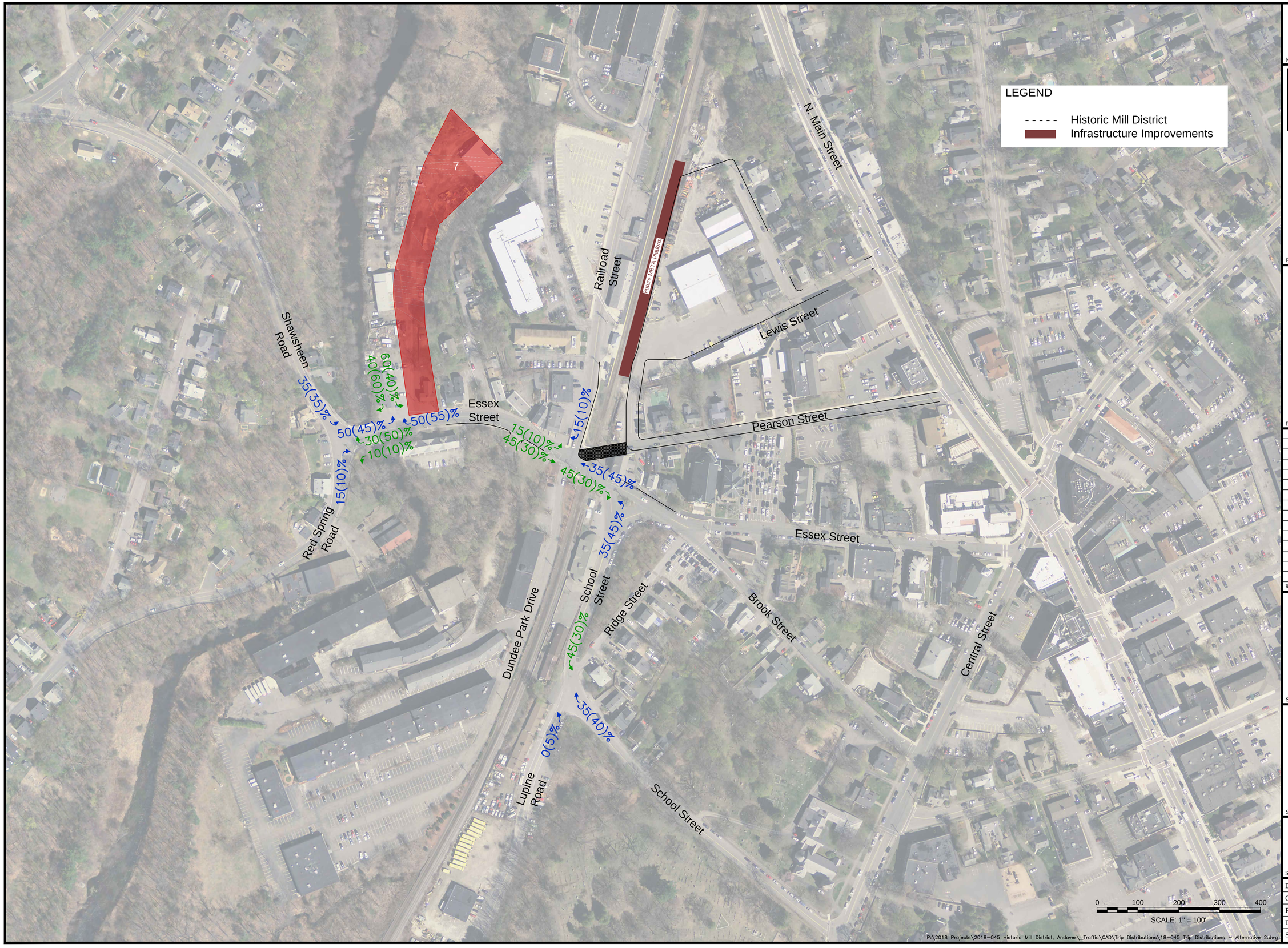

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PROJECT TEAM

PROJECT INFO

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Development Parcel 7

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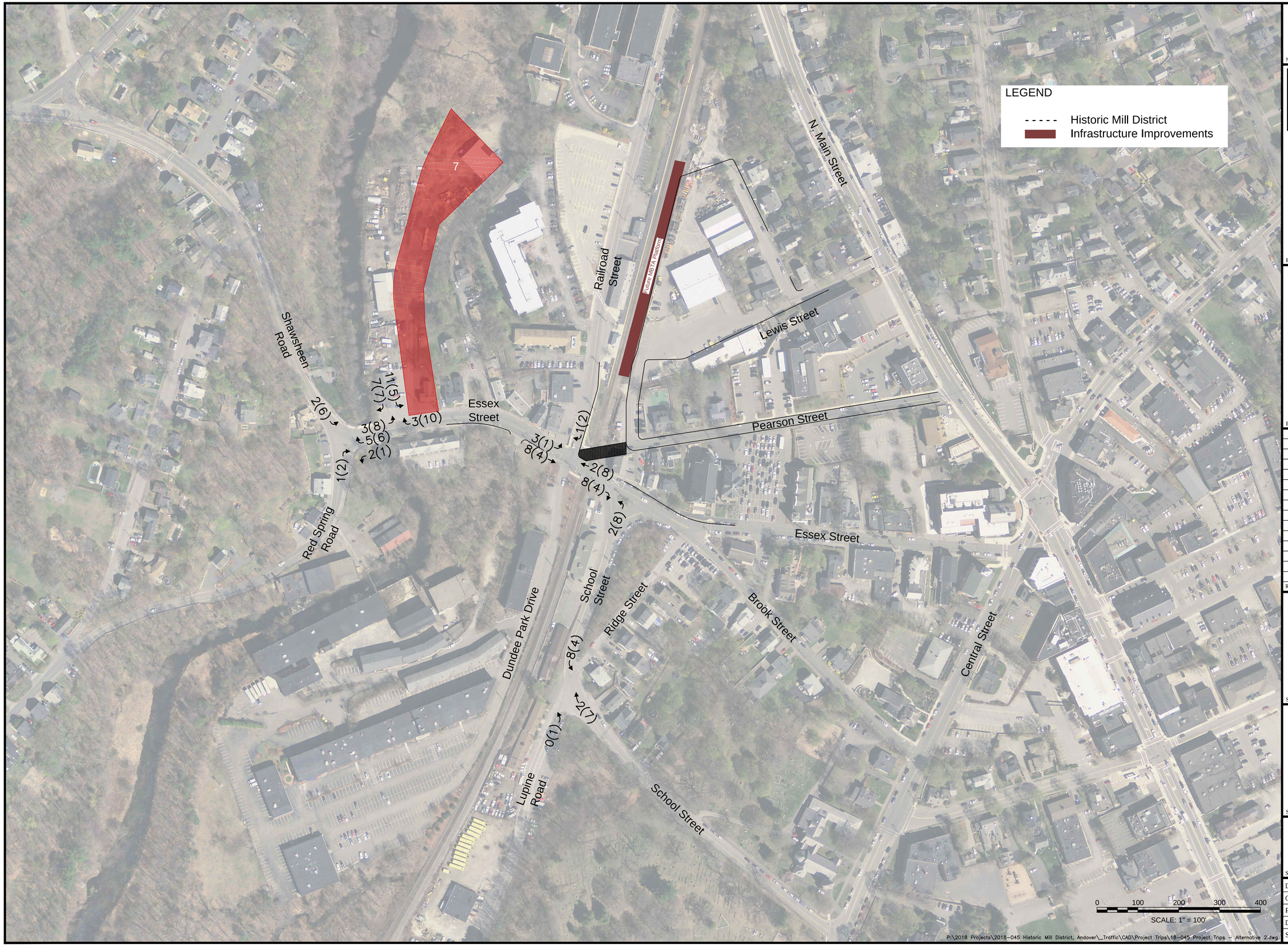

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PROJECT TEAM

PROJECT INFO

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PROJ NO: -
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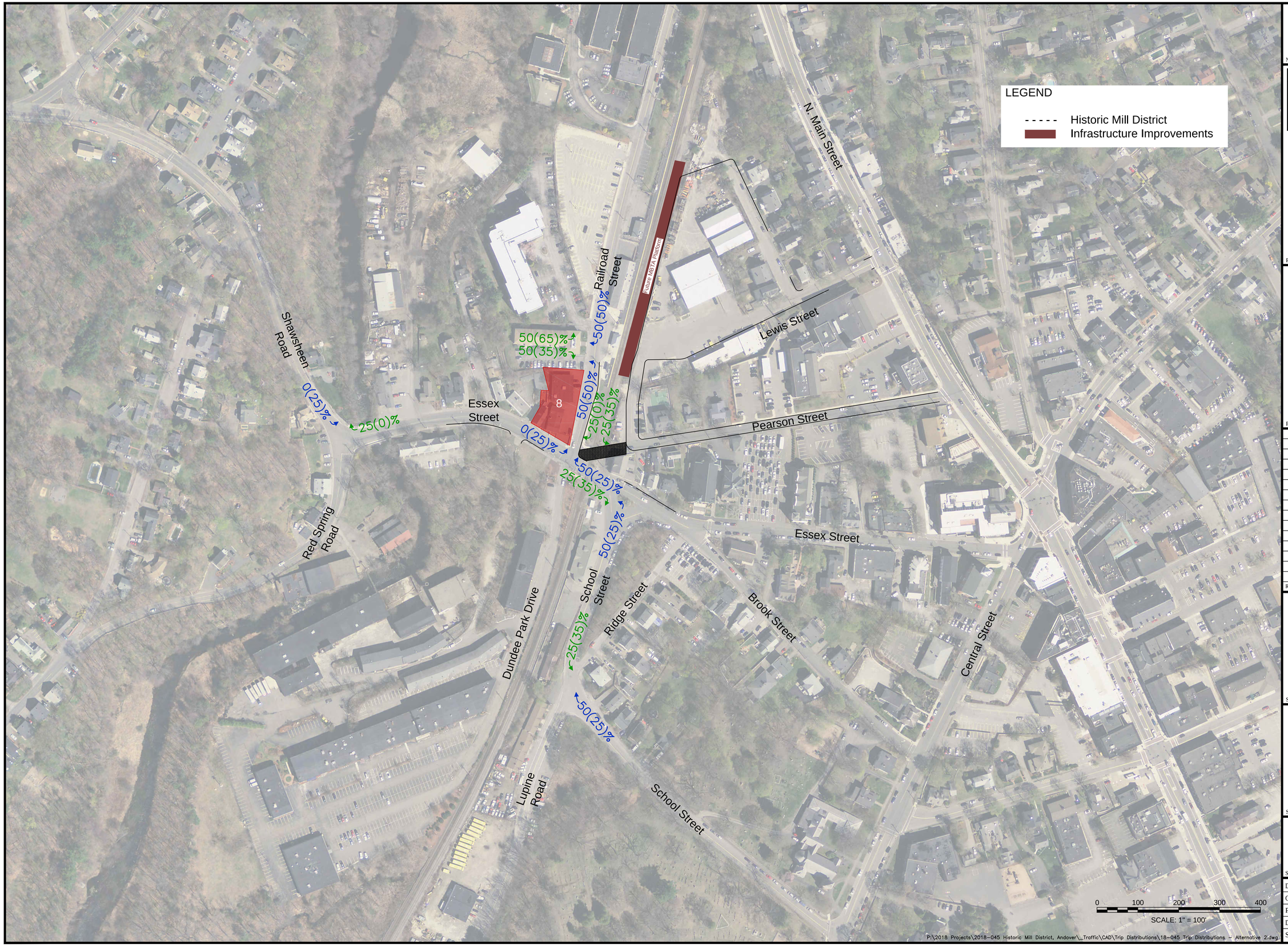

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 8

STAMP:

Trip Distribution - Alternative 2

SHEET NAME:

SHT NO:

DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

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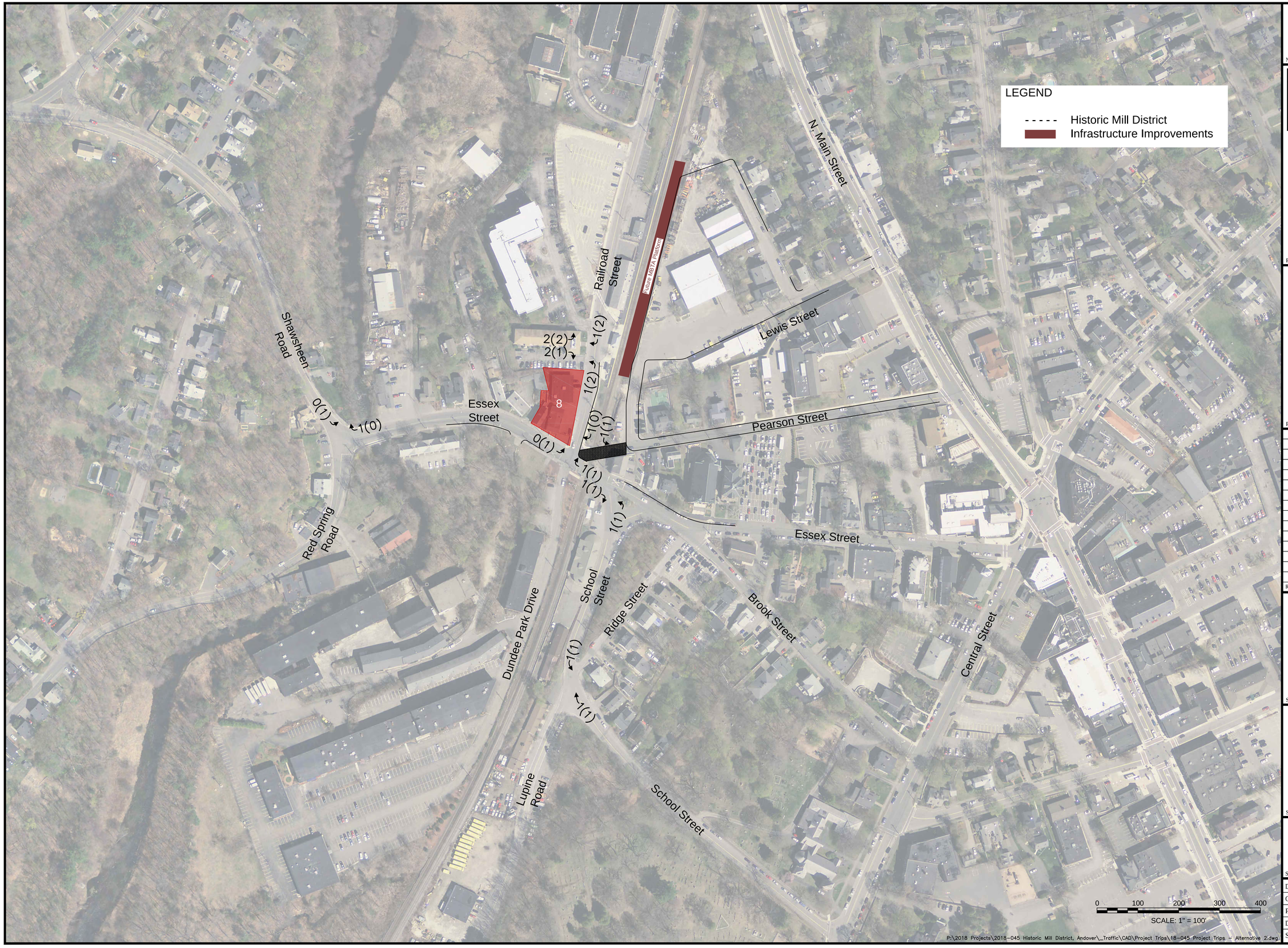

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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 8

STAMP:

Full Build Out Trips - Alternative 2

SHEET NAME:

SHT NO:

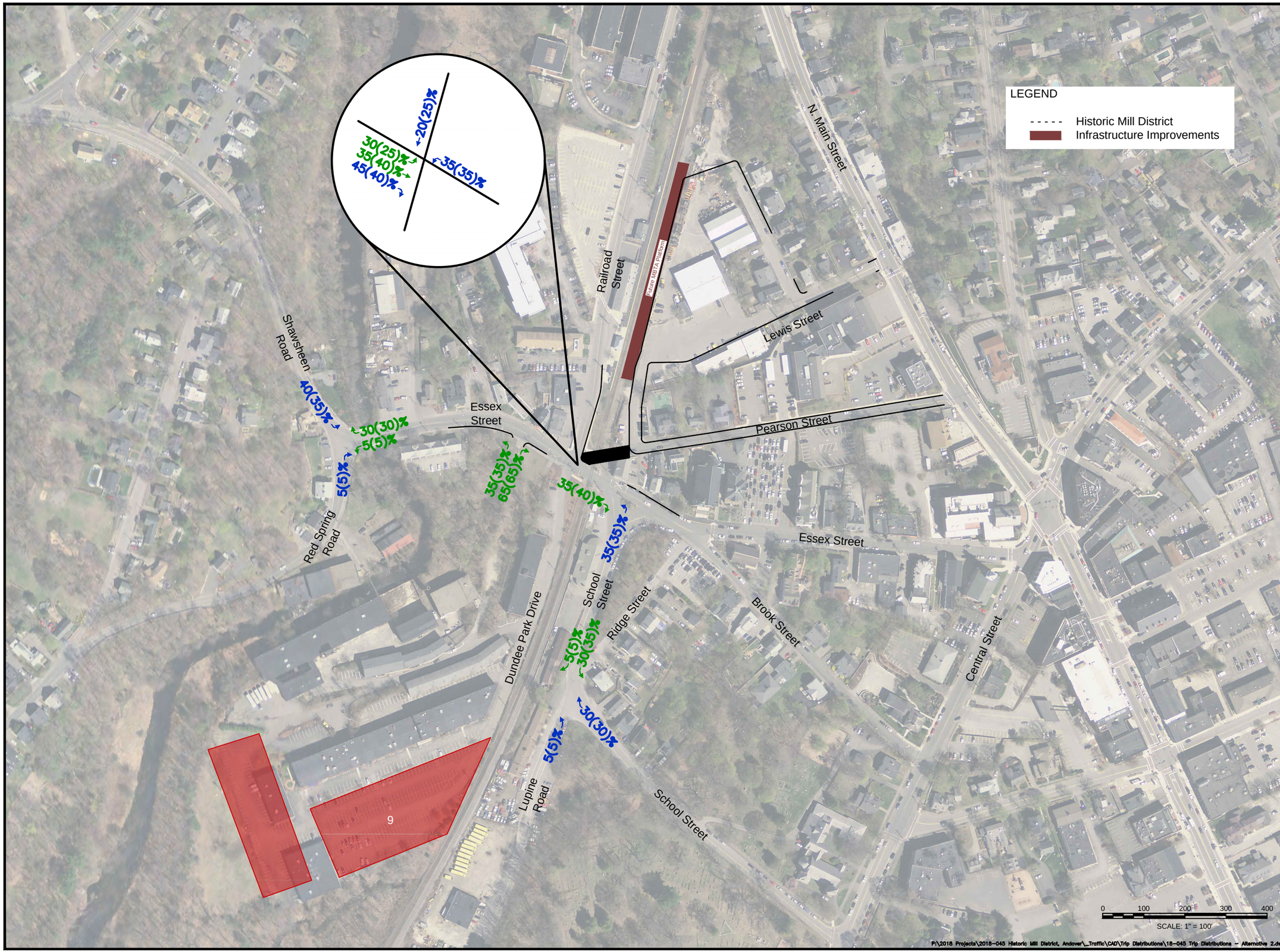
DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

SCALE: 1" = 100'



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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

Trip Distribution - Alternative 2

SHEET NAME:

SHT NO:

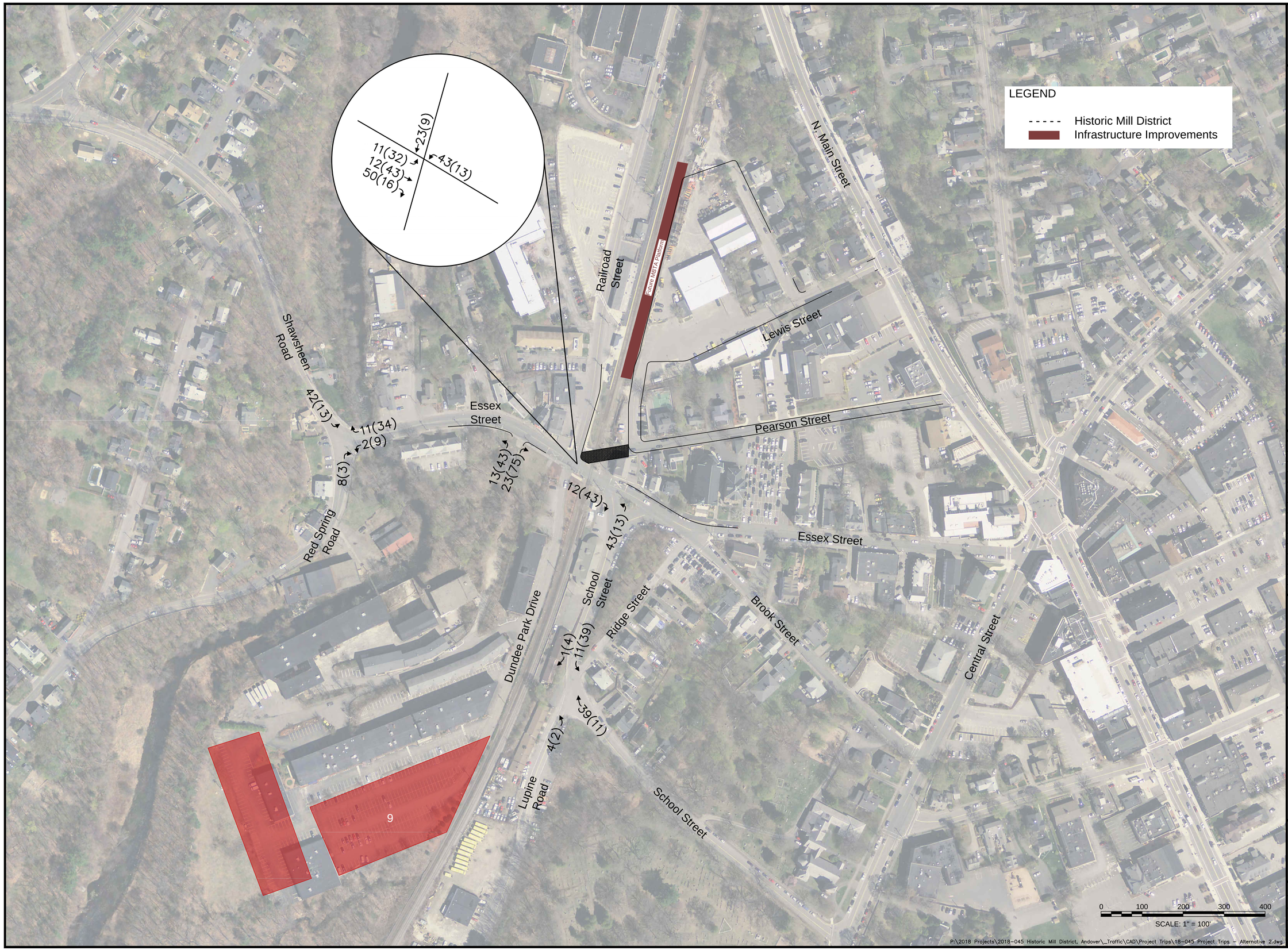
DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

SCALE: 1" = 100'



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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

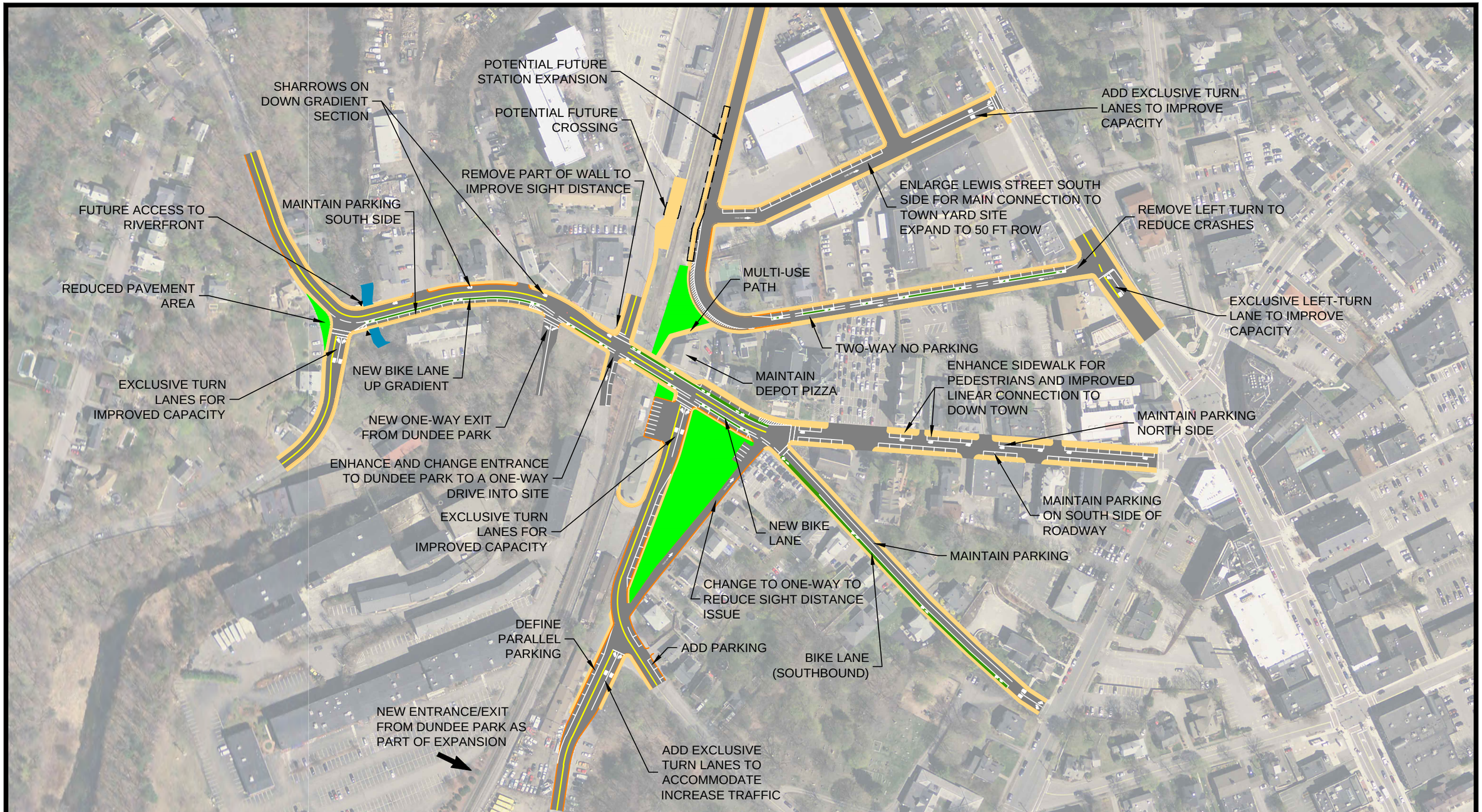
Full Build Out Trips - Alternative 2

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'

APPENDIX I – ALTERNATIVE 2A



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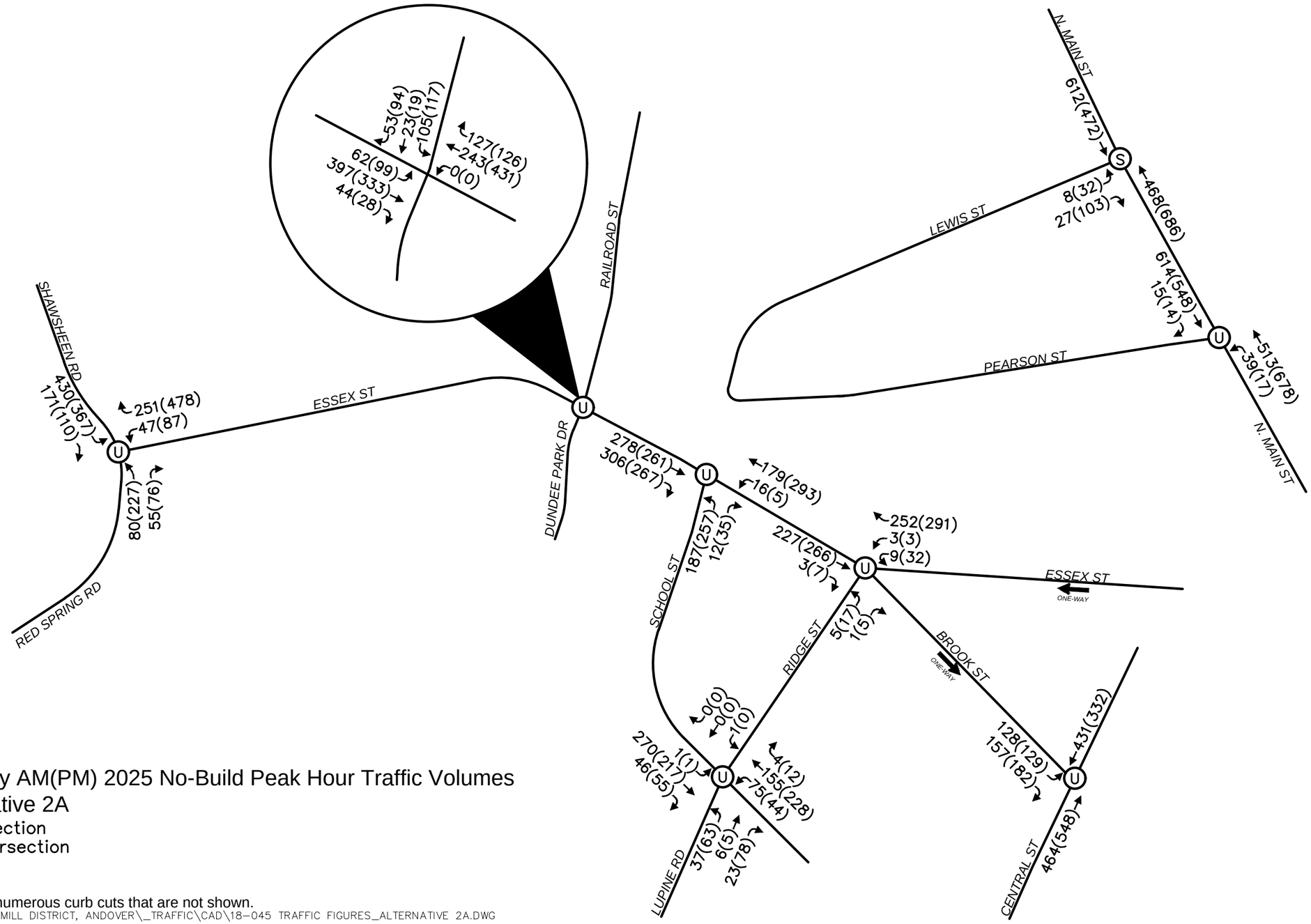
ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

Alternative 2A Geometric Changes

PROJECT NO: 2018-045

DATE: APRIL 2019

SCALE: N.T.S.



Legend

XX(XX) → Weekday AM(PM) 2025 No-Build Peak Hour Traffic Volumes - Alternative 2A

S = Signalized Intersection
U = Unsignalized Intersection

Note: Imbalances exist due to numerous curb cuts that are not shown.

P:\2018 PROJECTS\2018-045 HISTORIC MILL DISTRICT, ANDOVER_TRAFFIC\CAD\18-045 TRAFFIC FIGURES_ALTERNATIVE 2A.DWG

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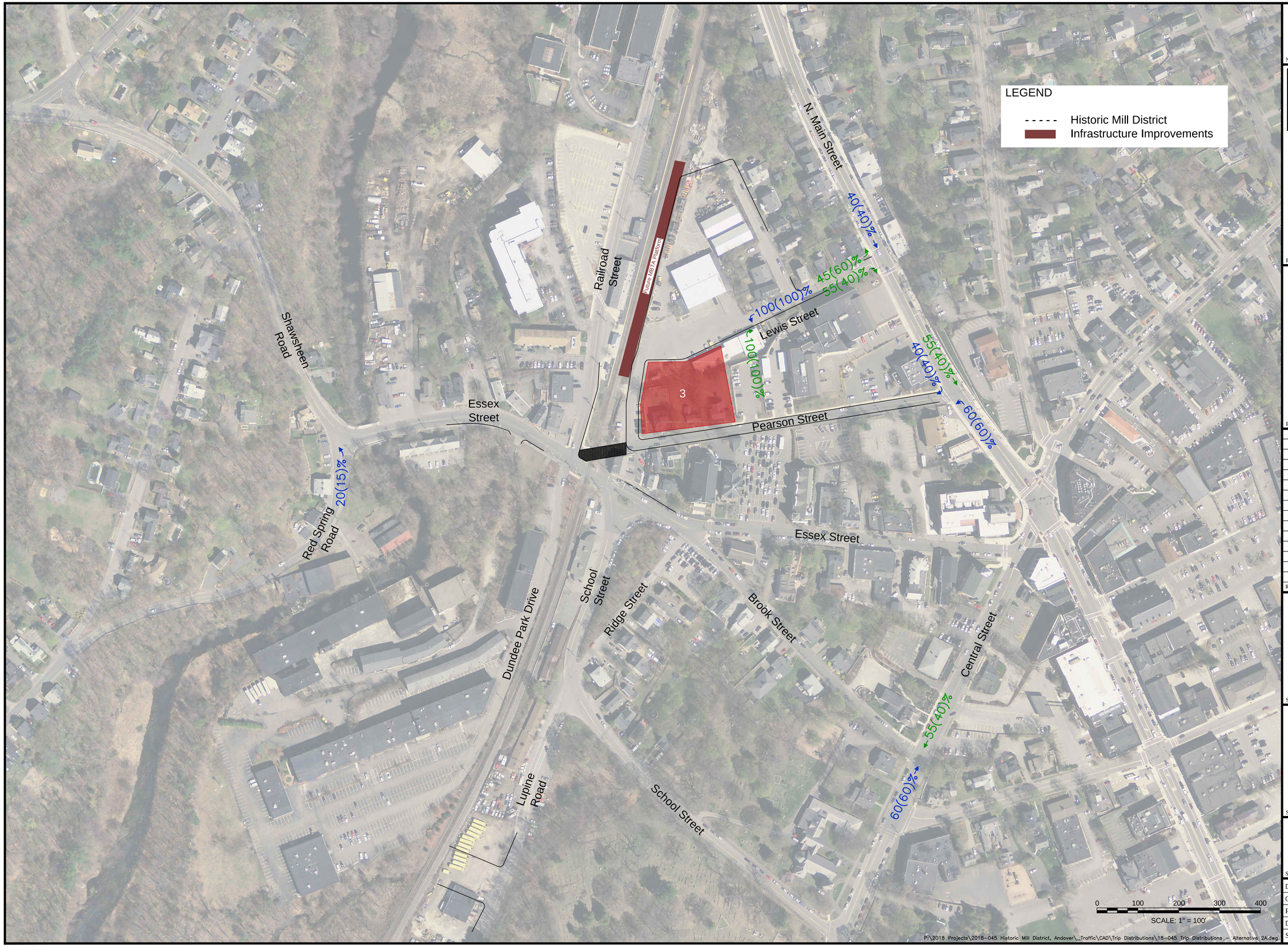
ANDOVER CIRCULATION AND STREET DESIGN STUDY
ANDOVER, MA

2025 No-Build Traffic Volumes - Alternative 2A

PROJECT NO: 2018-045

DATE: MARCH 2019

SCALE: N.T.S.



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

STAMP:

Trip Distribution - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
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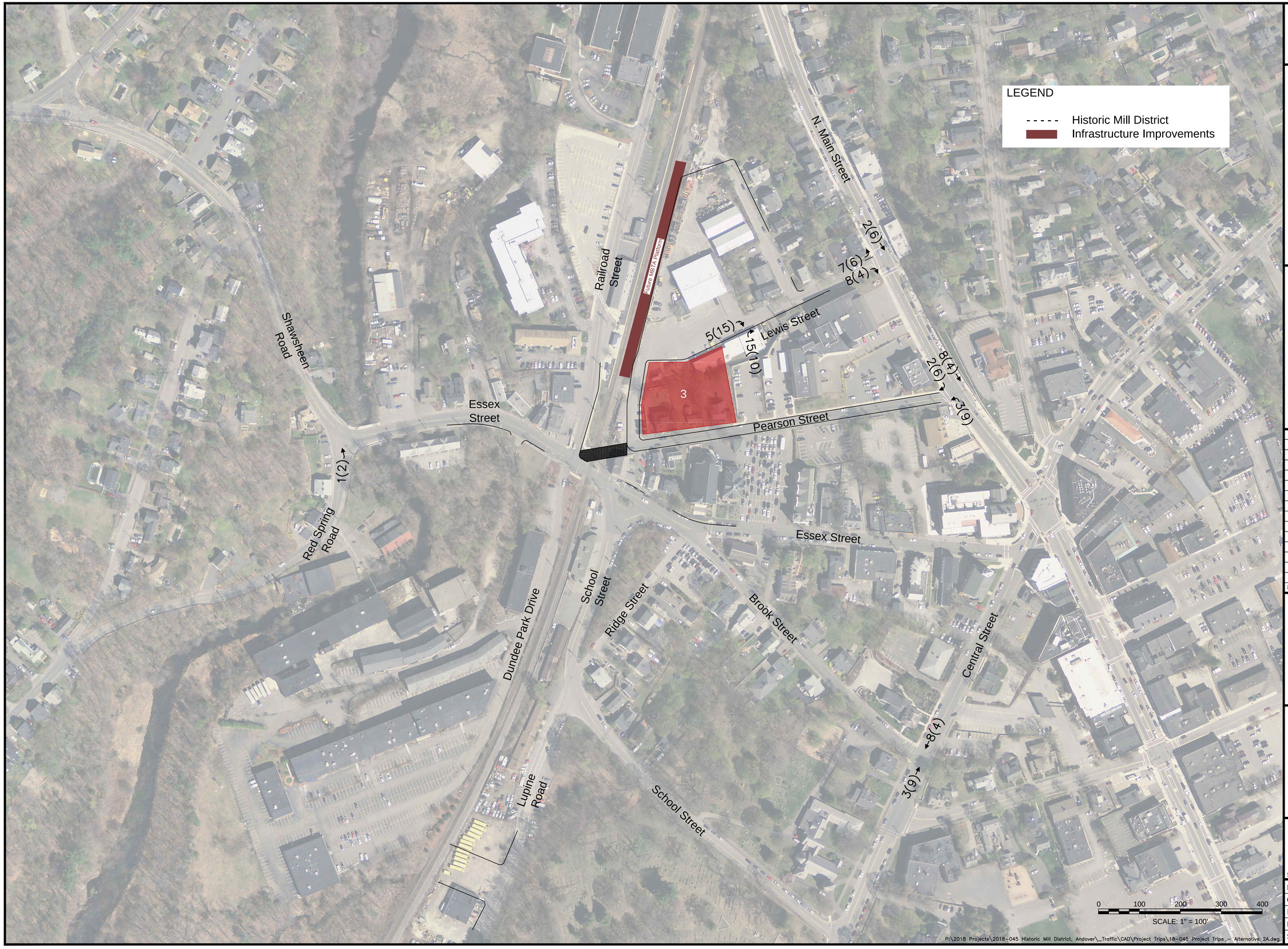

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 3

STAMP:

Full Build Out Trips - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
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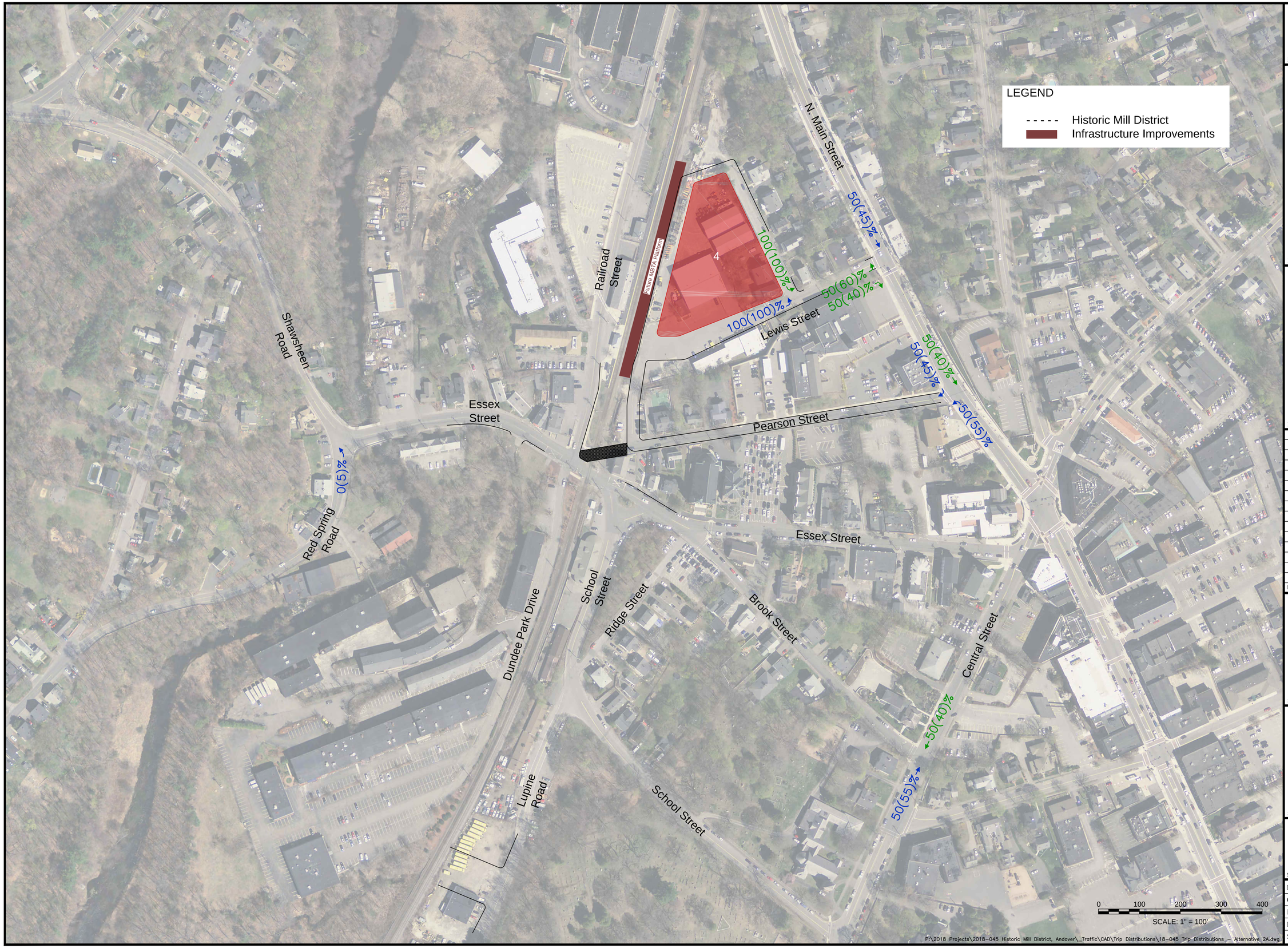

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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 4

STAMP:

Trip Distribution - Alternative 2A

SHEET NAME:

SHT NO:

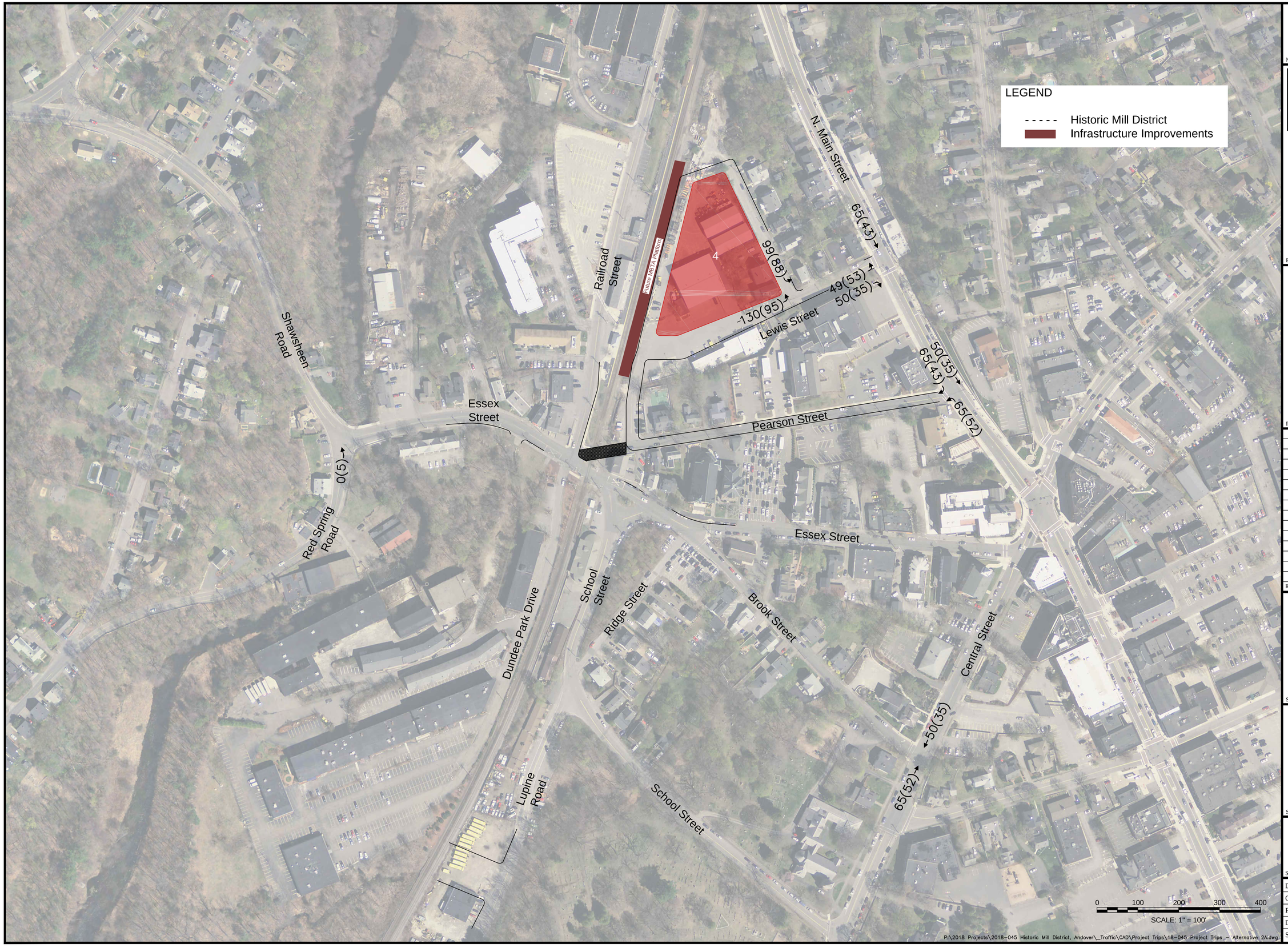
DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

SCALE: 1" = 100'



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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 4

STAMP:

Full Build Out Trips - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
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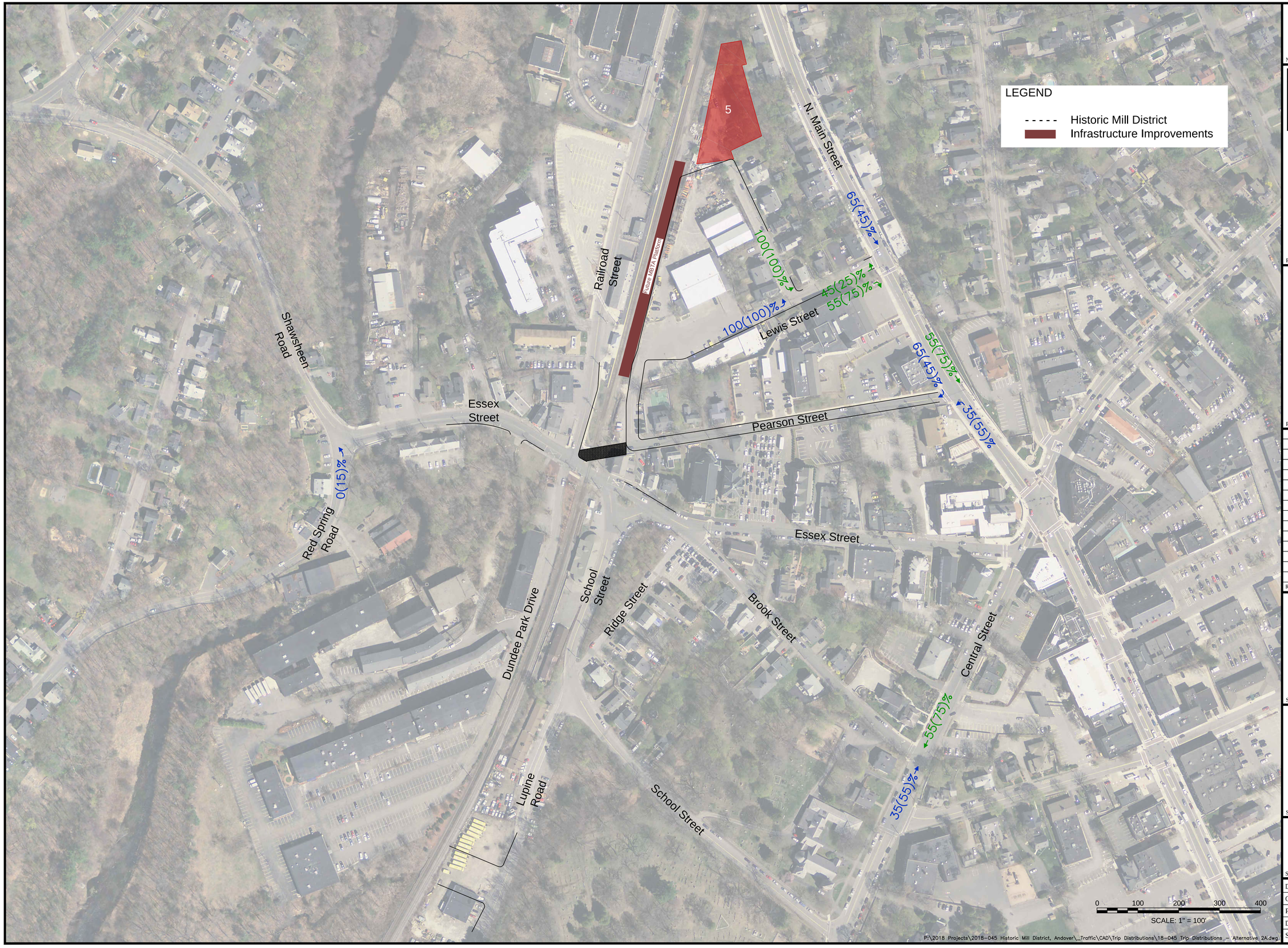

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 5

STAMP:

Trip Distribution - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
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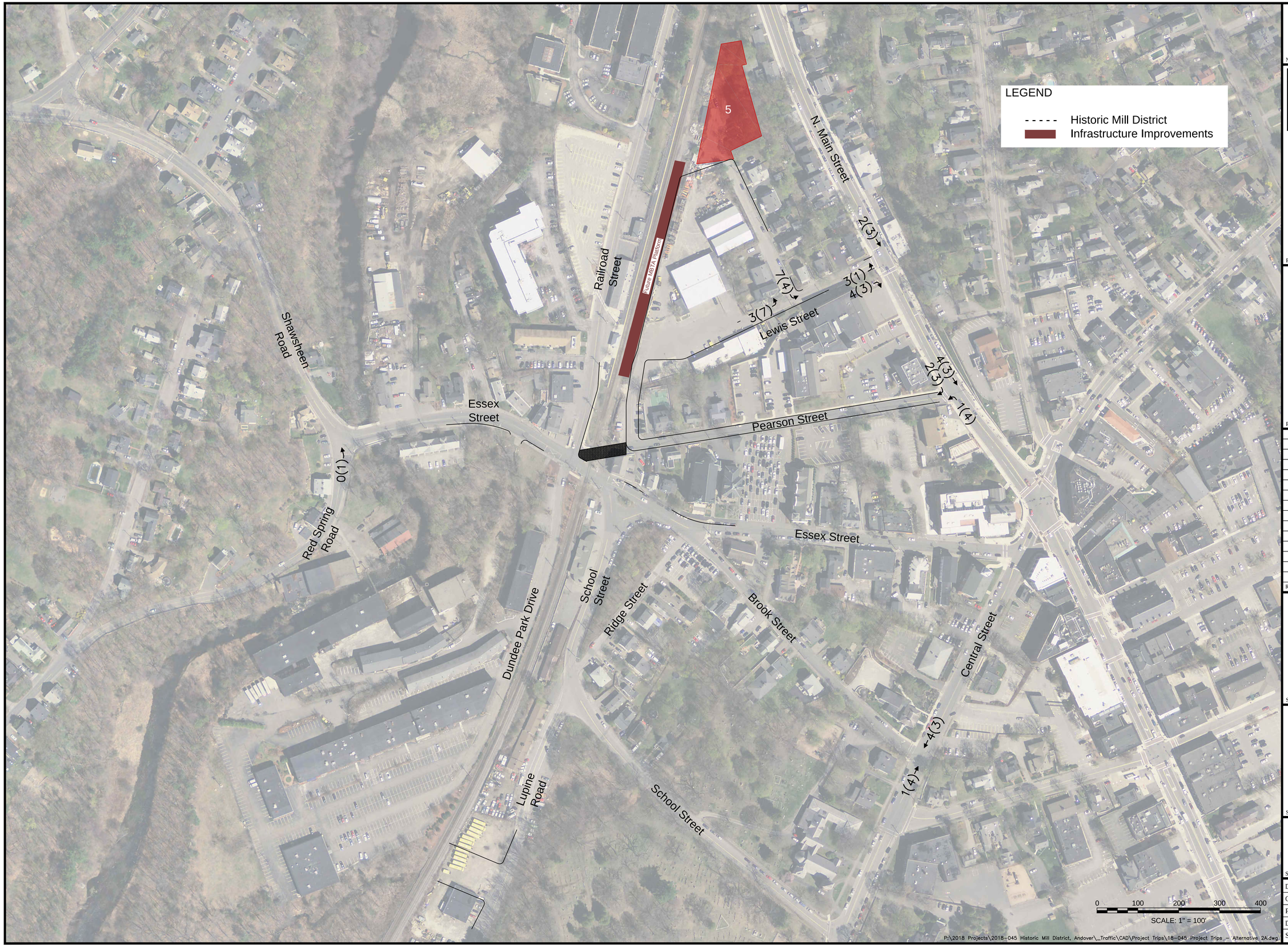

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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 5

STAMP:

Full Build Out Trips - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
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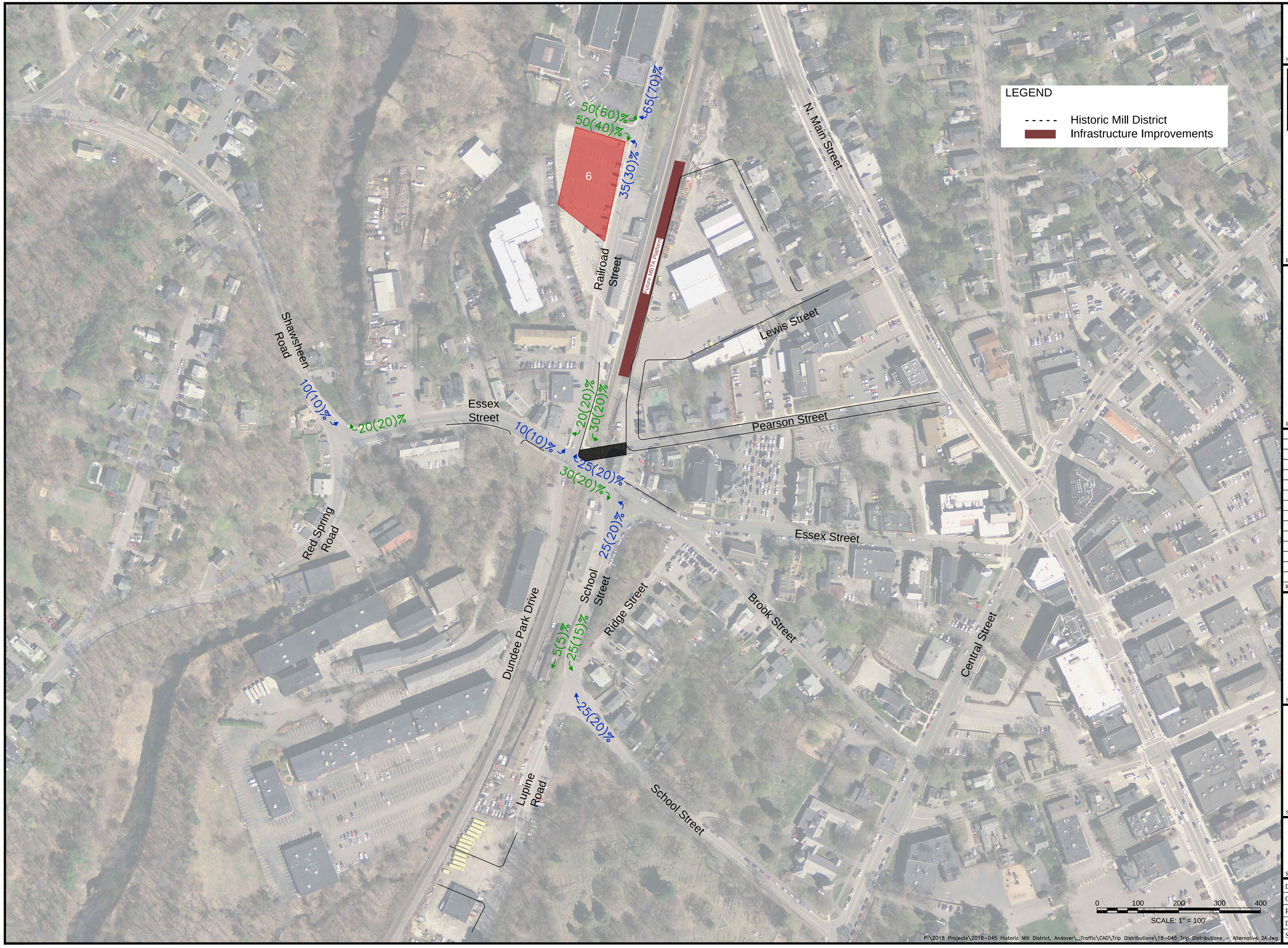

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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 6

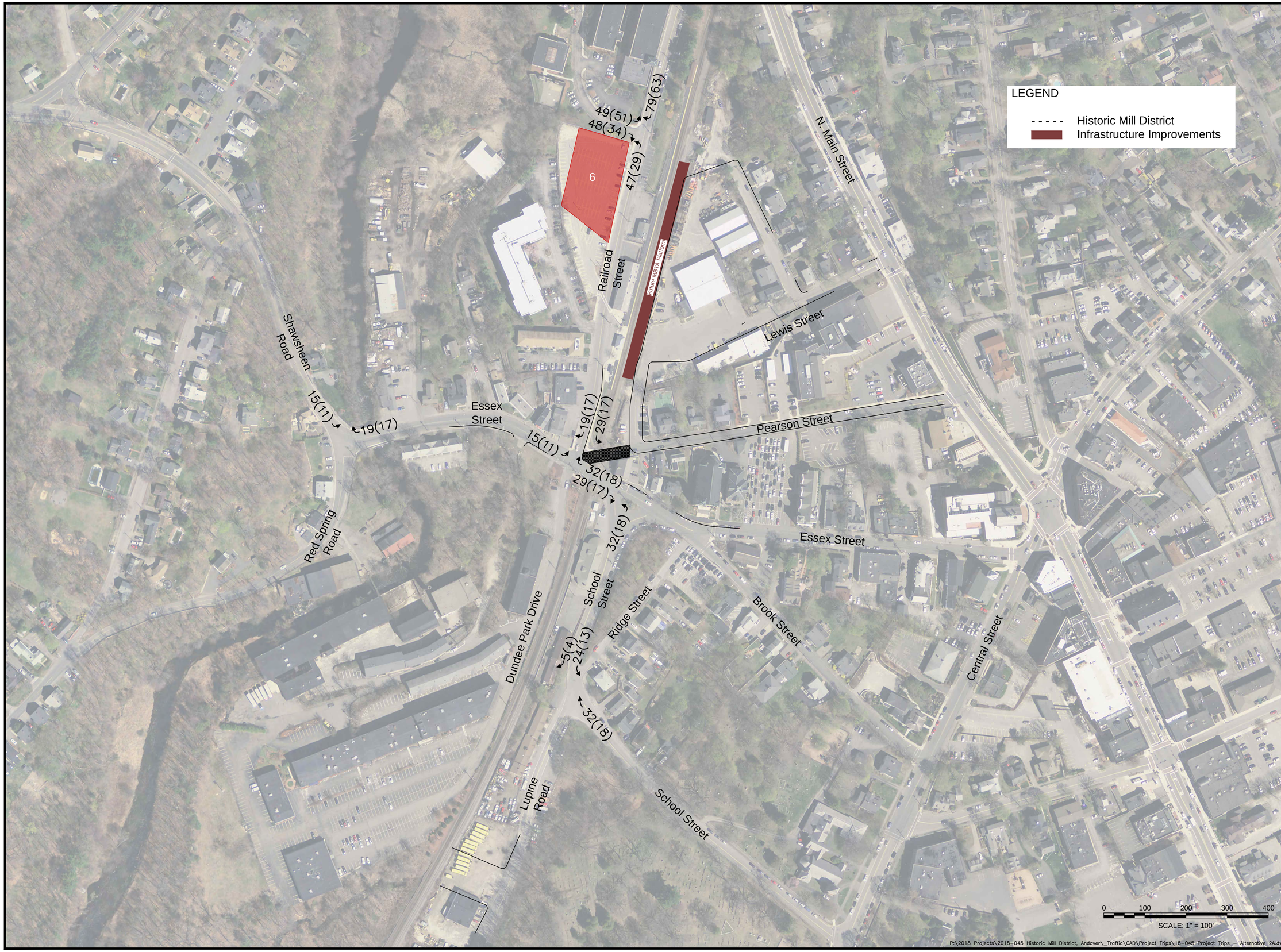
STAMP:

Trip Distribution - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'



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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 6

STAMP:

Full Build Out Trips - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
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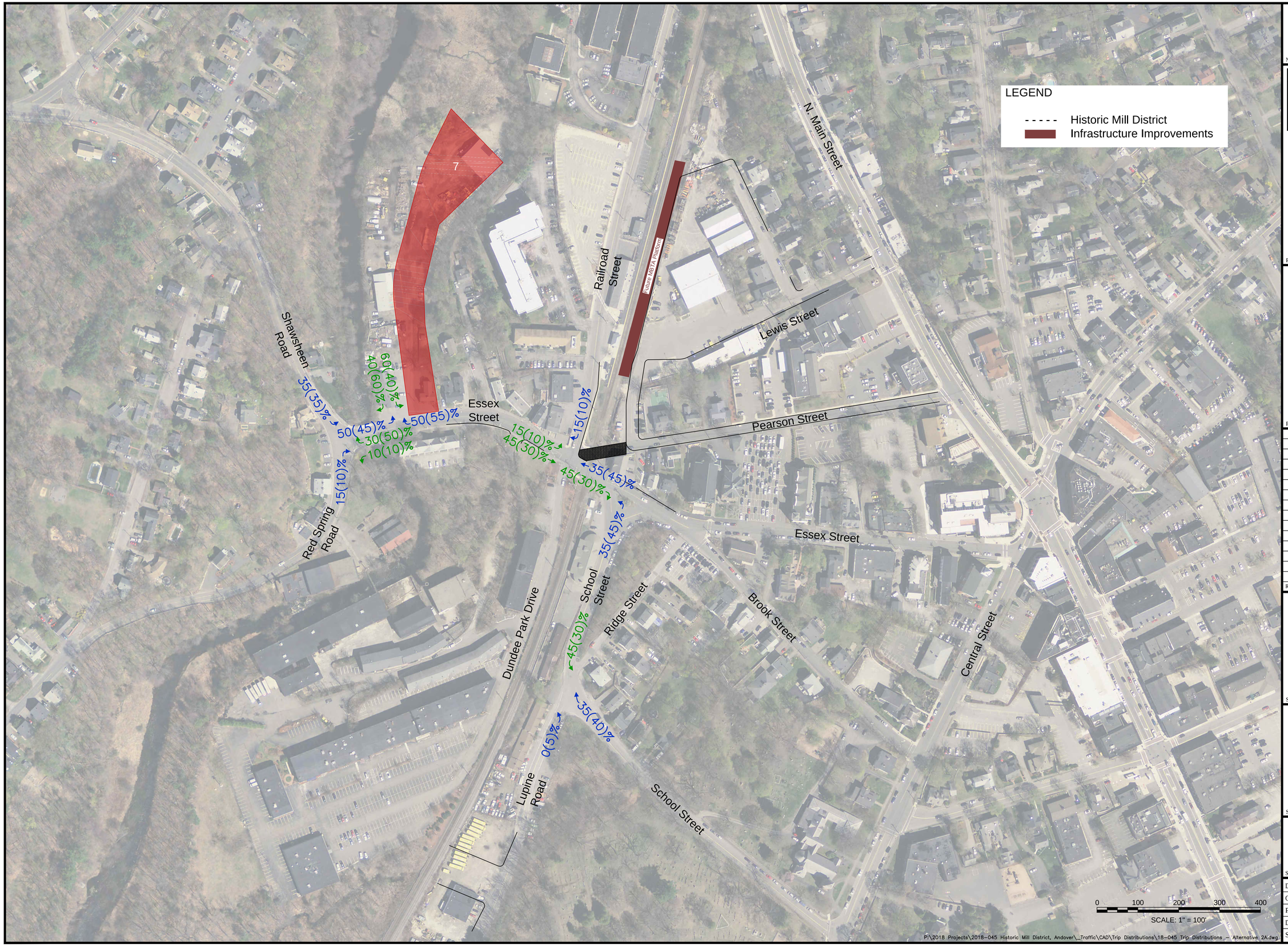

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PROJECT TEAM

PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 7

STAMP:

Trip Distribution - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

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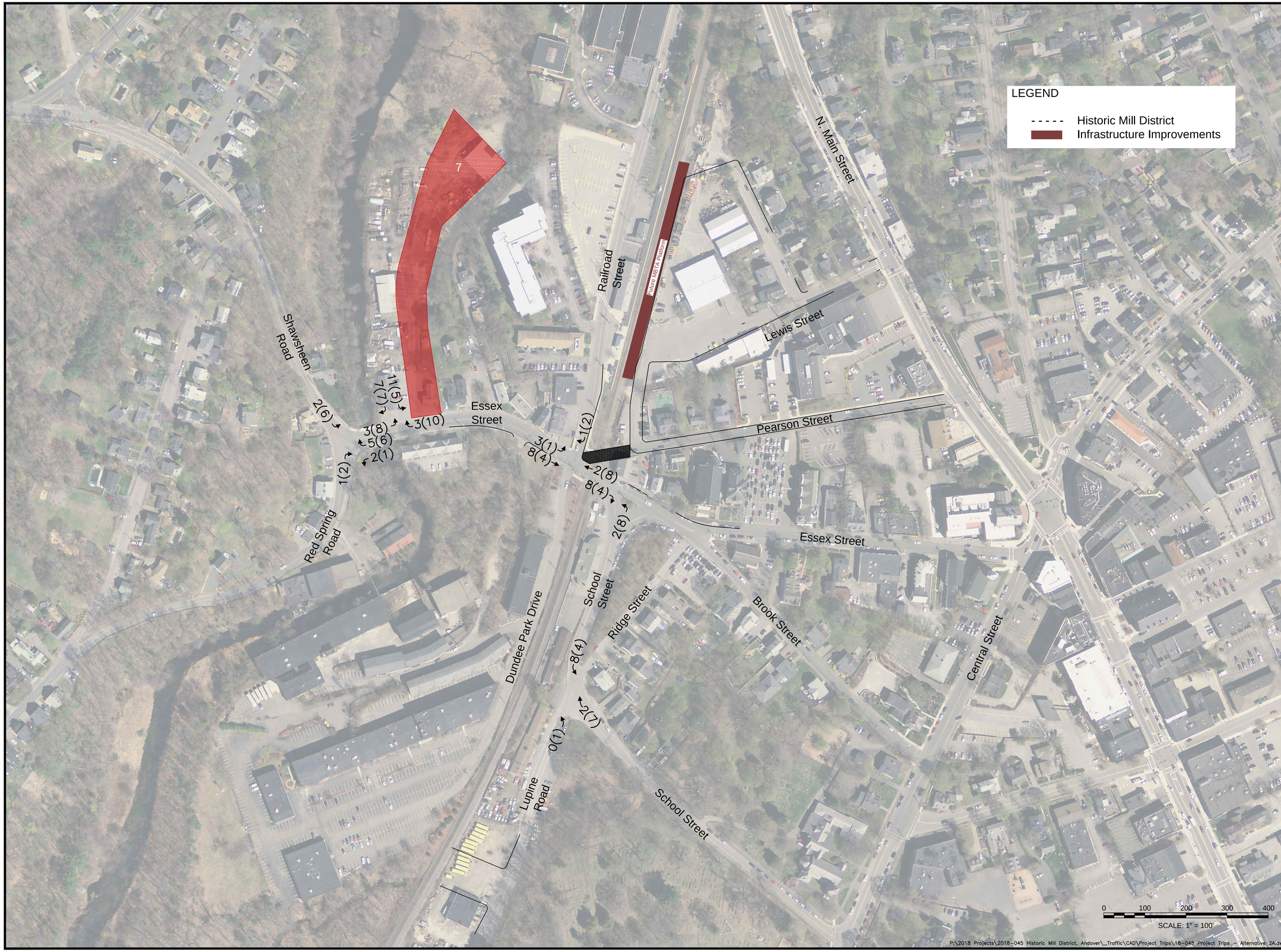

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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 7

STAMP:

Full Build Out Trips - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
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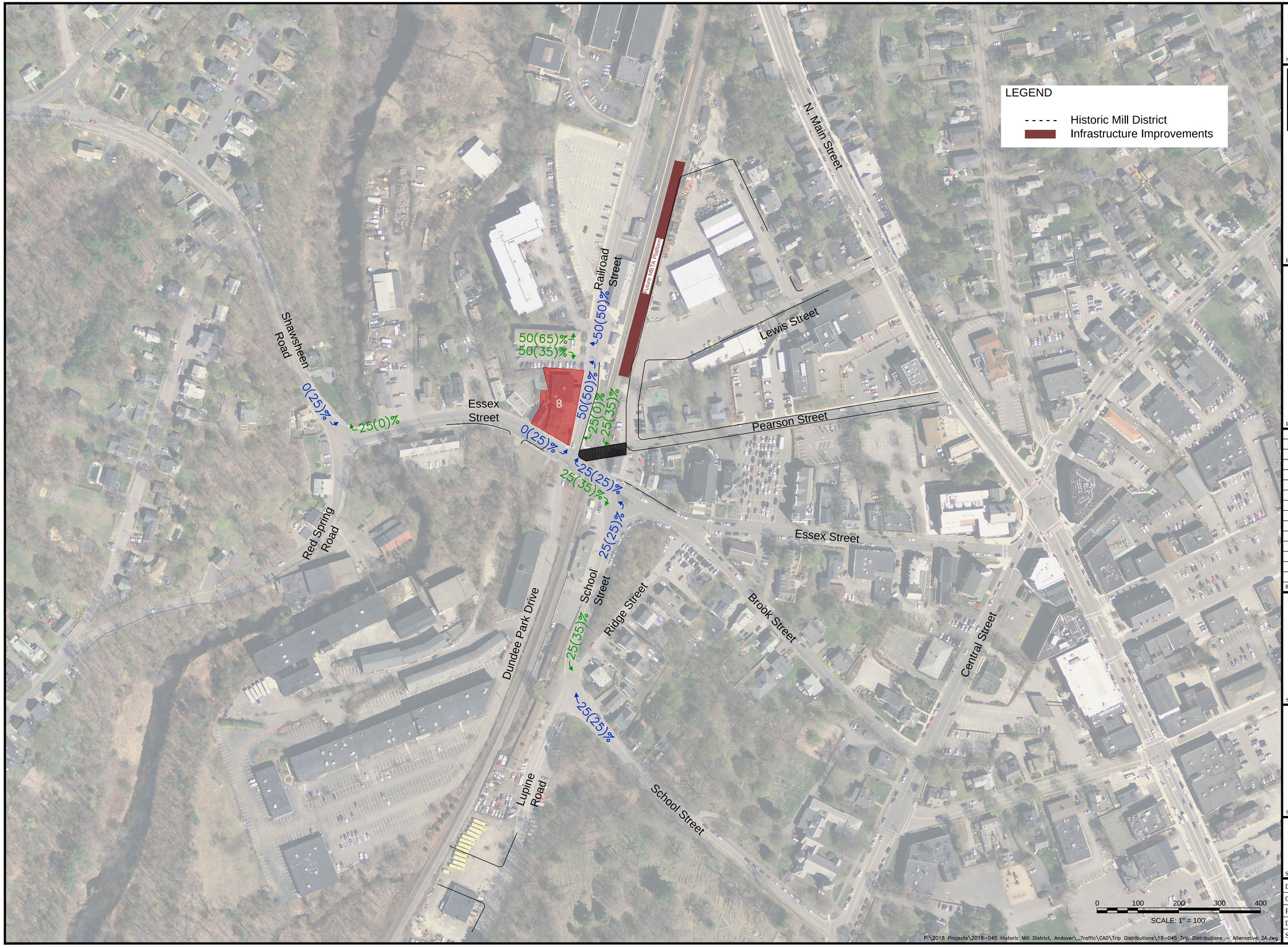

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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 8

STAMP:

Trip Distribution - Alternative 2A

SHEET NAME:

SHT NO:

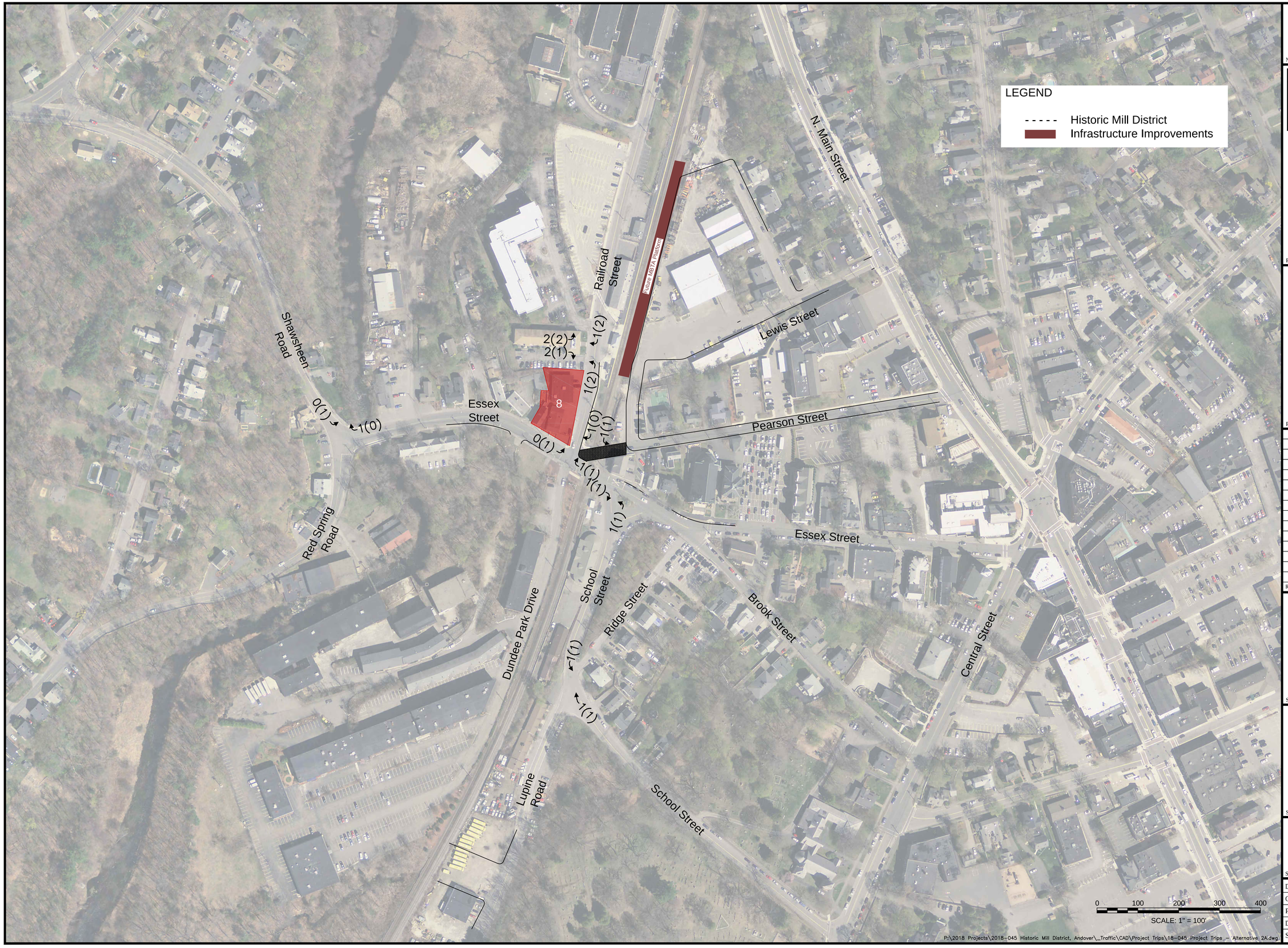
DR BY: -

CHK BY: -

PROJ NO: -

DATE: -

SCALE: 1" = 100'



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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 8

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DR BY: -
CHK BY: -
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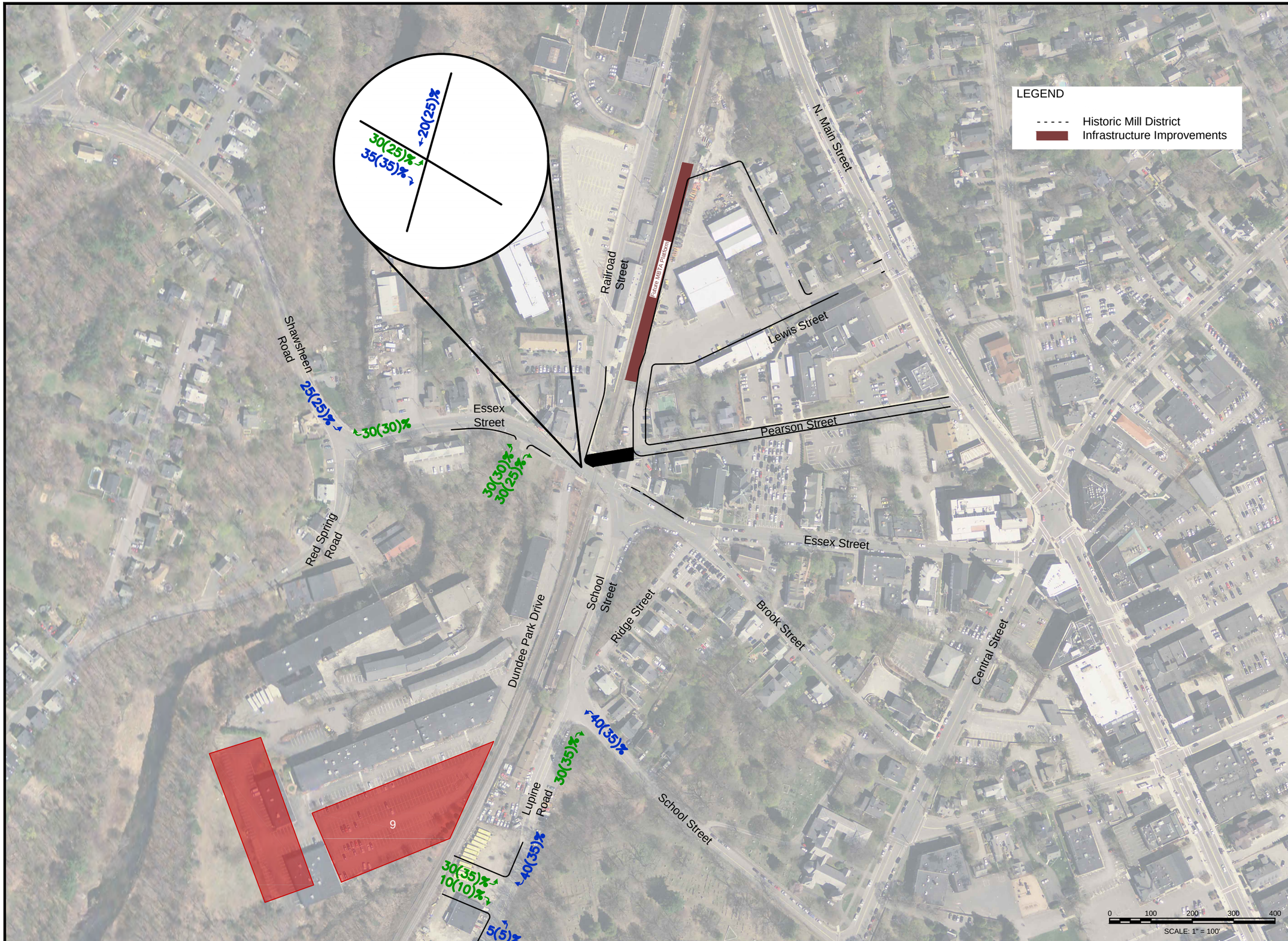

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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

Trip Distribution - Alternative 2A

SHEET NAME:

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DR BY: -
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PROJ NO: -
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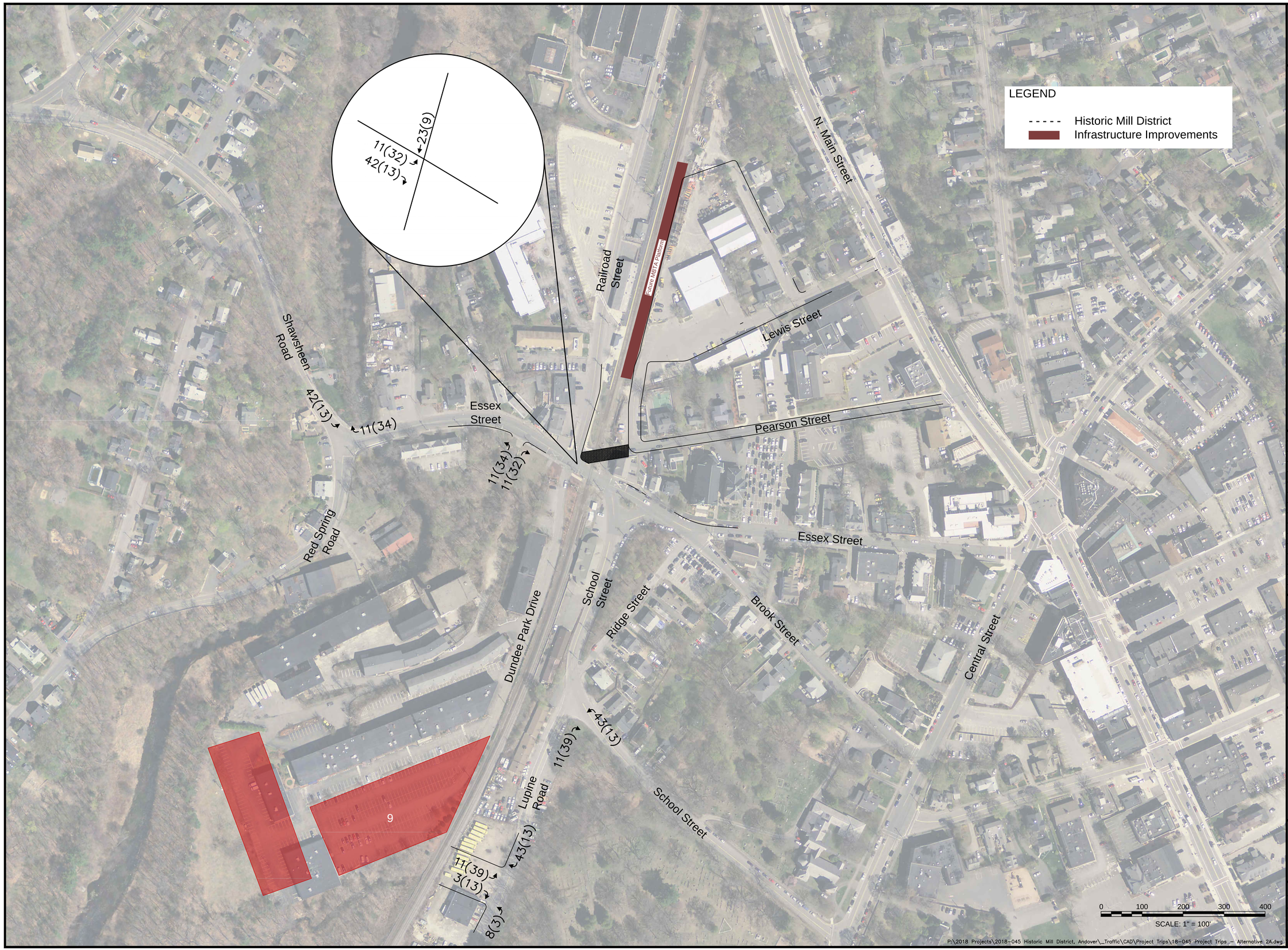

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PROJECT INFO

REV	DESCRIPTION	DATE

Development Parcel 9

STAMP:

Full Build Out Trips - Alternative 2A

SHEET NAME:

SHT NO:

DR BY: -
CHK BY: -
PROJ NO: -
DATE: -
SCALE: 1" = 100'

APPENDIX J – CAPACITY ANALYSES

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	408	162	56	238	76	74
Future Volume (vph)	408	162	56	238	76	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.958				0.934	
Flt Protected				0.990	0.975	
Satd. Flow (prot)	1778	0	0	1823	1648	0
Flt Permitted				0.990	0.975	
Satd. Flow (perm)	1778	0	0	1823	1648	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			582	314	
Travel Time (s)	13.1			13.2	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	434	193	76	290	96	93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	627	0	0	366	189	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.7%		ICU Level of Service C	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.0	0.1	0.1	0.3	0.2	0.9
Total Del/Veh (s)	2.0	1.0	6.7	1.9	13.7	7.6	3.3

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	18	106	128
Average Queue (ft)	1	30	53
95th Queue (ft)	9	76	97
Link Distance (ft)	514	508	259
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	4	20	27	13	10	4	8	17	83	22	50
Future Volume (vph)	1	4	20	27	13	10	4	8	17	83	22	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%				0%					0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.890				0.946					0.967	
Flt Protected		0.991				0.983					0.971	
Satd. Flow (prot)	0	1589	0	0	0	1724	0	0	0	0	1697	0
Flt Permitted		0.991				0.983					0.971	
Satd. Flow (perm)	0	1589	0	0	0	1724	0	0	0	0	1697	0
Link Speed (mph)		30				30					30	
Link Distance (ft)		137				237					663	
Travel Time (s)		3.1				5.4					15.1	
Peak Hour Factor	0.25	0.33	0.63	0.68	0.46	0.50	0.33	0.40	0.71	0.67	0.55	0.83
Heavy Vehicles (%)	0%	0%	10%	4%	0%	10%	0%	0%	12%	7%	0%	2%
Adj. Flow (vph)	4	12	32	40	28	20	12	20	24	124	40	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	0	80	0	0	0	0	248	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Right	Right	Left	Left	Left	Right
Median Width(ft)		12				0					0	
Link Offset(ft)		0				0					0	
Crosswalk Width(ft)		16				16					16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	9	15		9	9	15	15		9
Sign Control		Yield				Stop					Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations							
Traffic Volume (vph)	48	54	322	64	55	211	94
Future Volume (vph)	48	54	322	64	55	211	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)			10%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.979			0.956	
Flt Protected			0.988			0.992	
Satd. Flow (prot)	0	0	1688	0	0	1732	0
Flt Permitted			0.988			0.992	
Satd. Flow (perm)	0	0	1688	0	0	1732	0
Link Speed (mph)			30			30	
Link Distance (ft)			582			110	
Travel Time (s)			13.2			2.5	
Peak Hour Factor	0.80	0.68	0.89	0.70	0.72	0.85	0.60
Heavy Vehicles (%)	4%	9%	3%	0%	2%	4%	5%
Adj. Flow (vph)	60	79	362	91	76	248	157
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	592	0	0	481	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Left	Right
Median Width(ft)			0			0	
Link Offset(ft)			0			0	
Crosswalk Width(ft)			16			16	
Two way Left Turn Lane							
Headway Factor	1.07	1.07	1.07	1.07	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9
Sign Control			Free			Free	

Intersection Summary

2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street Performance by movement

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	1.3	0.3	0.5
Total Del/Veh (s)		20.9	8.1	5.2	27.1	27.6	22.0	16.1	41.0	56.0	48.9	40.7

2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street Performance by movement

Movement	SEL2	SEL	SET	SER	NWL	NWT	NWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.1	0.3	0.0	0.1	0.1	0.0	3.3
Total Del/Veh (s)	4.8	4.7	3.2	1.6	5.1	1.3	0.8	10.8

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street

Movement	WB	NB	SB	SE	NW
Directions Served	<LR>	LTR>	<LTR	<LTR	LTR
Maximum Queue (ft)	57	77	284	104	75
Average Queue (ft)	19	25	109	26	28
95th Queue (ft)	45	59	231	75	59
Link Distance (ft)	67	194	585	508	26
Upstream Blk Time (%)	0				7
Queuing Penalty (veh)	0				24
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	223	191	0	153	208	0
Future Volume (vph)	223	191	0	153	208	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.936					
Flt Protected					0.950	
Satd. Flow (prot)	1720	0	0	1845	1736	0
Flt Permitted					0.950	
Satd. Flow (perm)	1720	0	0	1845	1736	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	110			85	102	
Travel Time (s)	2.5			1.9	2.3	
Peak Hour Factor	0.86	0.82	0.92	0.74	0.72	0.92
Heavy Vehicles (%)	2%	5%	2%	3%	4%	0%
Adj. Flow (vph)	259	233	0	207	289	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	492	0	0	207	289	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.6%		ICU Level of Service A	
Analysis Period (min) 15			

3: School Street & Essex Street Performance by movement

Movement	EBT	EBR	WBT	NBL	NBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.5	0.0	0.6
Total Del/Veh (s)	1.4	0.6	0.5	8.6	1.8	2.9

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB
Directions Served	TR	LT	L
Maximum Queue (ft)	24	3	78
Average Queue (ft)	1	0	36
95th Queue (ft)	13	3	58
Link Distance (ft)	26	17	30
Upstream Blk Time (%)	0	0	39
Queuing Penalty (veh)	0	0	81
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	223	0	15	153	0	11
Future Volume (vph)	223	0	15	153	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected				0.994		
Satd. Flow (prot)	1863	0	0	1813	0	1644
Flt Permitted				0.994		
Satd. Flow (perm)	1863	0	0	1813	0	1644
Link Speed (mph)	30			30	30	
Link Distance (ft)	85			120	91	
Travel Time (s)	1.9			2.7	2.1	
Peak Hour Factor	0.86	0.25	0.54	0.74	0.92	0.55
Heavy Vehicles (%)	2%	0%	13%	3%	0%	0%
Adj. Flow (vph)	259	0	28	207	0	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	259	0	0	235	0	20
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	223	0	15	153	0	11
Future Volume (Veh/h)	223	0	15	153	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.25	0.54	0.74	0.92	0.55
Hourly flow rate (vph)	259	0	28	207	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			259		522	259
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			259		522	259
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			98		100	97
cM capacity (veh/h)			1244		507	785

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	259	235	20
Volume Left	0	28	0
Volume Right	0	0	20
cSH	1700	1244	785
Volume to Capacity	0.15	0.02	0.03
Queue Length 95th (ft)	0	2	2
Control Delay (s)	0.0	1.1	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	1.1	9.7
Approach LOS			A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	64	46	5	6	5
Future Volume (vph)	12	64	46	5	6	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.974		0.932	
Flt Protected		0.992			0.976	
Satd. Flow (prot)	0	1722	1614	0	1571	0
Flt Permitted		0.992			0.976	
Satd. Flow (perm)	0	1722	1614	0	1571	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		137	799		202	
Travel Time (s)		3.1	18.2		4.6	
Peak Hour Factor	0.75	0.76	0.68	0.31	0.50	0.42
Heavy Vehicles (%)	17%	8%	4%	60%	0%	20%
Adj. Flow (vph)	16	84	68	16	12	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	100	84	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 20.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	64	46	5	6	5
Future Volume (Veh/h)	12	64	46	5	6	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.76	0.68	0.31	0.50	0.42
Hourly flow rate (vph)	16	84	68	16	12	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	84				192	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84				192	76
tC, single (s)	4.3				6.4	6.4
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.5
p0 queue free %	99				98	99
cM capacity (veh/h)	1423				792	937

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	100	84	24
Volume Left	16	0	12
Volume Right	0	16	12
cSH	1423	1700	859
Volume to Capacity	0.01	0.05	0.03
Queue Length 95th (ft)	1	0	2
Control Delay (s)	1.3	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	1.3	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	175	3	9	3	222	5	0	1	0	0
Future Volume (vph)	0	175	3	9	3	222	5	0	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.955				
Flt Protected						0.996	0.968				
Satd. Flow (prot)	0	1567	0	0	0	1809	1756	0	0	0	0
Flt Permitted						0.996	0.968				
Satd. Flow (perm)	0	1567	0	0	0	1809	1756	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	120					735	480			767	
Travel Time (s)	2.7					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	180	4	16	8	308	8	0	4	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	184	0	0	0	332	12	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.0%	ICU Level of Service A
Analysis Period (min) 15	

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	0.4	0.2	0.2	3.4	3.4	0.5	9.2	1.4	5.6	0.5

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	12	47	29
Average Queue (ft)	0	4	5
95th Queue (ft)	8	25	22
Link Distance (ft)	59	712	402
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	35	6	11	1	0	0	1	157	44	13	177	4
Future Volume (vph)	35	6	11	1	0	0	1	157	44	13	177	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971						0.965			0.995	
Flt Protected		0.968			0.950			0.999			0.996	
Satd. Flow (prot)	0	1627	0	0	1805	0	0	1720	0	0	1765	0
Flt Permitted		0.968			0.950			0.999			0.996	
Satd. Flow (perm)	0	1627	0	0	1805	0	0	1720	0	0	1765	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			446			799	
Travel Time (s)		4.0			10.9			10.1			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	60	12	20	4	0	0	4	187	68	24	260	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	92	0	0	4	0	0	259	0	0	296	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 29.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	35	6	11	1	0	0	1	157	44	13	177	4
Future Volume (Veh/h)	35	6	11	1	0	0	1	157	44	13	177	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	60	12	20	4	0	0	4	187	68	24	260	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	543	549	221	569	577	266	272			255		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	543	549	221	569	577	266	272			255		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	86	97	97	99	100	100	100			98		
cM capacity (veh/h)	436	435	760	408	420	778	1303			1122		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	92	4	259	296
Volume Left	60	4	4	24
Volume Right	20	0	68	12
cSH	481	408	1303	1122
Volume to Capacity	0.19	0.01	0.00	0.02
Queue Length 95th (ft)	18	1	0	2
Control Delay (s)	14.3	13.9	0.1	0.9
Lane LOS	B	B	A	A
Approach Delay (s)	14.3	13.9	0.1	0.9
Approach LOS	B	B		

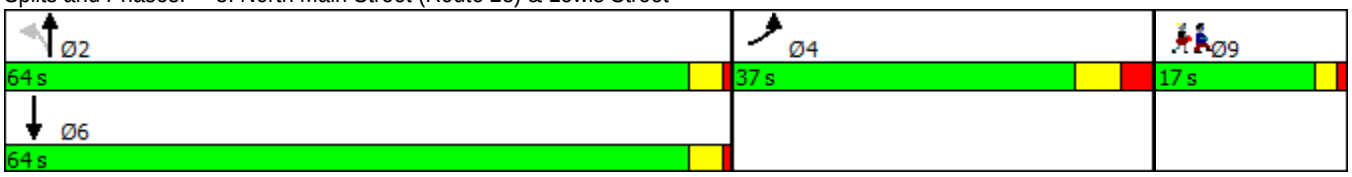
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	2	12	7	444	572	9	
Future Volume (vph)	2	12	7	444	572	9	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.887				0.997		
Flt Protected	0.992			0.999			
Satd. Flow (prot)	1567	0	0	1821	1819	0	
Flt Permitted	0.992			0.987			
Satd. Flow (perm)	1567	0	0	1799	1819	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	20				1		
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	4	20	12	522	636	13	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	24	0	0	534	649	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1		1	2	2		
Detector Template	Left		Left	Thru	Thru		
Leading Detector (ft)	20		20	100	100		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	20		20	6	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot		Perm	NA	NA		
Protected Phases	4			2	6		9
Permitted Phases			2				
Detector Phase	4		2	2	6		
Switch Phase							

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Minimum Initial (s)	4.0		20.0	20.0	20.0		2.0
Minimum Split (s)	11.0		24.0	24.0	24.0		17.0
Total Split (s)	37.0		64.0	64.0	64.0		17.0
Total Split (%)	31.4%		54.2%	54.2%	54.2%		14%
Maximum Green (s)	30.0		60.0	60.0	60.0		14.0
Yellow Time (s)	4.0		3.0	3.0	3.0		2.0
All-Red Time (s)	3.0		1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0			0.0	0.0		
Total Lost Time (s)	7.0			4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	6.6			44.1	44.1		
Actuated g/C Ratio	0.12			0.82	0.82		
v/c Ratio	0.11			0.36	0.43		
Control Delay	18.5			7.0	7.9		
Queue Delay	0.0			0.0	0.0		
Total Delay	18.5			7.0	7.9		
LOS	B			A	A		
Approach Delay	18.5			7.0	7.9		
Approach LOS	B			A	A		

Intersection Summary	
Area Type: Other	
Cycle Length: 118	
Actuated Cycle Length: 53.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 43.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	24	534	649
v/c Ratio	0.11	0.36	0.43
Control Delay	18.5	7.0	7.9
Queue Delay	0.0	0.0	0.0
Total Delay	18.5	7.0	7.9
Queue Length 50th (ft)	1	0	0
Queue Length 95th (ft)	9	211	307
Internal Link Dist (ft)	561	292	290
Turn Bay Length (ft)			
Base Capacity (vph)	981	1654	1672
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.32	0.39

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	12	7	444	572	9
Future Volume (vph)	2	12	7	444	572	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.89			1.00	1.00	
Flt Protected	0.99			1.00	1.00	
Satd. Flow (prot)	1568			1821	1820	
Flt Permitted	0.99			0.99	1.00	
Satd. Flow (perm)	1568			1799	1820	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	4	20	12	522	636	12
RTOR Reduction (vph)	19	0	0	0	0	0
Lane Group Flow (vph)	5	0	0	534	649	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	2.0			40.8	40.8	
Effective Green, g (s)	2.0			40.8	40.8	
Actuated g/C Ratio	0.03			0.68	0.68	
Clearance Time (s)	7.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	52			1219	1233	
v/s Ratio Prot	c0.00				c0.36	
v/s Ratio Perm				0.30		
v/c Ratio	0.09			0.44	0.53	
Uniform Delay, d1	28.2			4.4	4.9	
Progression Factor	1.06			1.00	1.00	
Incremental Delay, d2	0.7			0.3	0.4	
Delay (s)	30.6			4.7	5.3	
Level of Service	C			A	A	
Approach Delay (s)	30.6			4.7	5.3	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	57	52	455	558	17
Future Volume (vph)	26	57	52	455	558	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919				0.996	
Flt Protected	0.980			0.993		
Satd. Flow (prot)	1593	0	0	1795	1822	0
Flt Permitted	0.980			0.993		
Satd. Flow (perm)	1593	0	0	1795	1822	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	48	72	84	523	634	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	120	0	0	607	654	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	57	52	455	558	17
Future Volume (Veh/h)	26	57	52	455	558	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	48	72	84	523	634	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.81	0.81	0.81			
vC, conflicting volume	1335	644	654			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1296	441	453			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	62	85	90			
cM capacity (veh/h)	127	490	854			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	120	607	654
Volume Left	48	84	0
Volume Right	72	0	20
cSH	228	854	1700
Volume to Capacity	0.53	0.10	0.38
Queue Length 95th (ft)	69	8	0
Control Delay (s)	37.1	2.5	0.0
Lane LOS	E	A	
Approach Delay (s)	37.1	2.5	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	440	409	0	77	153
Future Volume (vph)	0	440	409	0	77	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	550	460	0	100	180
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	550	460	0	100	180
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	440	409	0	77	153
Future Volume (Veh/h)	0	440	409	0	77	153
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	550	460	0	100	180
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	460				1010	460
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	460				1010	460
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				63	70
cM capacity (veh/h)	1101				267	599

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	550	460	100	180
Volume Left	0	0	100	0
Volume Right	0	0	0	180
cSH	1700	1700	267	599
Volume to Capacity	0.32	0.27	0.37	0.30
Queue Length 95th (ft)	0	0	42	31
Control Delay (s)	0.0	0.0	26.3	13.6
Lane LOS			D	B
Approach Delay (s)	0.0	0.0	18.1	
Approach LOS			C	

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	348	104	99	454	215	86
Future Volume (vph)	348	104	99	454	215	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969				0.960	
Flt Protected				0.990	0.966	
Satd. Flow (prot)	1837	0	0	1881	1729	0
Flt Permitted				0.990	0.966	
Satd. Flow (perm)	1837	0	0	1881	1729	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	566			582	314	
Travel Time (s)	12.9			13.2	7.1	
Peak Hour Factor	0.73	0.74	0.80	0.88	0.88	0.83
Heavy Vehicles (%)	0%	1%	0%	0%	1%	4%
Adj. Flow (vph)	477	141	124	516	244	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	618	0	0	640	348	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 81.2%		ICU Level of Service D	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.5	0.2	0.2	0.3	3.2	1.1	5.4
Total Del/Veh (s)	5.0	6.7	5.9	2.9	54.6	46.9	15.4

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	B15	WB	NB	B16	B17
Directions Served	TR	T	LT	LR	T	T
Maximum Queue (ft)	28	12	121	305	88	15
Average Queue (ft)	12	9	41	166	16	5
95th Queue (ft)	142	112	94	311	108	59
Link Distance (ft)	506	469	508	259	219	252
Upstream Blk Time (%)	2	2		12	2	2
Queuing Penalty (veh)	0	0		0	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	6	40	21	54	39	8	46	31	80	18	89
Future Volume (vph)	2	6	40	21	54	39	8	46	31	80	18	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%				0%					0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.887				0.953					0.946	
Flt Protected		0.992				0.979					0.977	
Satd. Flow (prot)	0	1647	0	0	0	1773	0	0	0	0	1704	0
Flt Permitted		0.992				0.979					0.977	
Satd. Flow (perm)	0	1647	0	0	0	1773	0	0	0	0	1704	0
Link Speed (mph)		30				30					30	
Link Distance (ft)		137				237					663	
Travel Time (s)		3.1				5.4					15.1	
Peak Hour Factor	0.50	0.50	0.83	0.66	0.56	0.75	0.40	0.77	0.78	0.91	0.50	0.82
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	0%	10%	5%	0%	0%
Adj. Flow (vph)	4	12	48	32	96	52	20	60	40	88	36	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	0	0	0	228	0	0	0	0	273	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Right	Right	Left	Left	Left	Right
Median Width(ft)		12				0					0	
Link Offset(ft)		0				0					0	
Crosswalk Width(ft)		16				16					16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	9	15		9	9	15	15		9
Sign Control		Yield				Stop					Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 81.5%	ICU Level of Service D
Analysis Period (min) 15	

Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR	NWR2
Lane Configurations								
Traffic Volume (vph)	55	36	280	41	32	369	99	1
Future Volume (vph)	55	36	280	41	32	369	99	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			10%			0%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.986			0.968		
Flt Protected			0.988			0.997		
Satd. Flow (prot)	0	0	1747	0	0	1817	0	0
Flt Permitted			0.988			0.997		
Satd. Flow (perm)	0	0	1747	0	0	1817	0	0
Link Speed (mph)			30			30		
Link Distance (ft)			582			112		
Travel Time (s)			13.2			2.5		
Peak Hour Factor	0.57	0.82	0.71	0.64	0.80	0.85	0.69	0.25
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	4%	0%
Adj. Flow (vph)	96	44	394	64	40	434	143	4
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	598	0	0	621	0	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)			0			0		
Link Offset(ft)			0			0		
Crosswalk Width(ft)			16			16		
Two way Left Turn Lane								
Headway Factor	1.07	1.07	1.07	1.07	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9	9
Sign Control			Free			Free		

Intersection Summary

2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street Performance by movement

Movement	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.1	0.5	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	27.5	53.9	35.0	36.9	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.2	0.1	1.2	0.9	0.2	0.9	1.9	5.4	1.2
Total Del/Veh (s)	40.6	24.2	1.3	20.2	20.1	83.3	81.5	86.0	73.9	226.3	248.0	250.2

2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street Performance by movement

Movement	SBR	SEL2	SEL	SET	SER	NWL	NWT	NWR	NWR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.7
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.6	0.0	4.7
Total Delay (hr)	6.0	0.2	0.1	0.5	0.1	0.0	0.1	0.1	0.0	19.2
Total Del/Veh (s)	243.7	12.4	12.7	6.1	11.8	4.7	1.3	2.4	0.8	51.6

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street

Movement	WB	NB	SB	B12	SE	NW
Directions Served	<LR>	LTR>	<LTR	T	<LTR	LTR>
Maximum Queue (ft)	59	206	600	158	133	68
Average Queue (ft)	23	113	392	45	43	28
95th Queue (ft)	51	212	750	200	168	56
Link Distance (ft)	53	195	585	289	508	14
Upstream Blk Time (%)	4	11	27	7	2	7
Queuing Penalty (veh)	3	0	0	0	9	34
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	237	168	0	226	258	0
Future Volume (vph)	237	168	0	226	258	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.944					
Flt Protected					0.950	
Satd. Flow (prot)	1769	0	0	1900	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1769	0	0	1900	1770	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			67	103	
Travel Time (s)	2.5			1.5	2.3	
Peak Hour Factor	0.77	0.76	0.92	0.87	0.80	0.92
Heavy Vehicles (%)	1%	2%	2%	0%	2%	0%
Adj. Flow (vph)	308	221	0	260	323	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	529	0	0	260	323	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.7%		ICU Level of Service A	
Analysis Period (min) 15			

3: School Street & Essex Street Performance by movement

Movement	EBT	EBR	WBT	NBL	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.1	0.1	0.7	1.0
Total Del/Veh (s)	1.9	1.9	1.5	9.7	4.0

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB
Directions Served	TR	LT	L
Maximum Queue (ft)	31	10	59
Average Queue (ft)	6	2	30
95th Queue (ft)	38	18	44
Link Distance (ft)	14	5	26
Upstream Blk Time (%)	2	2	52
Queuing Penalty (veh)	9	5	133
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	237	0	5	226	0	33
Future Volume (vph)	237	0	5	226	0	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected				0.998		
Satd. Flow (prot)	1881	0	0	1896	0	1644
Flt Permitted				0.998		
Satd. Flow (perm)	1881	0	0	1896	0	1644
Link Speed (mph)	30			30	30	
Link Distance (ft)	67			159	93	
Travel Time (s)	1.5			3.6	2.1	
Peak Hour Factor	0.77	0.25	0.42	0.87	0.92	0.75
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	308	0	12	260	0	44
Shared Lane Traffic (%)						
Lane Group Flow (vph)	308	0	0	272	0	44
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	237	0	5	226	0	33
Future Volume (Veh/h)	237	0	5	226	0	33
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.25	0.42	0.87	0.92	0.75
Hourly flow rate (vph)	308	0	12	260	0	44
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			308		592	308
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			308		592	308
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	94
cM capacity (veh/h)			1264		468	737

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	308	272	44
Volume Left	0	12	0
Volume Right	0	0	44
cSH	1700	1264	737
Volume to Capacity	0.18	0.01	0.06
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	0.4	10.2
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	10.2
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	71	72	1	4	2
Future Volume (vph)	3	71	72	1	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.932	
Flt Protected		0.998			0.976	
Satd. Flow (prot)	0	1800	1871	0	1728	0
Flt Permitted		0.998			0.976	
Satd. Flow (perm)	0	1800	1871	0	1728	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		137	799		202	
Travel Time (s)		3.1	18.2		4.6	
Peak Hour Factor	0.75	0.85	0.82	0.25	1.00	0.50
Heavy Vehicles (%)	33%	4%	1%	0%	0%	0%
Mid-Block Traffic (%)		0%	28%		0%	
Adj. Flow (vph)	4	84	88	4	4	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	88	92	0	8	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	71	72	1	4	2
Future Volume (Veh/h)	3	71	72	1	4	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.85	0.82	0.25	1.00	0.50
Hourly flow rate (vph)	4	84	88	4	4	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	92				182	90
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	92				182	90
tC, single (s)	4.4				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1329				810	973

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	88	92	8
Volume Left	4	0	4
Volume Right	0	4	4
cSH	1329	1700	884
Volume to Capacity	0.00	0.05	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.4	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	16.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	242	7	30	3	224	16	0	5	0	0
Future Volume (vph)	0	242	7	30	3	224	16	0	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.949				
Flt Protected						0.993	0.970				
Satd. Flow (prot)	0	1628	0	0	0	1887	1749	0	0	0	0
Flt Permitted						0.993	0.970				
Satd. Flow (perm)	0	1628	0	0	0	1887	1749	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	159					735	504			748	
Travel Time (s)	3.6					16.7	11.5			17.0	
Peak Hour Factor	0.25	0.77	0.58	0.83	0.38	0.89	0.80	0.25	0.42	0.92	0.92
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	314	12	36	8	252	20	0	12	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	326	0	0	0	296	32	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.7%	ICU Level of Service A
Analysis Period (min) 15	

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.2	0.0	1.4	0.0	0.0	1.5
Denied Del/Veh (s)	0.0	0.0	0.0	21.0	0.8	21.6	0.0	0.0	10.2
Total Delay (hr)	0.0	0.0	0.0	0.2	0.0	0.5	0.0	0.0	0.8
Total Del/Veh (s)	0.5	0.4	0.3	20.7	4.9	8.7	9.8	5.7	5.3

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	8	84	42
Average Queue (ft)	0	27	15
95th Queue (ft)	4	186	40
Link Distance (ft)	95	712	426
Upstream Blk Time (%)		2	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	60	5	21	0	0	0	1	121	52	8	231	11
Future Volume (vph)	60	5	21	0	0	0	1	121	52	8	231	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964						0.959			0.992	
Flt Protected		0.967						0.999			0.998	
Satd. Flow (prot)	0	1748	0	0	1900	0	0	1784	0	0	1848	0
Flt Permitted		0.967						0.999			0.998	
Satd. Flow (perm)	0	1748	0	0	1900	0	0	1784	0	0	1848	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		199			504			436			800	
Travel Time (s)		4.5			11.5			9.9			18.2	
Peak Hour Factor	0.65	0.63	0.58	0.25	0.92	0.92	0.25	0.74	0.72	0.50	0.78	0.55
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	0%	2%	0%
Adj. Flow (vph)	92	8	36	0	0	0	4	164	72	16	296	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	136	0	0	0	0	0	240	0	0	332	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 29.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	60	5	21	0	0	0	1	121	52	8	231	11
Future Volume (Veh/h)	60	5	21	0	0	0	1	121	52	8	231	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.65	0.63	0.58	0.25	0.92	0.92	0.25	0.74	0.72	0.50	0.78	0.55
Hourly flow rate (vph)	92	8	36	0	0	0	4	164	72	16	296	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	546	556	200	586	582	306	316			236		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	546	556	200	586	582	306	316			236		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	98	96	100	100	100	100			99		
cM capacity (veh/h)	443	435	846	396	421	739	1256			1343		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	136	0	240	332
Volume Left	92	0	4	16
Volume Right	36	0	72	20
cSH	507	1700	1256	1343
Volume to Capacity	0.27	0.00	0.00	0.01
Queue Length 95th (ft)	27	0	0	1
Control Delay (s)	14.7	0.0	0.2	0.5
Lane LOS	B	A	A	A
Approach Delay (s)	14.7	0.0	0.2	0.5
Approach LOS	B	A		

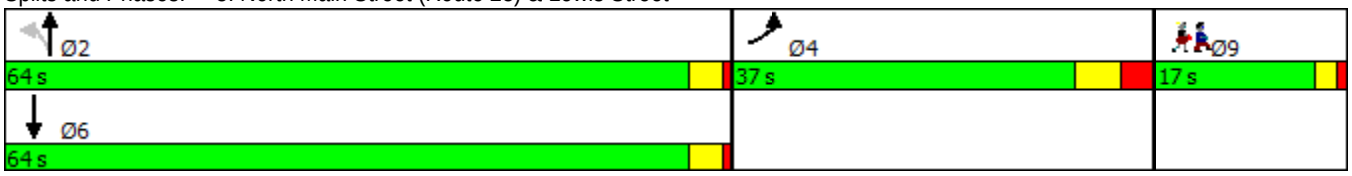
Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	29.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	7	2	5	651	441	7	
Future Volume (vph)	7	2	5	651	441	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.966				0.997		
Flt Protected	0.964			0.999			
Satd. Flow (prot)	1769	0	0	1880	1858	0	
Flt Permitted	0.964			0.995			
Satd. Flow (perm)	1769	0	0	1872	1858	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	4				1		
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.58	0.50	0.63	0.93	0.84	0.58	
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%	
Mid-Block Traffic (%)	60%			0%	0%		
Adj. Flow (vph)	12	4	8	700	525	12	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	16	0	0	708	537	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1		1	2	2		
Detector Template	Left		Left	Thru	Thru		
Leading Detector (ft)	20		20	100	100		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	20		20	6	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot		Perm	NA	NA		
Protected Phases	4			2	6		9
Permitted Phases			2				
Detector Phase	4		2	2	6		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Switch Phase							
Minimum Initial (s)	4.0		19.5	19.5	19.5		2.0
Minimum Split (s)	11.0		24.0	24.0	24.0		17.0
Total Split (s)	37.0		64.0	64.0	64.0		17.0
Total Split (%)	31.4%		54.2%	54.2%	54.2%		14%
Maximum Green (s)	30.0		60.0	60.0	60.0		14.0
Yellow Time (s)	4.0		3.0	3.0	3.0		2.0
All-Red Time (s)	3.0		1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0			0.0	0.0		
Total Lost Time (s)	7.0			4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	Min		None	None	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							13
Act Effct Green (s)	6.5			24.8	24.8		
Actuated g/C Ratio	0.14			0.55	0.55		
v/c Ratio	0.06			0.69	0.53		
Control Delay	21.6			12.2	9.2		
Queue Delay	0.0			0.0	0.0		
Total Delay	21.6			12.2	9.2		
LOS	C			B	A		
Approach Delay	21.6			12.2	9.2		
Approach LOS	C			B	A		

Intersection Summary	
Area Type: Other	
Cycle Length: 118	
Actuated Cycle Length: 45	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 50.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	16	708	537
v/c Ratio	0.06	0.69	0.53
Control Delay	21.6	12.2	9.2
Queue Delay	0.0	0.0	0.0
Total Delay	21.6	12.2	9.2
Queue Length 50th (ft)	2	86	57
Queue Length 95th (ft)	14	337	200
Internal Link Dist (ft)	561	292	290
Turn Bay Length (ft)			
Base Capacity (vph)	1284	1793	1779
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.01	0.39	0.30

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	2	5	651	441	7
Future Volume (vph)	7	2	5	651	441	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.97			1.00	1.00	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	1770			1880	1858	
Flt Permitted	0.96			0.99	1.00	
Satd. Flow (perm)	1770			1871	1858	
Peak-hour factor, PHF	0.58	0.50	0.63	0.93	0.84	0.58
Adj. Flow (vph)	12	4	8	700	525	12
RTOR Reduction (vph)	3	0	0	0	0	0
Lane Group Flow (vph)	13	0	0	708	537	0
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	6.5			24.7	24.7	
Effective Green, g (s)	6.5			24.7	24.7	
Actuated g/C Ratio	0.14			0.53	0.53	
Clearance Time (s)	7.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	246			991	984	
v/s Ratio Prot	c0.01				0.29	
v/s Ratio Perm				c0.38		
v/c Ratio	0.05			0.71	0.55	
Uniform Delay, d1	17.4			8.3	7.2	
Progression Factor	1.03			1.00	1.00	
Incremental Delay, d2	0.1			2.5	0.6	
Delay (s)	17.9			10.8	7.9	
Level of Service	B			B	A	
Approach Delay (s)	17.9			10.8	7.9	
Approach LOS	B			B	A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	46.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	113	37	621	415	16
Future Volume (vph)	44	113	37	621	415	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.902				0.992	
Flt Protected	0.987			0.997		
Satd. Flow (prot)	1648	0	0	1873	1867	0
Flt Permitted	0.987			0.997		
Satd. Flow (perm)	1648	0	0	1873	1867	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.79	0.76	0.93	0.92	0.89	0.57
Heavy Vehicles (%)	7%	1%	3%	1%	1%	0%
Mid-Block Traffic (%)	52%			0%	0%	
Adj. Flow (vph)	56	149	40	675	466	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	205	0	0	715	494	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 76.9%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	113	37	621	415	16
Future Volume (Veh/h)	44	113	37	621	415	16
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.76	0.93	0.92	0.89	0.57
Hourly flow rate (vph)	56	149	40	675	466	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.81	0.81	0.81			
vC, conflicting volume	1235	480	494			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1175	248	266			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	65	77	96			
cM capacity (veh/h)	162	646	1053			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	205	715	494
Volume Left	56	40	0
Volume Right	149	0	28
cSH	356	1053	1700
Volume to Capacity	0.58	0.04	0.29
Queue Length 95th (ft)	86	3	0
Control Delay (s)	28.0	1.0	0.0
Lane LOS	D	A	
Approach Delay (s)	28.0	1.0	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	520	315	0	97	188
Future Volume (vph)	0	520	315	0	97	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1900	1881	0	1770	1615
Flt Permitted					0.950	
Satd. Flow (perm)	0	1900	1881	0	1770	1615
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		748	
Travel Time (s)		7.3	1.5		17.0	
Peak Hour Factor	0.92	0.90	0.92	0.92	0.81	0.75
Heavy Vehicles (%)	2%	0%	1%	0%	2%	0%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	578	342	0	120	251
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	578	342	0	120	251
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	520	315	0	97	188
Future Volume (Veh/h)	0	520	315	0	97	188
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.90	0.92	0.92	0.81	0.75
Hourly flow rate (vph)	0	578	342	0	120	251
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	342				920	342
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	342				920	342
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				60	64
cM capacity (veh/h)	1217				301	705

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	578	342	120	251
Volume Left	0	0	120	0
Volume Right	0	0	0	251
cSH	1700	1700	301	705
Volume to Capacity	0.34	0.20	0.40	0.36
Queue Length 95th (ft)	0	0	46	40
Control Delay (s)	0.0	0.0	24.7	12.9
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	16.7	
Approach LOS			C	

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	430	171	59	251	80	78
Future Volume (vph)	430	171	59	251	80	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.958				0.934	
Flt Protected				0.990	0.975	
Satd. Flow (prot)	1778	0	0	1823	1648	0
Flt Permitted				0.990	0.975	
Satd. Flow (perm)	1778	0	0	1823	1648	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			582	314	
Travel Time (s)	13.1			13.2	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	457	204	80	306	101	98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	661	0	0	386	199	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.7%		ICU Level of Service C	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.1	0.1	0.2	0.3	0.2	1.1
Total Del/Veh (s)	2.2	1.1	7.2	2.2	15.6	8.8	3.7

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	20	114	141
Average Queue (ft)	1	34	57
95th Queue (ft)	11	84	104
Link Distance (ft)	514	508	259
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	4	21	28	14	11	4	8	18	87	23	53
Future Volume (vph)	1	4	21	28	14	11	4	8	18	87	23	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%				0%					0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.889				0.949					0.967	
Flt Protected		0.991				0.982					0.971	
Satd. Flow (prot)	0	1587	0	0	0	1725	0	0	0	0	1697	0
Flt Permitted		0.991				0.982					0.971	
Satd. Flow (perm)	0	1587	0	0	0	1725	0	0	0	0	1697	0
Link Speed (mph)		30				30					30	
Link Distance (ft)		137				237					663	
Travel Time (s)		3.1				5.4					15.1	
Peak Hour Factor	0.25	0.33	0.63	0.68	0.46	0.50	0.33	0.40	0.71	0.67	0.55	0.83
Heavy Vehicles (%)	0%	0%	10%	4%	0%	10%	0%	0%	12%	7%	0%	2%
Adj. Flow (vph)	4	12	33	41	30	22	12	20	25	130	42	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	0	84	0	0	0	0	261	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Right	Right	Left	Left	Left	Right
Median Width(ft)		12				0					0	
Link Offset(ft)		0				0					0	
Crosswalk Width(ft)		16				16					16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	9	15		9	9	15	15		9
Sign Control		Yield				Stop					Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 71.4%	ICU Level of Service C
Analysis Period (min) 15	

Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations							
Traffic Volume (vph)	51	57	339	67	58	222	99
Future Volume (vph)	51	57	339	67	58	222	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)			10%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.979			0.956	
Flt Protected			0.988			0.992	
Satd. Flow (prot)	0	0	1688	0	0	1732	0
Flt Permitted			0.988			0.992	
Satd. Flow (perm)	0	0	1688	0	0	1732	0
Link Speed (mph)			30			30	
Link Distance (ft)			582			110	
Travel Time (s)			13.2			2.5	
Peak Hour Factor	0.80	0.68	0.89	0.70	0.72	0.85	0.60
Heavy Vehicles (%)	4%	9%	3%	0%	2%	4%	5%
Adj. Flow (vph)	64	84	381	96	81	261	165
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	625	0	0	507	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Left	Right
Median Width(ft)			0			0	
Link Offset(ft)			0			0	
Crosswalk Width(ft)			16			16	
Two way Left Turn Lane							
Headway Factor	1.07	1.07	1.07	1.07	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9
Sign Control			Free			Free	

Intersection Summary

2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street Performance by movement

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.4	2.4	0.6	1.1
Total Del/Veh (s)		18.9	9.3	6.5	29.4	38.1	32.8	19.0	80.3	97.9	93.2	76.6

2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street Performance by movement

Movement	SEL2	SEL	SET	SER	NWL	NWT	NWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.1	0.3	0.0	0.1	0.1	0.0	5.7
Total Del/Veh (s)	5.2	5.0	3.6	2.0	5.5	1.4	0.9	17.6

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street

Movement	WB	NB	SB	B12	SE	NW
Directions Served	<LR>	LTR>	<LTR	T	<LTR	LTR
Maximum Queue (ft)	62	75	408	12	125	82
Average Queue (ft)	21	26	167	1	31	30
95th Queue (ft)	49	60	377	18	87	61
Link Distance (ft)	67	194	585	289	508	26
Upstream Blk Time (%)	1		1			8
Queuing Penalty (veh)	0		0			29
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	235	201	0	161	219	0
Future Volume (vph)	235	201	0	161	219	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.936					
Flt Protected					0.950	
Satd. Flow (prot)	1720	0	0	1845	1736	0
Flt Permitted					0.950	
Satd. Flow (perm)	1720	0	0	1845	1736	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	110			85	102	
Travel Time (s)	2.5			1.9	2.3	
Peak Hour Factor	0.86	0.82	0.92	0.74	0.72	0.92
Heavy Vehicles (%)	2%	5%	2%	3%	4%	0%
Adj. Flow (vph)	273	245	0	218	304	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	518	0	0	218	304	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.5%		ICU Level of Service A	
Analysis Period (min) 15			

3: School Street & Essex Street Performance by movement

Movement	EBT	EBR	WBT	NBL	NBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.5	0.0	0.7
Total Del/Veh (s)	1.4	0.6	0.6	8.9	1.8	3.1

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB
Directions Served	TR	LT	L
Maximum Queue (ft)	24	8	79
Average Queue (ft)	1	0	37
95th Queue (ft)	12	6	59
Link Distance (ft)	26	17	30
Upstream Blk Time (%)	0	0	43
Queuing Penalty (veh)	0	0	94
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	235	0	16	161	0	12
Future Volume (vph)	235	0	16	161	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected				0.994		
Satd. Flow (prot)	1863	0	0	1812	0	1644
Flt Permitted				0.994		
Satd. Flow (perm)	1863	0	0	1812	0	1644
Link Speed (mph)	30			30	30	
Link Distance (ft)	85			120	91	
Travel Time (s)	1.9			2.7	2.1	
Peak Hour Factor	0.86	0.25	0.54	0.74	0.92	0.55
Heavy Vehicles (%)	2%	0%	13%	3%	0%	0%
Adj. Flow (vph)	273	0	30	218	0	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	273	0	0	248	0	22
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	235	0	16	161	0	12
Future Volume (Veh/h)	235	0	16	161	0	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.25	0.54	0.74	0.92	0.55
Hourly flow rate (vph)	273	0	30	218	0	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			273		551	273
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			273		551	273
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			98		100	97
cM capacity (veh/h)			1229		487	771

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	273	248	22
Volume Left	0	30	0
Volume Right	0	0	22
cSH	1700	1229	771
Volume to Capacity	0.16	0.02	0.03
Queue Length 95th (ft)	0	2	2
Control Delay (s)	0.0	1.2	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	1.2	9.8
Approach LOS			A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	13	67	48	5	6	5
Future Volume (vph)	13	67	48	5	6	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.975		0.932	
Flt Protected		0.992			0.976	
Satd. Flow (prot)	0	1722	1621	0	1571	0
Flt Permitted		0.992			0.976	
Satd. Flow (perm)	0	1722	1621	0	1571	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		137	799		202	
Travel Time (s)		3.1	18.2		4.6	
Peak Hour Factor	0.75	0.76	0.68	0.31	0.50	0.42
Heavy Vehicles (%)	17%	8%	4%	60%	0%	20%
Adj. Flow (vph)	17	88	71	16	12	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	105	87	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 20.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	67	48	5	6	5
Future Volume (Veh/h)	13	67	48	5	6	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.76	0.68	0.31	0.50	0.42
Hourly flow rate (vph)	17	88	71	16	12	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	87				201	79
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	87				201	79
tC, single (s)	4.3				6.4	6.4
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.5
p0 queue free %	99				98	99
cM capacity (veh/h)	1420				783	934

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	105	87	24
Volume Left	17	0	12
Volume Right	0	16	12
cSH	1420	1700	852
Volume to Capacity	0.01	0.05	0.03
Queue Length 95th (ft)	1	0	2
Control Delay (s)	1.3	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	1.3	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	184	3	9	3	234	5	0	1	0	0
Future Volume (vph)	0	184	3	9	3	234	5	0	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.955				
Flt Protected						0.997	0.968				
Satd. Flow (prot)	0	1567	0	0	0	1810	1756	0	0	0	0
Flt Permitted						0.997	0.968				
Satd. Flow (perm)	0	1567	0	0	0	1810	1756	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	120					735	480			767	
Travel Time (s)	2.7					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	190	4	16	8	325	8	0	4	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	194	0	0	0	349	12	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 31.2%	ICU Level of Service A
Analysis Period (min) 15	

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	0.4	0.2	0.2	3.4	3.8	0.5	8.7	1.2	7.4	0.5

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	11	46	29
Average Queue (ft)	0	4	5
95th Queue (ft)	9	25	22
Link Distance (ft)	59	712	402
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	37	6	12	1	0	0	1	165	46	14	187	4
Future Volume (vph)	37	6	12	1	0	0	1	165	46	14	187	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970						0.965			0.995	
Flt Protected		0.968			0.950			0.999			0.996	
Satd. Flow (prot)	0	1622	0	0	1805	0	0	1720	0	0	1764	0
Flt Permitted		0.968			0.950			0.999			0.996	
Satd. Flow (perm)	0	1622	0	0	1805	0	0	1720	0	0	1764	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			446			799	
Travel Time (s)		4.0			10.9			10.1			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	64	12	22	4	0	0	4	196	71	26	275	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	0	4	0	0	271	0	0	313	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	37	6	12	1	0	0	1	165	46	14	187	4
Future Volume (Veh/h)	37	6	12	1	0	0	1	165	46	14	187	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	64	12	22	4	0	0	4	196	71	26	275	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	572	578	232	600	608	281	287			267		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	572	578	232	600	608	281	287			267		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	85	97	97	99	100	100	100			98		
cM capacity (veh/h)	416	418	750	386	402	763	1287			1110		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	98	4	271	313
Volume Left	64	4	4	26
Volume Right	22	0	71	12
cSH	463	386	1287	1110
Volume to Capacity	0.21	0.01	0.00	0.02
Queue Length 95th (ft)	20	1	0	2
Control Delay (s)	14.9	14.4	0.1	0.9
Lane LOS	B	B	A	A
Approach Delay (s)	14.9	14.4	0.1	0.9
Approach LOS	B	B		

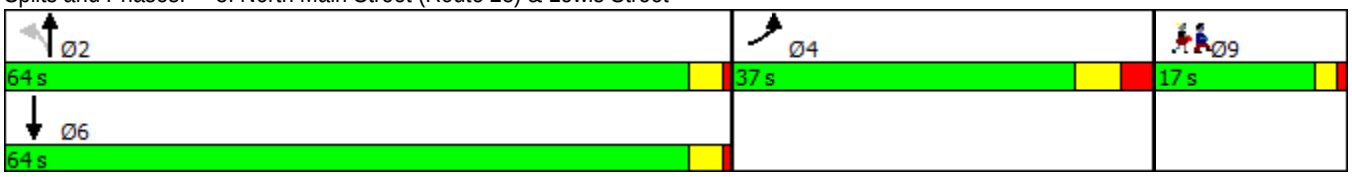
Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	2	13	7	468	603	9	
Future Volume (vph)	2	13	7	468	603	9	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.886				0.997		
Flt Protected	0.992			0.999			
Satd. Flow (prot)	1564	0	0	1821	1819	0	
Flt Permitted	0.992			0.987			
Satd. Flow (perm)	1564	0	0	1799	1819	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	22				1		
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	4	22	12	551	670	13	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	26	0	0	563	683	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1		1	2	2		
Detector Template	Left		Left	Thru	Thru		
Leading Detector (ft)	20		20	100	100		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	20		20	6	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot		Perm	NA	NA		
Protected Phases	4			2	6		9
Permitted Phases			2				
Detector Phase	4		2	2	6		
Switch Phase							

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Minimum Initial (s)	4.0		20.0	20.0	20.0		2.0
Minimum Split (s)	11.0		24.0	24.0	24.0		17.0
Total Split (s)	37.0		64.0	64.0	64.0		17.0
Total Split (%)	31.4%		54.2%	54.2%	54.2%		14%
Maximum Green (s)	30.0		60.0	60.0	60.0		14.0
Yellow Time (s)	4.0		3.0	3.0	3.0		2.0
All-Red Time (s)	3.0		1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0			0.0	0.0		
Total Lost Time (s)	7.0			4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	6.7			45.3	45.3		
Actuated g/C Ratio	0.12			0.83	0.83		
v/c Ratio	0.12			0.38	0.45		
Control Delay	18.5			7.0	7.9		
Queue Delay	0.0			0.0	0.0		
Total Delay	18.5			7.0	7.9		
LOS	B			A	A		
Approach Delay	18.5			7.0	7.9		
Approach LOS	B			A	A		

Intersection Summary	
Area Type: Other	
Cycle Length: 118	
Actuated Cycle Length: 54.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 44.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	26	563	683
v/c Ratio	0.12	0.38	0.45
Control Delay	18.5	7.0	7.9
Queue Delay	0.0	0.0	0.0
Total Delay	18.5	7.0	7.9
Queue Length 50th (ft)	1	0	0
Queue Length 95th (ft)	8	225	331
Internal Link Dist (ft)	561	292	290
Turn Bay Length (ft)			
Base Capacity (vph)	969	1635	1653
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.03	0.34	0.41

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	13	7	468	603	9
Future Volume (vph)	2	13	7	468	603	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.89			1.00	1.00	
Flt Protected	0.99			1.00	1.00	
Satd. Flow (prot)	1564			1821	1820	
Flt Permitted	0.99			0.99	1.00	
Satd. Flow (perm)	1564			1799	1820	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	4	22	12	551	670	12
RTOR Reduction (vph)	21	0	0	0	0	0
Lane Group Flow (vph)	5	0	0	563	683	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	2.0			41.9	41.9	
Effective Green, g (s)	2.0			41.9	41.9	
Actuated g/C Ratio	0.03			0.68	0.68	
Clearance Time (s)	7.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	51			1229	1244	
v/s Ratio Prot	c0.00				c0.38	
v/s Ratio Perm				0.31		
v/c Ratio	0.09			0.46	0.55	
Uniform Delay, d1	28.8			4.5	4.9	
Progression Factor	1.05			1.00	1.00	
Incremental Delay, d2	0.8			0.3	0.5	
Delay (s)	31.0			4.7	5.4	
Level of Service	C			A	A	
Approach Delay (s)	31.0			4.7	5.4	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	61.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	27	60	55	479	588	18
Future Volume (vph)	27	60	55	479	588	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919				0.996	
Flt Protected	0.981			0.993		
Satd. Flow (prot)	1595	0	0	1795	1822	0
Flt Permitted	0.981			0.993		
Satd. Flow (perm)	1595	0	0	1795	1822	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	50	76	89	551	668	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	126	0	0	640	689	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 75.5%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	60	55	479	588	18
Future Volume (Veh/h)	27	60	55	479	588	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	50	76	89	551	668	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.79	0.79	0.79			
vC, conflicting volume	1408	678	689			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1383	464	478			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	54	84	89			
cM capacity (veh/h)	109	466	821			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	126	640	689
Volume Left	50	89	0
Volume Right	76	0	21
cSH	202	821	1700
Volume to Capacity	0.62	0.11	0.41
Queue Length 95th (ft)	90	9	0
Control Delay (s)	48.4	2.8	0.0
Lane LOS	E	A	
Approach Delay (s)	48.4	2.8	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	464	431	0	81	161
Future Volume (vph)	0	464	431	0	81	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	580	484	0	105	189
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	580	484	0	105	189
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	464	431	0	81	161
Future Volume (Veh/h)	0	464	431	0	81	161
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	580	484	0	105	189
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	484				1064	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	484				1064	484
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				58	67
cM capacity (veh/h)	1079				248	581

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	580	484	105	189
Volume Left	0	0	105	0
Volume Right	0	0	0	189
cSH	1700	1700	248	581
Volume to Capacity	0.34	0.28	0.42	0.33
Queue Length 95th (ft)	0	0	50	35
Control Delay (s)	0.0	0.0	29.8	14.2
Lane LOS			D	B
Approach Delay (s)	0.0	0.0	19.7	
Approach LOS			C	

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	367	110	104	478	227	91
Future Volume (vph)	367	110	104	478	227	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969				0.960	
Flt Protected				0.990	0.966	
Satd. Flow (prot)	1837	0	0	1881	1729	0
Flt Permitted				0.990	0.966	
Satd. Flow (perm)	1837	0	0	1881	1729	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	566			582	314	
Travel Time (s)	12.9			13.2	7.1	
Peak Hour Factor	0.73	0.74	0.80	0.88	0.88	0.83
Heavy Vehicles (%)	0%	1%	0%	0%	1%	4%
Adj. Flow (vph)	503	149	130	543	258	110
Shared Lane Traffic (%)						
Lane Group Flow (vph)	652	0	0	673	368	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.0%		ICU Level of Service E	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.0	0.2	0.4	5.2	1.8	7.7
Total Del/Veh (s)	1.5	0.8	6.3	3.0	82.3	69.9	20.5

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	WB	NB	B16	B17
Directions Served	TR	LT	LR	T	T
Maximum Queue (ft)	16	142	346	192	65
Average Queue (ft)	1	46	227	55	10
95th Queue (ft)	7	104	391	212	80
Link Distance (ft)	506	508	259	219	252
Upstream Blk Time (%)			34	8	1
Queuing Penalty (veh)			0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	6	42	22	57	41	8	48	33	84	19	94
Future Volume (vph)	2	6	42	22	57	41	8	48	33	84	19	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%				0%					0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.887				0.954					0.946	
Flt Protected		0.992				0.979					0.977	
Satd. Flow (prot)	0	1647	0	0	0	1775	0	0	0	0	1704	0
Flt Permitted		0.992				0.979					0.977	
Satd. Flow (perm)	0	1647	0	0	0	1775	0	0	0	0	1704	0
Link Speed (mph)		30				30					30	
Link Distance (ft)		137				237					663	
Travel Time (s)		3.1				5.4					15.1	
Peak Hour Factor	0.50	0.50	0.83	0.66	0.56	0.75	0.40	0.77	0.78	0.91	0.50	0.82
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	0%	0%	10%	5%	0%	0%
Adj. Flow (vph)	4	12	51	33	102	55	20	62	42	92	38	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	100	0	0	0	239	0	0	0	0	287	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Left	Right	Right	Left	Left	Left	Right
Median Width(ft)		12				0					0	
Link Offset(ft)		0				0					0	
Crosswalk Width(ft)		16				16					16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	9	15		9	9	15	15		9
Sign Control		Yield				Stop					Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR	NWR2
Lane Configurations								
Traffic Volume (vph)	58	38	295	43	34	389	104	1
Future Volume (vph)	58	38	295	43	34	389	104	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			10%			0%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.986			0.968		
Flt Protected			0.988			0.997		
Satd. Flow (prot)	0	0	1747	0	0	1817	0	0
Flt Permitted			0.988			0.997		
Satd. Flow (perm)	0	0	1747	0	0	1817	0	0
Link Speed (mph)			30			30		
Link Distance (ft)			582			112		
Travel Time (s)			13.2			2.5		
Peak Hour Factor	0.57	0.82	0.71	0.64	0.80	0.85	0.69	0.25
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	4%	0%
Adj. Flow (vph)	102	46	415	67	43	458	151	4
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	630	0	0	656	0	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)			0			0		
Link Offset(ft)			0			0		
Crosswalk Width(ft)			16			16		
Two way Left Turn Lane								
Headway Factor	1.07	1.07	1.07	1.07	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9	9
Sign Control			Free			Free		

Intersection Summary

2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street Performance by movement

Movement	WBL2	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.7	0.5	0.1	0.7	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	46.2	43.9	48.7	47.9	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.0	0.2	0.1	1.8	1.3	0.3	1.4	3.0	8.1	1.8
Total Del/Veh (s)	47.0	28.1	2.0	19.5	14.7	112.7	120.9	116.1	105.3	348.6	374.6	371.5

2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street Performance by movement

Movement	SBR	SEL2	SEL	SET	SER	NWL	NWT	NWR	NWR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
Total Delay (hr)	8.2	0.1	0.1	0.3	0.0	0.0	0.1	0.0	0.0	27.0
Total Del/Veh (s)	347.9	7.5	5.9	3.4	2.3	4.8	1.4	0.8	1.0	69.0

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street & Pearson Street

Movement	WB	NB	SB	B12	SE	NW
Directions Served	<LR>	LTR>	<LTR	T	<LTR	LTR>
Maximum Queue (ft)	61	208	675	280	144	71
Average Queue (ft)	25	144	529	141	38	28
95th Queue (ft)	53	249	833	378	98	54
Link Distance (ft)	53	195	585	289	508	14
Upstream Blk Time (%)	3	31	56	34		5
Queuing Penalty (veh)	2	0	0	0		27
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	250	177	0	238	272	0
Future Volume (vph)	250	177	0	238	272	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.944					
Flt Protected					0.950	
Satd. Flow (prot)	1769	0	0	1900	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1769	0	0	1900	1770	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			67	103	
Travel Time (s)	2.5			1.5	2.3	
Peak Hour Factor	0.77	0.76	0.92	0.87	0.80	0.92
Heavy Vehicles (%)	1%	2%	2%	0%	2%	0%
Adj. Flow (vph)	325	233	0	274	340	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	558	0	0	274	340	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.7%		ICU Level of Service A	
Analysis Period (min) 15			

3: School Street & Essex Street Performance by movement

Movement	EBT	EBR	WBT	NBL	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.7	0.8
Total Del/Veh (s)	1.3	0.5	0.5	9.7	3.3

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB
Directions Served	TR	LT	L
Maximum Queue (ft)	31	11	60
Average Queue (ft)	3	0	30
95th Queue (ft)	19	7	44
Link Distance (ft)	14	5	26
Upstream Blk Time (%)	0	0	53
Queuing Penalty (veh)	0	0	145
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	250	0	5	238	0	35
Future Volume (vph)	250	0	5	238	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected				0.998		
Satd. Flow (prot)	1881	0	0	1896	0	1644
Flt Permitted				0.998		
Satd. Flow (perm)	1881	0	0	1896	0	1644
Link Speed (mph)	30			30	30	
Link Distance (ft)	67			159	93	
Travel Time (s)	1.5			3.6	2.1	
Peak Hour Factor	0.77	0.25	0.42	0.87	0.92	0.75
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	325	0	12	274	0	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	325	0	0	286	0	47
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	250	0	5	238	0	35
Future Volume (Veh/h)	250	0	5	238	0	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.25	0.42	0.87	0.92	0.75
Hourly flow rate (vph)	325	0	12	274	0	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			325		623	325
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			325		623	325
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	93
cM capacity (veh/h)			1246		449	721

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	325	286	47
Volume Left	0	12	0
Volume Right	0	0	47
cSH	1700	1246	721
Volume to Capacity	0.19	0.01	0.07
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	0.4	10.3
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	10.3
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	75	76	1	4	2
Future Volume (vph)	3	75	76	1	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.932	
Flt Protected		0.998			0.976	
Satd. Flow (prot)	0	1801	1871	0	1728	0
Flt Permitted		0.998			0.976	
Satd. Flow (perm)	0	1801	1871	0	1728	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		137	799		202	
Travel Time (s)		3.1	18.2		4.6	
Peak Hour Factor	0.75	0.85	0.82	0.25	1.00	0.50
Heavy Vehicles (%)	33%	4%	1%	0%	0%	0%
Mid-Block Traffic (%)		0%	28%		0%	
Adj. Flow (vph)	4	88	93	4	4	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	92	97	0	8	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	75	76	1	4	2
Future Volume (Veh/h)	3	75	76	1	4	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.85	0.82	0.25	1.00	0.50
Hourly flow rate (vph)	4	88	93	4	4	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	97				191	95
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	97				191	95
tC, single (s)	4.4				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1323				800	967

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	92	97	8
Volume Left	4	0	4
Volume Right	0	4	4
cSH	1323	1700	876
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.4	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	255	7	32	3	236	17	0	5	0	0
Future Volume (vph)	0	255	7	32	3	236	17	0	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.951				
Flt Protected						0.993	0.969				
Satd. Flow (prot)	0	1628	0	0	0	1887	1751	0	0	0	0
Flt Permitted						0.993	0.969				
Satd. Flow (perm)	0	1628	0	0	0	1887	1751	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	159					735	504			748	
Travel Time (s)	3.6					16.7	11.5			17.0	
Peak Hour Factor	0.25	0.77	0.58	0.83	0.38	0.89	0.80	0.25	0.42	0.92	0.92
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	331	12	39	8	265	21	0	12	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	343	0	0	0	312	33	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.2%		ICU Level of Service A	
Analysis Period (min) 15			

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2
Total Del/Veh (s)	0.6	0.4	0.3	4.2	4.6	0.8	11.1	5.8	1.2

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	13	76	46
Average Queue (ft)	0	14	17
95th Queue (ft)	6	50	42
Link Distance (ft)	95	712	426
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	63	5	22	0	0	0	1	127	55	8	243	12
Future Volume (vph)	63	5	22	0	0	0	1	127	55	8	243	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964						0.959			0.992	
Flt Protected		0.967						0.999			0.998	
Satd. Flow (prot)	0	1747	0	0	1900	0	0	1784	0	0	1848	0
Flt Permitted		0.967						0.999			0.998	
Satd. Flow (perm)	0	1747	0	0	1900	0	0	1784	0	0	1848	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		199			504			436			800	
Travel Time (s)		4.5			11.5			9.9			18.2	
Peak Hour Factor	0.65	0.63	0.58	0.25	0.92	0.92	0.25	0.74	0.72	0.50	0.78	0.55
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	0%	2%	0%
Adj. Flow (vph)	97	8	38	0	0	0	4	172	76	16	312	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	143	0	0	0	0	0	252	0	0	350	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	63	5	22	0	0	0	1	127	55	8	243	12
Future Volume (Veh/h)	63	5	22	0	0	0	1	127	55	8	243	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.65	0.63	0.58	0.25	0.92	0.92	0.25	0.74	0.72	0.50	0.78	0.55
Hourly flow rate (vph)	97	8	38	0	0	0	4	172	76	16	312	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	573	584	210	615	611	323	334			248		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	573	584	210	615	611	323	334			248		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	77	98	95	100	100	100	100			99		
cM capacity (veh/h)	425	420	835	378	405	723	1237			1330		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	143	0	252	350
Volume Left	97	0	4	16
Volume Right	38	0	76	22
cSH	489	1700	1237	1330
Volume to Capacity	0.29	0.00	0.00	0.01
Queue Length 95th (ft)	30	0	0	1
Control Delay (s)	15.4	0.0	0.2	0.5
Lane LOS	C	A	A	A
Approach Delay (s)	15.4	0.0	0.2	0.5
Approach LOS	C	A		

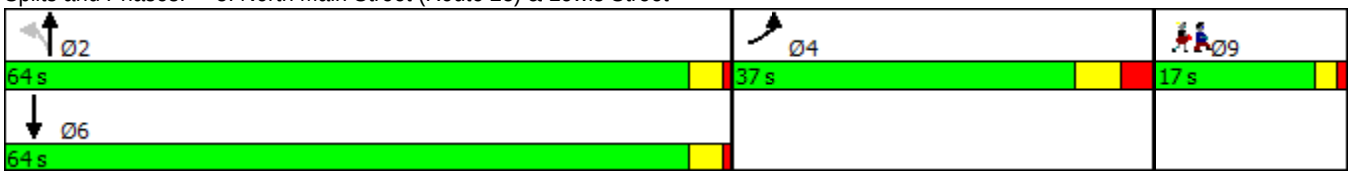
Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	30.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	7	2	5	686	465	7	
Future Volume (vph)	7	2	5	686	465	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.966				0.997		
Flt Protected	0.964			0.999			
Satd. Flow (prot)	1769	0	0	1880	1858	0	
Flt Permitted	0.964			0.995			
Satd. Flow (perm)	1769	0	0	1872	1858	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	4				1		
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.58	0.50	0.63	0.93	0.84	0.58	
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%	
Mid-Block Traffic (%)	60%			0%	0%		
Adj. Flow (vph)	12	4	8	738	554	12	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	16	0	0	746	566	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1		1	2	2		
Detector Template	Left		Left	Thru	Thru		
Leading Detector (ft)	20		20	100	100		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	20		20	6	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot		Perm	NA	NA		
Protected Phases	4			2	6		9
Permitted Phases			2				
Detector Phase	4		2	2	6		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Switch Phase							
Minimum Initial (s)	4.0		19.5	19.5	19.5		2.0
Minimum Split (s)	11.0		24.0	24.0	24.0		17.0
Total Split (s)	37.0		64.0	64.0	64.0		17.0
Total Split (%)	31.4%		54.2%	54.2%	54.2%		14%
Maximum Green (s)	30.0		60.0	60.0	60.0		14.0
Yellow Time (s)	4.0		3.0	3.0	3.0		2.0
All-Red Time (s)	3.0		1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0			0.0	0.0		
Total Lost Time (s)	7.0			4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	Min		None	None	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							13
Act Effct Green (s)	6.6			25.7	25.7		
Actuated g/C Ratio	0.14			0.56	0.56		
v/c Ratio	0.06			0.71	0.55		
Control Delay	22.8			12.6	9.2		
Queue Delay	0.0			0.0	0.0		
Total Delay	22.8			12.6	9.2		
LOS	C			B	A		
Approach Delay	22.8			12.6	9.3		
Approach LOS	C			B	A		

Intersection Summary	
Area Type: Other	
Cycle Length: 118	
Actuated Cycle Length: 46.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 52.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	16	746	566
v/c Ratio	0.06	0.71	0.55
Control Delay	22.8	12.6	9.2
Queue Delay	0.0	0.0	0.0
Total Delay	22.8	12.6	9.2
Queue Length 50th (ft)	2	94	61
Queue Length 95th (ft)	14	364	213
Internal Link Dist (ft)	561	292	290
Turn Bay Length (ft)			
Base Capacity (vph)	1262	1781	1768
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.01	0.42	0.32

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	2	5	686	465	7
Future Volume (vph)	7	2	5	686	465	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.97			1.00	1.00	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	1770			1880	1858	
Flt Permitted	0.96			0.99	1.00	
Satd. Flow (perm)	1770			1871	1858	
Peak-hour factor, PHF	0.58	0.50	0.63	0.93	0.84	0.58
Adj. Flow (vph)	12	4	8	738	554	12
RTOR Reduction (vph)	3	0	0	0	0	0
Lane Group Flow (vph)	13	0	0	746	566	0
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	6.6			25.7	25.7	
Effective Green, g (s)	6.6			25.7	25.7	
Actuated g/C Ratio	0.14			0.54	0.54	
Clearance Time (s)	7.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	244			1008	1001	
v/s Ratio Prot	c0.01				0.30	
v/s Ratio Perm				c0.40		
v/c Ratio	0.05			0.74	0.56	
Uniform Delay, d1	17.8			8.4	7.3	
Progression Factor	1.03			1.00	1.00	
Incremental Delay, d2	0.1			3.0	0.7	
Delay (s)	18.5			11.4	8.0	
Level of Service	B			B	A	
Approach Delay (s)	18.5			11.4	8.0	
Approach LOS	B			B	A	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	47.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	119	39	654	437	17
Future Volume (vph)	46	119	39	654	437	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.901				0.992	
Flt Protected	0.987			0.997		
Satd. Flow (prot)	1647	0	0	1873	1867	0
Flt Permitted	0.987			0.997		
Satd. Flow (perm)	1647	0	0	1873	1867	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.79	0.76	0.93	0.92	0.89	0.57
Heavy Vehicles (%)	7%	1%	3%	1%	1%	0%
Mid-Block Traffic (%)	52%			0%	0%	
Adj. Flow (vph)	58	157	42	711	491	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	215	0	0	753	521	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.5%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	119	39	654	437	17
Future Volume (Veh/h)	46	119	39	654	437	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.76	0.93	0.92	0.89	0.57
Hourly flow rate (vph)	58	157	42	711	491	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.80	0.80	0.80			
vC, conflicting volume	1301	506	521			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1252	259	278			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	59	75	96			
cM capacity (veh/h)	143	626	1025			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	215	753	521
Volume Left	58	42	0
Volume Right	157	0	30
cSH	327	1025	1700
Volume to Capacity	0.66	0.04	0.31
Queue Length 95th (ft)	109	3	0
Control Delay (s)	34.8	1.1	0.0
Lane LOS	D	A	
Approach Delay (s)	34.8	1.1	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	548	332	0	102	198
Future Volume (vph)	0	548	332	0	102	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1900	1881	0	1770	1615
Flt Permitted					0.950	
Satd. Flow (perm)	0	1900	1881	0	1770	1615
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		748	
Travel Time (s)		7.3	1.5		17.0	
Peak Hour Factor	0.92	0.90	0.92	0.92	0.81	0.75
Heavy Vehicles (%)	2%	0%	1%	0%	2%	0%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	609	361	0	126	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	609	361	0	126	264
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	548	332	0	102	198
Future Volume (Veh/h)	0	548	332	0	102	198
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.90	0.92	0.92	0.81	0.75
Hourly flow rate (vph)	0	609	361	0	126	264
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	361				970	361
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	361				970	361
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				55	62
cM capacity (veh/h)	1198				281	688

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	609	361	126	264
Volume Left	0	0	126	0
Volume Right	0	0	0	264
cSH	1700	1700	281	688
Volume to Capacity	0.36	0.21	0.45	0.38
Queue Length 95th (ft)	0	0	55	45
Control Delay (s)	0.0	0.0	27.8	13.5
Lane LOS			D	B
Approach Delay (s)	0.0	0.0	18.1	
Approach LOS			C	

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	474	171	59	287	80	88
Future Volume (vph)	474	171	59	287	80	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		150	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.961					0.850
Flt Protected				0.991	0.950	
Satd. Flow (prot)	1783	0	0	1825	1752	1509
Flt Permitted				0.991	0.950	
Satd. Flow (perm)	1783	0	0	1825	1752	1509
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			561	314	
Travel Time (s)	13.1			12.8	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	504	204	80	350	101	110
Shared Lane Traffic (%)						
Lane Group Flow (vph)	708	0	0	430	101	110
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.4	0.1	0.1	0.2	0.5	0.2	1.4
Total Del/Veh (s)	2.8	1.5	8.7	2.7	20.4	7.1	4.4

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	B15	WB	NB	NB	B16	B17
Directions Served	TR	T	LT	L	R	T	T
Maximum Queue (ft)	40	12	150	98	92	7	2
Average Queue (ft)	4	1	42	42	40	1	0
95th Queue (ft)	60	40	109	78	78	20	5
Link Distance (ft)	516	469	486		260	219	252
Upstream Blk Time (%)	0	0			0	0	
Queuing Penalty (veh)	0	0			0	0	
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				0	0		
Queuing Penalty (veh)				0	0		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	429	117	105	241	160	0	0	0	135	46	74
Future Volume (vph)	76	429	117	105	241	160	0	0	0	135	46	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970			0.948						0.968	
Flt Protected		0.994			0.990						0.974	
Satd. Flow (prot)	0	1699	0	0	1715	0	0	0	0	0	1719	0
Flt Permitted		0.994			0.990						0.974	
Satd. Flow (perm)	0	1699	0	0	1715	0	0	0	0	0	1719	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		561			140			237			663	
Travel Time (s)		12.8			3.2			5.4			15.1	
Peak Hour Factor	0.80	0.89	0.70	0.72	0.85	0.60	0.46	0.50	0.40	0.67	0.55	0.83
Heavy Vehicles (%)	4%	3%	0%	2%	4%	5%	0%	10%	0%	7%	0%	2%
Adj. Flow (vph)	95	482	167	146	284	267	0	0	0	201	84	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	744	0	0	697	0	0	0	0	0	374	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 67.0%	ICU Level of Service C
Analysis Period (min) 15	

2: Dundee Park Drive/Railroad Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.2	0.9	0.3	0.0	0.1	0.2	0.0	0.0	0.0	0.3
Total Delay (hr)	0.2	0.7	0.1	0.2	0.2	0.1	9.4	3.3	5.0	19.3
Total Del/Veh (s)	6.9	5.7	4.0	8.3	2.9	2.3	259.5	255.1	245.9	49.6

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street

Movement	EB	WB	SB	B12
Directions Served	LTR	LTR	LTR	T
Maximum Queue (ft)	197	117	666	235
Average Queue (ft)	55	58	476	84
95th Queue (ft)	157	107	816	291
Link Distance (ft)	486	69	592	289
Upstream Blk Time (%)	1	6	39	16
Queuing Penalty (veh)	4	32	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	235	318	16	161	0	297	0	12	0	16	49
Future Volume (vph)	14	235	318	16	161	0	297	0	12	0	16	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.926						0.850			0.898	
Flt Protected		0.999			0.996		0.950					
Satd. Flow (prot)	0	1723	0	0	1839	0	1770	1583	0	0	1673	0
Flt Permitted		0.999			0.996		0.950					
Satd. Flow (perm)	0	1723	0	0	1839	0	1770	1583	0	0	1673	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		140			174			558			98	
Travel Time (s)		3.2			4.0			12.7			2.2	
Peak Hour Factor	0.92	0.86	0.92	0.92	0.74	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	15	273	346	17	218	0	323	0	13	0	17	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	634	0	0	235	0	323	13	0	0	70	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 65.0%	ICU Level of Service C
Analysis Period (min) 15	

3: School Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.1	0.0	0.1	3.0	0.0	0.0	0.1	0.1	3.6
Total Del/Veh (s)	2.7	2.1	0.8	6.7	0.9	36.8	2.7	9.7	18.2	9.0	10.8

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	64	72	331	149	51
Average Queue (ft)	7	11	137	20	30
95th Queue (ft)	34	44	280	91	52
Link Distance (ft)	69	98	488		37
Upstream Blk Time (%)	0	0	0		5
Queuing Penalty (veh)	1	0	0		3
Storage Bay Dist (ft)				150	
Storage Blk Time (%)			17	0	
Queuing Penalty (veh)			2	0	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	48	32	14	0	0	17
Future Volume (vph)	48	32	14	0	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.946					
Flt Protected	0.971					
Satd. Flow (prot)	1711	0	1863	0	0	1863
Flt Permitted	0.971					
Satd. Flow (perm)	1711	0	1863	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	799		98			202
Travel Time (s)	18.2		2.2			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	35	15	0	0	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	0	15	0	0	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 14.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	48	32	14	0	0	17
Future Volume (Veh/h)	48	32	14	0	0	17
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	35	15	0	0	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						843
pX, platoon unblocked						
vC, conflicting volume	33	15			15	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	33	15			15	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			100	
cM capacity (veh/h)	980	1065			1603	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	87	15	18
Volume Left	52	0	0
Volume Right	35	0	0
cSH	1013	1700	1700
Volume to Capacity	0.09	0.01	0.01
Queue Length 95th (ft)	7	0	0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.9	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	184	3	9	3	234	5	0	1	0	0
Future Volume (vph)	0	184	3	9	3	234	5	0	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.955				
Flt Protected						0.997	0.968				
Satd. Flow (prot)	0	1567	0	0	0	1810	1756	0	0	0	0
Flt Permitted						0.997	0.968				
Satd. Flow (perm)	0	1567	0	0	0	1810	1756	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	174					735	480			767	
Travel Time (s)	4.0					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	190	4	16	8	325	8	0	4	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	194	0	0	0	349	12	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 31.2%	ICU Level of Service A
Analysis Period (min) 15	

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	1.0	0.6	0.6	3.2	3.5	0.5	10.0	1.3	6.0	0.8

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	2	47	29
Average Queue (ft)	0	4	5
95th Queue (ft)	2	23	22
Link Distance (ft)	98	712	405
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	41	6	12	1	0	0	1	276	68	14	261	4
Future Volume (vph)	41	6	12	1	0	0	1	276	68	14	261	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972						0.968			0.996	
Flt Protected		0.967			0.950						0.997	
Satd. Flow (prot)	0	1628	0	0	1805	0	0	1729	0	0	1779	0
Flt Permitted		0.967			0.950						0.997	
Satd. Flow (perm)	0	1628	0	0	1805	0	0	1729	0	0	1779	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			558			799	
Travel Time (s)		4.0			10.9			12.7			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	71	12	22	4	0	0	4	329	105	26	384	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	105	0	0	4	0	0	438	0	0	422	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	41	6	12	1	0	0	1	276	68	14	261	4
Future Volume (Veh/h)	41	6	12	1	0	0	1	276	68	14	261	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	71	12	22	4	0	0	4	329	105	26	384	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	832	838	382	860	884	390	396			434		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	832	838	382	860	884	390	396			434		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	74	96	96	98	100	100	100			97		
cM capacity (veh/h)	277	295	614	254	278	663	1174			954		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	105	4	438	422
Volume Left	71	4	4	26
Volume Right	22	0	105	12
cSH	316	254	1174	954
Volume to Capacity	0.33	0.02	0.00	0.03
Queue Length 95th (ft)	35	1	0	2
Control Delay (s)	22.0	19.4	0.1	0.8
Lane LOS	C	C	A	A
Approach Delay (s)	22.0	19.4	0.1	0.8
Approach LOS	C	C		

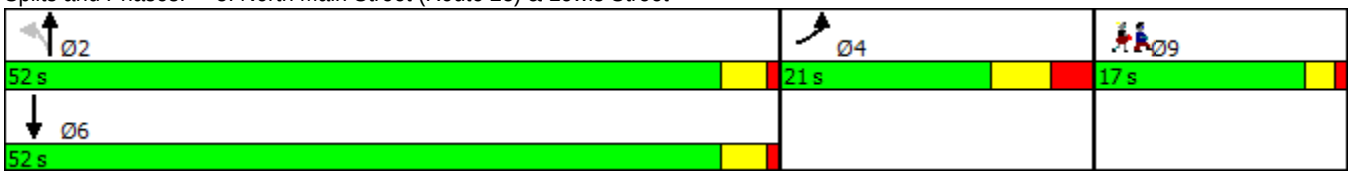
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	88	69	76	441	603	77	
Future Volume (vph)	88	69	76	441	603	77	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	100			0	
Storage Lanes	1	0	1			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.947				0.981		
Flt Protected	0.971		0.950				
Satd. Flow (prot)	1694	0	1583	1827	1776	0	
Flt Permitted	0.971		0.206				
Satd. Flow (perm)	1694	0	343	1827	1776	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	31				14		
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	176	115	131	519	670	107	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	291	0	131	519	777	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1		1	2	2		
Detector Template	Left		Left	Thru	Thru		
Leading Detector (ft)	20		20	100	100		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	20		20	6	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot		Perm	NA	NA		
Protected Phases	4			2	6		9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Permitted Phases			2				
Detector Phase	4		2	2	6		
Switch Phase							
Minimum Initial (s)	4.0		20.0	20.0	20.0		2.0
Minimum Split (s)	11.0		24.0	24.0	24.0		17.0
Total Split (s)	21.0		52.0	52.0	52.0		17.0
Total Split (%)	23.3%		57.8%	57.8%	57.8%		19%
Maximum Green (s)	14.0		48.0	48.0	48.0		14.0
Yellow Time (s)	4.0		3.0	3.0	3.0		2.0
All-Red Time (s)	3.0		1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0		
Total Lost Time (s)	7.0		4.0	4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	14.2		46.4	46.4	46.4		
Actuated g/C Ratio	0.18		0.60	0.60	0.60		
v/c Ratio	0.86		0.64	0.47	0.72		
Control Delay	56.1		30.7	11.5	17.2		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	56.1		30.7	11.5	17.2		
LOS	E		C	B	B		
Approach Delay	56.1			15.4	17.2		
Approach LOS	E			B	B		

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 77.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 23.1	Intersection LOS: C
Intersection Capacity Utilization 74.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street



Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	291	131	519	777
v/c Ratio	0.86	0.64	0.47	0.72
Control Delay	56.1	30.7	11.5	17.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	56.1	30.7	11.5	17.2
Queue Length 50th (ft)	114	28	96	178
Queue Length 95th (ft)	111	60	235	489
Internal Link Dist (ft)	561		292	290
Turn Bay Length (ft)		100		
Base Capacity (vph)	337	217	1155	1128
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.86	0.60	0.45	0.69

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	88	69	76	441	603	77
Future Volume (vph)	88	69	76	441	603	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.95		1.00	1.00	0.98	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1692		1583	1827	1776	
Flt Permitted	0.97		0.21	1.00	1.00	
Satd. Flow (perm)	1692		344	1827	1776	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	176	115	131	519	670	107
RTOR Reduction (vph)	25	0	0	0	6	0
Lane Group Flow (vph)	266	0	131	519	771	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	14.2		46.4	46.4	46.4	
Effective Green, g (s)	14.2		46.4	46.4	46.4	
Actuated g/C Ratio	0.18		0.59	0.59	0.59	
Clearance Time (s)	7.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	304		202	1075	1045	
v/s Ratio Prot	c0.16			0.28	c0.43	
v/s Ratio Perm			0.38			
v/c Ratio	0.87		0.65	0.48	0.74	
Uniform Delay, d1	31.4		10.8	9.3	11.8	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	23.1		7.0	0.3	2.8	
Delay (s)	54.5		17.8	9.6	14.5	
Level of Service	D		B	A	B	
Approach Delay (s)	54.5			11.3	14.5	
Approach LOS	D			B	B	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	55	548	644	18
Future Volume (vph)	0	0	55	548	644	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.996	
Flt Protected				0.994		
Satd. Flow (prot)	0	0	0	1799	1822	0
Flt Permitted				0.994		
Satd. Flow (perm)	0	0	0	1799	1822	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	0	0	89	630	732	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	719	753	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 73.5%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	55	548	644	18
Future Volume (Veh/h)	0	0	55	548	644	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	0	0	89	630	732	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.69	0.69	0.69			
vC, conflicting volume	1550	742	753			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1573	404	420			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	100	100	88			
cM capacity (veh/h)	72	439	752			

Direction, Lane #	NB 1	SB 1
Volume Total	719	753
Volume Left	89	0
Volume Right	0	21
cSH	752	1700
Volume to Capacity	0.12	0.44
Queue Length 95th (ft)	10	0
Control Delay (s)	3.0	0.0
Lane LOS	A	
Approach Delay (s)	3.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	533	481	0	81	161
Future Volume (vph)	0	533	481	0	81	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	666	540	0	105	189
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	666	540	0	105	189
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	533	481	0	81	161
Future Volume (Veh/h)	0	533	481	0	81	161
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	666	540	0	105	189
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	540				1206	540
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540				1206	540
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				48	65
cM capacity (veh/h)	1028				204	540

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	666	540	105	189
Volume Left	0	0	105	0
Volume Right	0	0	0	189
cSH	1700	1700	204	540
Volume to Capacity	0.39	0.32	0.52	0.35
Queue Length 95th (ft)	0	0	66	39
Control Delay (s)	0.0	0.0	40.1	15.2
Lane LOS			E	C
Approach Delay (s)	0.0	0.0	24.1	
Approach LOS			C	

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	387	110	107	535	227	104
Future Volume (vph)	387	110	107	535	227	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		150	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.967					0.850
Flt Protected				0.991	0.950	
Satd. Flow (prot)	1792	0	0	1825	1752	1509
Flt Permitted				0.991	0.950	
Satd. Flow (perm)	1792	0	0	1825	1752	1509
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			560	314	
Travel Time (s)	13.1			12.7	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	412	131	145	652	287	130
Shared Lane Traffic (%)						
Lane Group Flow (vph)	543	0	0	797	287	130
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.1	0.0	0.0	0.1	0.6	0.1	0.9
Total Del/Veh (s)	3.8	1.8	6.5	3.0	56.7	15.9	13.3

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	B15	WB	NB	NB	B16	B17
Directions Served	TR	T	LT	L	R	T	T
Maximum Queue (ft)	17	12	94	161	182	32	18
Average Queue (ft)	8	3	45	124	107	17	6
95th Queue (ft)	114	61	124	200	294	114	62
Link Distance (ft)	514	469	484		262	219	252
Upstream Blk Time (%)	1	0			11	3	0
Queuing Penalty (veh)	0	0			0	0	0
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				23	1		
Queuing Penalty (veh)				24	3		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	444	59	53	440	145	0	0	0	135	28	113
Future Volume (vph)	133	444	59	53	440	145	0	0	0	135	28	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.961						0.953	
Flt Protected		0.989			0.996						0.975	
Satd. Flow (prot)	0	1709	0	0	1747	0	0	1727	0	0	1692	0
Flt Permitted		0.989			0.996						0.975	
Satd. Flow (perm)	0	1709	0	0	1747	0	0	1727	0	0	1692	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		560			142			237			663	
Travel Time (s)		12.7			3.2			5.4			15.1	
Peak Hour Factor	0.80	0.89	0.70	0.72	0.85	0.60	0.46	0.50	0.40	0.67	0.55	0.83
Heavy Vehicles (%)	4%	3%	0%	2%	4%	5%	0%	10%	0%	7%	0%	2%
Adj. Flow (vph)	166	499	84	74	518	242	0	0	0	201	51	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	749	0	0	834	0	0	0	0	0	388	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 87.7%	ICU Level of Service E
Analysis Period (min) 15	

2: Dundee Park Drive/Railroad Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.8	0.5	1.0	0.0	0.6	0.3	0.0	0.0	0.0	0.4
Total Delay (hr)	0.1	0.2	0.0	0.0	0.0	0.0	1.3	0.3	1.0	3.0
Total Del/Veh (s)	14.3	8.7	7.6	11.4	2.3	2.3	199.9	182.2	185.7	41.6

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street

Movement	EB	WB	SB	B12
Directions Served	LTR	LTR	LTR	T
Maximum Queue (ft)	207	74	609	83
Average Queue (ft)	110	39	436	25
95th Queue (ft)	273	95	712	135
Link Distance (ft)	484	52	593	289
Upstream Blk Time (%)	2	5	16	1
Queuing Penalty (veh)	8	33	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	250	317	5	238	0	312	0	35	0	9	71
Future Volume (vph)	11	250	317	5	238	0	312	0	35	0	9	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.891						0.850			0.881	
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	1686	0	0	1838	0	1805	1615	0	0	1641	0
Flt Permitted					0.999		0.950					
Satd. Flow (perm)	0	1686	0	0	1838	0	1805	1615	0	0	1641	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		142			172			535			103	
Travel Time (s)		3.2			3.9			12.2			2.3	
Peak Hour Factor	0.92	0.86	0.25	0.54	0.74	0.92	0.92	0.92	0.55	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	0%	13%	3%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	12	291	1268	9	322	0	339	0	64	0	10	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1571	0	0	331	0	339	64	0	0	87	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 69.1%	ICU Level of Service C
Analysis Period (min) 15	

4: School Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.7
Total Del/Veh (s)	2.4	2.3	0.8	3.9	0.8	39.8	4.7	18.2	22.9	10.5	12.9

Intersection: 4: School Street & Essex Street

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	26	14	236	93	46
Average Queue (ft)	7	3	158	43	33
95th Queue (ft)	38	24	320	124	56
Link Distance (ft)	52	93	447		41
Upstream Blk Time (%)	0	0	1		6
Queuing Penalty (veh)	1	0	2		5
Storage Bay Dist (ft)				100	
Storage Blk Time (%)			36	0	
Queuing Penalty (veh)			13	0	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	47	11	0	0	4
Future Volume (vph)	76	47	11	0	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949					
Flt Protected	0.970					
Satd. Flow (prot)	1715	0	1863	0	0	1863
Flt Permitted	0.970					
Satd. Flow (perm)	1715	0	1863	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	799		103			202
Travel Time (s)	18.2		2.3			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	51	12	0	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	0	12	0	0	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	76	47	11	0	0	4
Future Volume (Veh/h)	76	47	11	0	0	4
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	83	51	12	0	0	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						843
pX, platoon unblocked						
vC, conflicting volume	16	12			12	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	12			12	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	95			100	
cM capacity (veh/h)	1002	1069			1607	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	134	12	4
Volume Left	83	0	0
Volume Right	51	0	0
cSH	1027	1700	1700
Volume to Capacity	0.13	0.01	0.00
Queue Length 95th (ft)	11	0	0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	255	7	32	3	236	17	0	5	0	0
Future Volume (vph)	0	255	7	32	3	236	17	0	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.943				
Flt Protected						0.992	0.972				
Satd. Flow (prot)	0	1568	0	0	0	1809	1742	0	0	0	0
Flt Permitted						0.992	0.972				
Satd. Flow (perm)	0	1568	0	0	0	1809	1742	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	172					735	480			767	
Travel Time (s)	3.9					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	263	9	57	8	328	27	0	20	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	272	0	0	0	393	47	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 37.2%	ICU Level of Service A
Analysis Period (min) 15	

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.1	0.2	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.1	0.8	0.9	3.5	1.9	0.8	7.1	4.9	1.3

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	1	36	30
Average Queue (ft)	0	11	14
95th Queue (ft)	4	40	39
Link Distance (ft)	93	712	390
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	66	5	22	0	0	0	1	259	72	8	280	12
Future Volume (vph)	66	5	22	0	0	0	1	259	72	8	280	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967						0.965			0.990	
Flt Protected		0.966									0.998	
Satd. Flow (prot)	0	1602	0	0	1900	0	0	1721	0	0	1791	0
Flt Permitted		0.966									0.998	
Satd. Flow (perm)	0	1602	0	0	1900	0	0	1721	0	0	1791	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			535			799	
Travel Time (s)		4.0			10.9			12.2			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	114	10	40	0	0	0	4	308	111	15	412	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	164	0	0	0	0	0	423	0	0	463	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	66	5	22	0	0	0	1	259	72	8	280	12
Future Volume (Veh/h)	66	5	22	0	0	0	1	259	72	8	280	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	114	10	40	0	0	0	4	308	111	15	412	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	832	850	364	876	887	430	448			419		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	832	850	364	876	887	430	448			419		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	59	97	94	100	100	100	100			98		
cM capacity (veh/h)	280	294	629	244	280	629	1123			967		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	164	0	423	463
Volume Left	114	0	4	15
Volume Right	40	0	111	36
cSH	325	1700	1123	967
Volume to Capacity	0.50	0.00	0.00	0.02
Queue Length 95th (ft)	67	0	0	1
Control Delay (s)	26.9	0.0	0.1	0.5
Lane LOS	D	A	A	A
Approach Delay (s)	26.9	0.0	0.1	0.5
Approach LOS	D	A		

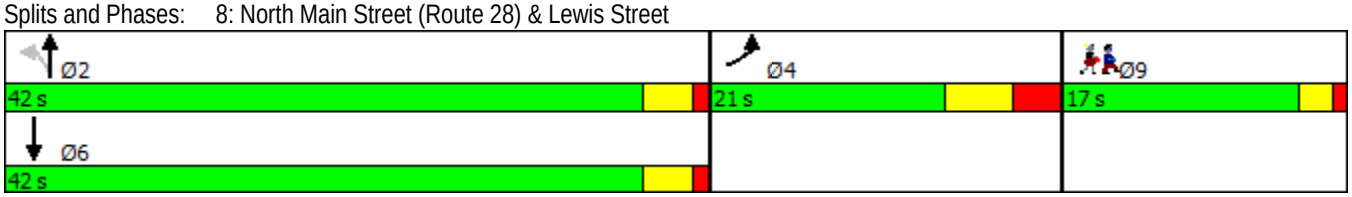
Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	113	46	70	640	465	51	
Future Volume (vph)	113	46	70	640	465	51	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	100			0	
Storage Lanes	1	0	1			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.966				0.984		
Flt Protected	0.964		0.950				
Satd. Flow (prot)	1734	0	1583	1827	1783	0	
Flt Permitted	0.964		0.272				
Satd. Flow (perm)	1734	0	453	1827	1783	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	19				12		
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	226	77	121	753	517	71	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	303	0	121	753	588	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1		1	2	2		
Detector Template	Left		Left	Thru	Thru		
Leading Detector (ft)	20		20	100	100		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	20		20	6	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot		Perm	NA	NA		
Protected Phases	4			2	6		9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Permitted Phases			2				
Detector Phase	4		2	2	6		
Switch Phase							
Minimum Initial (s)	4.0		20.0	20.0	20.0		2.0
Minimum Split (s)	11.0		24.0	24.0	24.0		17.0
Total Split (s)	21.0		42.0	42.0	42.0		17.0
Total Split (%)	26.3%		52.5%	52.5%	52.5%		21%
Maximum Green (s)	14.0		38.0	38.0	38.0		14.0
Yellow Time (s)	4.0		3.0	3.0	3.0		2.0
All-Red Time (s)	3.0		1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0		
Total Lost Time (s)	7.0		4.0	4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	14.5		30.3	30.3	30.3		
Actuated g/C Ratio	0.24		0.50	0.50	0.50		
v/c Ratio	0.71		0.54	0.83	0.66		
Control Delay	36.5		23.6	24.5	16.7		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	36.5		23.6	24.5	16.7		
LOS	D		C	C	B		
Approach Delay	36.5			24.3	16.7		
Approach LOS	D			C	B		

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 61.1	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 23.9	Intersection LOS: C
Intersection Capacity Utilization 65.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street



Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	303	121	753	588
v/c Ratio	0.71	0.54	0.83	0.66
Control Delay	36.5	23.6	24.5	16.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	36.5	23.6	24.5	16.7
Queue Length 50th (ft)	83	22	169	113
Queue Length 95th (ft)	107	49	#431	317
Internal Link Dist (ft)	561		292	290
Turn Bay Length (ft)		100		
Base Capacity (vph)	433	296	1197	1172
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.70	0.41	0.63	0.50

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 (vph)	113	46	70	640	465	51
Future Volume (vph)	113	46	70	640	465	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.97		1.00	1.00	0.98	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	1734		1583	1827	1783	
Flt Permitted	0.96		0.27	1.00	1.00	
Satd. Flow (perm)	1734		454	1827	1783	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	226	77	121	753	517	71
RTOR Reduction (vph)	15	0	0	0	6	0
Lane Group Flow (vph)	288	0	121	753	582	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	14.5		30.3	30.3	30.3	
Effective Green, g (s)	14.5		30.3	30.3	30.3	
Actuated g/C Ratio	0.23		0.48	0.48	0.48	
Clearance Time (s)	7.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	401		219	884	863	
v/s Ratio Prot	c0.17			c0.41	0.33	
v/s Ratio Perm			0.27			
v/c Ratio	0.72		0.55	0.85	0.67	
Uniform Delay, d1	22.2		11.4	14.2	12.4	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	6.1		3.0	7.9	2.1	
Delay (s)	28.3		14.4	22.1	14.5	
Level of Service	C		B	C	B	
Approach Delay (s)	28.3			21.1	14.5	
Approach LOS	C			C	B	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	39	719	481	17
Future Volume (vph)	0	0	39	719	481	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.995	
Flt Protected				0.996		
Satd. Flow (prot)	0	0	0	1810	1820	0
Flt Permitted				0.996		
Satd. Flow (perm)	0	0	0	1810	1820	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	0	0	63	826	547	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	889	567	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 73.0%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	39	719	481	17
Future Volume (Veh/h)	0	0	39	719	481	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	0	0	63	826	547	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.77	0.77	0.77			
vC, conflicting volume	1509	557	567			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1512	269	282			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	100	100	93			
cM capacity (veh/h)	91	581	938			

Direction, Lane #	NB 1	SB 1
Volume Total	889	567
Volume Left	63	0
Volume Right	0	20
cSH	938	1700
Volume to Capacity	0.07	0.33
Queue Length 95th (ft)	5	0
Control Delay (s)	1.8	0.0
Lane LOS	A	
Approach Delay (s)	1.8	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	613	372	0	102	198
Future Volume (vph)	0	613	372	0	102	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	766	418	0	132	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	766	418	0	132	233
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	613	372	0	102	198
Future Volume (Veh/h)	0	613	372	0	102	198
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	766	418	0	132	233
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	418				1184	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	418				1184	418
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				37	63
cM capacity (veh/h)	1141				210	633

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	766	418	132	233
Volume Left	0	0	132	0
Volume Right	0	0	0	233
cSH	1700	1700	210	633
Volume to Capacity	0.45	0.25	0.63	0.37
Queue Length 95th (ft)	0	0	92	42
Control Delay (s)	0.0	0.0	47.3	14.0
Lane LOS			E	B
Approach Delay (s)	0.0	0.0	26.0	
Approach LOS			D	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	476	171	50	288	80	57
Future Volume (vph)	476	171	50	288	80	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		150	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.961					0.850
Flt Protected				0.992	0.950	
Satd. Flow (prot)	1783	0	0	1827	1752	1509
Flt Permitted				0.992	0.950	
Satd. Flow (perm)	1783	0	0	1827	1752	1509
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			561	314	
Travel Time (s)	13.1			12.8	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	506	204	68	351	101	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	710	0	0	419	101	71
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.8%		ICU Level of Service C	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.1	0.1	0.2	0.4	0.1	1.2
Total Del/Veh (s)	2.3	1.2	8.4	2.4	18.7	5.4	3.7

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	WB	NB	NB
Directions Served	TR	LT	L	R
Maximum Queue (ft)	24	150	96	77
Average Queue (ft)	2	39	41	31
95th Queue (ft)	13	105	77	61
Link Distance (ft)	516	486		260
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			150	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	406	73	0	241	160	0	0	0	135	41	74
Future Volume (vph)	91	406	73	0	241	160	0	0	0	135	41	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979			0.935						0.967	
Flt Protected		0.992									0.973	
Satd. Flow (prot)	0	1707	0	0	1700	0	0	0	0	0	1713	0
Flt Permitted		0.992									0.973	
Satd. Flow (perm)	0	1707	0	0	1700	0	0	0	0	0	1713	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		561			140			237			663	
Travel Time (s)		12.8			3.2			5.4			15.1	
Peak Hour Factor	0.80	0.89	0.70	0.72	0.85	0.60	0.46	0.50	0.40	0.67	0.55	0.83
Heavy Vehicles (%)	4%	3%	0%	2%	4%	5%	0%	10%	0%	7%	0%	2%
Adj. Flow (vph)	114	456	104	0	284	267	0	0	0	201	75	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	674	0	0	551	0	0	0	0	0	365	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 77.4%	ICU Level of Service D
Analysis Period (min) 15	

2: Dundee Park Drive/Railroad Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.4	0.0	0.1	0.0	1.7	0.5	0.8	3.7
Total Del/Veh (s)	6.0	3.8	2.3	1.2	0.7	45.1	47.1	35.2	11.0

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street

Movement	EB	WB	SB	B12
Directions Served	LTR	LTR	LTR	T
Maximum Queue (ft)	148	55	347	6
Average Queue (ft)	40	6	136	1
95th Queue (ft)	107	31	307	19
Link Distance (ft)	486	69	592	289
Upstream Blk Time (%)		0	1	
Queuing Penalty (veh)		0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	231	299	16	131	0	197	0	12	0	16	49
Future Volume (vph)	14	231	299	16	131	0	197	0	12	0	16	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.928						0.850			0.898	
Flt Protected		0.999			0.996		0.950					
Satd. Flow (prot)	0	1727	0	0	1839	0	1770	1583	0	0	1673	0
Flt Permitted		0.999			0.996		0.950					
Satd. Flow (perm)	0	1727	0	0	1839	0	1770	1583	0	0	1673	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		140			174			558			98	
Travel Time (s)		3.2			4.0			12.7			2.2	
Peak Hour Factor	0.92	0.86	0.92	0.92	0.74	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	15	269	325	17	177	0	214	0	13	0	17	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	609	0	0	194	0	214	13	0	0	70	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 57.6%	ICU Level of Service B
Analysis Period (min) 15	

3: School Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.1	0.0	0.0	0.8	0.0	0.0	0.1	0.1	1.3
Total Del/Veh (s)	2.2	1.9	0.7	7.0	0.6	15.2	0.7	4.8	7.8	5.3	4.2

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	49	63	152	39	52
Average Queue (ft)	5	9	64	9	29
95th Queue (ft)	26	38	117	34	52
Link Distance (ft)	69	98	488		37
Upstream Blk Time (%)	0	0			4
Queuing Penalty (veh)	0	0			3
Storage Bay Dist (ft)				150	
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	65	185	14	0	0	17
Future Volume (vph)	65	185	14	0	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.900					
Flt Protected	0.987					
Satd. Flow (prot)	1655	0	1863	0	0	1863
Flt Permitted	0.987					
Satd. Flow (perm)	1655	0	1863	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	799		98			202
Travel Time (s)	18.2		2.2			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	201	15	0	0	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	272	0	15	0	0	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 25.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	65	185	14	0	0	17
Future Volume (Veh/h)	65	185	14	0	0	17
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	201	15	0	0	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						843
pX, platoon unblocked						
vC, conflicting volume	33	15			15	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	33	15			15	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	81			100	
cM capacity (veh/h)	980	1065			1603	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	272	15	18
Volume Left	71	0	0
Volume Right	201	0	0
cSH	1041	1700	1700
Volume to Capacity	0.26	0.01	0.01
Queue Length 95th (ft)	26	0	0
Control Delay (s)	9.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	180	3	9	3	204	5	0	1	0	0
Future Volume (vph)	0	180	3	9	3	204	5	0	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.955				
Flt Protected						0.996	0.968				
Satd. Flow (prot)	0	1567	0	0	0	1809	1756	0	0	0	0
Flt Permitted						0.996	0.968				
Satd. Flow (perm)	0	1567	0	0	0	1809	1756	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	174					735	480			767	
Travel Time (s)	4.0					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	186	4	16	8	283	8	0	4	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	190	0	0	0	307	12	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 29.4%	ICU Level of Service A
Analysis Period (min) 15	

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	1.0	0.6	0.6	3.3	3.1	0.5	8.8	1.6	7.0	0.8

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	1	48	30
Average Queue (ft)	0	4	5
95th Queue (ft)	2	24	22
Link Distance (ft)	98	712	405
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	37	6	34	1	0	0	1	258	67	121	190	4
Future Volume (vph)	37	6	34	1	0	0	1	258	67	121	190	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.966			0.997	
Flt Protected		0.960			0.950						0.979	
Satd. Flow (prot)	0	1736	1272	0	1805	0	0	1724	0	0	1557	0
Flt Permitted		0.960			0.950						0.979	
Satd. Flow (perm)	0	1736	1272	0	1805	0	0	1724	0	0	1557	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			558			799	
Travel Time (s)		4.0			10.9			12.7			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	64	12	62	4	0	0	4	307	103	224	279	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	62	0	4	0	0	414	0	0	515	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	37	6	34	1	0	0	1	258	67	121	190	4
Future Volume (Veh/h)	37	6	34	1	0	0	1	258	67	121	190	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	64	12	62	4	0	0	4	307	103	224	279	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1100	1106	358	1136	1151	285	291			410		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1100	1106	358	1136	1151	285	291			410		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	58	93	90	97	100	100	100			77		
cM capacity (veh/h)	153	163	633	127	153	759	1282			975		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	138	4	414	515
Volume Left	64	4	4	224
Volume Right	62	0	103	12
cSH	281	127	1282	975
Volume to Capacity	0.49	0.03	0.00	0.23
Queue Length 95th (ft)	63	2	0	22
Control Delay (s)	32.0	34.4	0.1	5.8
Lane LOS	D	D	A	A
Approach Delay (s)	32.0	34.4	0.1	5.8
Approach LOS	D	D		

Intersection Summary				
Average Delay		7.1		
Intersection Capacity Utilization		48.0%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	88	86	0	441	680	0	
Future Volume (vph)	88	86	0	441	680	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	200	0	100			0	
Storage Lanes	1	1	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850					
Flt Protected	0.950						
Satd. Flow (prot)	1805	1495	0	1827	1827	0	
Flt Permitted	0.950						
Satd. Flow (perm)	1805	1495	0	1827	1827	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		143					
Link Speed (mph)	30			30	30		
Link Distance (ft)	433			372	370		
Travel Time (s)	9.8			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	176	143	0	519	756	0	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	176	143	0	519	756	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1		2	2		
Detector Template	Left	Right		Thru	Thru		
Leading Detector (ft)	20	20		100	100		
Trailing Detector (ft)	0	0		0	0		
Detector 1 Position(ft)	0	0		0	0		
Detector 1 Size(ft)	20	20		6	6		
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot	Perm		NA	NA		
Protected Phases	4			2	6		9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Permitted Phases		4					
Detector Phase	4	4		2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0		20.0	20.0		2.0
Minimum Split (s)	11.0	11.0		24.0	24.0		17.0
Total Split (s)	21.0	21.0		52.0	52.0		17.0
Total Split (%)	23.3%	23.3%		57.8%	57.8%		19%
Maximum Green (s)	14.0	14.0		48.0	48.0		14.0
Yellow Time (s)	4.0	4.0		3.0	3.0		2.0
All-Red Time (s)	3.0	3.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		
Total Lost Time (s)	7.0	7.0		4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	11.5	11.5		32.3	32.3		
Actuated g/C Ratio	0.19	0.19		0.53	0.53		
v/c Ratio	0.51	0.36		0.53	0.77		
Control Delay	33.3	9.4		12.6	19.1		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	33.3	9.4		12.6	19.1		
LOS	C	A		B	B		
Approach Delay	22.6			12.6	19.1		
Approach LOS	C			B	B		

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 60.5	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 50.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	176	143	519	756
v/c Ratio	0.51	0.36	0.53	0.77
Control Delay	33.3	9.4	12.6	19.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	33.3	9.4	12.6	19.1
Queue Length 50th (ft)	43	0	82	146
Queue Length 95th (ft)	82	9	235	458
Internal Link Dist (ft)	353		292	290
Turn Bay Length (ft)	200			
Base Capacity (vph)	472	496	1492	1492
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.29	0.35	0.51

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	88	86	0	441	680	0
Future Volume (vph)	88	86	0	441	680	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1805	1495		1827	1827	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1805	1495		1827	1827	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	176	143	0	519	756	0
RTOR Reduction (vph)	0	116	0	0	0	0
Lane Group Flow (vph)	176	27	0	519	756	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	11.5	11.5		32.4	32.4	
Effective Green, g (s)	11.5	11.5		32.4	32.4	
Actuated g/C Ratio	0.19	0.19		0.53	0.53	
Clearance Time (s)	7.0	7.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	338	280		965	965	
v/s Ratio Prot	c0.10			0.28	c0.41	
v/s Ratio Perm		0.02				
v/c Ratio	0.52	0.10		0.54	0.78	
Uniform Delay, d1	22.4	20.6		9.5	11.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.1		0.6	4.2	
Delay (s)	23.9	20.7		10.1	15.8	
Level of Service	C	C		B	B	
Approach Delay (s)	22.5			10.1	15.8	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	61.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	131	472	644	112
Future Volume (vph)	0	0	131	472	644	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	0	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.979	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1612	1827	1799	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1612	1827	1799	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	0	0	211	543	732	132
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	211	543	864	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	131	472	644	112
Future Volume (Veh/h)	0	0	131	472	644	112
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	0	0	211	543	732	132
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.64	0.64	0.64			
vC, conflicting volume	1763	798	864			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1908	411	513			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	100	100	67			
cM capacity (veh/h)	31	406	646			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	211	543	864
Volume Left	211	0	0
Volume Right	0	0	132
cSH	646	1700	1700
Volume to Capacity	0.33	0.32	0.51
Queue Length 95th (ft)	35	0	0
Control Delay (s)	13.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	3.7		0.0
Approach LOS			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	533	481	0	81	157
Future Volume (vph)	0	533	481	0	81	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	666	540	0	105	185
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	666	540	0	105	185
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	533	481	0	81	157
Future Volume (Veh/h)	0	533	481	0	81	157
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	666	540	0	105	185
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	540				1206	540
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540				1206	540
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				48	66
cM capacity (veh/h)	1028				204	540

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	666	540	105	185
Volume Left	0	0	105	0
Volume Right	0	0	0	185
cSH	1700	1700	204	540
Volume to Capacity	0.39	0.32	0.52	0.34
Queue Length 95th (ft)	0	0	66	38
Control Delay (s)	0.0	0.0	40.1	15.1
Lane LOS			E	C
Approach Delay (s)	0.0	0.0	24.1	
Approach LOS			C	

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	394	110	81	536	227	86
Future Volume (vph)	394	110	81	536	227	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		150	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968					0.850
Flt Protected				0.993	0.950	
Satd. Flow (prot)	1794	0	0	1829	1752	1509
Flt Permitted				0.993	0.950	
Satd. Flow (perm)	1794	0	0	1829	1752	1509
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			560	314	
Travel Time (s)	13.1			12.7	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	419	131	109	654	287	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	550	0	0	763	287	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 82.7%		ICU Level of Service E	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.1	0.6	0.0	0.7
Total Del/Veh (s)	1.5	0.7	5.6	2.3	50.4	9.0	10.7

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	WB	NB	NB	B16
Directions Served	TR	LT	L	R	T
Maximum Queue (ft)	3	78	153	145	16
Average Queue (ft)	1	35	119	86	6
95th Queue (ft)	7	92	191	250	55
Link Distance (ft)	514	484		262	219
Upstream Blk Time (%)				6	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)			150		
Storage Blk Time (%)			20	0	
Queuing Penalty (veh)			17	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	345	37	0	440	145	0	0	0	135	27	113
Future Volume (vph)	142	345	37	0	440	145	0	0	0	135	27	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.957						0.952	
Flt Protected		0.986									0.975	
Satd. Flow (prot)	0	1707	0	0	1743	0	0	1727	0	0	1690	0
Flt Permitted		0.986									0.975	
Satd. Flow (perm)	0	1707	0	0	1743	0	0	1727	0	0	1690	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		560			142			237			663	
Travel Time (s)		12.7			3.2			5.4			15.1	
Peak Hour Factor	0.80	0.89	0.70	0.72	0.85	0.60	0.46	0.50	0.40	0.67	0.55	0.83
Heavy Vehicles (%)	4%	3%	0%	2%	4%	5%	0%	10%	0%	7%	0%	2%
Adj. Flow (vph)	178	388	53	0	518	242	0	0	0	201	49	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	619	0	0	760	0	0	0	0	0	386	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 86.0%	ICU Level of Service E
Analysis Period (min) 15	

2: Dundee Park Drive/Railroad Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.1	0.0	0.0	0.0	0.8	0.2	0.5	1.7
Total Del/Veh (s)	8.8	5.6	3.4	1.3	0.7	113.4	115.4	98.9	25.3

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street

Movement	EB	WB	SB	B12
Directions Served	LTR	LTR	LTR	T
Maximum Queue (ft)	138	26	394	13
Average Queue (ft)	70	8	283	3
95th Queue (ft)	158	31	551	41
Link Distance (ft)	484	52	593	289
Upstream Blk Time (%)		0	4	
Queuing Penalty (veh)		1	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	234	234	5	217	0	284	0	35	0	9	71
Future Volume (vph)	11	234	234	5	217	0	284	0	35	0	9	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.896						0.850			0.881	
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	1695	0	0	1837	0	1805	1615	0	0	1641	0
Flt Permitted					0.999		0.950					
Satd. Flow (perm)	0	1695	0	0	1837	0	1805	1615	0	0	1641	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		142			172			535			103	
Travel Time (s)		3.2			3.9			12.2			2.3	
Peak Hour Factor	0.92	0.86	0.25	0.54	0.74	0.92	0.92	0.92	0.55	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	0%	13%	3%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	12	272	936	9	293	0	309	0	64	0	10	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1220	0	0	302	0	309	64	0	0	87	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 61.4%	ICU Level of Service B
Analysis Period (min) 15	

3: School Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4
Total Del/Veh (s)	3.4	1.9	0.7	5.1	0.7	22.5	1.7	5.8	9.9	7.5	7.5

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	15	16	158	61	45
Average Queue (ft)	3	4	101	30	32
95th Queue (ft)	24	26	192	83	51
Link Distance (ft)	52	93	447		41
Upstream Blk Time (%)	0	0			5
Queuing Penalty (veh)	0	0			4
Storage Bay Dist (ft)				100	
Storage Blk Time (%)			12	0	
Queuing Penalty (veh)			4	0	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	168	11	0	0	4
Future Volume (vph)	80	168	11	0	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.908					
Flt Protected	0.984					
Satd. Flow (prot)	1664	0	1863	0	0	1863
Flt Permitted	0.984					
Satd. Flow (perm)	1664	0	1863	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	799		103			202
Travel Time (s)	18.2		2.3			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	183	12	0	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	270	0	12	0	0	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	168	11	0	0	4
Future Volume (Veh/h)	80	168	11	0	0	4
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	183	12	0	0	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						843
pX, platoon unblocked						
vC, conflicting volume	16	12			12	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	12			12	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	83			100	
cM capacity (veh/h)	1002	1069			1607	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	270	12	4
Volume Left	87	0	0
Volume Right	183	0	0
cSH	1046	1700	1700
Volume to Capacity	0.26	0.01	0.00
Queue Length 95th (ft)	26	0	0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	9.1		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	239	7	32	3	215	17	0	5	0	0
Future Volume (vph)	0	239	7	32	3	215	17	0	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.943				
Flt Protected						0.991	0.972				
Satd. Flow (prot)	0	1568	0	0	0	1809	1742	0	0	0	0
Flt Permitted						0.991	0.972				
Satd. Flow (perm)	0	1568	0	0	0	1809	1742	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	172					735	480			767	
Travel Time (s)	3.9					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	246	9	57	8	299	27	0	20	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	255	0	0	0	364	47	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 35.1%	ICU Level of Service A
Analysis Period (min) 15	

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2		0.3	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.2	0.7	0.5	3.8		1.0	9.1	5.0	1.4

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	1	41	31
Average Queue (ft)	0	14	15
95th Queue (ft)	4	49	40
Link Distance (ft)	93	712	390
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	64	5	119	0	0	0	1	180	68	57	254	12
Future Volume (vph)	64	5	119	0	0	0	1	180	68	57	254	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.956			0.991	
Flt Protected		0.956						0.999			0.990	
Satd. Flow (prot)	0	1722	1272	0	1900	0	0	1698	0	0	1681	0
Flt Permitted		0.956						0.999			0.990	
Satd. Flow (perm)	0	1722	1272	0	1900	0	0	1698	0	0	1681	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			535			799	
Travel Time (s)		4.0			10.9			12.2			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	110	10	216	0	0	0	4	214	105	106	374	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	120	216	0	0	0	0	323	0	0	516	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	64	5	119	0	0	0	1	180	68	57	254	12
Future Volume (Veh/h)	64	5	119	0	0	0	1	180	68	57	254	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	110	10	216	0	0	0	4	214	105	106	374	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	878	896	266	992	931	392	410			319		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	878	896	266	992	931	392	410			319		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	55	96	70	100	100	100	100			90		
cM capacity (veh/h)	243	253	716	141	241	661	1160			1059		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	336	0	323	516
Volume Left	110	0	4	106
Volume Right	216	0	105	36
cSH	683	1700	1160	1059
Volume to Capacity	0.49	0.00	0.00	0.10
Queue Length 95th (ft)	68	0	0	8
Control Delay (s)	19.7	0.0	0.1	2.7
Lane LOS	C	A	A	A
Approach Delay (s)	19.7	0.0	0.1	2.7
Approach LOS	C	A		

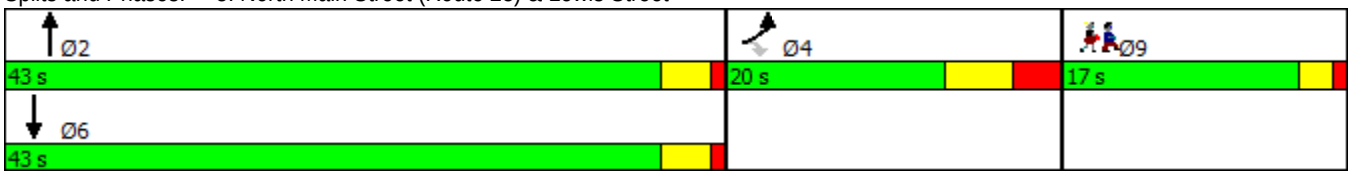
Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	44.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	113	50	0	640	516	0	
Future Volume (vph)	113	50	0	640	516	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	200	0	100			0	
Storage Lanes	1	1	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850					
Flt Protected	0.950						
Satd. Flow (prot)	1805	1495	0	1827	1827	0	
Flt Permitted	0.950						
Satd. Flow (perm)	1805	1495	0	1827	1827	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		83					
Link Speed (mph)	30			30	30		
Link Distance (ft)	483			372	370		
Travel Time (s)	11.0			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	226	83	0	753	573	0	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	226	83	0	753	573	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1		2	2		
Detector Template	Left	Right		Thru	Thru		
Leading Detector (ft)	20	20		100	100		
Trailing Detector (ft)	0	0		0	0		
Detector 1 Position(ft)	0	0		0	0		
Detector 1 Size(ft)	20	20		6	6		
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot	Perm		NA	NA		
Protected Phases	4			2	6		9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Permitted Phases		4					
Detector Phase	4	4		2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0		20.0	20.0		2.0
Minimum Split (s)	11.0	11.0		24.0	24.0		17.0
Total Split (s)	20.0	20.0		43.0	43.0		17.0
Total Split (%)	25.0%	25.0%		53.8%	53.8%		21%
Maximum Green (s)	13.0	13.0		39.0	39.0		14.0
Yellow Time (s)	4.0	4.0		3.0	3.0		2.0
All-Red Time (s)	3.0	3.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		
Total Lost Time (s)	7.0	7.0		4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	12.2	12.2		30.1	30.1		
Actuated g/C Ratio	0.21	0.21		0.51	0.51		
v/c Ratio	0.60	0.22		0.80	0.61		
Control Delay	34.0	9.2		21.8	14.9		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	34.0	9.2		21.8	14.9		
LOS	C	A		C	B		
Approach Delay	27.4			21.8	14.9		
Approach LOS	C			C	B		

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 58.7	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 20.4	Intersection LOS: C
Intersection Capacity Utilization 49.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	226	83	753	573
v/c Ratio	0.60	0.22	0.80	0.61
Control Delay	34.0	9.2	21.8	14.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.0	9.2	21.8	14.9
Queue Length 50th (ft)	59	0	160	104
Queue Length 95th (ft)	91	12	408	296
Internal Link Dist (ft)	403		292	290
Turn Bay Length (ft)	200			
Base Capacity (vph)	431	420	1310	1310
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.20	0.57	0.44

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	113	50	0	640	516	0
Future Volume (vph)	113	50	0	640	516	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1805	1495		1827	1827	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1805	1495		1827	1827	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	226	83	0	753	573	0
RTOR Reduction (vph)	0	66	0	0	0	0
Lane Group Flow (vph)	226	17	0	753	573	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	12.2	12.2		30.1	30.1	
Effective Green, g (s)	12.2	12.2		30.1	30.1	
Actuated g/C Ratio	0.20	0.20		0.50	0.50	
Clearance Time (s)	7.0	7.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	367	304		918	918	
v/s Ratio Prot	c0.13			c0.41	0.31	
v/s Ratio Perm		0.01				
v/c Ratio	0.62	0.06		0.82	0.62	
Uniform Delay, d1	21.7	19.2		12.6	10.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.1		5.9	1.3	
Delay (s)	24.8	19.3		18.5	12.1	
Level of Service	C	B		B	B	
Approach Delay (s)	23.3			18.5	12.1	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	59.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	109	649	481	72
Future Volume (vph)	0	0	109	649	481	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	0	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.982	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1612	1827	1803	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1612	1827	1803	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	0	0	176	746	547	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	176	746	632	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	109	649	481	72
Future Volume (Veh/h)	0	0	109	649	481	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	0	0	176	746	547	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.77	0.77	0.77			
vC, conflicting volume	1688	590	632			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1745	311	367			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	100	100	80			
cM capacity (veh/h)	56	549	872			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	176	746	632
Volume Left	176	0	0
Volume Right	0	0	85
cSH	872	1700	1700
Volume to Capacity	0.20	0.44	0.37
Queue Length 95th (ft)	19	0	0
Control Delay (s)	10.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	1.9		0.0
Approach LOS			

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	613	372	0	102	182
Future Volume (vph)	0	613	372	0	102	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	766	418	0	132	214
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	766	418	0	132	214
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	613	372	0	102	182
Future Volume (Veh/h)	0	613	372	0	102	182
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	766	418	0	132	214
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	418				1184	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	418				1184	418
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				37	66
cM capacity (veh/h)	1141				210	633

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	766	418	132	214
Volume Left	0	0	132	0
Volume Right	0	0	0	214
cSH	1700	1700	210	633
Volume to Capacity	0.45	0.25	0.63	0.34
Queue Length 95th (ft)	0	0	92	37
Control Delay (s)	0.0	0.0	47.3	13.6
Lane LOS			E	B
Approach Delay (s)	0.0	0.0	26.4	
Approach LOS			D	

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	489	171	58	287	81	87
Future Volume (vph)	489	171	58	287	81	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		150	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962					0.850
Flt Protected				0.991	0.950	
Satd. Flow (prot)	1784	0	0	1825	1752	1509
Flt Permitted				0.991	0.950	
Satd. Flow (perm)	1784	0	0	1825	1752	1509
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			563	314	
Travel Time (s)	13.1			12.8	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	520	204	78	350	103	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	724	0	0	428	103	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.0	0.1	0.0	0.2
Total Del/Veh (s)	2.3	1.2	7.9	2.4	18.1	6.2	3.8

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	WB	NB	NB
Directions Served	TR	LT	L	R
Maximum Queue (ft)	4	71	67	56
Average Queue (ft)	1	30	42	39
95th Queue (ft)	7	89	79	66
Link Distance (ft)	514	485		262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			150	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	428	117	105	245	160	0	0	0	135	46	74
Future Volume (vph)	91	428	117	105	245	160	0	0	0	135	46	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970			0.949						0.968	
Flt Protected		0.993			0.990						0.974	
Satd. Flow (prot)	0	1696	0	0	1717	0	0	0	0	0	1719	0
Flt Permitted		0.993			0.990						0.974	
Satd. Flow (perm)	0	1696	0	0	1717	0	0	0	0	0	1719	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		563			148			237			663	
Travel Time (s)		12.8			3.4			5.4			15.1	
Peak Hour Factor	0.80	0.89	0.70	0.72	0.85	0.60	0.46	0.50	0.40	0.67	0.55	0.83
Heavy Vehicles (%)	4%	3%	0%	2%	4%	5%	0%	10%	0%	7%	0%	2%
Adj. Flow (vph)	114	481	167	146	288	267	0	0	0	201	84	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	762	0	0	701	0	0	0	0	0	374	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 64.5%	ICU Level of Service C
Analysis Period (min) 15	

2: Dundee Park Drive/Railroad Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.7	0.2	0.3	1.5
Total Del/Veh (s)	6.2	4.2	2.6	7.7	3.1	2.3	107.9	107.4	94.4	23.3

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street

Movement	EB	WB	SB	B12
Directions Served	LTR	LTR	LTR	T
Maximum Queue (ft)	87	97	371	12
Average Queue (ft)	39	61	262	3
95th Queue (ft)	107	115	522	46
Link Distance (ft)	485	89	590	289
Upstream Blk Time (%)		3	2	
Queuing Penalty (veh)		15	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	282	363	16	209	297	12
Future Volume (vph)	282	363	16	209	297	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	100
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.922					0.850
Flt Protected				0.997	0.950	
Satd. Flow (prot)	1689	0	0	1840	1736	1615
Flt Permitted				0.997	0.950	
Satd. Flow (perm)	1689	0	0	1840	1736	1615
Link Speed (mph)	30			30	30	
Link Distance (ft)	148			165	198	
Travel Time (s)	3.4			3.8	4.5	
Peak Hour Factor	0.86	0.82	0.92	0.74	0.72	0.92
Heavy Vehicles (%)	2%	5%	2%	3%	4%	0%
Adj. Flow (vph)	328	443	17	282	413	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	771	0	0	299	413	13
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

3: School Street & Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.4	0.0	0.2
Total Delay (hr)	0.0	0.0	0.0	0.0	0.4	0.0	0.4
Total Del/Veh (s)	2.3	0.9	9.9	0.8	25.9	7.9	7.4

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB	NB	B24
Directions Served	TR	LT	L	R	T
Maximum Queue (ft)	28	38	161	54	27
Average Queue (ft)	9	14	109	16	10
95th Queue (ft)	37	52	193	70	66
Link Distance (ft)	89	89	134		277
Upstream Blk Time (%)		0	13	0	
Queuing Penalty (veh)		1	39	0	
Storage Bay Dist (ft)				100	
Storage Blk Time (%)			20	0	
Queuing Penalty (veh)			2	0	

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	231	3	9	3	282	5	0	1	0	0
Future Volume (vph)	0	231	3	9	3	282	5	0	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.955				
Flt Protected						0.997	0.968				
Satd. Flow (prot)	0	1566	0	0	0	1809	1756	0	0	0	0
Flt Permitted						0.997	0.968				
Satd. Flow (perm)	0	1566	0	0	0	1809	1756	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	165					735	480			767	
Travel Time (s)	3.8					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	238	4	16	8	392	8	0	4	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	242	0	0	0	416	12	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.7%	ICU Level of Service A
Analysis Period (min) 15	

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.1	0.3	0.0	0.0		0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.1	0.7	0.4	3.1	1.9	0.6	5.0	1.1		0.8

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	WB	NB
Directions Served	<LT	L>
Maximum Queue (ft)	20	16
Average Queue (ft)	5	4
95th Queue (ft)	28	21
Link Distance (ft)	712	402
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	41	6	12	1	0	0	1	321	52	14	261	4
Future Volume (vph)	41	6	12	1	0	0	1	321	52	14	261	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972						0.977			0.996	
Flt Protected		0.967			0.950						0.997	
Satd. Flow (prot)	0	1628	0	0	1805	0	0	1751	0	0	1779	0
Flt Permitted		0.967			0.950						0.997	
Satd. Flow (perm)	0	1628	0	0	1805	0	0	1751	0	0	1779	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			342			799	
Travel Time (s)		4.0			10.9			7.8			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	71	12	22	4	0	0	4	382	80	26	384	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	105	0	0	4	0	0	466	0	0	422	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	41	6	12	1	0	0	1	321	52	14	261	4
Future Volume (Veh/h)	41	6	12	1	0	0	1	321	52	14	261	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	71	12	22	4	0	0	4	382	80	26	384	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	872	878	422	900	912	390	396			462		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	872	878	422	900	912	390	396			462		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	73	96	96	98	100	100	100			97		
cM capacity (veh/h)	260	280	582	238	267	663	1174			930		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	105	4	466	422
Volume Left	71	4	4	26
Volume Right	22	0	80	12
cSH	297	238	1174	930
Volume to Capacity	0.35	0.02	0.00	0.03
Queue Length 95th (ft)	39	1	0	2
Control Delay (s)	23.6	20.4	0.1	0.9
Lane LOS	C	C	A	A
Approach Delay (s)	23.6	20.4	0.1	0.9
Approach LOS	C	C		

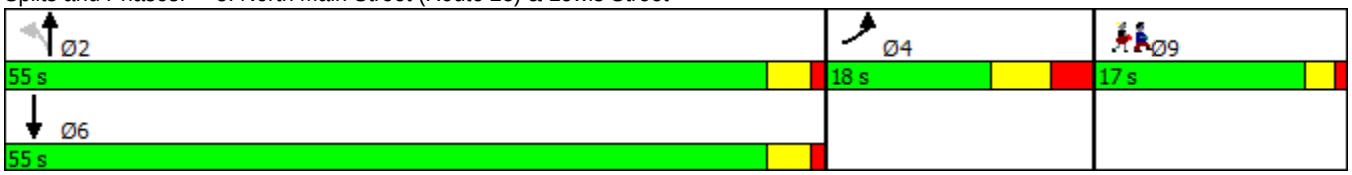
Intersection Summary				
Average Delay		3.0		
Intersection Capacity Utilization		34.6%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	61	75	89	468	603	78	
Future Volume (vph)	61	75	89	468	603	78	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	100			0	
Storage Lanes	1	0	1			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.932				0.981		
Flt Protected	0.976		0.950				
Satd. Flow (prot)	1661	0	1583	1827	1776	0	
Flt Permitted	0.976		0.213				
Satd. Flow (perm)	1661	0	355	1827	1776	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	47				15		
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	122	125	153	551	670	108	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	247	0	153	551	778	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1		1	2	2		
Detector Template	Left		Left	Thru	Thru		
Leading Detector (ft)	20		20	100	100		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	20		20	6	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot		Perm	NA	NA		
Protected Phases	4			2	6		9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Permitted Phases			2				
Detector Phase	4		2	2	6		
Switch Phase							
Minimum Initial (s)	4.0		20.0	20.0	20.0		2.0
Minimum Split (s)	11.0		24.0	24.0	24.0		17.0
Total Split (s)	18.0		55.0	55.0	55.0		17.0
Total Split (%)	20.0%		61.1%	61.1%	61.1%		19%
Maximum Green (s)	11.0		51.0	51.0	51.0		14.0
Yellow Time (s)	4.0		3.0	3.0	3.0		2.0
All-Red Time (s)	3.0		1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0		
Total Lost Time (s)	7.0		4.0	4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	11.6		43.3	43.3	43.3		
Actuated g/C Ratio	0.16		0.61	0.61	0.61		
v/c Ratio	0.80		0.71	0.50	0.72		
Control Delay	49.4		34.4	10.6	15.3		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	49.4		34.4	10.6	15.3		
LOS	D		C	B	B		
Approach Delay	49.4			15.8	15.3		
Approach LOS	D			B	B		

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 71.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 20.4	Intersection LOS: C
Intersection Capacity Utilization 73.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street



Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	247	153	551	778
v/c Ratio	0.80	0.71	0.50	0.72
Control Delay	49.4	34.4	10.6	15.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	49.4	34.4	10.6	15.3
Queue Length 50th (ft)	89	30	88	150
Queue Length 95th (ft)	87	66	232	446
Internal Link Dist (ft)	561		292	290
Turn Bay Length (ft)		100		
Base Capacity (vph)	310	262	1348	1315
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.80	0.58	0.41	0.59

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	61	75	89	468	603	78
Future Volume (vph)	61	75	89	468	603	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.93		1.00	1.00	0.98	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	1660		1583	1827	1776	
Flt Permitted	0.98		0.21	1.00	1.00	
Satd. Flow (perm)	1660		355	1827	1776	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	122	125	153	551	670	108
RTOR Reduction (vph)	40	0	0	0	6	0
Lane Group Flow (vph)	207	0	153	551	772	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	11.6		43.3	43.3	43.3	
Effective Green, g (s)	11.6		43.3	43.3	43.3	
Actuated g/C Ratio	0.16		0.59	0.59	0.59	
Clearance Time (s)	7.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	264		211	1086	1056	
v/s Ratio Prot	c0.12			0.30	c0.43	
v/s Ratio Perm			0.43			
v/c Ratio	0.79		0.73	0.51	0.73	
Uniform Delay, d1	29.4		10.5	8.6	10.6	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	14.2		11.7	0.4	2.6	
Delay (s)	43.7		22.2	8.9	13.2	
Level of Service	D		C	A	B	
Approach Delay (s)	43.7			11.8	13.2	
Approach LOS	D			B	B	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	72.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	14	19	582	662	6
Future Volume (vph)	6	14	19	582	662	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.916				0.999	
Flt Protected	0.981			0.998		
Satd. Flow (prot)	1590	0	0	1817	1826	0
Flt Permitted	0.981			0.998		
Satd. Flow (perm)	1590	0	0	1817	1826	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	11	18	31	669	752	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	0	700	759	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 56.0%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	14	19	582	662	6
Future Volume (Veh/h)	6	14	19	582	662	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	11	18	31	669	752	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.70	0.70	0.70			
vC, conflicting volume	1486	756	759			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1481	432	437			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	88	96	96			
cM capacity (veh/h)	89	427	747			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	29	700	759
Volume Left	11	31	0
Volume Right	18	0	7
cSH	176	747	1700
Volume to Capacity	0.17	0.04	0.45
Queue Length 95th (ft)	14	3	0
Control Delay (s)	29.5	1.1	0.0
Lane LOS	D	A	
Approach Delay (s)	29.5	1.1	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	533	493	0	128	161
Future Volume (vph)	0	533	493	0	128	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	666	554	0	166	189
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	666	554	0	166	189
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	533	493	0	128	161
Future Volume (Veh/h)	0	533	493	0	128	161
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	666	554	0	166	189
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	554				1220	554
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	554				1220	554
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				17	64
cM capacity (veh/h)	1016				200	530

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	666	554	166	189
Volume Left	0	0	166	0
Volume Right	0	0	0	189
cSH	1700	1700	200	530
Volume to Capacity	0.39	0.33	0.83	0.36
Queue Length 95th (ft)	0	0	151	40
Control Delay (s)	0.0	0.0	75.4	15.5
Lane LOS			F	C
Approach Delay (s)	0.0	0.0	43.5	
Approach LOS			E	

Intersection Summary			
Average Delay	9.8		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	398	110	114	535	235	96
Future Volume (vph)	398	110	114	535	235	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		150	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968					0.850
Flt Protected				0.991	0.950	
Satd. Flow (prot)	1794	0	0	1825	1752	1509
Flt Permitted				0.991	0.950	
Satd. Flow (perm)	1794	0	0	1825	1752	1509
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			567	314	
Travel Time (s)	13.1			12.9	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	423	131	154	652	297	120
Shared Lane Traffic (%)						
Lane Group Flow (vph)	554	0	0	806	297	120
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.1%		ICU Level of Service E	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.1	0.7	0.1	0.9
Total Del/Veh (s)	1.6	0.7	6.1	3.4	64.3	12.6	13.6

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	WB	NB	NB	B16	B17
Directions Served	TR	LT	L	R	T	T
Maximum Queue (ft)	6	105	163	211	30	11
Average Queue (ft)	1	54	134	117	17	6
95th Queue (ft)	10	128	205	311	119	69
Link Distance (ft)	514	489		262	219	252
Upstream Blk Time (%)				11	3	1
Queuing Penalty (veh)				0	0	0
Storage Bay Dist (ft)			150			
Storage Blk Time (%)			30	0		
Queuing Penalty (veh)			28	1		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	436	59	53	439	145	0	0	0	135	28	113
Future Volume (vph)	144	436	59	53	439	145	0	0	0	135	28	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.961						0.953	
Flt Protected		0.988			0.996						0.975	
Satd. Flow (prot)	0	1707	0	0	1747	0	0	0	0	0	1692	0
Flt Permitted		0.988			0.996						0.975	
Satd. Flow (perm)	0	1707	0	0	1747	0	0	0	0	0	1692	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		567			157			237			663	
Travel Time (s)		12.9			3.6			5.4			15.1	
Peak Hour Factor	0.80	0.89	0.70	0.72	0.85	0.60	0.46	0.50	0.40	0.67	0.55	0.83
Heavy Vehicles (%)	4%	3%	0%	2%	4%	5%	0%	10%	0%	7%	0%	2%
Adj. Flow (vph)	180	490	84	74	516	242	0	0	0	201	51	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	754	0	0	832	0	0	0	0	0	388	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

2: Dundee Park Drive/Railroad Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	0.1	0.1	0.0	0.0	0.0	0.0	1.2	0.2	0.8	2.5
Total Del/Veh (s)	8.9	6.3	3.9	6.6	2.3	1.5	164.4	164.0	144.4	33.7

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street

Movement	EB	WB	SB	B12
Directions Served	LTR	LTR	LTR	T
Maximum Queue (ft)	156	90	534	64
Average Queue (ft)	83	43	382	22
95th Queue (ft)	179	106	673	135
Link Distance (ft)	489	99	590	289
Upstream Blk Time (%)		1	12	1
Queuing Penalty (veh)		9	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	277	372	5	314	312	35
Future Volume (vph)	277	372	5	314	312	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	100
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.921					0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1687	0	0	1843	1736	1615
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1687	0	0	1843	1736	1615
Link Speed (mph)	30			30	30	
Link Distance (ft)	157			157	539	
Travel Time (s)	3.6			3.6	12.3	
Peak Hour Factor	0.86	0.82	0.92	0.74	0.72	0.92
Heavy Vehicles (%)	2%	5%	2%	3%	4%	0%
Adj. Flow (vph)	322	454	5	424	433	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	776	0	0	429	433	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.3%		ICU Level of Service B	
Analysis Period (min) 15			

3: School Street & Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0		0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.6
Total Del/Veh (s)	2.6	1.0	6.1	0.8	30.2		11.6	9.2

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB	NB
Directions Served	TR	LT	L	R
Maximum Queue (ft)	27	28	199	94
Average Queue (ft)	7	8	135	45
95th Queue (ft)	34	40	264	122
Link Distance (ft)	99	82	463	
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				100
Storage Blk Time (%)			26	0
Queuing Penalty (veh)			9	0

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	282	7	32	3	312	17	0	5	0	0
Future Volume (vph)	0	282	7	32	3	312	17	0	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.943				
Flt Protected						0.994	0.972				
Satd. Flow (prot)	0	1567	0	0	0	1810	1742	0	0	0	0
Flt Permitted						0.994	0.972				
Satd. Flow (perm)	0	1567	0	0	0	1810	1742	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	157					735	480			767	
Travel Time (s)	3.6					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	291	9	57	8	433	27	0	20	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	300	0	0	0	498	47	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.9%		ICU Level of Service A	
Analysis Period (min) 15			

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.3		0.3	0.0	0.0	0.2
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.5	0.8	0.8	4.8		1.1	11.1	5.5	1.5

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	3	50	33
Average Queue (ft)	1	17	16
95th Queue (ft)	7	60	42
Link Distance (ft)	82	712	401
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	66	5	22	0	0	0	1	314	63	8	280	12
Future Volume (vph)	66	5	22	0	0	0	1	314	63	8	280	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967						0.972			0.990	
Flt Protected		0.966									0.998	
Satd. Flow (prot)	0	1602	0	0	1900	0	0	1739	0	0	1791	0
Flt Permitted		0.966									0.998	
Satd. Flow (perm)	0	1602	0	0	1900	0	0	1739	0	0	1791	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			539			799	
Travel Time (s)		4.0			10.9			12.3			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	114	10	40	0	0	0	4	374	97	15	412	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	164	0	0	0	0	0	475	0	0	463	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	66	5	22	0	0	0	1	314	63	8	280	12
Future Volume (Veh/h)	66	5	22	0	0	0	1	314	63	8	280	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	114	10	40	0	0	0	4	374	97	15	412	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	890	908	422	936	939	430	448			471		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	890	908	422	936	939	430	448			471		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	55	96	93	100	100	100	100			98		
cM capacity (veh/h)	255	272	581	221	261	629	1123			922		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	164	0	475	463
Volume Left	114	0	4	15
Volume Right	40	0	97	36
cSH	297	1700	1123	922
Volume to Capacity	0.55	0.00	0.00	0.02
Queue Length 95th (ft)	78	0	0	1
Control Delay (s)	31.1	0.0	0.1	0.5
Lane LOS	D	A	A	A
Approach Delay (s)	31.1	0.0	0.1	0.5
Approach LOS	D	A		

Intersection Summary				
Average Delay		4.9		
Intersection Capacity Utilization		33.4%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	67	44	73	686	465	59	
Future Volume (vph)	67	44	73	686	465	59	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	100			0	
Storage Lanes	1	0	1			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00	
Frt	0.952				0.982		
Flt Protected	0.969		0.950	0.999			
Satd. Flow (prot)	1705	0	1504	1731	1778	0	
Flt Permitted	0.969		0.317	0.990			
Satd. Flow (perm)	1705	0	502	1716	1778	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	28				15		
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	134	73	126	807	517	82	
Shared Lane Traffic (%)			10%				
Lane Group Flow (vph)	207	0	113	820	599	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1		1	2	2		
Detector Template	Left		Left	Thru	Thru		
Leading Detector (ft)	20		20	100	100		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	20		20	6	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot		Perm	NA	NA		
Protected Phases	4			2	6		9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Permitted Phases			2				
Detector Phase	4		2	2	6		
Switch Phase							
Minimum Initial (s)	4.0		20.0	20.0	20.0		2.0
Minimum Split (s)	11.0		24.0	24.0	24.0		17.0
Total Split (s)	16.0		47.0	47.0	47.0		17.0
Total Split (%)	20.0%		58.8%	58.8%	58.8%		21%
Maximum Green (s)	9.0		43.0	43.0	43.0		14.0
Yellow Time (s)	4.0		3.0	3.0	3.0		2.0
All-Red Time (s)	3.0		1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0		
Total Lost Time (s)	7.0		4.0	4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	9.5		34.6	34.6	34.6		
Actuated g/C Ratio	0.16		0.57	0.57	0.57		
v/c Ratio	0.71		0.39	0.84	0.59		
Control Delay	42.6		13.9	21.7	11.9		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	42.6		13.9	21.7	11.9		
LOS	D		B	C	B		
Approach Delay	42.6			20.7	11.9		
Approach LOS	D			C	B		

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 60.5	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 64.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	207	113	820	599
v/c Ratio	0.71	0.39	0.84	0.59
Control Delay	42.6	13.9	21.7	11.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	42.6	13.9	21.7	11.9
Queue Length 50th (ft)	55	14	162	85
Queue Length 95th (ft)	75	38	#498	278
Internal Link Dist (ft)	561		292	290
Turn Bay Length (ft)		100		
Base Capacity (vph)	292	378	1293	1344
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.71	0.30	0.63	0.45

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 (vph)	67	44	73	686	465	59
Future Volume (vph)	67	44	73	686	465	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		0.95	0.95	1.00	
Frt	0.95		1.00	1.00	0.98	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1705		1504	1732	1777	
Flt Permitted	0.97		0.32	0.99	1.00	
Satd. Flow (perm)	1705		502	1716	1777	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	134	73	126	807	517	82
RTOR Reduction (vph)	24	0	0	0	7	0
Lane Group Flow (vph)	183	0	113	820	592	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	9.5		34.6	34.6	34.6	
Effective Green, g (s)	9.5		34.6	34.6	34.6	
Actuated g/C Ratio	0.15		0.56	0.56	0.56	
Clearance Time (s)	7.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	262		281	960	994	
v/s Ratio Prot	c0.11				0.33	
v/s Ratio Perm			0.23	c0.48		
v/c Ratio	0.70		0.40	0.85	0.60	
Uniform Delay, d1	24.8		7.7	11.5	9.0	
Progression Factor	1.02		1.00	1.00	1.00	
Incremental Delay, d2	7.9		0.9	7.5	1.0	
Delay (s)	33.1		8.7	19.0	10.0	
Level of Service	C		A	B	A	
Approach Delay (s)	33.1			17.7	10.0	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	61.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	25	101	9	743	489	7
Future Volume (vph)	25	101	9	743	489	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.901				0.998	
Flt Protected	0.987			0.999		
Satd. Flow (prot)	1575	0	0	1823	1824	0
Flt Permitted	0.987			0.999		
Satd. Flow (perm)	1575	0	0	1823	1824	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	46	128	15	854	556	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	174	0	0	869	564	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 60.6%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	101	9	743	489	7
Future Volume (Veh/h)	25	101	9	743	489	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	46	128	15	854	556	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.80	0.80	0.80			
vC, conflicting volume	1444	560	564			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1430	325	330			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	59	77	98			
cM capacity (veh/h)	113	564	940			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	174	869	564
Volume Left	46	15	0
Volume Right	128	0	8
cSH	275	940	1700
Volume to Capacity	0.63	0.02	0.33
Queue Length 95th (ft)	99	1	0
Control Delay (s)	38.3	0.4	0.0
Lane LOS	E	A	
Approach Delay (s)	38.3	0.4	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	613	374	0	129	198
Future Volume (vph)	0	613	374	0	129	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	766	420	0	168	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	766	420	0	168	233
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	613	374	0	129	198
Future Volume (Veh/h)	0	613	374	0	129	198
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	766	420	0	168	233
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	420				1186	420
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420				1186	420
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				20	63
cM capacity (veh/h)	1139				209	631

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	766	420	168	233
Volume Left	0	0	168	0
Volume Right	0	0	0	233
cSH	1700	1700	209	631
Volume to Capacity	0.45	0.25	0.80	0.37
Queue Length 95th (ft)	0	0	144	42
Control Delay (s)	0.0	0.0	68.1	14.0
Lane LOS			F	B
Approach Delay (s)	0.0	0.0	36.7	
Approach LOS			E	

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	489	171	49	287	81	56
Future Volume (vph)	489	171	49	287	81	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		150	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962					0.850
Flt Protected				0.992	0.950	
Satd. Flow (prot)	1784	0	0	1827	1752	1509
Flt Permitted				0.992	0.950	
Satd. Flow (perm)	1784	0	0	1827	1752	1509
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			563	314	
Travel Time (s)	13.1			12.8	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	520	204	66	350	103	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	724	0	0	416	103	70
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.9%		ICU Level of Service C	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.0	0.1	0.0	0.2
Total Del/Veh (s)	2.2	1.2	8.4	2.2	18.3	5.8	3.7

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	WB	NB	NB
Directions Served	TR	LT	L	R
Maximum Queue (ft)	8	76	70	55
Average Queue (ft)	2	31	44	33
95th Queue (ft)	14	92	82	64
Link Distance (ft)	514	485		262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			150	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Lanes, Volumes, Timings
2: Dundee Park Drive/Railroad Street & Essex Street

03/20/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	405	86	0	245	160	0	0	0	135	46	74
Future Volume (vph)	91	405	86	0	245	160	0	0	0	135	46	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.935						0.968	
Flt Protected		0.992									0.974	
Satd. Flow (prot)	0	1703	0	0	1700	0	0	0	0	0	1719	0
Flt Permitted		0.992									0.974	
Satd. Flow (perm)	0	1703	0	0	1700	0	0	0	0	0	1719	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		563			148			237			663	
Travel Time (s)		12.8			3.4			5.4			15.1	
Peak Hour Factor	0.80	0.89	0.70	0.72	0.85	0.60	0.46	0.50	0.40	0.67	0.55	0.83
Heavy Vehicles (%)	4%	3%	0%	2%	4%	5%	0%	10%	0%	7%	0%	2%
Adj. Flow (vph)	114	455	123	0	288	267	0	0	0	201	84	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	692	0	0	555	0	0	0	0	0	374	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 78.6%	ICU Level of Service D
Analysis Period (min) 15	

2: Dundee Park Drive/Railroad Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.3	0.1	0.1	0.6
Total Del/Veh (s)	6.0	3.9	2.4	1.3	0.7	37.7	44.5	29.1	10.2

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	97	6	203
Average Queue (ft)	43	1	130
95th Queue (ft)	118	13	256
Link Distance (ft)	485	89	590
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	278	344	16	179	222	12
Future Volume (vph)	278	344	16	179	222	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	100
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.924					0.850
Flt Protected				0.997	0.950	
Satd. Flow (prot)	1693	0	0	1840	1736	1615
Flt Permitted				0.997	0.950	
Satd. Flow (perm)	1693	0	0	1840	1736	1615
Link Speed (mph)	30			30	30	
Link Distance (ft)	148			165	198	
Travel Time (s)	3.4			3.8	4.5	
Peak Hour Factor	0.86	0.82	0.92	0.74	0.72	0.92
Heavy Vehicles (%)	2%	5%	2%	3%	4%	0%
Adj. Flow (vph)	323	420	17	242	308	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	743	0	0	259	308	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			

3: School Street & Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.2		0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
Total Del/Veh (s)	2.2	0.9	9.1	0.6	15.9		5.1	4.4

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB	NB	B24
Directions Served	TR	LT	L	R	T
Maximum Queue (ft)	33	42	116	37	3
Average Queue (ft)	9	13	78	12	1
95th Queue (ft)	40	50	142	48	14
Link Distance (ft)	89	89	134		277
Upstream Blk Time (%)		0	2	0	
Queuing Penalty (veh)		1	5	0	
Storage Bay Dist (ft)				100	
Storage Blk Time (%)			5		
Queuing Penalty (veh)			1		

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	227	3	9	3	252	5	0	1	0	0
Future Volume (vph)	0	227	3	9	3	252	5	0	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.955				
Flt Protected						0.997	0.968				
Satd. Flow (prot)	0	1566	0	0	0	1810	1756	0	0	0	0
Flt Permitted						0.997	0.968				
Satd. Flow (perm)	0	1566	0	0	0	1810	1756	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	165					735	480			767	
Travel Time (s)	3.8					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	234	4	16	8	350	8	0	4	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	238	0	0	0	374	12	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.8%	ICU Level of Service A
Analysis Period (min) 15	

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBT	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0		0.1		0.2	0.0	0.0		0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.2	0.7		3.7		0.5	7.7	1.9		0.8

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	WB	NB
Directions Served	<LT	L>
Maximum Queue (ft)	16	16
Average Queue (ft)	4	5
95th Queue (ft)	26	22
Link Distance (ft)	712	402
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	37	6	34	1	0	0	1	303	51	118	190	4
Future Volume (vph)	37	6	34	1	0	0	1	303	51	118	190	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.976			0.997	
Flt Protected		0.960			0.950						0.979	
Satd. Flow (prot)	0	1736	1272	0	1805	0	0	1749	0	0	1559	0
Flt Permitted		0.960			0.950						0.979	
Satd. Flow (perm)	0	1736	1272	0	1805	0	0	1749	0	0	1559	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			342			799	
Travel Time (s)		4.0			10.9			7.8			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	64	12	62	4	0	0	4	361	78	219	279	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	62	0	4	0	0	443	0	0	510	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	37	6	34	1	0	0	1	303	51	118	190	4
Future Volume (Veh/h)	37	6	34	1	0	0	1	303	51	118	190	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	64	12	62	4	0	0	4	361	78	219	279	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1131	1137	400	1168	1170	285	291			439		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1131	1137	400	1168	1170	285	291			439		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	56	92	90	97	100	100	100			77		
cM capacity (veh/h)	145	156	599	119	149	759	1282			950		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	138	4	443	510
Volume Left	64	4	4	219
Volume Right	62	0	78	12
cSH	267	119	1282	950
Volume to Capacity	0.52	0.03	0.00	0.23
Queue Length 95th (ft)	68	3	0	22
Control Delay (s)	34.5	36.2	0.1	5.8
Lane LOS	D	E	A	A
Approach Delay (s)	34.5	36.2	0.1	5.8
Approach LOS	D	E		

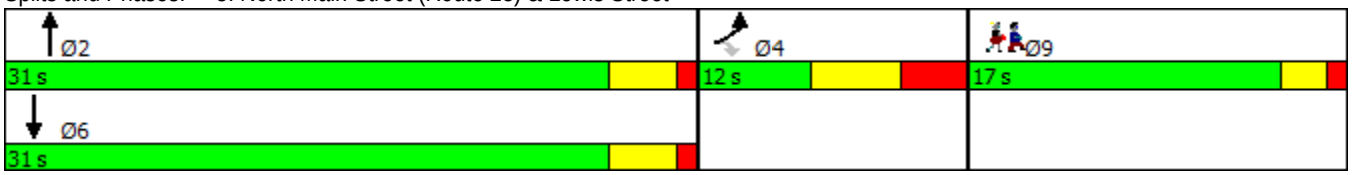
Intersection Summary				
Average Delay		7.2		
Intersection Capacity Utilization		49.2%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	67	89	0	468	681	0	
Future Volume (vph)	67	89	0	468	681	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	0	100			0	
Storage Lanes	1	1	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850					
Flt Protected	0.950						
Satd. Flow (prot)	1805	1495	0	1827	1827	0	
Flt Permitted	0.950						
Satd. Flow (perm)	1805	1495	0	1827	1827	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		148					
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	134	148	0	551	757	0	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	134	148	0	551	757	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1		2	2		
Detector Template	Left	Right		Thru	Thru		
Leading Detector (ft)	20	20		100	100		
Trailing Detector (ft)	0	0		0	0		
Detector 1 Position(ft)	0	0		0	0		
Detector 1 Size(ft)	20	20		6	6		
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot	Perm		NA	NA		
Protected Phases	4			2	6		9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Permitted Phases		4					
Detector Phase	4	4		2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0		20.0	20.0		2.0
Minimum Split (s)	11.0	11.0		24.0	24.0		17.0
Total Split (s)	12.0	12.0		31.0	31.0		17.0
Total Split (%)	20.0%	20.0%		51.7%	51.7%		28%
Maximum Green (s)	5.0	5.0		27.0	27.0		14.0
Yellow Time (s)	4.0	4.0		3.0	3.0		2.0
All-Red Time (s)	3.0	3.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		
Total Lost Time (s)	7.0	7.0		4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	5.1	5.1		27.6	27.6		
Actuated g/C Ratio	0.11	0.11		0.60	0.60		
v/c Ratio	0.67	0.50		0.51	0.70		
Control Delay	42.6	12.9		8.9	13.8		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	42.6	12.9		8.9	13.8		
LOS	D	B		A	B		
Approach Delay	27.0			8.9	13.8		
Approach LOS	C			A	B		

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 46.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 50.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	134	148	551	757
v/c Ratio	0.67	0.50	0.51	0.70
Control Delay	42.6	12.9	8.9	13.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	42.6	12.9	8.9	13.8
Queue Length 50th (ft)	32	5	55	90
Queue Length 95th (ft)	53	15	210	#434
Internal Link Dist (ft)	561		292	290
Turn Bay Length (ft)	150			
Base Capacity (vph)	199	296	1146	1146
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.67	0.50	0.48	0.66

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 (vph)	67	89	0	468	681	0
Future Volume (vph)	67	89	0	468	681	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1805	1495		1827	1827	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1805	1495		1827	1827	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	134	148	0	551	757	0
RTOR Reduction (vph)	0	132	0	0	0	0
Lane Group Flow (vph)	134	16	0	551	757	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	5.1	5.1		27.6	27.6	
Effective Green, g (s)	5.1	5.1		27.6	27.6	
Actuated g/C Ratio	0.10	0.10		0.57	0.57	
Clearance Time (s)	7.0	7.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	189	156		1037	1037	
v/s Ratio Prot	c0.07			0.30	c0.41	
v/s Ratio Perm		0.01				
v/c Ratio	0.71	0.10		0.53	0.73	
Uniform Delay, d1	21.0	19.7		6.5	7.7	
Progression Factor	1.01	1.17		1.00	1.00	
Incremental Delay, d2	11.4	0.3		0.5	2.6	
Delay (s)	32.6	23.2		7.0	10.4	
Level of Service	C	C		A	B	
Approach Delay (s)	27.7			7.0	10.4	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	48.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	108	513	676	84
Future Volume (vph)	0	0	108	513	676	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	0	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.985	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1612	1827	1807	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1612	1827	1807	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	0	0	174	590	768	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	174	590	867	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	108	513	676	84
Future Volume (Veh/h)	0	0	108	513	676	84
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	0	0	174	590	768	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.67	0.67	0.67			
vC, conflicting volume	1756	818	867			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1883	477	551			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	100	100	73			
cM capacity (veh/h)	37	386	647			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	174	590	867
Volume Left	174	0	0
Volume Right	0	0	99
cSH	647	1700	1700
Volume to Capacity	0.27	0.35	0.51
Queue Length 95th (ft)	27	0	0
Control Delay (s)	12.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	2.9		0.0
Approach LOS			

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	533	493	0	128	157
Future Volume (vph)	0	533	493	0	128	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	666	554	0	166	185
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	666	554	0	166	185
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	533	493	0	128	157
Future Volume (Veh/h)	0	533	493	0	128	157
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	666	554	0	166	185
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	554				1220	554
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	554				1220	554
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				17	65
cM capacity (veh/h)	1016				200	530

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	666	554	166	185
Volume Left	0	0	166	0
Volume Right	0	0	0	185
cSH	1700	1700	200	530
Volume to Capacity	0.39	0.33	0.83	0.35
Queue Length 95th (ft)	0	0	151	39
Control Delay (s)	0.0	0.0	75.4	15.4
Lane LOS			F	C
Approach Delay (s)	0.0	0.0	43.8	
Approach LOS			E	

Intersection Summary			
Average Delay	9.8		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	398	110	88	535	235	78
Future Volume (vph)	398	110	88	535	235	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		150	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968					0.850
Flt Protected				0.992	0.950	
Satd. Flow (prot)	1794	0	0	1827	1752	1509
Flt Permitted				0.992	0.950	
Satd. Flow (perm)	1794	0	0	1827	1752	1509
Link Speed (mph)	30			30	30	
Link Distance (ft)	575			567	314	
Travel Time (s)	13.1			12.9	7.1	
Peak Hour Factor	0.94	0.84	0.74	0.82	0.79	0.80
Heavy Vehicles (%)	3%	1%	4%	3%	3%	7%
Adj. Flow (vph)	423	131	119	652	297	98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	554	0	0	771	297	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

1: Red Spring Road & Shawsheen Road/Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.1	0.9	0.0	1.0
Total Del/Veh (s)	1.6	0.8	5.6	2.6	71.2	13.6	14.8

Intersection: 1: Red Spring Road & Shawsheen Road/Essex Street

Movement	EB	WB	NB	NB	B16
Directions Served	TR	LT	L	R	T
Maximum Queue (ft)	3	88	171	228	41
Average Queue (ft)	1	41	145	134	13
95th Queue (ft)	6	112	209	343	84
Link Distance (ft)	514	489		262	219
Upstream Blk Time (%)				13	1
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)			150		
Storage Blk Time (%)			39	1	
Queuing Penalty (veh)			30	2	

Lanes, Volumes, Timings
2: Dundee Park Drive/Railroad Street & Essex Street

03/20/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	337	37	0	439	145	0	0	0	135	28	113
Future Volume (vph)	144	337	37	0	439	145	0	0	0	135	28	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		10%			0%			0%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.957						0.953	
Flt Protected		0.986									0.975	
Satd. Flow (prot)	0	1707	0	0	1743	0	0	0	0	0	1692	0
Flt Permitted		0.986									0.975	
Satd. Flow (perm)	0	1707	0	0	1743	0	0	0	0	0	1692	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		567			157			237			663	
Travel Time (s)		12.9			3.6			5.4			15.1	
Peak Hour Factor	0.80	0.89	0.70	0.72	0.85	0.60	0.46	0.50	0.40	0.67	0.55	0.83
Heavy Vehicles (%)	4%	3%	0%	2%	4%	5%	0%	10%	0%	7%	0%	2%
Adj. Flow (vph)	180	379	53	0	516	242	0	0	0	201	51	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	612	0	0	758	0	0	0	0	0	388	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 85.7%	ICU Level of Service E
Analysis Period (min) 15	

2: Dundee Park Drive/Railroad Street & Essex Street Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.1	0.0	0.0	0.0	0.6	0.1	0.5	1.5
Total Del/Veh (s)	10.1	6.4	4.1	1.5	0.8	93.6	100.1	89.2	22.8

Intersection: 2: Dundee Park Drive/Railroad Street & Essex Street

Movement	EB	WB	SB	B12
Directions Served	LTR	LTR	LTR	T
Maximum Queue (ft)	148	18	364	8
Average Queue (ft)	81	5	259	2
95th Queue (ft)	190	24	527	37
Link Distance (ft)	489	99	590	289
Upstream Blk Time (%)			3	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	261	289	5	293	284	35
Future Volume (vph)	261	289	5	293	284	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	100
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.927					0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1700	0	0	1843	1736	1615
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1700	0	0	1843	1736	1615
Link Speed (mph)	30			30	30	
Link Distance (ft)	157			157	539	
Travel Time (s)	3.6			3.6	12.3	
Peak Hour Factor	0.86	0.82	0.92	0.74	0.72	0.92
Heavy Vehicles (%)	2%	5%	2%	3%	4%	0%
Adj. Flow (vph)	303	352	5	396	394	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	655	0	0	401	394	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.8%		ICU Level of Service A	
Analysis Period (min) 15			

3: School Street & Essex Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3
Total Del/Veh (s)	2.2	0.9	6.8	0.7	19.5	1.1	6.7	6.1

Intersection: 3: School Street & Essex Street

Movement	EB	WB	NB	NB
Directions Served	TR	LT	L	R
Maximum Queue (ft)	25	20	155	68
Average Queue (ft)	7	5	99	29
95th Queue (ft)	32	33	180	82
Link Distance (ft)	99	82	463	
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				100
Storage Blk Time (%)			11	0
Queuing Penalty (veh)			4	0

Lane Group	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR	NBR2	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	266	7	32	3	291	17	0	5	0	0
Future Volume (vph)	0	266	7	32	3	291	17	0	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865					0.943				
Flt Protected						0.993	0.972				
Satd. Flow (prot)	0	1568	0	0	0	1809	1742	0	0	0	0
Flt Permitted						0.993	0.972				
Satd. Flow (perm)	0	1568	0	0	0	1809	1742	0	0	0	0
Link Speed (mph)	30					30	30			30	
Link Distance (ft)	157					735	480			767	
Travel Time (s)	3.6					16.7	10.9			17.4	
Peak Hour Factor	0.25	0.97	0.75	0.56	0.38	0.72	0.63	0.25	0.25	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	0%	5%	0%	0%	0%	2%	2%
Adj. Flow (vph)	0	274	9	57	8	404	27	0	20	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	283	0	0	0	469	47	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	0					0	12			12	
Link Offset(ft)	0					0	0			0	
Crosswalk Width(ft)	16					16	16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		15	9	9	15	9
Sign Control	Free					Free	Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.8%		ICU Level of Service A	
Analysis Period (min) 15			

6: Ridge Street & Brook Street & Essex Street Performance by movement

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	NBL	NBR2	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.3		0.3	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.1	0.7	1.0	4.0		1.1	12.1	3.5	1.5

Intersection: 6: Ridge Street & Brook Street & Essex Street

Movement	EB	WB	NB
Directions Served	R>	<LT	L>
Maximum Queue (ft)	6	46	31
Average Queue (ft)	1	14	15
95th Queue (ft)	13	57	40
Link Distance (ft)	82	712	401
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	64	5	117	0	0	0	1	235	59	57	254	12
Future Volume (vph)	64	5	117	0	0	0	1	235	59	57	254	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.967			0.991	
Flt Protected		0.956						0.999			0.990	
Satd. Flow (prot)	0	1722	1272	0	1900	0	0	1725	0	0	1681	0
Flt Permitted		0.956						0.999			0.990	
Satd. Flow (perm)	0	1722	1272	0	1900	0	0	1725	0	0	1681	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		176			480			539			799	
Travel Time (s)		4.0			10.9			12.3			18.2	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	0%	5%	11%	39%	4%	0%
Adj. Flow (vph)	110	10	213	0	0	0	4	280	91	106	374	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	120	213	0	0	0	0	375	0	0	516	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	64	5	117	0	0	0	1	235	59	57	254	12
Future Volume (Veh/h)	64	5	117	0	0	0	1	235	59	57	254	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.50	0.55	0.25	0.92	0.92	0.25	0.84	0.65	0.54	0.68	0.33
Hourly flow rate (vph)	110	10	213	0	0	0	4	280	91	106	374	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	938	956	326	1049	983	392	410			371		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	938	956	326	1049	983	392	410			371		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	50	96	68	100	100	100	100			90		
cM capacity (veh/h)	221	232	662	125	224	661	1160			1010		

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	333	0	375	516
Volume Left	110	0	4	106
Volume Right	213	0	91	36
cSH	615	1700	1160	1010
Volume to Capacity	0.54	0.00	0.00	0.10
Queue Length 95th (ft)	81	0	0	9
Control Delay (s)	22.3	0.0	0.1	2.8
Lane LOS	C	A	A	A
Approach Delay (s)	22.3	0.0	0.1	2.8
Approach LOS	C	A		

Intersection Summary				
Average Delay		7.3		
Intersection Capacity Utilization		47.1%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	92	145	0	686	524	0	
Future Volume (vph)	92	145	0	686	524	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	0	100			0	
Storage Lanes	1	1	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850					
Flt Protected	0.950						
Satd. Flow (prot)	1805	1495	0	1827	1827	0	
Flt Permitted	0.950						
Satd. Flow (perm)	1805	1495	0	1827	1827	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		242					
Link Speed (mph)	30			30	30		
Link Distance (ft)	641			372	370		
Travel Time (s)	14.6			8.5	8.4		
Peak Hour Factor	0.50	0.60	0.58	0.85	0.90	0.72	
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%	
Adj. Flow (vph)	184	242	0	807	582	0	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	184	242	0	807	582	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1		2	2		
Detector Template	Left	Right		Thru	Thru		
Leading Detector (ft)	20	20		100	100		
Trailing Detector (ft)	0	0		0	0		
Detector 1 Position(ft)	0	0		0	0		
Detector 1 Size(ft)	20	20		6	6		
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot	Perm		NA	NA		
Protected Phases	4			2	6		9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø9
Permitted Phases		4					
Detector Phase	4	4		2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0		20.0	20.0		2.0
Minimum Split (s)	11.0	11.0		24.0	24.0		17.0
Total Split (s)	16.0	16.0		47.0	47.0		17.0
Total Split (%)	20.0%	20.0%		58.8%	58.8%		21%
Maximum Green (s)	9.0	9.0		43.0	43.0		14.0
Yellow Time (s)	4.0	4.0		3.0	3.0		2.0
All-Red Time (s)	3.0	3.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		
Total Lost Time (s)	7.0	7.0		4.0	4.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		Min	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							5.0
Pedestrian Calls (#/hr)							28
Act Effct Green (s)	9.8	9.8		31.1	31.1		
Actuated g/C Ratio	0.17	0.17		0.54	0.54		
v/c Ratio	0.60	0.53		0.81	0.59		
Control Delay	40.1	10.9		19.7	12.3		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	40.1	10.9		19.7	12.3		
LOS	D	B		B	B		
Approach Delay	23.5			19.7	12.3		
Approach LOS	C			B	B		

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 57.3	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 50.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: North Main Street (Route 28) & Lewis Street

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	184	242	807	582
v/c Ratio	0.60	0.53	0.81	0.59
Control Delay	40.1	10.9	19.7	12.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	40.1	10.9	19.7	12.3
Queue Length 50th (ft)	48	4	141	83
Queue Length 95th (ft)	79	5	404	267
Internal Link Dist (ft)	561		292	290
Turn Bay Length (ft)	150			
Base Capacity (vph)	308	455	1464	1464
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	0.53	0.55	0.40

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	92	145	0	686	524	0
Future Volume (vph)	92	145	0	686	524	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1805	1495		1827	1827	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1805	1495		1827	1827	
Peak-hour factor, PHF	0.50	0.60	0.58	0.85	0.90	0.72
Adj. Flow (vph)	184	242	0	807	582	0
RTOR Reduction (vph)	0	201	0	0	0	0
Lane Group Flow (vph)	184	41	0	807	582	0
Heavy Vehicles (%)	0%	8%	14%	4%	4%	11%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	9.8	9.8		31.1	31.1	
Effective Green, g (s)	9.8	9.8		31.1	31.1	
Actuated g/C Ratio	0.17	0.17		0.53	0.53	
Clearance Time (s)	7.0	7.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	302	250		972	972	
v/s Ratio Prot	c0.10			c0.44	0.32	
v/s Ratio Perm		0.03				
v/c Ratio	0.61	0.16		0.83	0.60	
Uniform Delay, d1	22.5	20.8		11.4	9.4	
Progression Factor	1.04	1.16		1.00	1.00	
Incremental Delay, d2	3.5	0.3		6.1	1.0	
Delay (s)	26.8	24.3		17.5	10.4	
Level of Service	C	C		B	B	
Approach Delay (s)	25.4			17.5	10.4	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	82	678	590	66
Future Volume (vph)	0	0	82	678	590	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	0	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.986	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1612	1827	1809	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1612	1827	1809	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	799			255	372	
Travel Time (s)	18.2			5.8	8.5	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Heavy Vehicles (%)	8%	7%	12%	4%	4%	0%
Mid-Block Traffic (%)	16%			0%	0%	
Adj. Flow (vph)	0	0	132	779	670	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	132	779	748	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	82	678	590	66
Future Volume (Veh/h)	0	0	82	678	590	66
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.79	0.62	0.87	0.88	0.85
Hourly flow rate (vph)	0	0	132	779	670	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					372	
pX, platoon unblocked	0.78	0.78	0.78			
vC, conflicting volume	1752	709	748			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1821	492	542			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	100	100	83			
cM capacity (veh/h)	53	445	768			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	132	779	748
Volume Left	132	0	0
Volume Right	0	0	78
cSH	768	1700	1700
Volume to Capacity	0.17	0.46	0.44
Queue Length 95th (ft)	15	0	0
Control Delay (s)	10.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	1.5		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	613	374	0	129	182
Future Volume (vph)	0	613	374	0	129	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1787	1568
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1787	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		320	68		767	
Travel Time (s)		7.3	1.5		17.4	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Heavy Vehicles (%)	2%	2%	2%	0%	1%	3%
Mid-Block Traffic (%)		0%	0%		19%	
Adj. Flow (vph)	0	766	420	0	168	214
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	766	420	0	168	214
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	613	374	0	129	182
Future Volume (Veh/h)	0	613	374	0	129	182
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.80	0.89	0.92	0.77	0.85
Hourly flow rate (vph)	0	766	420	0	168	214
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	420				1186	420
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420				1186	420
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				20	66
cM capacity (veh/h)	1139				209	631

Direction, Lane #	NB 1	SB 1	SE 1	SE 2
Volume Total	766	420	168	214
Volume Left	0	0	168	0
Volume Right	0	0	0	214
cSH	1700	1700	209	631
Volume to Capacity	0.45	0.25	0.80	0.34
Queue Length 95th (ft)	0	0	144	37
Control Delay (s)	0.0	0.0	68.1	13.6
Lane LOS			F	B
Approach Delay (s)	0.0	0.0	37.6	
Approach LOS			E	

Intersection Summary			
Average Delay	9.2		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		