

TRANSPORTATION IMPACT ASSESSMENT

MURPHY'S FARM OPEN SPACE DEVELOPMENT DRACUT, MASSACHUSETTS

Prepared for:

O'BRIEN HOMES, INC.
Andover, Massachusetts

October 2016

Prepared by:

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CONTENTS

EXECUTIVE SUMMARY	1
Recommendations	2
INTRODUCTION	3
Project Description	3
Study Methodology	4
EXISTING CONDITIONS	5
Existing Traffic Volumes	6
Pedestrian and Bicycle Facilities.....	7
Public Transportation	8
Spot Speed Measurements.....	8
Motor Vehicle Crash Data.....	9
FUTURE CONDITIONS	11
Future Traffic Growth	11
Project-Generated Traffic.....	12
Future Traffic Volumes - Build Condition.....	14
TRAFFIC OPERATIONS ANALYSIS	15
Methodology	15
Analysis Results	17
SIGHT DISTANCE EVALUATION.....	20
CONCLUSIONS AND RECOMMENDATIONS	22
Conclusions	22
Recommendations	23

FIGURES

No.	Title
1	Site Location Map
2	Existing Intersection Lane Use, Travel Lane Width and Pedestrian Facilities
3	2016 Existing Peak-Hour Traffic Volumes
4	2023 No-Build Peak-Hour Traffic Volumes
5	Trip-Distribution Map
6	Project-Generated Peak-Hour Traffic Volumes
7	2023 Build Peak-Hour Traffic Volumes

TABLES

No.	Title
1	Study Area Intersection Description
2	2016 Existing Traffic Volumes
3	Vehicle Travel Speed Measurements
4	Motor Vehicle Crash Data Summary
5	Trip-Generation Summary
6	Peak-Hour Traffic Volume Increases
7	Level-of-Service Criteria for Unsignalized Intersections
8	Unsignalized Intersection Level-of-Service and Vehicle Queue Summary
9	Sight Distance Measurements



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Dear Reviewer:

This letter shall certify that this *Transportation Impact Assessment* has been prepared under my direct supervision and responsible charge. I am a Registered Professional Engineer (P.E.) in the Commonwealth of Massachusetts (Massachusetts P.E. No. 38871, Civil) and hold Certification as a Professional Traffic Operations Engineer (PTOE) from the Transportation Professional Certification Board, Inc. of the Institute of Transportation Engineers (ITE) (PTOE Certificate No. 993). I am also a Fellow of the Institute of Transportation Engineers (FITE).

Sincerely,

VANASSE & ASSOCIATES, INC.

Jeffrey S. Dirk, P.E., PTOE, FITE
Principal

EXECUTIVE SUMMARY

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of a 33-home open-space residential development to be known as Murphy's Farm and located off Wheeler Street, Poppy Lane and Elizabeth Drive in Dracut, Massachusetts (hereafter referred to as the "Project"). This assessment was prepared in consultation with the Town of Dracut, the City of Methuen and the Massachusetts Department of Transportation (MassDOT); was performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*; and was conducted pursuant to the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the Institute of Transportation Engineers (ITE),¹ the Project is predicted to generate approximately 380 vehicle trips on an average weekday (two-way, 24-hour volume), with 33 vehicle trips expected during the weekday morning peak-hour and 39 vehicle trips expected during the weekday evening peak-hour;
2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), with no change in level-of-service or vehicle queueing predicted to occur as a result of the addition of Project-related traffic;
3. No apparent safety deficiencies were noted with respect to the motor vehicle crash history at the study intersections; and
4. Lines of sight to and from the study are intersections were found to meet or exceed the recommended minimum distance for the intersections to function in a safe manner based on the appropriate approach speed along the intersecting roadway, noting the partial obstruction on the Rinzee Road approach to Wheeler Street (landscape features on the southwest corner of the intersection). All sight lines were found to exceed the recommended minimum sight distance for the posted speed limit.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations that follow.

¹*Trip Generation*, 9th Edition; Institute of Transportation Engineers; Washington, DC; 2012.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project site will be provided by way of a new roadway that will connect Poppy Lane and Elizabeth Drive, with access thereafter provided to Wheeler Road and Wheeler Street by way of Wilshire Circle and Rinzee Road, respectively. ***We note that it is unlikely that the proposed roadway link will induce cut-through traffic between Wheeler Road and Wheeler Street given the relatively low traffic volumes on these roadways and the circuitous travel route.*** The following recommendations are offered with respect to the design and operation of the Project site roadway:

- The Project site roadway should be a minimum of 24-feet in width or as required to accommodate fire truck turning maneuvers pursuant to the requirements of NFPA® 1² or as directed by the Fire Chief, with appropriate geometry to accommodate a safe travel speed of 25 miles per hour (mph).
- STOP-signs and marked STOP-lines should be provided at all minor street intersections with the primary circulating roadway within the Project site. In addition, consideration should be given to replacing the STOP-signs and installing marked STOP-lines on the Wilshire Circle and Rinzee Road approaches to Wheeler Road and Wheeler Street, respectively.
- All signs and pavement markings to be installed within the Project site shall conform to the applicable standards of the *Manual on Uniform Traffic Control Devices (MUTCD)*.³
- A Sidewalk should be provided along at least one side of the Project site roadway and should extend to the existing sidewalk on Elizabeth Drive and Poppy Lane.
- A school bus waiting area (sidewalk) should be provided at an appropriate location designated by the Town.
- Marked crosswalks and Americans with Disabilities Act (ADA) compliant wheelchair ramps should be provided at pedestrian crossings within the Project site.
- Signs and landscaping to be installed along the Project site roadway, internal to the Project site and within intersection sight triangle areas should be designed and maintained so as not to restrict lines of sight.

With implementation of the above recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

²*National Fire Protection Association (NFPA)® 1, Fire Code*, Seventh Edition; NFPA; Quincy, Massachusetts; 2015; as amended per 527 CMR.

³*Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.

INTRODUCTION

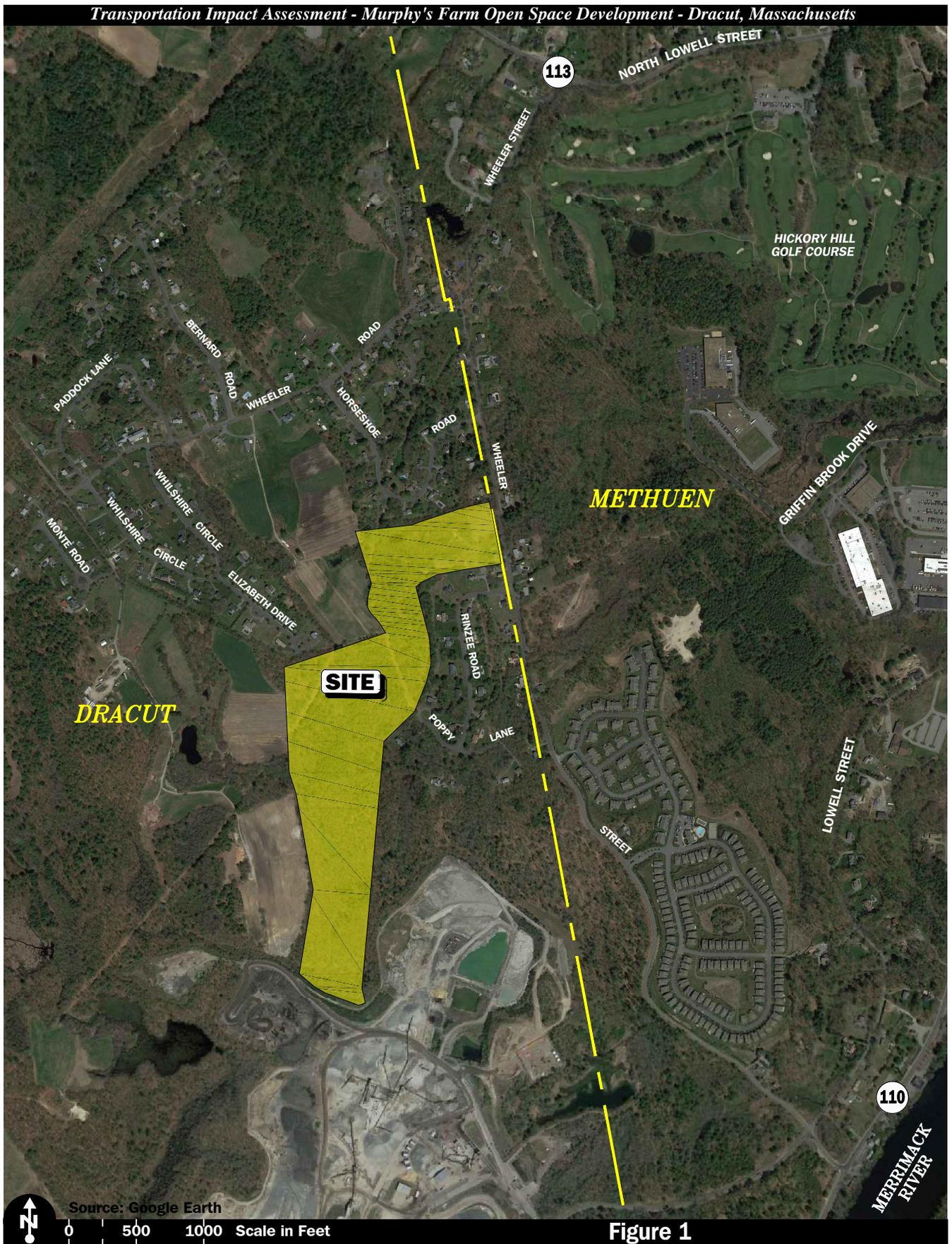
Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction a 33-home open-space residential development to be known as Murphy's Farm and located off Wheeler Street, Poppy Lane and Elizabeth Drive in Dracut, Massachusetts (hereafter referred to as the "Project"). This study evaluates the following specific areas as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; and identifies and analyzes existing traffic conditions and future traffic conditions, both with and without the Project, along Wheeler Road, Wheeler Street, Wilshire Circle/Elizabeth Drive and Poppy Lane, and at the following intersections: Wheeler Street at Poppy Lane; Wheeler Road at Wilshire Circle and Paddock Lane; and Wheeler Road at Wilshire Circle.

PROJECT DESCRIPTION

As proposed, the Project will entail the construction of a 33-home open-space residential development that will be known as Murphy's Farm and located off Wheeler Street, Poppy Lane and Elizabeth Drive in Dracut, Massachusetts. The Project site encompass approximately 50.75 acres of land bounded by residential properties and areas of open and wooded space to the north and south; Wheeler Street, Poppy Lane, residential properties and areas of open and wooded space to the east; and Elizabeth Drive, residential properties and areas of open and wooded space to the west. Figure 1 depicts the Project site location in relation to the existing roadway network. At present, the Project site consists of areas of open and wooded space.

Access to the Project site will be provided by way of a new roadway that will connect Poppy Lane and Elizabeth Drive, with access thereafter provided to Wheeler Road and Wheeler Street by way of Wilshire Circle and Rinzee Road, respectively. ***We note that it is unlikely that the proposed roadway link will induce cut-through traffic between Wheeler Road and Wheeler Street given the relatively low traffic volumes on these roadways and the circuitous travel route.***

Off-Street parking is proposed for each home in separate driveways that can accommodate a minimum of two (2) cars each, with many if not all of the proposed homes to include a 2-car garage.



Source: Google Earth
0 500 1000 Scale in Feet

Figure 1

Site Location Map

STUDY METHODOLOGY

This study was prepared in consultation with the Town of Dracut, the City of Methuen and the Massachusetts Department of Transportation (MassDOT); was performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines* and the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports; and was conducted in three distinct stages.

The first stage involved an assessment of existing conditions in the study area and included an inventory of roadway geometrics; pedestrian and bicycle facilities; public transportation services; observations of traffic flow; and collection of daily and peak period traffic counts.

In the second stage of the study, future traffic conditions were projected and analyzed. Specific travel demand forecasts for the Project were assessed along with future traffic demands due to expected traffic growth independent of the Project. A seven-year time horizon was selected for analyses consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. The traffic analysis conducted in stage two identifies existing or projected future roadway capacity, traffic safety, and site access issues.

The third stage of the study presents and evaluates measures to address traffic and safety issues, if any, identified in stage two of the study.

EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in September 2016. The field investigation consisted of an inventory of existing roadway geometrics; pedestrian and bicycle facilities; public transportation services; traffic volumes; and operating characteristics; as well as posted speed limits and land use information within the study area. The study area for the Project was selected to contain the major roadways providing access to the Project site, including Wheeler Road, Wheeler Street, Wilshire Circle/Elizabeth Drive and Poppy Lane, as well as the intersections of Wheeler Street at Poppy Lane; Wheeler Road at Wilshire Circle and Paddock Lane; and Wheeler Road at Wilshire Circle.

The following describes the study area roadways and intersections.

Roadway

Wheeler Road

- Two-lane local collector roadway under the jurisdiction of the Town of Dracut
- Traverses study area in a general northeast-southwest direction
- Provides two 12-foot wide travel lanes separated by a double-yellow centerline with no marked shoulders provided
- Illumination is provided by way of street lights mounted on wood poles
- Posted speed limit is 30 miles per hour (mph)
- Abutting land use consists of residential and agricultural properties.

Wheeler Street

- Two-lane local collector roadway under the jurisdiction of the City of Methuen
- Traverses study area in a general north-south direction
- Consists of a 22 to 24-foot wide roadway with no pavement markings provided
- Illumination is provided by way of street lights mounted on wood poles
- Posted speed limit is 30 mph
- Abutting land use consists of the Project site and residential and agricultural properties.

Intersections

Table 1 and Figure 2 summarize lane use, traffic control, and pedestrian and bicycle accommodations at the study area intersections as observed in September 2016.

**Table 1
STUDY AREA INTERSECTION DESCRIPTION**

Intersection	Traffic Control Type^a	No. of Travel Lanes Provided	Shoulder Provided? (Yes/No/Width)	Pedestrian Accommodations? (Yes/No/Description)	Bicycle Accommodations? (Yes/No/Description)
Wheeler Street at Rinzee Road	S	1 per direction on all legs of the intersection	No	Yes – south/east side of Rinzee Road	No ^b
Wheeler Road at Wilshire Circle and Paddock Lane	S	1 per direction on all legs of the intersection	No	Yes – east side of Wilshire Circle and Poppy Lane	No
Wheeler Road at Wilshire Circle	S	1 per direction on all legs of the intersection	No	Yes – west side of Wilshire Circle	No

^aTS = traffic signal control; S = STOP-sign control; Y = YIELD-sign control; R = rotary/roundabout control; NC = no control present.

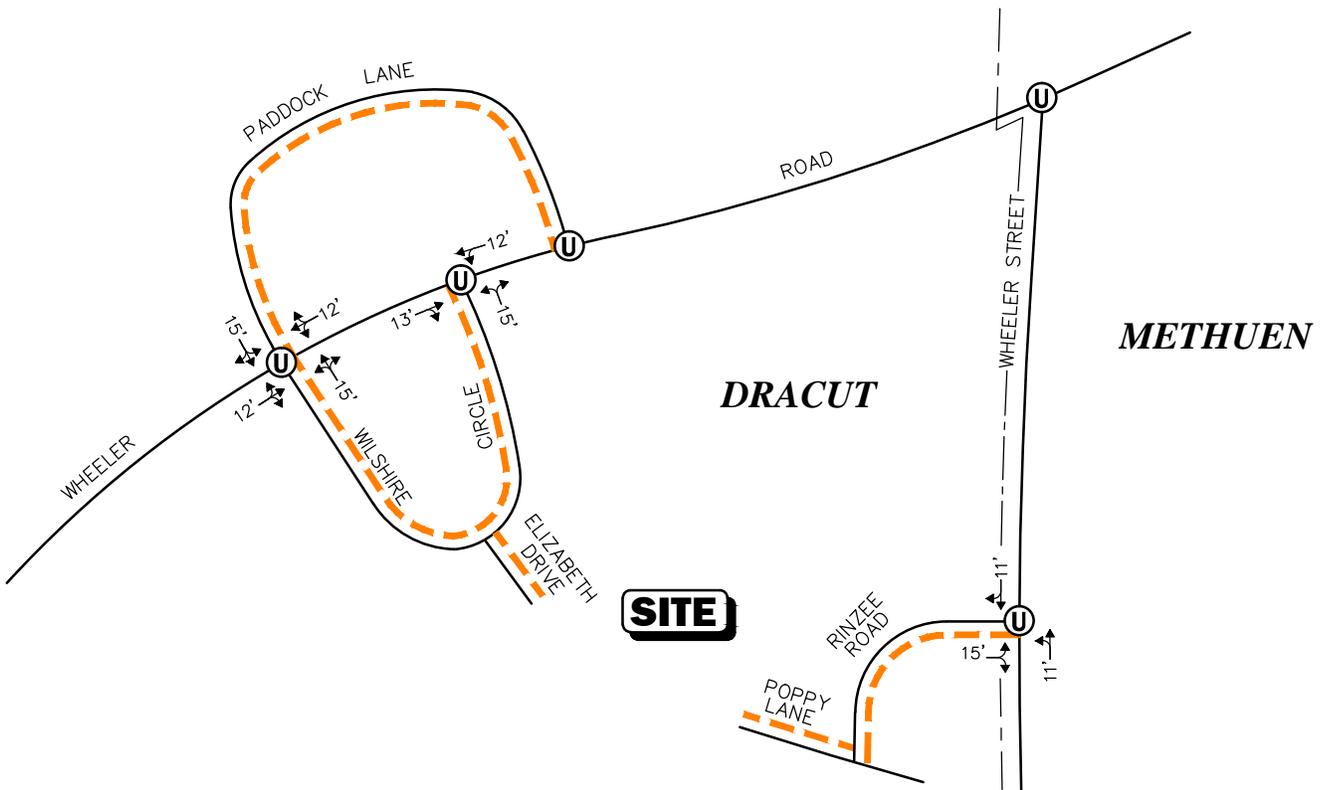
^bA combined shoulder and travel lane width of at least 14 feet is required for designation as a shared-use roadway (i.e., motor vehicles and bicycles sharing the travelled-way).

EXISTING TRAFFIC VOLUMES

In order to determine existing traffic-volume demands and flow patterns within the study area, automatic traffic recorder (ATR) counts, manual turning movement counts (TMCs) and vehicle classification counts were completed in September 2016 while public schools were in regular session. The ATR counts were conducted on September 27th and 28th (Tuesday and Wednesday) on Wheeler Road and Wheeler Street in the vicinity of the Project site in order to record weekday daily traffic conditions over an extended period, with weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period manual TMCs performed at the study intersections on September 27th (Tuesday). These time periods were selected for analysis purposes as they are representative of the peak traffic volume hours for both the Project and the adjacent roadway network.

Legend:

-  **Signalized Intersection**
-  **Unsignalized Intersection**
-  **Sidewalk**
-  **Crosswalk**
-  **Lane Use and Travel Lane Width**



 Not To Scale



Figure 2

Existing Intersection Lane Use, Travel Lane Width and Pedestrian Facilities

Traffic Volume Adjustments

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, traffic volume data from MassDOT Continuous Count Station No. 5093 located on I-93 north of Routes 110 and 113 in Methuen were reviewed.⁴ Based on a review of this data, it was determined that traffic volumes for the month of September are approximately 2.0 percent above average-month conditions and, therefore, the raw traffic count data that forms the basis of this assessment were not adjusted downward in order to provide a conservative (above-average) analysis condition. The 2016 Existing traffic volumes are summarized in Table 2, with the weekday morning and evening peak-hour traffic volumes graphically depicted on Figure 3. Note that the peak-hour traffic volumes presented in Table 2 were obtained from the TMCs and are reflected on the aforementioned figure.

Table 2
2016 EXISTING TRAFFIC VOLUMES

Location	AWT ^a	Weekday Morning Peak-Hour (7:30 – 8:30 AM)			Weekday Evening Peak-Hour (5:00 – 6:00 PM)		
		VPH ^b	K Factor ^c	Directional Distribution	VPH	K Factor	Directional Distribution
Wheeler Road, east of Wilshire Circle	1,100	63	5.7	50.8% WB	109	9.9	52.3% WB
Wheeler Street, north of Rinzee road	700	82	11.7	53.7% NB	77	11.0	50.6% SB

^aAverage weekday traffic in vehicles per day.

^bVehicles per hour.

^cPercent of daily traffic occurring during the peak-hour.

NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

As can be seen in Table 2, Wheeler Road in the vicinity of the Project site was found to accommodate approximately 1,100 vehicles on an average weekday (two-way, 24-hour volume), with approximately 63 vehicles per hour (vph) during the weekday morning peak-hour and 109 vph during the weekday evening peak-hour. Wheeler Street in the vicinity of the Project site was found to accommodate approximately 700 vehicles on an average weekday, with approximately 82 vph during the weekday morning peak-hour and 77 vph during the weekday evening peak-hour.

PEDESTRIAN AND BICYCLE FACILITIES

A comprehensive field inventory of pedestrian and bicycle facilities within the study area was undertaken in September 2016. The field inventory consisted of a review of the location of sidewalks and pedestrian crossing locations along the study roadways and at the study intersections, as well as the location of existing and planned future bicycle facilities. As detailed on Figure 2, sidewalks are currently provided along one side of Wilshire Circle, Paddock Lane,

⁴MassDOT Traffic Volumes for the Commonwealth of Massachusetts; 2015; Continuous Count Station 5093 – I-93, north of Routes 110 & 113, Methuen, MA.

Elizabeth Drive, Poppy Lane and Rinzee Road; sidewalks are not provided along Wheeler Road or Wheeler Street within the study area.

Formal bicycle facilities were not identified within the study area and neither Wheeler Road nor Wheeler Street provide sufficient width (combined travel lane and shoulder) to support bicycle travel in a shared travelled-way configuration.⁵

PUBLIC TRANSPORTATION

Public transportation services are not directly provided to the Project site; however, the Lowell Regional Transit Authority (LRTA) does provide fixed-route bus service to the Town of Dracut by way of Route 1 – *Christian Hill*, and Route 10 – *Dracut/Tyngsboro*. The closest LRTA bus stop is located at Dracut Village Square which is approximately 3-miles west of the Project site. In addition, the Massachusetts Bay Transportation Authority (MBTA) provides Commuter Rail service from both Lawrence (Lawrence Station on the Haverhill Line) and Lowell (Lowell Station on the Lowell Line), with stations located approximately 7-miles east and southwest of the Project site, respectively. The LRTA and MBTA Commuter Rail schedules and fare information are provided in the Appendix.

SPOT SPEED MEASUREMENTS

Vehicle travel speed measurements were performed on both Wheeler Road and Wheeler Street in the vicinity of the Project site over a continuous 48-hour period (Tuesday through Wednesday, inclusive) in conjunction with the ATR counts. Table 3 summarizes the vehicle travel speed measurements.

**Table 3
VEHICLE TRAVEL SPEED MEASUREMENTS**

	Wheeler Road		Wheeler Street	
	Eastbound	Westbound	Northbound	Southbound
Mean Travel Speed (mph)	35	32	32	33
85 th Percentile Speed (mph)	39	36	36	37
Posted Speed Limit (mph)	30	30	30	30

mph = miles per hour.

As can be seen in Table 3, the mean (average) vehicle travel speed along Wheeler Road in the vicinity of the Project site was found to be approximately 34 mph. The average measured 85th percentile vehicle travel speed, or the speed at which 85 percent of the observed vehicles traveled at or below, was found to be approximately 38 mph, which is 8 mph above the posted

⁵A minimum combined travel lane and paved shoulder width of 14-feet is required to support bicycle travel in a shared travelled-way condition.

speed limit (30 mph). The 85th percentile speed is used as the basis of engineering design and in the evaluation of sight distances, and is often used in establishing posted speed limits.

The average vehicle travel speed along Wheeler Street in the vicinity of the Project site was found to be 32 mph, with the average measured 85th percentile vehicle travel speed found to be 37 mph, which is 7 mph above the posted speed limit (30 mph).

MOTOR VEHICLE CRASH DATA

Motor vehicle crash information for the study area intersections was provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit for the most recent five-year period available (2010 through 2014, inclusive) in order to examine motor vehicle crash trends occurring within the study area. The data is summarized by intersection, type, severity, and day of occurrence, and presented in Table 4.

As can be seen in Table 4, the study area intersections experienced an average of less than one (1) reported motor vehicle crash per year over the five-year review period and were found to have a motor vehicle crash rate below both the MassDOT statewide and District averages for an unsignalized intersection for the MassDOT Highway Division District in which the intersections are located (District 4). A review of the MassDOT statewide High Crash Location List indicated that there were no locations within the study area that were included on MassDOT's Highway Safety Improvement Program (HSIP) listing. In addition, no fatal motor vehicle crashes were reported to have occurred at the study area intersections over the five-year review period. ***Based on a review of the MassDOT motor vehicle crash data, no discernible safety deficiencies were apparent at the study intersections.*** The detailed MassDOT Crash Rate Worksheets are provided in the Appendix.

Table 4
MOTOR VEHICLE CRASH DATA SUMMARY^a

	Wheeler Street/ Rinzee Road	Wheeler Road/ Wilshire Circle/ Paddock Lane	Wheeler Road/ Wilshire Circle
Traffic Control Type: ^b	U	U	U
<i>Year:</i>			
2010	0	0	0
2011	1	0	0
2012	0	1	1
2013	0	0	0
<u>2014</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	1	1	1
Average	0.20	0.20	.20
Rate ^c	0.54	0.41	0.44
MassDOT Crash Rate: ^d	0.58/0.56	0.58/0.56	0.58/0.56
Significant? ^e	No	No	No
<i>Type:</i>			
Angle	0	1	1
Rear-End	1	0	0
Head-On	0	0	0
Sideswipe	0	0	0
Fixed Object	0	0	0
Pedestrian/Bicycle	0	0	0
<u>Unknown/Other</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	1	1	1
<i>Day of Week:</i>			
Monday through Friday	1	1	0
Saturday	0	0	0
<u>Sunday</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	1	0	1
<i>Severity:</i>			
Property Damage Only	1	0	0
Personal Injury	0	1	1
<u>Fatality</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	1	1	1

^aSource: MassDOT Safety Management/Traffic Operations Unit records, 2010 through 2014.

^bTraffic Control Type: U = unsignalized; TS = traffic signal.

^cCrash rate per million vehicles entering the intersection.

^dStatewide/District crash rate.

^eThe intersection crash rate is significant if it is found to exceed the MassDOT crash rate for the MassDOT Highway Division District in which the Project is located (District 4).

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2023, which reflects a seven-year planning horizon consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. Independent of the Project, traffic volumes on the roadway network in the year 2023 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated Project-generated traffic volumes superimposed upon the 2023 No-Build traffic volumes reflect 2023 Build traffic volume conditions with the Project.

FUTURE TRAFFIC GROWTH

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

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

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Planning Department of the Town of Dracut and the Planning Division of the City of Methuen Office of Economic & Community Development were contacted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on these discussions, the following projects were identified for inclusion in this assessment:

- ***Berube Farm Residential Development, Dracut, Massachusetts.*** This project consists of the construction of a 34-home single-family residential community to be located off Wheeler Road to the south of the Project site in Dracut, Massachusetts.
- ***Wheeler Village Residential Development, Dracut, Massachusetts.*** This project consists of the construction of a 73-home single-family residential community to be located off Wheeler Road to the south off the Project site in Dracut, Massachusetts.

Traffic volumes associated with the aforementioned specific development projects by others were obtained using trip-generation information available from the Institute of Transportation Engineers (ITE)⁶ for the appropriate land use and were assigned onto the study area roadway network based on existing traffic patterns. No other developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate.

General Background Traffic Growth

Traffic-volume data compiled by MassDOT from Continuous Count Station No. 5093 were reviewed in order to determine general background traffic growth trends. Based on a review of this data, it was determined that traffic volumes within the study area have generally decreased by an average of approximately 0.4 percent over the past several years. In order to provide a conservative (high) analysis scenario and a prudent planning condition for the Project, a 1.0 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

Roadway Improvement Projects

MassDOT and Department of Public Works in the Town of Dracut and the City of Methuen were contacted in order to determine if there were any planned future roadway improvement projects expected to be complete by 2023 within the study area. Based on these discussions, no roadway improvement projects outside of routine maintenance activities were identified to be planned within the study area at this time.

No-Build Traffic Volumes

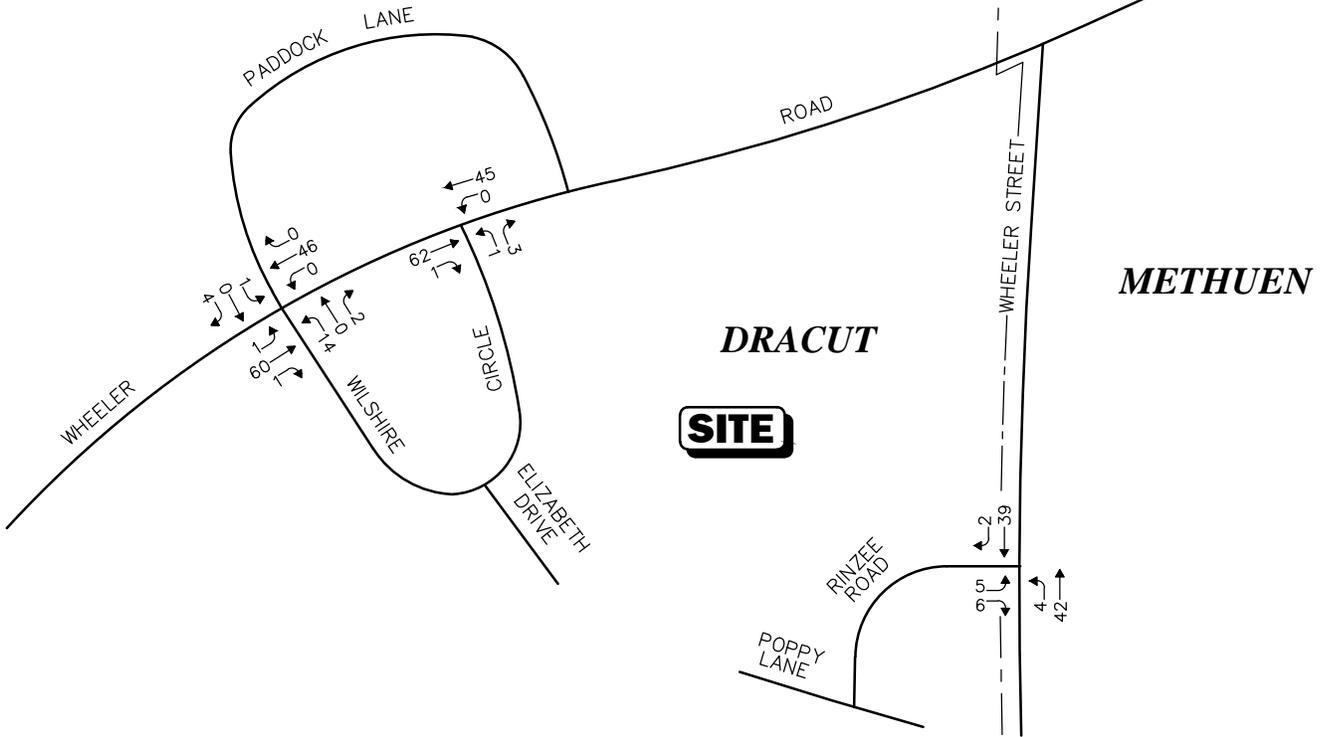
The 2023 No-Build condition peak-hour traffic-volumes were developed by applying the 1.0 percent per year compounded annual background traffic growth rate to the 2016 Existing peak-hour traffic volumes and then superimposing the peak-hour traffic volumes associated with the identified specific development projects by others. The resulting 2023 No-Build weekday morning and evening peak-hour traffic volumes are shown on Figure 4.

PROJECT-GENERATED TRAFFIC

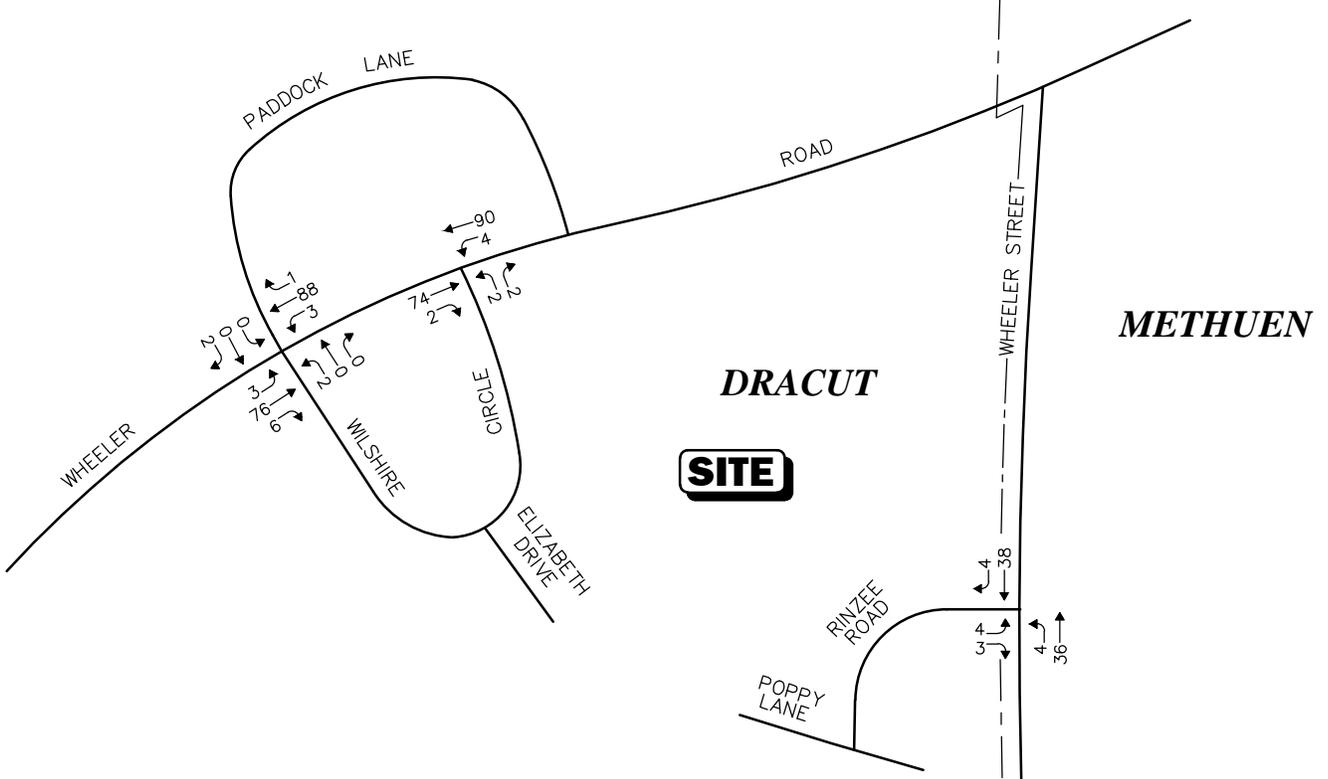
Design year (2023 Build) traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study roadways. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

⁶Ibid 1

WEEKDAY MORNING PEAK HOUR (7:30-8:30 AM)



WEEKDAY EVENING PEAK HOUR (5:00-6:00 PM)



Not To Scale

Figure 4

As proposed, the Project will entail the construction of 33 single-family homes. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the ITE⁷ for a similar land use as that proposed were used. ITE Land Use Code (LUC) 210, *Single-Family Detached Housing*, with the independent variable of number of dwelling units equal to 33, was used to develop the traffic characteristics of the Project.

Table 5 summarizes the anticipated traffic characteristics of the Project using the above methodology.

Table 5
TRIP GENERATION SUMMARY

Time Period/Direction	Vehicle Trips
	Proposed Residential Community (33 Units) ^a
<i>Average Weekday Daily:</i>	
Entering	190
<u>Exiting</u>	<u>190</u>
Total	380
<i>Weekday Morning Peak Hour:</i>	
Entering	8
<u>Exiting</u>	<u>25</u>
Total	33
<i>Weekday Evening Peak Hour:</i>	
Entering	25
<u>Exiting</u>	<u>14</u>
Total	39

^aBased on ITE LUC 210, *Single-Family Detached Housing*.

Project-Generated Traffic Volume Summary

As can be seen in Table 5, the Project is predicted to generate approximately 380 vehicle trips on an average weekday (two-way, 24-hour volume, or 190 vehicles entering and 190 exiting), with 33 vehicle trips (8 vehicles entering and 25 exiting) expected during the weekday morning peak-hour and 39 vehicle trips (25 vehicles entering and 14 exiting) expected during the weekday evening peak-hour.

Trip Distribution and Assignment

The directional distribution of generated trips to and from the Project site was determined based on a review of Journey-to-Work data obtained from the U.S. Census for persons residing in the Town of Dracut, and then refined based on existing traffic patterns within the study area during the commuter peak periods. This methodology is consistent with the residential nature of the

⁷Ibid 1.

Project and commuter traffic patterns during the peak hours. The general trip distribution for the Project is graphically depicted on Figure 5. The additional traffic expected to be generated by the Project was assigned on the study area roadway network as shown on Figure 6.

FUTURE TRAFFIC VOLUMES - BUILD CONDITION

The 2023 Build condition traffic volumes consist of the 2023 No-Build traffic volumes with the additional traffic expected to be generated by the Project added to them. The 2023 Build weekday morning and evening peak-hour traffic-volumes are graphically depicted on Figure 7.

A summary of peak-hour projected traffic-volume increases external to the study area that is the subject of this assessment is shown in Table 6. These volumes are based on the expected increases from the Project.

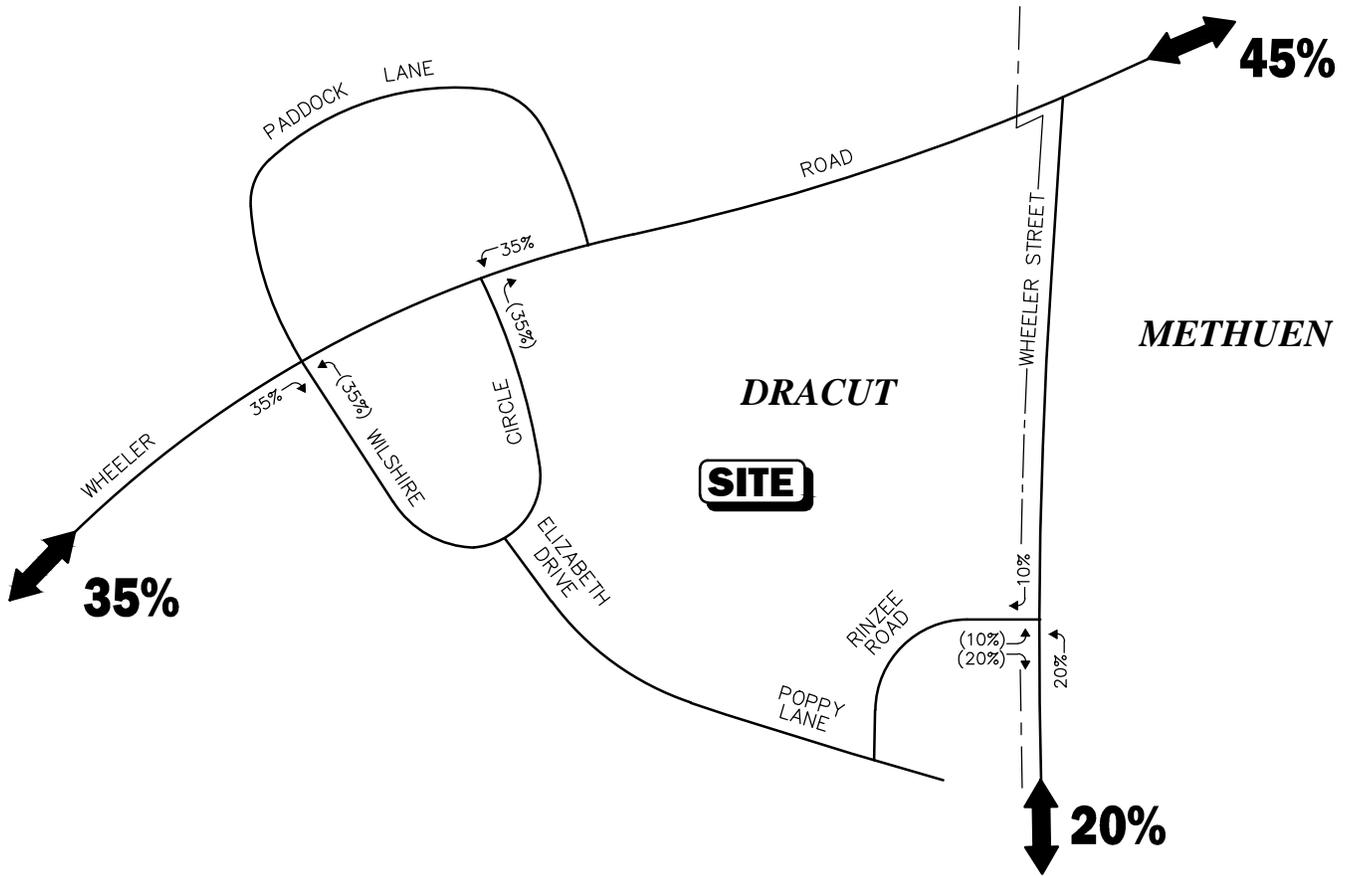
Table 6
PEAK-HOUR TRAFFIC-VOLUME INCREASES

Location/Peak Hour	2016 Existing	2023 No-Build	2023 Build	Traffic Volume Increase Over No-Build	Percent Increase Over No-Build
<i>Wheeler Road, northeast of Wilshire Circle:</i>					
Weekday Morning	63	110	122	12	10.9
Weekday Evening	109	170	184	14	8.2
<i>Wheeler Road, southwest of Wilshire Circle:</i>					
Weekday Morning	78	126	138	12	9.5
Weekday Evening	116	177	191	14	7.9
<i>Wheeler Street, north of Rinzee Road:</i>					
Weekday Morning	82	88	91	3	3.4
Weekday Evening	77	82	85	3	3.7
<i>Wheeler Street, south of Poppy Lane:</i>					
Weekday Morning	85	91	97	6	6.6
Weekday Evening	76	81	89	8	9.9

As shown in Table 6, Project-related traffic-volume increases external to the study area relative to 2023 No-Build conditions are anticipated to range from 3.4 to 10.9 percent during the peak periods, with vehicle increases shown to range from 3 to 14 vehicles. ***Such increases are considered nominal when dispersed over the peak-hour and would not result in a material impact (increase) on motorist delays or vehicle queuing outside of the immediate study area that is the subject of this assessment.***

Legend:

XX Entering Trips
 (XX) Exiting Trips



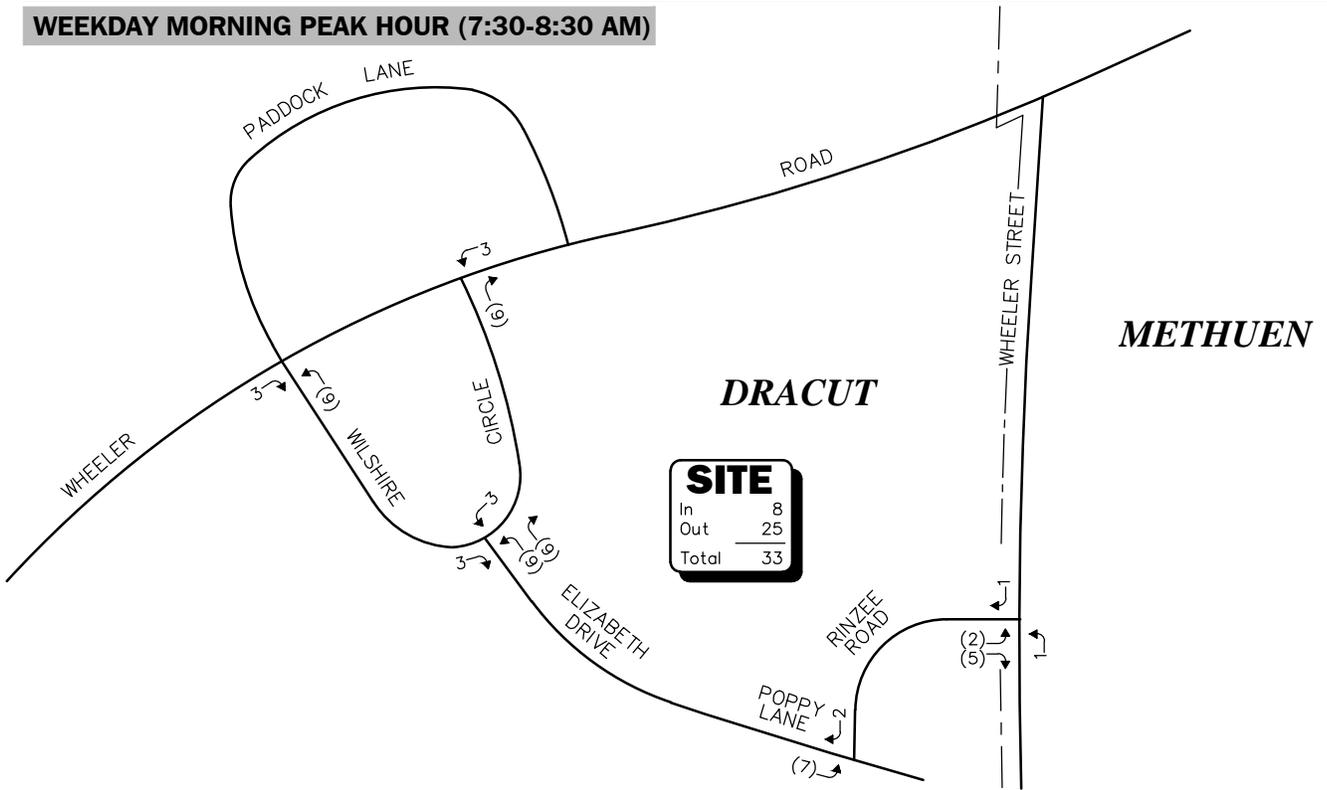
Not To Scale

Figure 5

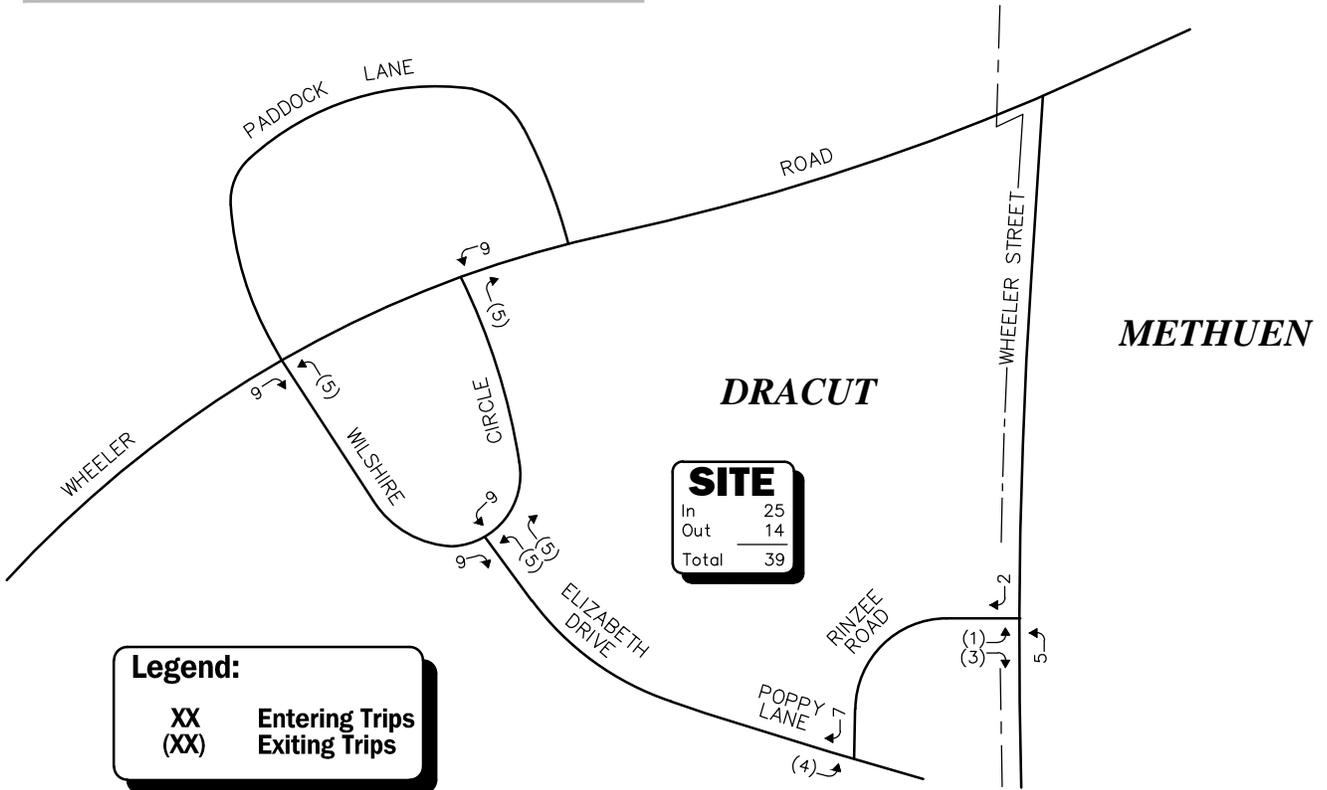
VAI Vanasse & Associates, Inc.
 Transportation Engineers & Planners

Trip Distribution Map

WEEKDAY MORNING PEAK HOUR (7:30-8:30 AM)



WEEKDAY EVENING PEAK HOUR (5:00-6:00 PM)



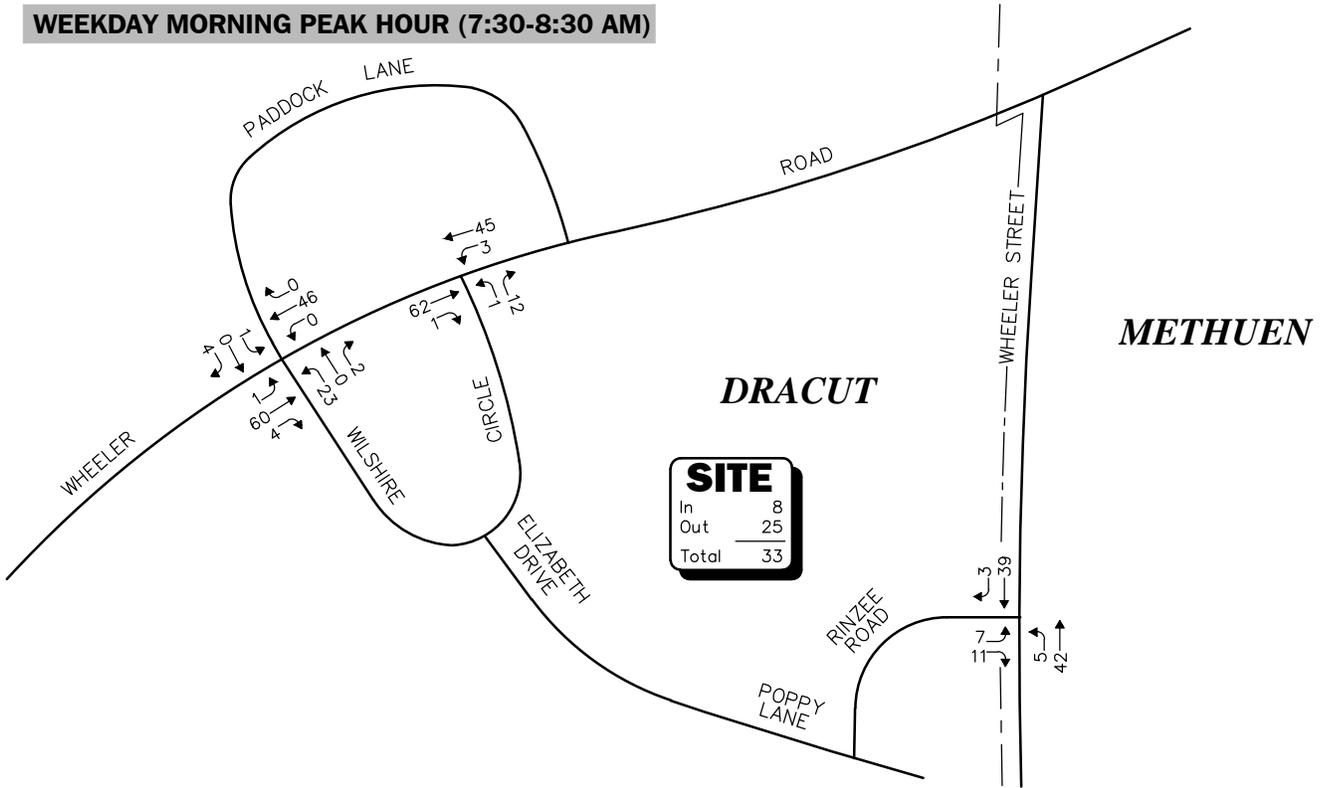
Legend:

XX Entering Trips
(XX) Exiting Trips

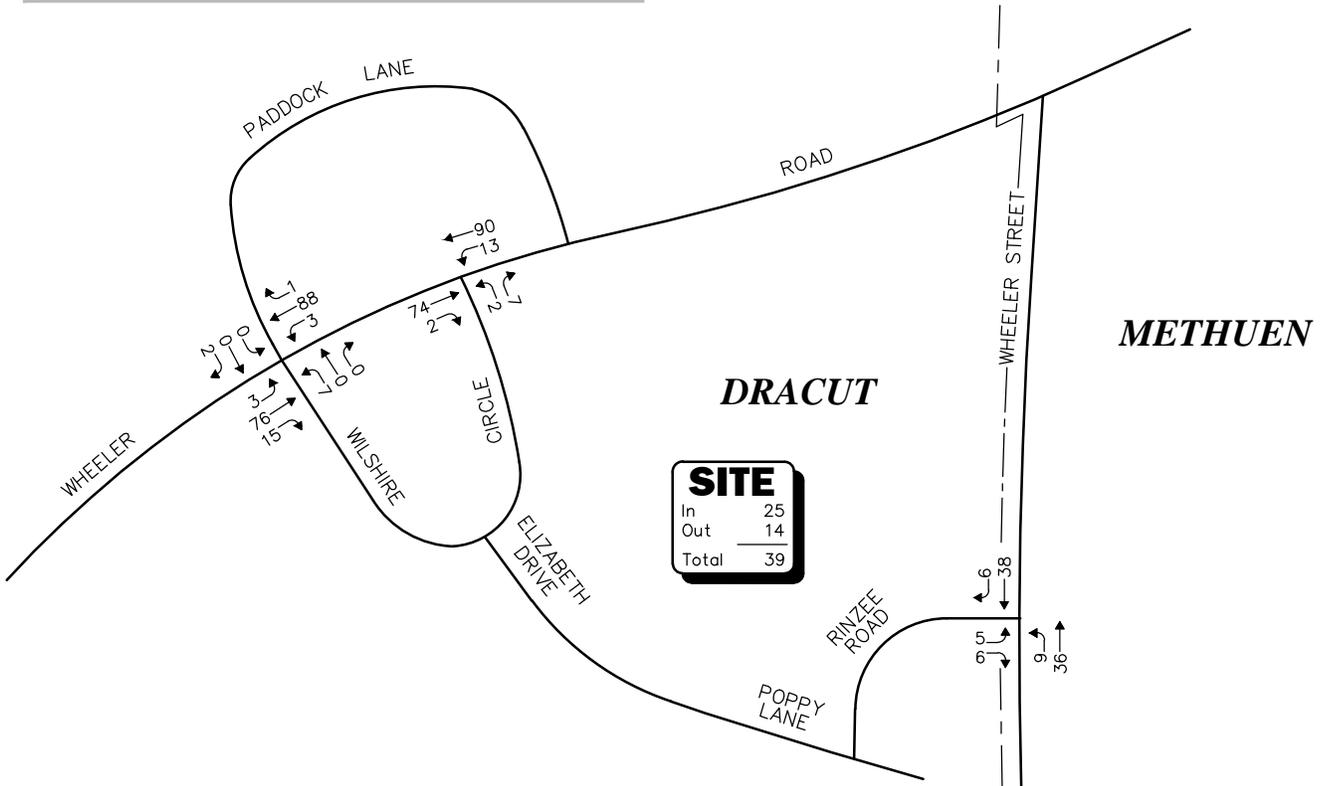
Not To Scale

Figure 6

WEEKDAY MORNING PEAK HOUR (7:30-8:30 AM)



WEEKDAY EVENING PEAK HOUR (5:00-6:00 PM)



Not To Scale

Figure 7

TRAFFIC OPERATIONS ANALYSIS

Measuring existing and future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, roadway capacity and vehicle queue analyses were conducted under Existing, No-Build and Build traffic volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

METHODOLOGY

Levels of Service

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.⁸ The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

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

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

⁸The capacity analysis methodology is based on the concepts and procedures presented in the *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010.

Unsignalized Intersections

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

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

The levels of service of unsignalized intersections are determined by application of a procedure described in the 2010 *Highway Capacity Manual*.⁹ Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the affects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the 2010 *Highway Capacity Manual*. Table 7 summarizes the relationship between level of service and average control delay for two way stop controlled and all-way stop controlled intersections.

Table 7
LEVEL-OF-SERVICE CRITERIA FOR
UNSIGNALIZED INTERSECTIONS^a

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

^aSource: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010; page 19-2.

⁹*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010.

Vehicle Queue Analysis

Vehicle queue analyses are a direct measurement of an intersection's ability to process vehicles under various traffic control and volume scenarios and lane use arrangements. The vehicle queue analysis was performed using the Synchro™ intersection capacity analysis software which is based upon the methodology and procedures presented in the 2010 *Highway Capacity Manual*. The Synchro™ vehicle queue analysis methodology is a simulation based model which reports the number of vehicles that experience a delay of six seconds or more at an intersection. For signalized intersections, Synchro™ reports both the average (50th percentile) the 95th percentile vehicle queue. For unsignalized intersections, Synchro™ reports the 95th percentile vehicle queue. Vehicle queue lengths are a function of the capacity of the movement under study and the volume of traffic being processed by the intersection during the analysis period. The 95th percentile vehicle queue is the vehicle queue length that will be exceeded only 5 percent of the time, or approximately three minutes out of sixty minutes during the peak one hour of the day (during the remaining fifty-seven minutes, the vehicle queue length will be less than the 95th percentile queue length).

ANALYSIS RESULTS

Level-of-service and vehicle queue analyses were conducted for 2016 Existing, 2023 No-Build and 2023 Build conditions for the intersections within the study area. The results of the intersection capacity and vehicle queue analyses are summarized in Table 8. The detailed analysis results are presented in the Appendix.

As can be seen in Table 8, all movements at the study area intersections were shown to operate at LOS B or better during both the weekday morning and evening peak hours under 2016 Existing, 2023 No-Build and 2023 Build conditions, where an LOS of "D" or better is generally defined as "acceptable" operating conditions. Project-related impacts were identified as an increase in average motorist delay of less than 1.0 seconds at the study intersections with no reported change in LOS and a negligible increase in vehicle queuing predicted over No-Build conditions.

**Table 8
UNIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY**

Unsignalized Intersection/ Peak Hour/Movement	2016 Existing				2023 No-Build				2023 Build			
	Demand ^a	Delay ^b	LOS ^c	Queue ^d 95 th	Demand	Delay	LOS	Queue 95 th	Demand	Delay	LOS	Queue 95 th
<i>Wheeler Road at Wilshire Circle</i>												
<i>Weekday Morning:</i>												
Wheeler Road EB TH/RT	29	0.0	A	0	63	0.0	A	0	63	0.0	A	0
Wheeler Road WB LT/TH	32	0.0	A	0	45	0.0	A	0	48	0.5	A	0
Wilshire Circle NB LT/RT	4	8.6	A	0	4	8.8	A	0	13	8.8	A	0
<i>Weekday Evening:</i>												
Wheeler Road EB TH/RT	52	0.0	A	0	76	0.0	A	0	76	0.0	A	0
Wheeler Road WB LT/TH	57	0.5	A	0	94	0.5	A	0	103	0.9	A	0
Wilshire Circle NB LT/RT	4	9.1	A	0	4	9.4	A	0	9	9.4	A	0
<i>Wheeler Road at Wilshire Circle and Paddock Lane</i>												
<i>Weekday Morning:</i>												
Wheeler Road EB LT/TH/RT	28	0.3	A	0	62	0.3	A	0	65	0.3	A	0
Wheeler Road WB LT/TH/RT	33	0.0	A	0	46	0.0	A	0	46	0.0	A	0
Wilshire Circle NB LT/TH/RT	15	9.0	A	0	16	9.4	A	0	25	9.5	A	0
Paddock Lane SB LT/TH/RT	5	8.6	A	0	5	8.7	A	0	5	8.7	A	0
<i>Weekday Evening:</i>												
Wheeler Road EB LT/TH/RT	61	0.4	A	0	85	0.4	A	0	94	0.4	A	0
Wheeler Road WB LT/TH/RT	55	0.4	A	0	92	0.4	A	0	92	0.4	A	0
Wilshire Circle NB LT/TH/RT	2	9.8	A	0	2	10.5	B	0	7	10.7	B	0
Paddock Lane SB LT/TH/RT	2	8.7	A	0	2	9.0	A	0	2	9.0	A	0

See notes at end of table.

Table 8 (Continued)
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/ Peak Hour/Movement	2016 Existing				2023 No-Build				2023 Build			
	Demand ^a	Delay ^b	LOS ^c	Queue ^d 95 th	Demand	Delay	LOS	Queue 95 th	Demand	Delay	LOS	Queue 95 th
<i>Wheeler Street at Rinzee Road</i>												
<i>Weekday Morning:</i>												
Wheeler Street NB LT/TH	43	0.7	A	0	46	0.7	A	0	49	0.8	A	0
Wheeler Street SB TH/RT	38	0.0	A	0	41	0.0	A	0	42	0.0	A	0
Rinzee Circle EB LT/RT	11	8.8	A	0	11	8.9	A	0	18	8.9	A	0
<i>Weekday Evening:</i>												
Wheeler Street NB LT/TH	38	0.8	A	0	40	0.8	A	0	45	1.5	A	0
Wheeler Street SB TH/RT	39	0.0	A	0	42	0.0	A	0	44	0.0	A	0
Rinzee Circle EB LT/RT	7	8.8	A	0	7	8.9	A	0	11	8.9	A	0

^aDemand in vehicles per hour.

^bAverage control delay per vehicle (in seconds).

^cLevel-of-Service.

^dQueue length in vehicles.

NB = northbound; SB = southbound; EB = eastbound; WB = westbound; SEB = southeastbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

SIGHT DISTANCE EVALUATION

Sight distance measurements were performed at the study area intersections in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)¹⁰ requirements. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an on-coming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. In accordance with AASHTO standards, if the measured ISD is at least equal to the required SSD value for the appropriate design speed, the intersection can operate in a safe manner. Table 9 presents the measured SSD and ISD at the subject intersections.

¹⁰*A Policy on Geometric Design of Highway and Streets*, 6th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2011.

Table 9
SIGHT DISTANCE MEASUREMENTS^a

Intersection/Sight Distance Measurement	Feet		
	Required Minimum (SSD)	Desirable (ISD) ^b	Measured
<i>Wheeler Road at Wilshire Circle and Paddock Lane</i>			
<i>Stopping Sight Distance:</i>			
Wheeler Road approaching from the northeast	305	--	459
Wheeler Road approaching from the southwest	305	--	315
<i>Intersection Sight Distance:</i>			
Looking to the northeast from Wilshire Circle	305	385/445	428
Looking to the southwest from Wilshire Circle	305	385/445	307
<i>Wheeler Road at Wilshire Circle</i>			
<i>Stopping Sight Distance:</i>			
Wheeler Road approaching from the northeast	305	--	383
Wheeler Road approaching from the southwest	305	--	315
<i>Intersection Sight Distance:</i>			
Looking to the northeast from Wilshire Circle	305	385/445	427
Looking to the southwest from Wilshire Circle	305	385/445	310
<i>Wheeler Street at Rinzee Road</i>			
<i>Stopping Sight Distance:</i>			
Wheeler Street approaching from the north	305	--	372
Wheeler Street approaching from the south	305	--	419
<i>Intersection Sight Distance:</i>			
Looking to the north from Rinzee Road	305	385/445	407
Looking to the south from Rinzee Road	305	385/445	256/320 ^c

^aRecommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets*, 6th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2011; and based on a 40 mph approach speed on both Wheeler Road and Wheeler Street.

^bValues shown are the intersection sight distance for a vehicle turning right/left exiting a roadway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

^cSight line at 14.5-feet/10-feet from the edge of the traveled way.

As can be seen in Table 9, with the exception of the line of sight looking to the south from Rinzee Road, sight lines at the study area intersections were found to exceed the recommended minimum sight distance for safe operation (SSD) for a 40 mph approach speed along both Wheeler Road and Wheeler Street, which is above the measured 85th percentile vehicle travel speed along these roadways (36-39 mph) and 10 mph above the posted speed limit (30 mph). Sight lines looking to the south from Rinzee Road were found to be partially obscured by the landscape feature (rock and shrub) on the southwest corner of the intersection when the driver is positioned at 14.5 feet from the edge of the travelled-way along Wheeler Street; at 10-feet from the edge of the travelled-way, the sight line is unobscured and increases to 320-feet, which exceeds the minimum recommended distance of 305-feet for a 40 mph approach speed. We note that the available line of sight at 14.5-feet (256 feet) is appropriate for an approach speed of 35 mph, which is 5 mph above the posted speed limit on Wheeler Street.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

VAI has completed a detailed assessment of the potential impacts on the transportation infrastructure associated with the proposed construction of a 33-home open-space residential development to be known as Murphy's Farm and located off Wheeler Street, Poppy Lane and Elizabeth Drive in Dracut, Massachusetts. The following specific areas have been evaluated as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; under existing and future conditions, both with and without the Project. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the ITE,¹¹ the Project is predicted to generate approximately 380 vehicle trips on an average weekday (two-way, 24-hour volume), with 33 vehicle trips expected during the weekday morning peak-hour and 39 vehicle trips expected during the weekday evening peak-hour;
2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), with no change in level-of-service or vehicle queueing predicted to occur as a result of the addition of Project-related traffic;
3. No apparent safety deficiencies were noted with respect to the motor vehicle crash history at the study intersections; and
4. Lines of sight to and from the study are intersections were found to meet or exceed the recommended minimum distance for the intersections to function in a safe manner based on the appropriate approach speed along the intersecting roadway, noting the partial obstruction on the Rinzee Road approach to Wheeler Street (landscape features on the southwest corner of the intersection). All sight lines were found to exceed the recommended minimum sight distance for the posted speed limit.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations that follow.

¹¹Ibid 1.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project site will be provided by way of a new roadway that will connect Poppy Lane and Elizabeth Drive, with access thereafter provided to Wheeler Road and Wheeler Street by way of Wilshire Circle and Rinzee Road, respectively. ***We note that it is unlikely that the proposed roadway link will induce cut-through traffic between Wheeler Road and Wheeler Street given the relatively low traffic volumes on these roadways (1,100 vpd and 700 vpd, respectively) and the circuitous travel route.*** The following recommendations are offered with respect to the design and operation of the Project site roadway:

- The Project site roadway should be a minimum of 24-feet in width or as required to accommodate fire truck turning maneuvers pursuant to the requirements of NFPA® 1¹² or as directed by the Fire Chief, with appropriate geometry to accommodate a safe travel speed of 25 mph.
- STOP-signs and marked STOP-lines should be provided at all minor street intersections with the primary circulating roadway within the Project site. In addition, consideration should be given to replacing the STOP-signs and installing marked STOP-lines on the Wilshire Circle and Rinzee Road approaches to Wheeler Road and Wheeler Street, respectively.
- All signs and pavement markings to be installed within the Project site shall conform to the applicable standards of the *Manual on Uniform Traffic Control Devices (MUTCD)*.¹³
- A Sidewalk should be provided along at least one side of the Project site roadway and should extend to the existing sidewalk on Elizabeth Drive and Poppy Lane.
- A school bus waiting area (sidewalk) should be provided at an appropriate location designated by the Town.
- Marked crosswalks and Americans with Disabilities Act (ADA) compliant wheelchair ramps should be provided at pedestrian crossings within the Project site.
- Signs and landscaping to be installed along the Project site roadway, internal to the Project site and within intersection sight triangle areas should be designed and maintained so as not to restrict lines of sight.

With implementation of the above recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

¹²Ibid 2.

¹³Ibid 3.

APPENDIX

PROJECT SITE PLAN
AUTOMATIC TRAFFIC RECORDER COUNTS
MANUAL TURNING MOVEMENT COUNTS
SEASONAL ADJUSTMENT DATA
VEHICLE TRAVEL SPEED DATA
PUBLIC TRANSPORTATION SCHEDULE AND FARE INFORMATIONS
MASSDOT CRASH RATE WORKSHEETS
SITE-SPECIFIC DEVELOPMENT TRAFFIC-VOLUME NETWORKS
GENERAL BACKGROUND TRAFFIC GROWTH
TRIP-GENERATION CALCULATIONS
JOURNEY TO WORK TRIP DISTRIBUTION
CAPACITY ANALYSIS WORKSHEETS

PROJECT SITE PLAN

Preliminary Subdivision Plan Open Space Development Murphy's Farm Dracut, Massachusetts

DATE FILED: _____
 DATE OF HEARING: _____
 DATE OF APPROVAL: _____
 DATE OF ENDORSEMENT: _____

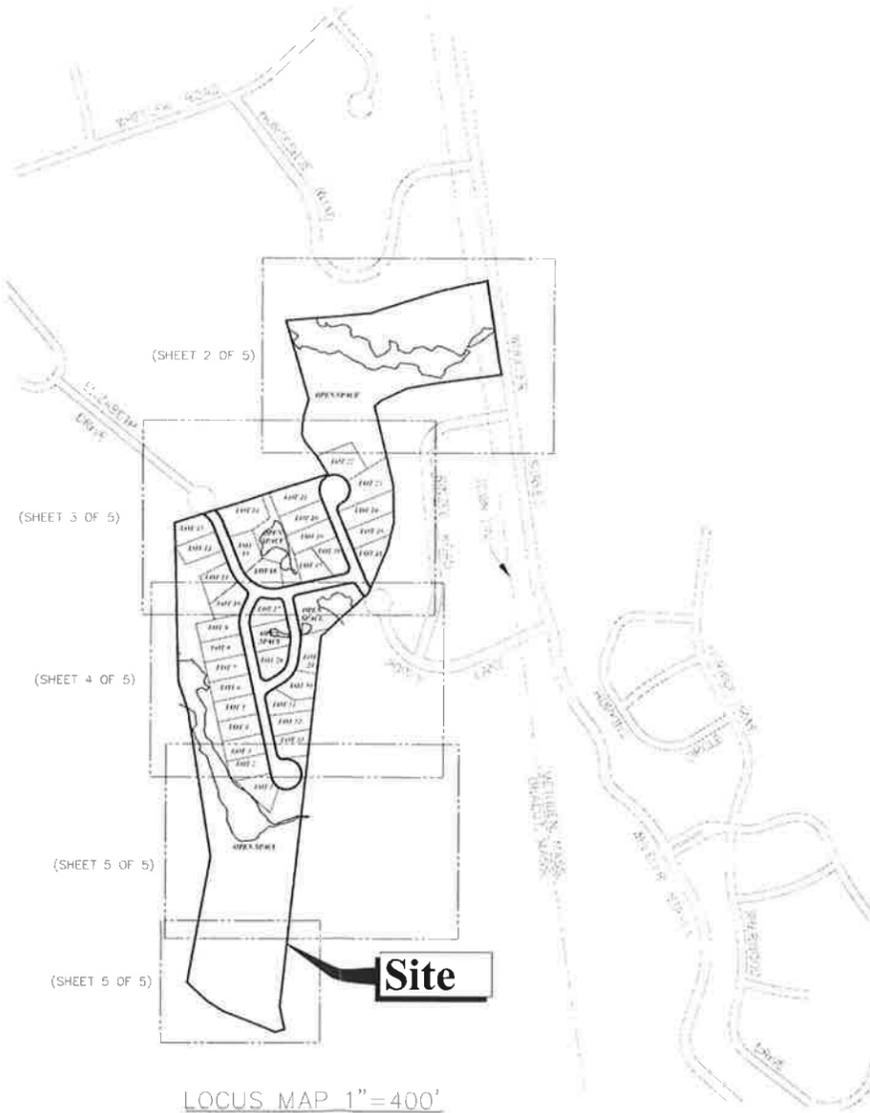
**DRACUT
 PLANNING BOARD**

NOTE:
 IT IS NOT ANTICIPATED ANY EARTH WILL BE REMOVED FROM THE SITE AS PART OF THE PROPOSED SUBDIVISION. IF EARTH REMOVAL IS REQUIRED, IT SHALL BE IN CONFORMANCE WITH THE ZONING BYLAW

ZONING SUMMARY CHART		
Zoning District:	Residence R-1	
	Standard Requirements	Open Space Residential Requirements
Minimum Lot Area	40,000 SF	20,000 SF
Frontage	175 Feet	50 Feet
Front Yard Setback	30 Feet	30 Feet
Side Yard Setback	15 Feet	15 Feet
Rear Yard Setback	35 Feet	15 Feet
Minimum Lot Width	30 Feet	50 Feet
Maximum Building Height	36 Feet 2.5 Stories	n/a

SITE SUMMARY CHART		
	Square Feet	Acres
Total Site Area:	2,210,596	50.748
Total Area of Lots:	722,168	16.579
Total ROW Area:	179,184	4.113
Total Open Space Prov:	1,309,269	30.057
Total Open Space Req:	597,832	13.724
Total Wetland Area:	226,285	5.195

LOT SUMMARY CHART			
LOT #	Total Lot Area (SF)	Wetland Area (SF)	Req. Open Space
1	21,153	0	18,847
2	20,000	0	20,000
3	20,000	0	20,000
4	20,000	0	20,000
5	20,000	0	20,000
6	20,000	0	20,000
7	20,000	0	20,000
8	20,000	0	20,000
9	20,000	0	20,000
10	20,000	0	20,000
11	20,000	0	20,000
12	20,000	0	20,000
13	20,000	0	20,000
14	31,762	0	8,238
15	20,000	0	20,000
16	20,000	0	20,000
17	20,000	0	20,000
18	20,000	0	20,000
19	22,933	0	17,067
20	22,933	0	17,067
21	29,489	0	10,511
22	26,787	0	13,213
23	33,964	0	6,036
24	27,475	0	12,525
25	23,195	0	16,805
26	22,476	0	17,524
27	20,000	0	20,000
28	20,000	0	20,000
29	20,000	0	20,000
30	20,000	0	20,000
31	20,000	0	20,000
32	20,000	0	20,000
33	20,000	0	20,000



DRAWING SHEET INDEX		
DRAWING NUMBER	DRAWING TITLE	DRAWING DATE
1 of 5	COVER SHEET	5/2/2016
2 of 5	SITE LAYOUT AND GRADING	5/2/2016
3 of 5	SITE LAYOUT AND GRADING	5/2/2016
4 of 5	SITE LAYOUT AND GRADING	5/2/2016
5 of 5	SITE LAYOUT AND GRADING	5/2/2016

DEED REFERENCE:
 ESSEX COUNTY REGISTRY OF DEEDS,
 NORTHERN DISTRICT BOOK 1551 PAGE 45

RECORD OWNER:
 JOHN J. & ARLINE MURPHY
 90 WHEELER STREET
 DRACUT, MA 01826

APPLICANT:
 O'BRIEN HOMES, INC.
 18 CASSIMERE STREET
 ANDOVER, MA 01810

ASSESSOR REFERENCE:
 TOWN MAP NO. 22
 TOWN LOT NO. 53

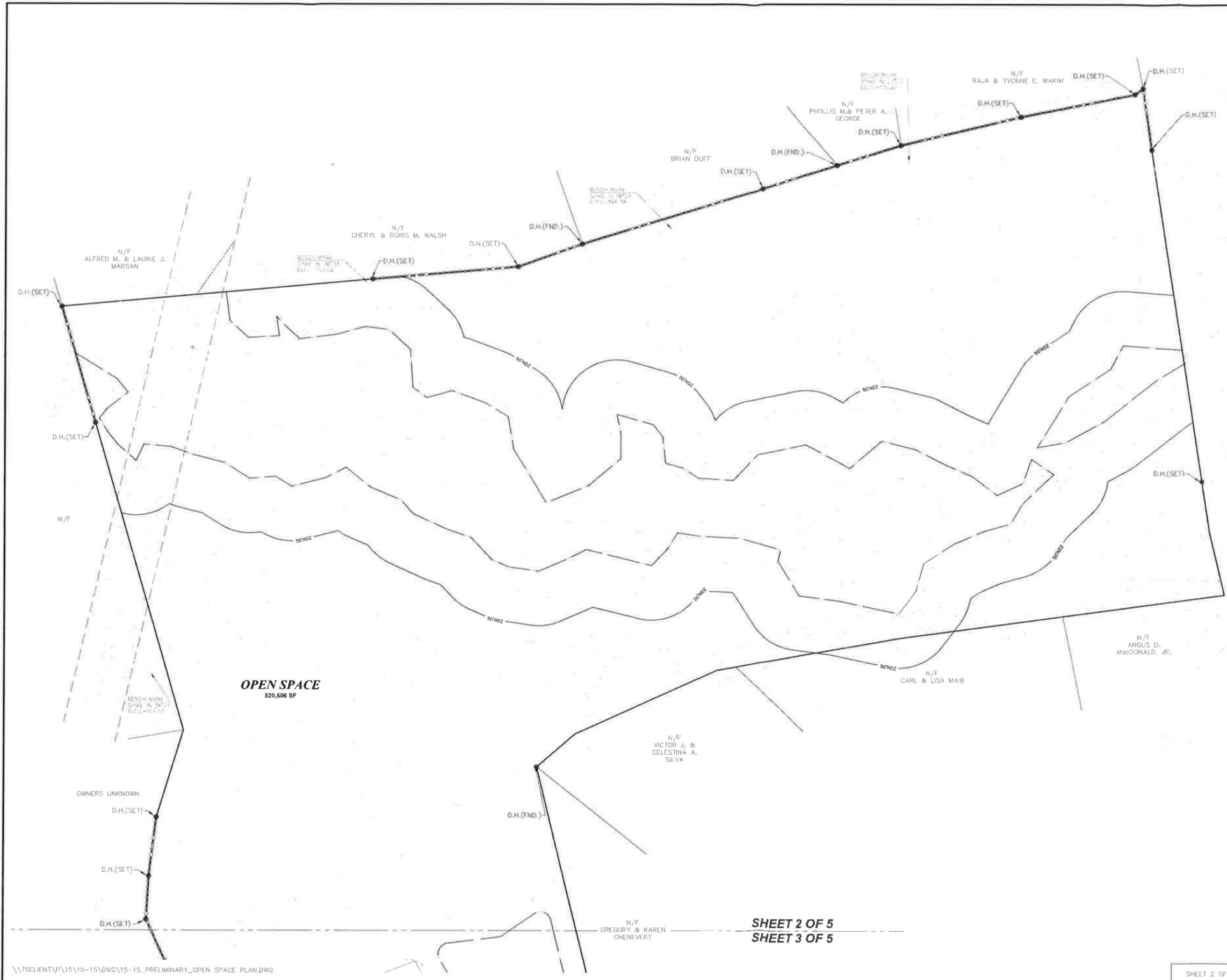
**COVER SHEET
 PRELIMINARY SUBDIVISION PLAN
 MURPHY'S FARM
 DRACUT, MASS.**

PREPARED FOR: O'BRIEN HOMES
 DATE: APRIL ##, 2016
 SCALE: 1" = 40'

**PROGRESS PRINT
 JUNE 1, 2016**

**andover
 consultants
 inc.**

1 East River Place
 Methuen, Mass. 01844



- LEGEND:**
- EXISTING CONTOUR
 - EDGE OF PAYEMENT
 - EDGE OF WETLANDS
 - EDGE OF WOODS
 - EXISTING SEWER
 - EXISTING DRAIN
 - EXISTING WATER
 - EXISTING GAS
 - PROPOSED DRAINAGE
 - PROPOSED SEWER
 - PROPOSED WATER
 - MATCH LINE

DATE FILED: _____
 DATE OF HEARING: _____
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 DATE OF ENDORSEMENT: _____

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RECORD OWNER:
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 90 WHEELER STREET
 DRACUT, MA 01826

APPLICANT:
 O'BRIEN HOMES, INC.
 18 CASSIMERE STREET
 ANDOVER, MA 01810

ASSESSOR REFERENCE:
 TOWN MAP NO. 22
 TOWN LOT NO. 53

OPEN SPACE
 520,606 SF

SHEET 2 OF 5
SHEET 3 OF 5

**SITE LAYOUT & GRADING PLAN
 PRELIMINARY SUBDIVISION PLAN
 MURPHY'S FARM
 DRACUT, MASS.**

PREPARED FOR: O'BRIEN HOMES
 DATE: APRIL ##, 2016
 SCALE: 1" = 40'

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1 East River Place
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SHEET 2 OF 5
SHEET 3 OF 5

- LEGEND:**
- EXISTING CONTOUR
 - EDGE OF PAVEMENT
 - EDGE OF WETLANDS
 - EDGE OF WOODS
 - EXISTING SEWER
 - EXISTING DRAIN
 - EXISTING WATER
 - EXISTING GAS
 - PROPOSED DRAINAGE
 - PROPOSED SEWER
 - PROPOSED WATER
 - MATCH LINE

DATE FILED: _____
 DATE OF HEARING: _____
 DATE OF APPROVAL: _____
 DATE OF ENDORSEMENT: _____

**DRACUT
PLANNING BOARD**

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RECORD OWNER:
 JOHN J. & ARLINE MURPHY
 90 WHEELER STREET
 DRACUT, MA 01826

APPLICANT:
 O'BRIEN HOMES, INC.
 18 CASSIMERE STREET
 ANDOVER, MA 01810

ASSESSOR REFERENCE:
 TOWN MAP NO. 22
 TOWN LOT NO. 53



SHEET 3 OF 5
SHEET 4 OF 5

\\TSCIENT\PA\15-15\DWG\15-15_PRELIMINARY_OPEN SPACE PLAN.DWG

**SITE LAYOUT & GRADING
PRELIMINARY SUBDIVISION PLAN
MURPHY'S FARM
DRACUT, MASS.**

PREPARED FOR: O'BRIEN HOMES
 DATE: APRIL ##, 2016
 SCALE: 1" = 40'

**andover
consultants inc.**
 1 East River Place
 Methuen, Mass. 01844

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JUNE 1, 2016**

0 10 20 40 80 120 160 Ft.
 0 10 20 40 Meter

SHEET 3 OF 5



SHEET 4 OF SHEET 5 OF

DATE FILED: _____
 DATE OF HEARING: _____
 DATE OF APPROVAL: _____
 DATE OF ENDORSEMENT: _____

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RECORD OWNER:
 JOHN J. & ARLINE MURPHY
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ASSESSOR REFERENCE:
 TOWN MAP NO. 22
 TOWN LOT NO. 53

DRACUT
PLANNING BOARD

- LEGEND:**
- EXISTING CONTOUR
 - EDGE OF PAVEMENT
 - EDGE OF WETLANDS
 - EDGE OF WOODS
 - EXISTING SEWER
 - EXISTING DRAIN
 - EXISTING WATER
 - EXISTING GAS
 - PROPOSED DRAINAGE
 - PROPOSED SEWER
 - PROPOSED WATER
 - MATCH LINE

**SITE LAYOUT & GRADING
 PRELIMINARY SUBDIVISION PLAN
 MURPHY'S FARM
 DRACUT, MASS.**

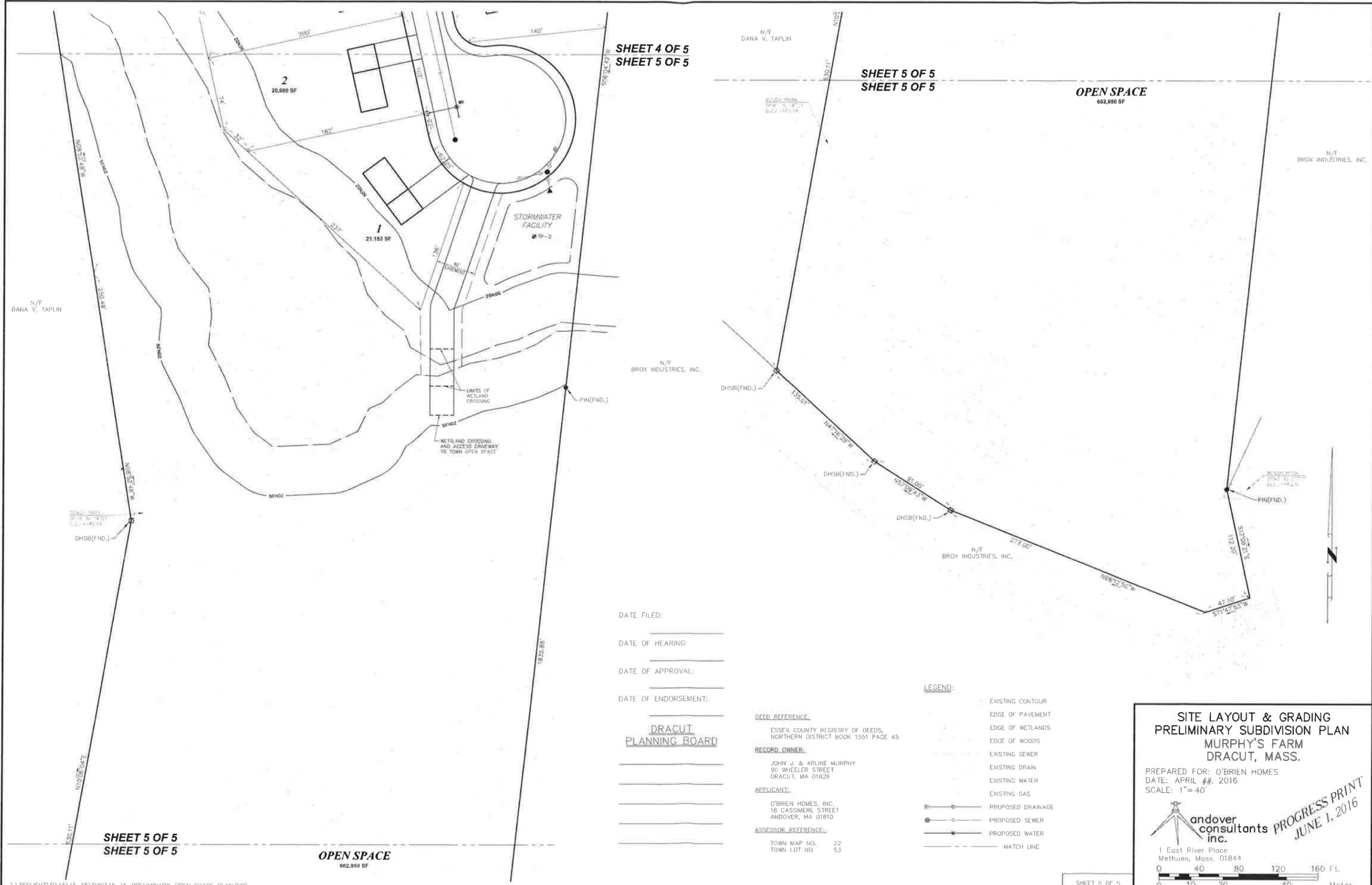
PREPARED FOR: O'BRIEN HOMES
 DATE: APRIL ##, 2016
 SCALE: 1" = 40'



1 East River Place
 Methuen, Mass. 01844



PROGRESS PRINT
 JUNE 1, 2016



SHEET 4 OF 5
SHEET 5 OF 5

SHEET 5 OF 5
SHEET 5 OF 5

OPEN SPACE
662,950 SF

N/F
BROX INDUSTRIES, INC.

N/F
DANA V. TAPLIN

N/F
BROX INDUSTRIES, INC.

N/F
BROX INDUSTRIES, INC.

DATE FILED: _____
 DATE OF HEARING: _____
 DATE OF APPROVAL: _____
 DATE OF ENDORSEMENT: _____

**DRACUT
PLANNING BOARD**

DEED REFERENCE:
 ESSEX COUNTY REGISTRY OF DEEDS,
 NORTHERN DISTRICT BOOK 1551 PAGE 45

RECORD OWNER:
 JOHN J. & ARLINE MURPHY
 90 WHEELER STREET
 DRACUT, MA 01826

APPLICANT:
 O'BRIEN HOMES, INC.
 18 CASSIMERE STREET
 ANDOVER, MA 01810

ASSESSOR REFERENCE:
 TOWN MAP NO. 22
 TOWN LOT NO. 53

- LEGEND:**
- - - - - EXISTING CONTOUR
 - — — — — EDGE OF PAVEMENT
 - — — — — EDGE OF WETLANDS
 - — — — — EDGE OF WOODS
 - — — — — EXISTING SEWER
 - — — — — EXISTING DRAIN
 - — — — — EXISTING WATER
 - — — — — EXISTING GAS
 - — — — — PROPOSED DRAINAGE
 - — — — — PROPOSED SEWER
 - — — — — PROPOSED WATER
 - — — — — MATCH LINE

**SITE LAYOUT & GRADING
 PRELIMINARY SUBDIVISION PLAN
 MURPHY'S FARM
 DRACUT, MASS.**

PREPARED FOR: O'BRIEN HOMES
 DATE: APRIL ##, 2016
 SCALE: 1" = 40'



1 East River Place
 Methuen, Mass. 01844



**PROGRESS PRINT
 JUNE 1, 2016**

SHEET 5 OF 5
SHEET 5 OF 5

OPEN SPACE
662,950 SF

AUTOMATIC TRAFFIC RECORDER COUNTS

Accurate Counts

978-664-2565

Location : Wheeler Road
 Location : East of Wilshire Circle
 City/State: Dracut, MA

7463VOL2

Start Time	9/27/2016 Tue	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	8			0	3				
12:15		1	5			2	2				
12:30		1	3			1	6				
12:45		1	4	3	20	0	3	3	14	6	34
01:00		0	4			0	11				
01:15		0	7			0	8				
01:30		0	7			0	3				
01:45		0	10	0	28	0	6	0	28	0	56
02:00		0	9			1	4				
02:15		0	11			0	3				
02:30		0	11			0	7				
02:45		0	10	0	41	0	9	1	23	1	64
03:00		0	18			1	11				
03:15		0	8			1	11				
03:30		1	7			2	6				
03:45		1	16	2	49	1	14	5	42	7	91
04:00		0	7			3	9				
04:15		0	15			0	11				
04:30		0	8			0	9				
04:45		1	8	1	38	3	8	6	37	7	75
05:00		2	20			3	6				
05:15		2	14			1	22				
05:30		1	17			3	9				
05:45		5	10	10	61	3	8	10	45	20	106
06:00		7	8			7	11				
06:15		6	13			8	10				
06:30		5	17			5	9				
06:45		11	12	29	50	8	8	28	38	57	88
07:00		13	13			5	9				
07:15		7	5			3	7				
07:30		9	6			13	10				
07:45		5	9	34	33	5	10	26	36	60	69
08:00		10	12			8	10				
08:15		9	10			5	11				
08:30		4	2			13	7				
08:45		8	10	31	34	2	2	28	30	59	64
09:00		5	4			5	3				
09:15		4	3			7	6				
09:30		7	1			12	2				
09:45		5	3	21	11	7	7	31	18	52	29
10:00		8	5			10	6				
10:15		3	2			3	1				
10:30		5	0			4	1				
10:45		2	3	18	10	5	0	22	8	40	18
11:00		5	1			5	0				
11:15		6	3			4	1				
11:30		4	0			7	1				
11:45		6	1	21	5	5	0	21	2	42	7
Total		170	380			181	321			351	701
Percent		30.9%	69.1%			36.1%	63.9%			33.4%	66.6%

Accurate Counts

978-664-2565

Location : Wheeler Road
 Location : East of Wilshire Circle
 City/State: Dracut, MA

7463VOL2

Start Time	9/28/2016 Wed	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	6			0	8				
12:15		2	7			1	10				
12:30		0	6			2	5				
12:45		2	11	4	30	1	6	4	29	8	59
01:00		2	8			0	9				
01:15		0	4			0	9				
01:30		0	5			1	7				
01:45		1	8	3	25	1	13	2	38	5	63
02:00		0	6			0	10				
02:15		0	8			0	7				
02:30		0	12			0	11				
02:45		1	12	1	38	0	7	0	35	1	73
03:00		0	5			1	7				
03:15		0	10			1	15				
03:30		0	15			0	10				
03:45		0	19	0	49	0	9	2	41	2	90
04:00		1	6			2	13				
04:15		0	7			2	7				
04:30		1	19			1	11				
04:45		1	6	3	38	3	7	8	38	11	76
05:00		0	15			2	9				
05:15		1	17			2	8				
05:30		2	16			5	18				
05:45		8	10	11	58	3	12	12	47	23	105
06:00		3	13			8	16				
06:15		6	16			5	4				
06:30		7	13			7	11				
06:45		8	13	24	55	6	7	26	38	50	93
07:00		13	9			6	3				
07:15		10	13			14	5				
07:30		5	6			13	7				
07:45		7	8	35	36	5	8	38	23	73	59
08:00		9	5			7	4				
08:15		7	6			5	6				
08:30		8	7			10	8				
08:45		4	4	28	22	6	1	28	19	56	41
09:00		8	8			10	4				
09:15		7	3			5	3				
09:30		4	2			9	4				
09:45		9	0	28	13	9	0	33	11	61	24
10:00		6	7			7	5				
10:15		6	6			6	1				
10:30		6	2			10	2				
10:45		9	2	27	17	6	6	29	14	56	31
11:00		10	0			10	0				
11:15		9	6			11	2				
11:30		13	2			9	0				
11:45		8	0	40	8	7	0	37	2	77	10
Total		204	389			219	335			423	724
Percent		34.4%	65.6%			39.5%	60.5%			36.9%	63.1%
Grand Total		374	769			400	656			774	1425
Percent		32.7%	67.3%			37.9%	62.1%			35.2%	64.8%

ADT ADT 1,100 AADT 1,100

Accurate Counts

978-664-2565

Location : Wheeler Street
 Location : North of Rinzee Road
 City/State: Methuen, MA

7463VOL1

Start Time	9/27/2016 Tue	SB		Hour Totals		NB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	4			0	4				
12:15		0	6			1	8				
12:30		1	10			0	4				
12:45		0	2	1	22	0	2	1	18	2	40
01:00		0	3			0	2				
01:15		0	5			0	2				
01:30		1	3			0	3				
01:45		0	4	1	15	0	2	0	9	1	24
02:00		0	4			0	3				
02:15		0	4			0	2				
02:30		0	2			0	3				
02:45		0	5	0	15	0	7	0	15	0	30
03:00		0	5			0	8				
03:15		0	7			0	5				
03:30		1	4			2	5				
03:45		0	5	1	21	0	8	2	26	3	47
04:00		0	5			0	9				
04:15		1	3			0	5				
04:30		1	10			0	11				
04:45		0	8	2	26	0	13	0	38	2	64
05:00		3	5			2	3				
05:15		2	14			0	12				
05:30		1	2			0	9				
05:45		4	6	10	27	0	8	2	32	12	59
06:00		4	4			2	7				
06:15		5	5			1	4				
06:30		10	4			0	5				
06:45		36	8	55	21	4	2	7	18	62	39
07:00		20	1			1	2				
07:15		4	2			2	4				
07:30		6	2			8	4				
07:45		9	3	39	8	9	5	20	15	59	23
08:00		10	2			10	3				
08:15		16	9			14	5				
08:30		10	2			10	5				
08:45		8	2	44	15	7	2	41	15	85	30
09:00		5	2			5	2				
09:15		5	3			1	0				
09:30		6	1			4	2				
09:45		6	3	22	9	3	5	13	9	35	18
10:00		2	1			7	1				
10:15		6	1			8	0				
10:30		5	1			7	0				
10:45		7	0	20	3	1	0	23	1	43	4
11:00		5	1			4	1				
11:15		8	0			3	0				
11:30		9	0			5	1				
11:45		2	0	24	1	5	0	17	2	41	3
Total		219	183			126	198			345	381
Percent		54.5%	45.5%			38.9%	61.1%			47.5%	52.5%

Accurate Counts

Location : Wheeler Street
 Location : North of Rinzee Road
 City/State: Methuen, MA

7463VOL1

Start Time	9/28/2016 Wed	SB		Hour Totals		NB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	7			0	6				
12:15		1	9			0	4				
12:30		0	4			0	5				
12:45		0	6	1	26	0	5	0	20	1	46
01:00		0	3			1	2				
01:15		0	7			0	8				
01:30		0	5			0	4				
01:45		0	6	0	21	0	2	1	16	1	37
02:00		1	10			0	8				
02:15		0	7			0	7				
02:30		1	7			0	5				
02:45		0	8	2	32	2	9	2	29	4	61
03:00		0	7			0	4				
03:15		0	6			0	6				
03:30		0	8			0	4				
03:45		0	5	0	26	0	5	0	19	0	45
04:00		0	11			1	6				
04:15		1	6			0	3				
04:30		2	4			1	12				
04:45		1	4	4	25	0	8	2	29	6	54
05:00		2	5			1	3				
05:15		3	5			1	7				
05:30		0	8			0	4				
05:45		3	6	8	24	0	8	2	22	10	46
06:00		5	6			0	8				
06:15		3	5			1	8				
06:30		8	5			1	6				
06:45		6	2	22	18	4	4	6	26	28	44
07:00		12	3			1	3				
07:15		13	3			3	0				
07:30		7	0			11	8				
07:45		7	4	39	10	3	2	18	13	57	23
08:00		10	4			5	4				
08:15		12	4			4	4				
08:30		7	4			1	0				
08:45		1	1	30	13	4	2	14	10	44	23
09:00		5	4			3	2				
09:15		5	2			1	4				
09:30		2	0			3	0				
09:45		5	4	17	10	2	3	9	9	26	19
10:00		3	2			9	2				
10:15		5	2			6	2				
10:30		4	0			5	0				
10:45		5	1	17	5	5	0	25	4	42	9
11:00		5	1			6	0				
11:15		6	2			4	3				
11:30		5	0			2	3				
11:45		0	0	16	3	5	1	17	7	33	10
Total		156	213			96	204			252	417
Percent		42.3%	57.7%			32.0%	68.0%			37.7%	62.3%
Grand Total		375	396			222	402			597	798
Percent		48.6%	51.4%			35.6%	64.4%			42.8%	57.2%

ADT

ADT 698

AADT 698

MANUAL TURNING MOVEMENT COUNTS

Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 1

Start Time	Paddock Ln From North			Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	0	1	1	0	10	0	3	0	2	0	1	0	18
07:15 AM	0	0	2	0	8	0	0	0	0	1	6	0	17
07:30 AM	0	0	4	0	10	0	5	0	0	0	8	0	27
07:45 AM	0	0	0	0	7	0	0	0	0	0	5	0	12
Total	0	1	7	0	35	0	8	0	2	1	20	0	74
08:00 AM	1	0	0	0	8	0	4	0	0	1	7	0	21
08:15 AM	0	0	0	0	8	0	4	0	2	0	5	1	20
08:30 AM	0	0	0	0	4	0	1	0	0	0	8	0	13
08:45 AM	0	0	0	0	9	0	0	0	0	0	4	0	13
Total	1	0	0	0	29	0	9	0	2	1	24	1	67
Grand Total	1	1	7	0	64	0	17	0	4	2	44	1	141
Apprch %	11.1	11.1	77.8	0	100	0	81	0	19	4.3	93.6	2.1	
Total %	0.7	0.7	5	0	45.4	0	12.1	0	2.8	1.4	31.2	0.7	
Cars	1	1	7	0	63	0	17	0	4	2	43	1	139
% Cars	100	100	100	0	98.4	0	100	0	100	100	97.7	100	98.6
Trucks	0	0	0	0	1	0	0	0	0	0	1	0	2
% Trucks	0	0	0	0	1.6	0	0	0	0	0	2.3	0	1.4

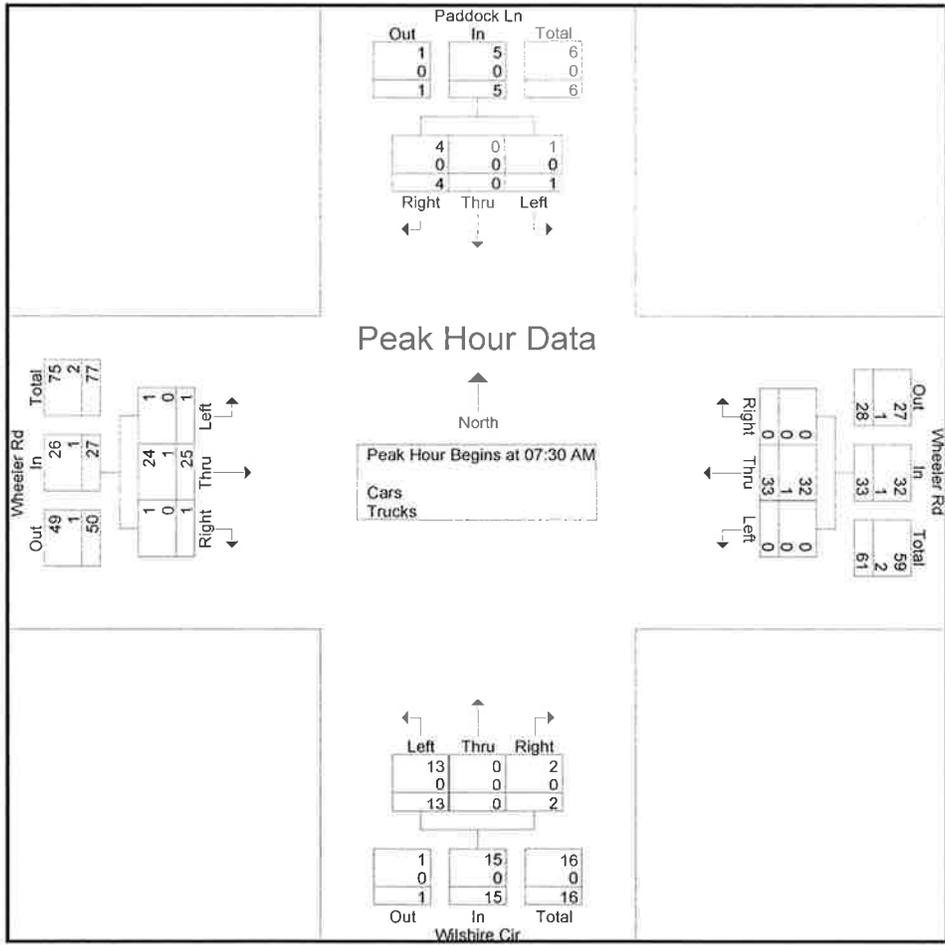
Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 2

Start Time	Paddock Ln From North				Wheeler Rd From East				Wilshire Cir From South				Wheeler Rd From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	4	4	0	10	0	10	5	0	0	5	0	8	0	8	27
07:45 AM	0	0	0	0	0	7	0	7	0	0	0	0	0	5	0	5	12
08:00 AM	1	0	0	1	0	8	0	8	4	0	0	4	1	7	0	8	21
08:15 AM	0	0	0	0	0	8	0	8	4	0	2	6	0	5	1	6	20
Total Volume	1	0	4	5	0	33	0	33	13	0	2	15	1	25	1	27	80
% App. Total	20	0	80		0	100	0		86.7	0	13.3		3.7	92.6	3.7		
PHF	.250	.000	.250	.313	.000	.825	.000	.825	.650	.000	.250	.625	.250	.781	.250	.844	.741
Cars	1	0	4	5	0	32	0	32	13	0	2	15	1	24	1	26	78
% Cars	100	0	100	100	0	97.0	0	97.0	100	0	100	100	100	96.0	100	96.3	97.5
Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
% Trucks	0	0	0	0	0	3.0	0	3.0	0	0	0	0	0	4.0	0	3.7	2.5



Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 4

Groups Printed- Cars

Start Time	Paddock Ln From North			Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	0	1	1	0	10	0	3	0	2	0	1	0	18
07:15 AM	0	0	2	0	8	0	0	0	0	1	6	0	17
07:30 AM	0	0	4	0	10	0	5	0	0	0	8	0	27
07:45 AM	0	0	0	0	6	0	0	0	0	0	5	0	11
Total	0	1	7	0	34	0	8	0	2	1	20	0	73
08:00 AM	1	0	0	0	8	0	4	0	0	1	7	0	21
08:15 AM	0	0	0	0	8	0	4	0	2	0	4	1	19
08:30 AM	0	0	0	0	4	0	1	0	0	0	8	0	13
08:45 AM	0	0	0	0	9	0	0	0	0	0	4	0	13
Total	1	0	0	0	29	0	9	0	2	1	23	1	66
Grand Total	1	1	7	0	63	0	17	0	4	2	43	1	139
Apprch %	11.1	11.1	77.8	0	100	0	81	0	19	4.3	93.5	2.2	
Total %	0.7	0.7	5	0	45.3	0	12.2	0	2.9	1.4	30.9	0.7	

Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 7

Groups Printed- Trucks

Start Time	Paddock Ln From North			Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	0	1
Grand Total	0	0	0	0	1	0	0	0	0	0	1	0	2
Apprch %	0	0	0	0	100	0	0	0	0	0	100	0	
Total %	0	0	0	0	50	0	0	0	0	0	50	0	

Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 10

Start Time	Paddock Ln From North				Wheeler Rd From East				Wilshire Cir From South				Wheeler Rd From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	5
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	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	5	5	0	5
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

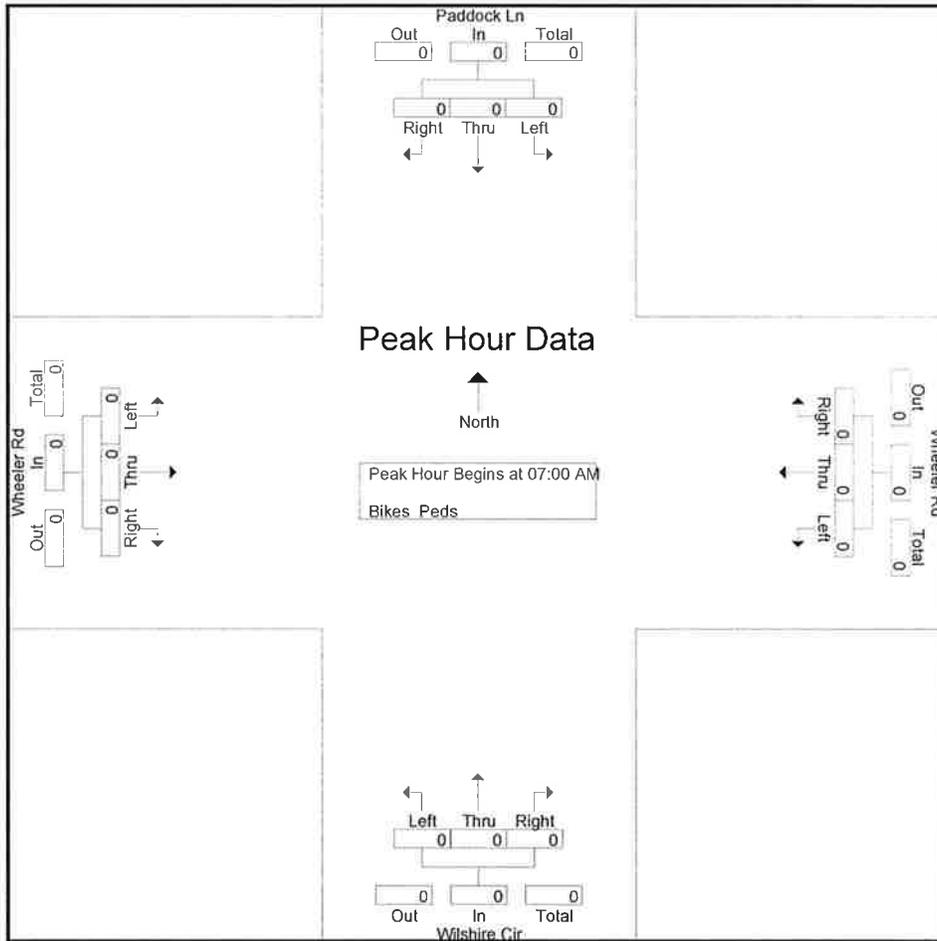
Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 11

Start Time	Paddock Ln From North				Wheeler Rd From East				Wilshire Cir From South				Wheeler Rd From West				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:00 AM																		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	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
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 1

Groups Printed- Cars - Trucks													
Start Time	Paddock Ln From North			Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	0	0	0	0	8	0	0	0	0	0	9	3	20
04:15 PM	0	1	0	0	16	0	0	0	1	2	9	1	30
04:30 PM	0	0	0	0	7	0	0	0	0	0	10	0	17
04:45 PM	0	0	0	0	12	0	0	0	0	0	7	0	19
Total	0	1	0	0	43	0	0	0	1	2	35	4	86
05:00 PM	0	0	0	1	12	0	1	0	0	1	11	0	26
05:15 PM	0	0	0	0	10	0	1	0	0	0	21	2	34
05:30 PM	0	0	0	2	21	0	0	0	0	1	8	2	34
05:45 PM	0	0	2	0	7	1	0	0	0	1	12	2	25
Total	0	0	2	3	50	1	2	0	0	3	52	6	119
Grand Total	0	1	2	3	93	1	2	0	1	5	87	10	205
Apprch %	0	33.3	66.7	3.1	95.9	1	66.7	0	33.3	4.9	85.3	9.8	
Total %	0	0.5	1	1.5	45.4	0.5	1	0	0.5	2.4	42.4	4.9	
Cars	0	1	2	3	93	1	2	0	1	5	86	10	204
% Cars	0	100	100	100	100	100	100	0	100	100	98.9	100	99.5
Trucks	0	0	0	0	0	0	0	0	0	0	1	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	1.1	0	0.5

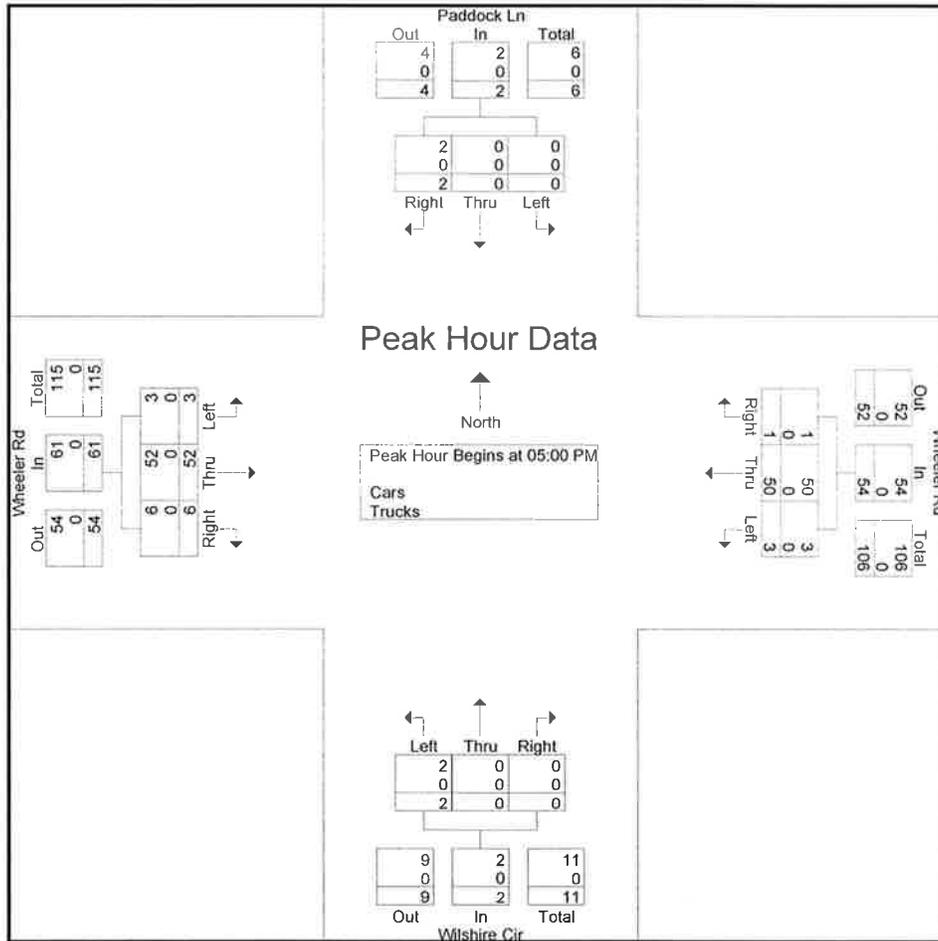
Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 2

Start Time	Paddock Ln From North				Wheeler Rd From East				Wilshire Cir From South				Wheeler Rd From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	1	12	0	13	1	0	0	1	1	11	0	12	26
05:15 PM	0	0	0	0	0	10	0	10	1	0	0	1	0	21	2	23	34
05:30 PM	0	0	0	0	2	21	0	23	0	0	0	0	1	8	2	11	34
05:45 PM	0	0	2	2	0	7	1	8	0	0	0	0	1	12	2	15	25
Total Volume	0	0	2	2	3	50	1	54	2	0	0	2	3	52	6	61	119
% App. Total	0	0	100		5.6	92.6	1.9		100	0	0		4.9	85.2	9.8		
PHF	.000	.000	.250	.250	.375	.595	.250	.587	.500	.000	.000	.500	.750	.619	.750	.663	.875
Cars	0	0	2	2	3	50	1	54	2	0	0	2	3	52	6	61	119
% Cars	0	0	100	100	100	100	100	100	100	0	0	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 4

Groups Printed- Cars

Start Time	Paddock Ln From North			Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	0	0	0	0	8	0	0	0	0	0	8	3	19
04:15 PM	0	1	0	0	16	0	0	0	1	2	9	1	30
04:30 PM	0	0	0	0	7	0	0	0	0	0	10	0	17
04:45 PM	0	0	0	0	12	0	0	0	0	0	7	0	19
Total	0	1	0	0	43	0	0	0	1	2	34	4	85
05:00 PM	0	0	0	1	12	0	1	0	0	1	11	0	26
05:15 PM	0	0	0	0	10	0	1	0	0	0	21	2	34
05:30 PM	0	0	0	2	21	0	0	0	0	1	8	2	34
05:45 PM	0	0	2	0	7	1	0	0	0	1	12	2	25
Total	0	0	2	3	50	1	2	0	0	3	52	6	119
Grand Total	0	1	2	3	93	1	2	0	1	5	86	10	204
Apprch %	0	33.3	66.7	3.1	95.9	1	66.7	0	33.3	5	85.1	9.9	
Total %	0	0.5	1	1.5	45.6	0.5	1	0	0.5	2.5	42.2	4.9	

Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 7

Groups Printed- Trucks

Start Time	Paddock Ln From North			Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 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	1	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	1	0	1
Apprch %	0	0	0	0	0	0	0	0	0	0	100	0	
Total %	0	0	0	0	0	0	0	0	0	0	100	0	

Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Paddock Ln From North				Wheeler Rd From East				Wilshire Cir From South				Wheeler Rd From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	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
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Approch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

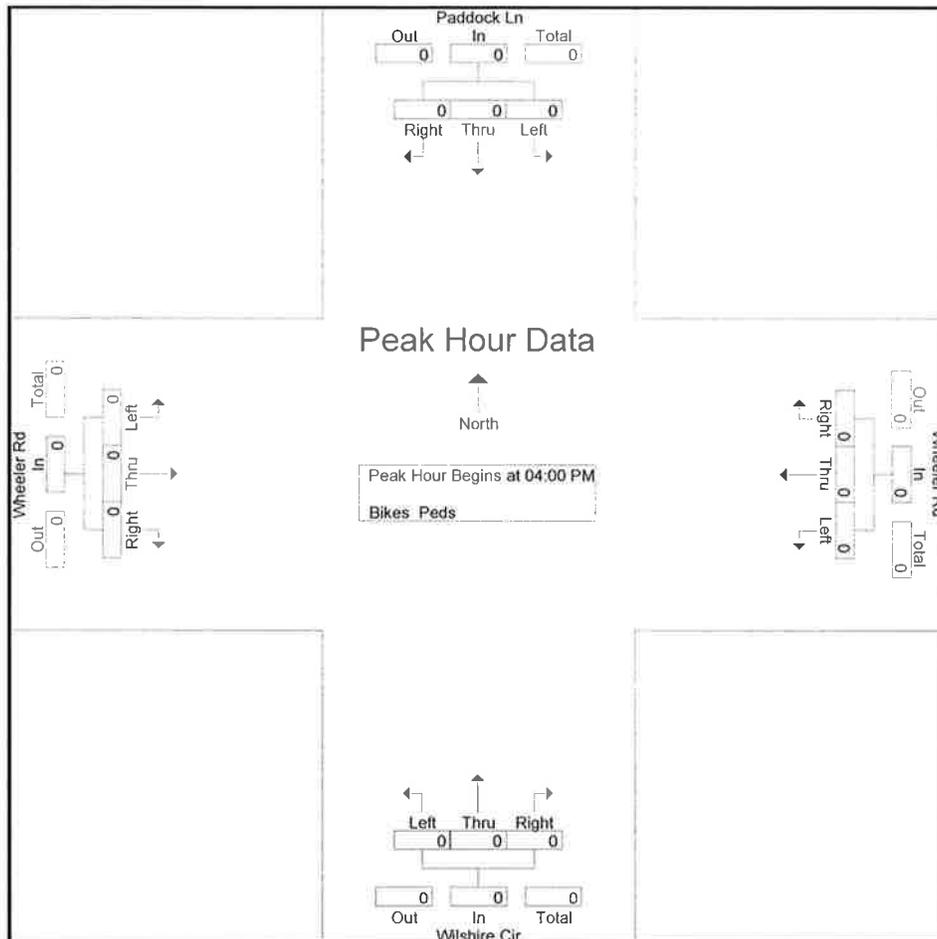
Accurate Counts

978-664-2565

N/S Street : Paddock Ln / Wilshire Cir
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630001
 Site Code : 74630001
 Start Date : 9/27/2016
 Page No : 11

Start Time	Paddock Ln From North				Wheeler Rd From East				Wilshire Cir From South				Wheeler Rd From West				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:00 PM																		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	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
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 1

Start Time	Wheeler Rd From East		Wilshire Cir From South		Wheeler Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	0	10	0	0	3	0	13
07:15 AM	1	8	0	0	6	0	15
07:30 AM	0	9	1	2	8	0	20
07:45 AM	0	6	0	0	5	0	11
Total	1	33	1	2	22	0	59
08:00 AM	0	8	0	0	8	0	16
08:15 AM	0	8	0	1	7	0	16
08:30 AM	0	4	0	0	7	0	11
08:45 AM	0	9	0	0	4	0	13
Total	0	29	0	1	26	0	56
Grand Total	1	62	1	3	48	0	115
Apprch %	1.6	98.4	25	75	100	0	
Total %	0.9	53.9	0.9	2.6	41.7	0	
Cars	1	61	1	3	47	0	113
% Cars	100	98.4	100	100	97.9	0	98.3
Trucks	0	1	0	0	1	0	2
% Trucks	0	1.6	0	0	2.1	0	1.7

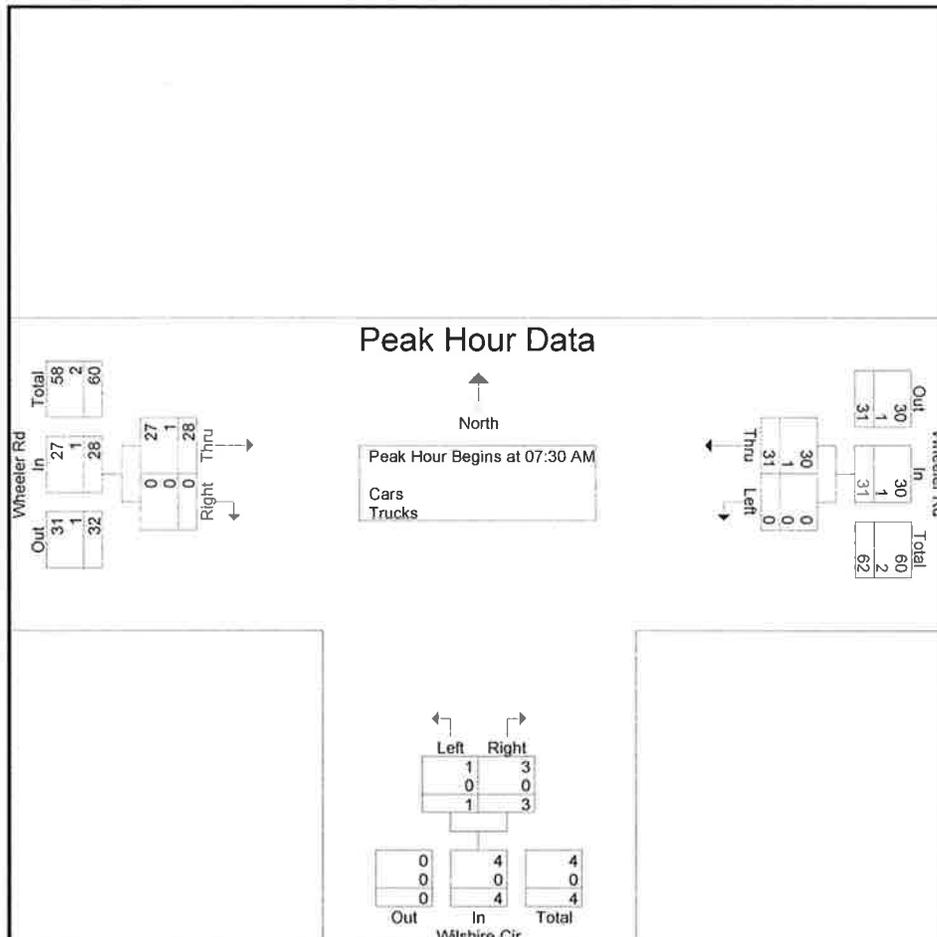
Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 2

Start Time	Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	9	9	1	2	3	8	0	8	20
07:45 AM	0	6	6	0	0	0	5	0	5	11
08:00 AM	0	8	8	0	0	0	8	0	8	16
08:15 AM	0	8	8	0	1	1	7	0	7	16
Total Volume	0	31	31	1	3	4	28	0	28	63
% App. Total	0	100		25	75		100	0		
PHF	.000	.861	.861	.250	.375	.333	.875	.000	.875	.788
Cars	0	30	30	1	3	4	27	0	27	61
% Cars	0	96.8	96.8	100	100	100	96.4	0	96.4	96.8
Trucks	0	1	1	0	0	0	1	0	1	2
% Trucks	0	3.2	3.2	0	0	0	3.6	0	3.6	3.2



Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 4

Start Time	Wheeler Rd From East		Wilshire Cir From South		Wheeler Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	0	10	0	0	3	0	13
07:15 AM	1	8	0	0	6	0	15
07:30 AM	0	9	1	2	8	0	20
07:45 AM	0	5	0	0	5	0	10
Total	1	32	1	2	22	0	58
08:00 AM	0	8	0	0	8	0	16
08:15 AM	0	8	0	1	6	0	15
08:30 AM	0	4	0	0	7	0	11
08:45 AM	0	9	0	0	4	0	13
Total	0	29	0	1	25	0	55
Grand Total	1	61	1	3	47	0	113
Apprch %	1.6	98.4	25	75	100	0	
Total %	0.9	54	0.9	2.7	41.6	0	

Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 7

Start Time	Groups Printed- Trucks						Int. Total
	Wheeler Rd From East		Wilshire Cir From South		Wheeler Rd From West		
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0
07:45 AM	0	1	0	0	0	0	1
Total	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	1	0	1
08:30 AM	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	1
Grand Total	0	1	0	0	1	0	2
Apprch %	0	100	0	0	100	0	
Total %	0	50	0	0	50	0	

Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds			
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

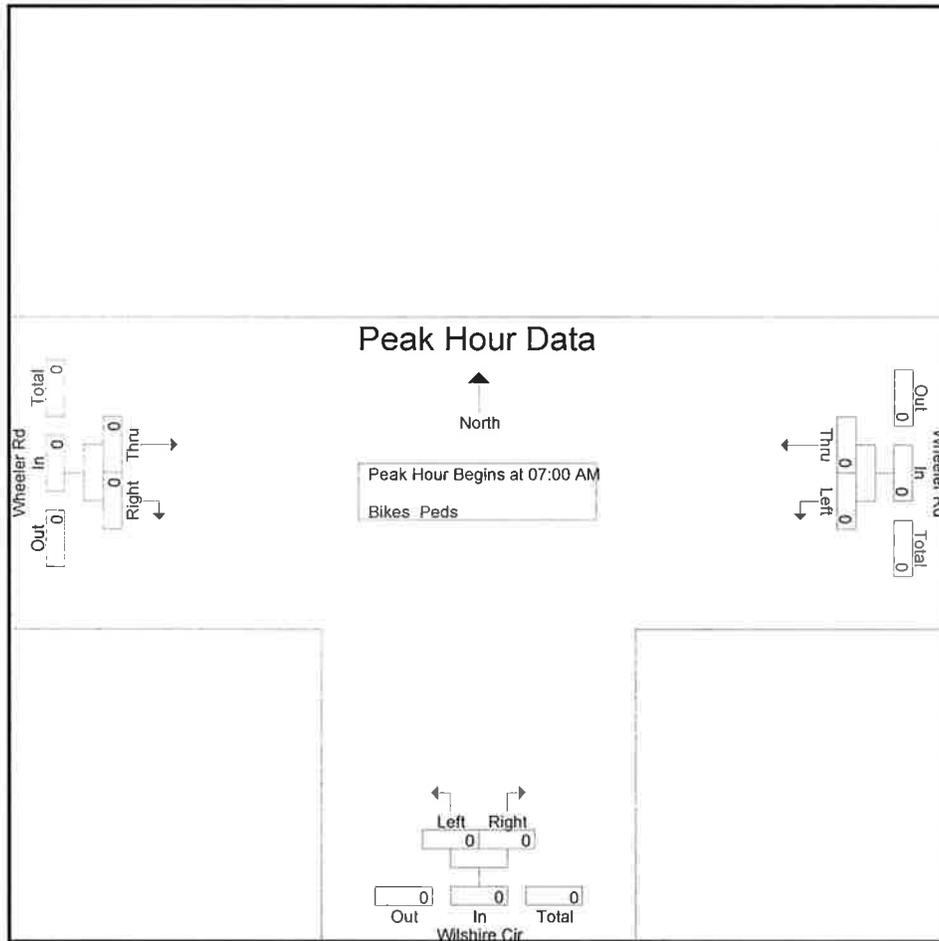
Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 11

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



Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 1

Start Time	Wheeler Rd From East		Wilshire Cir From South		Wheeler Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	0	7	1	0	12	0	20
04:15 PM	0	16	0	0	11	0	27
04:30 PM	1	7	0	0	9	2	19
04:45 PM	1	9	1	0	8	0	19
Total	2	39	2	0	40	2	85
05:00 PM	1	15	0	0	9	0	25
05:15 PM	1	10	0	2	19	2	34
05:30 PM	0	18	2	0	7	0	27
05:45 PM	2	10	0	0	11	0	23
Total	4	53	2	2	46	2	109
Grand Total	6	92	4	2	86	4	194
Apprch %	6.1	93.9	66.7	33.3	95.6	4.4	
Total %	3.1	47.4	2.1	1	44.3	2.1	
Cars	6	92	4	2	85	4	193
% Cars	100	100	100	100	98.8	100	99.5
Trucks	0	0	0	0	1	0	1
% Trucks	0	0	0	0	1.2	0	0.5

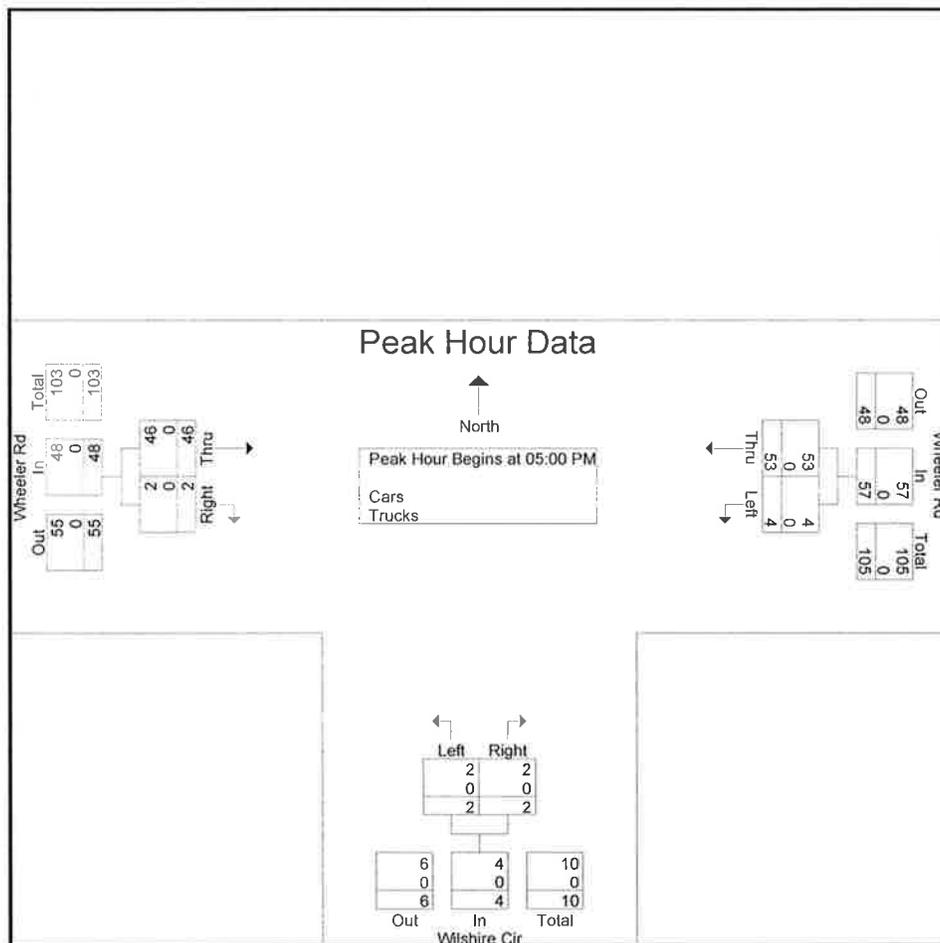
Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 2

Start Time	Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	1	15	16	0	0	0	9	0	9	25
05:15 PM	1	10	11	0	2	2	19	2	21	34
05:30 PM	0	18	18	2	0	2	7	0	7	27
05:45 PM	2	10	12	0	0	0	11	0	11	23
Total Volume	4	53	57	2	2	4	46	2	48	109
% App. Total	7	93		50	50		95.8	4.2		
PHF	.500	.736	.792	.250	.250	.500	.605	.250	.571	.801
Cars	4	53	57	2	2	4	46	2	48	109
% Cars	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 4

Start Time	Wheeler Rd From East		Wilshire Cir From South		Wheeler Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	0	7	1	0	11	0	19
04:15 PM	0	16	0	0	11	0	27
04:30 PM	1	7	0	0	9	2	19
04:45 PM	1	9	1	0	8	0	19
Total	2	39	2	0	39	2	84
05:00 PM	1	15	0	0	9	0	25
05:15 PM	1	10	0	2	19	2	34
05:30 PM	0	18	2	0	7	0	27
05:45 PM	2	10	0	0	11	0	23
Total	4	53	2	2	46	2	109
Grand Total	6	92	4	2	85	4	193
Apprch %	6.1	93.9	66.7	33.3	95.5	4.5	
Total %	3.1	47.7	2.1	1	44	2.1	

Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 7

Groups Printed- Trucks

Start Time	Wheeler Rd From East		Wilshire Cir From South		Wheeler Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	0	0	0	0	1	0	1
04:15 PM	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	1
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	0	0	0	1	0	1
Apprch %	0	0	0	0	100	0	
Total %	0	0	0	0	100	0	

Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds			
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

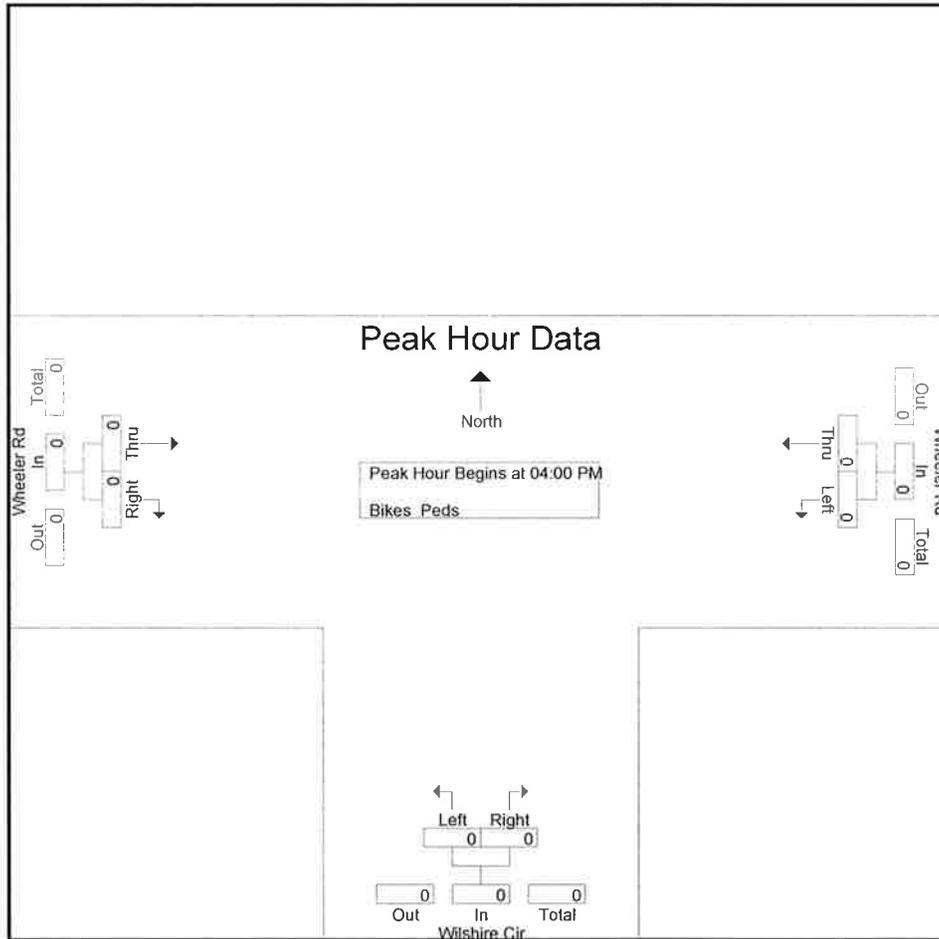
Accurate Counts

978-664-2565

N/S Street : Wilshire Circle
 E/W Street : Wheeler Road
 City/State : Dracut, MA
 Weather : Cloudy

File Name : 74630002
 Site Code : 74630002
 Start Date : 9/27/2016
 Page No : 11

Start Time	Wheeler Rd From East			Wilshire Cir From South			Wheeler Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts
978-664-2565

N/S Street : Wheeler Street
E/W Street : Rinzee Road
City/State : Methuen, MA
Weather : Cloudy

File Name : 74630003
Site Code : 74630003
Start Date : 9/27/2016
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Wheeler St From North		Wheeler St From South		Rinzee Rd From West		Int. Total
	Thru	Right	Left	Thru	Left	Right	
07:00 AM	13	0	0	1	0	2	16
07:15 AM	1	4	0	2	1	3	11
07:30 AM	5	1	0	9	1	1	17
07:45 AM	7	0	0	9	0	1	17
Total	26	5	0	21	2	7	61
08:00 AM	8	1	2	8	1	3	23
08:15 AM	12	0	2	15	2	2	33
08:30 AM	8	0	0	8	0	1	17
08:45 AM	8	1	0	8	2	0	19
Total	36	2	4	39	5	6	92
Grand Total	62	7	4	60	7	13	153
Apprch %	89.9	10.1	6.2	93.8	35	65	
Total %	40.5	4.6	2.6	39.2	4.6	8.5	
Cars	62	7	4	60	7	13	153
% Cars	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0

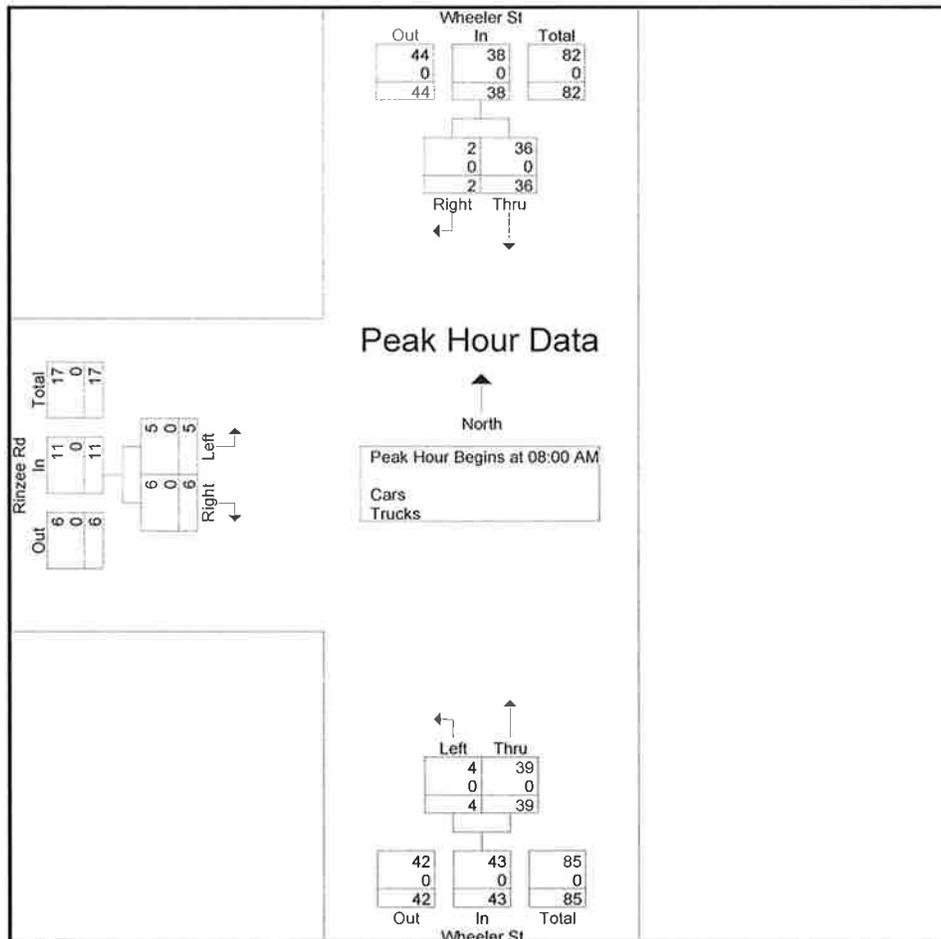
Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 2

Start Time	Wheeler St From North			Wheeler St From South			Rinzee Rd From West			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	8	1	9	2	8	10	1	3	4	23
08:15 AM	12	0	12	2	15	17	2	2	4	33
08:30 AM	8	0	8	0	8	8	0	1	1	17
08:45 AM	8	1	9	0	8	8	2	0	2	19
Total Volume	36	2	38	4	39	43	5	6	11	92
% App. Total	94.7	5.3		9.3	90.7		45.5	54.5		
PHF	.750	.500	.792	.500	.650	.632	.625	.500	.688	.697
Cars	36	2	38	4	39	43	5	6	11	92
% Cars	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 4

Groups Printed- Cars

Start Time	Wheeler St From North		Wheeler St From South		Rinzee Rd From West		Int. Total
	Thru	Right	Left	Thru	Left	Right	
07:00 AM	13	0	0	1	0	2	16
07:15 AM	1	4	0	2	1	3	11
07:30 AM	5	1	0	9	1	1	17
07:45 AM	7	0	0	9	0	1	17
Total	26	5	0	21	2	7	61
08:00 AM	8	1	2	8	1	3	23
08:15 AM	12	0	2	15	2	2	33
08:30 AM	8	0	0	8	0	1	17
08:45 AM	8	1	0	8	2	0	19
Total	36	2	4	39	5	6	92
Grand Total	62	7	4	60	7	13	153
Apprch %	89.9	10.1	6.2	93.8	35	65	
Total %	40.5	4.6	2.6	39.2	4.6	8.5	

Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 7

Groups Printed- Trucks

Start Time	Wheeler St From North		Wheeler St From South		Rinzee Rd From West		Int. Total
	Thru	Right	Left	Thru	Left	Right	
07:00 AM	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	
Total %							

Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Wheeler St From North			Wheeler St From South			Rinzee Rd From West			Exclu. Total	Inclu. Total	Int. Total
	Thru	Right	Peds	Left	Thru	Peds	Left	Right	Peds			
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

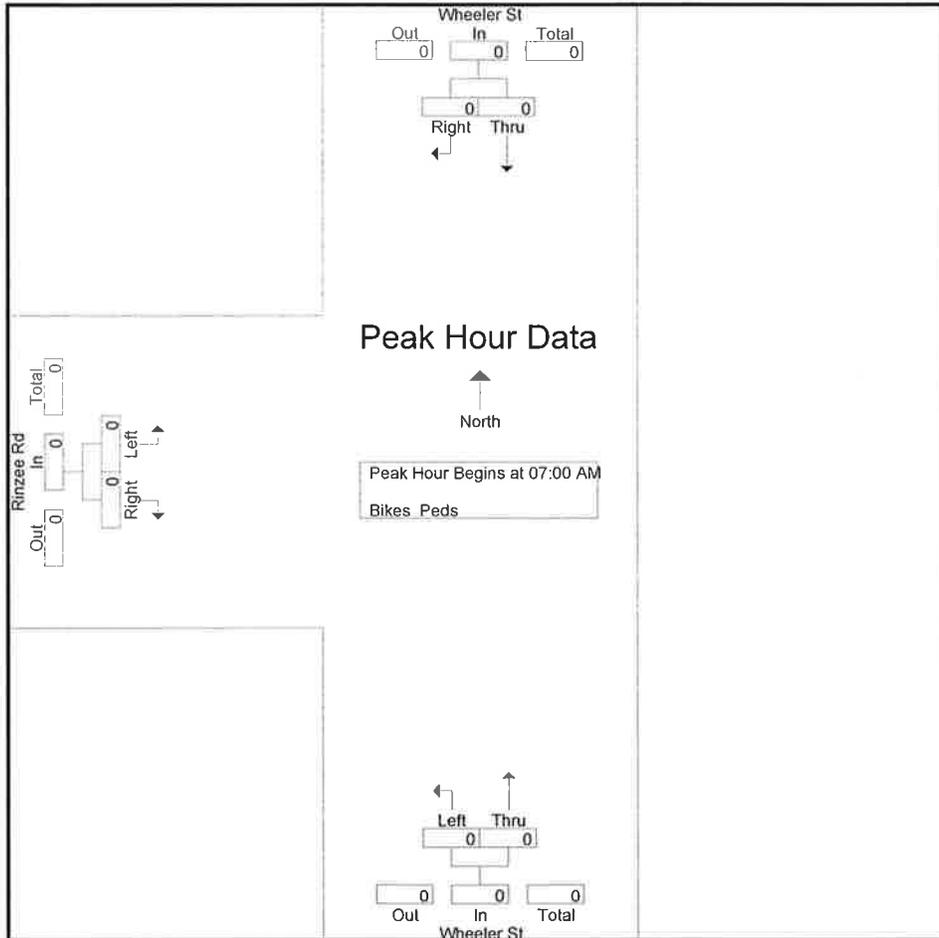
Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 11

Start Time	Wheeler St From North			Wheeler St From South			Rinzee Rd From West			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Wheeler St From North		Wheeler St From South		Rinzee Rd From West		Int. Total
	Thru	Right	Left	Thru	Left	Right	
04:00 PM	6	1	0	8	0	0	15
04:15 PM	3	2	0	5	2	1	13
04:30 PM	8	1	0	11	1	1	22
04:45 PM	8	1	2	10	2	1	24
Total	25	5	2	34	5	3	74
05:00 PM	9	0	0	2	0	0	11
05:15 PM	10	2	2	11	1	1	27
05:30 PM	2	1	2	7	3	0	15
05:45 PM	6	3	0	8	0	2	19
Total	27	6	4	28	4	3	72
Grand Total	52	11	6	62	9	6	146
Apprch %	82.5	17.5	8.8	91.2	60	40	
Total %	35.6	7.5	4.1	42.5	6.2	4.1	
Cars	52	11	6	62	9	6	146
% Cars	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0

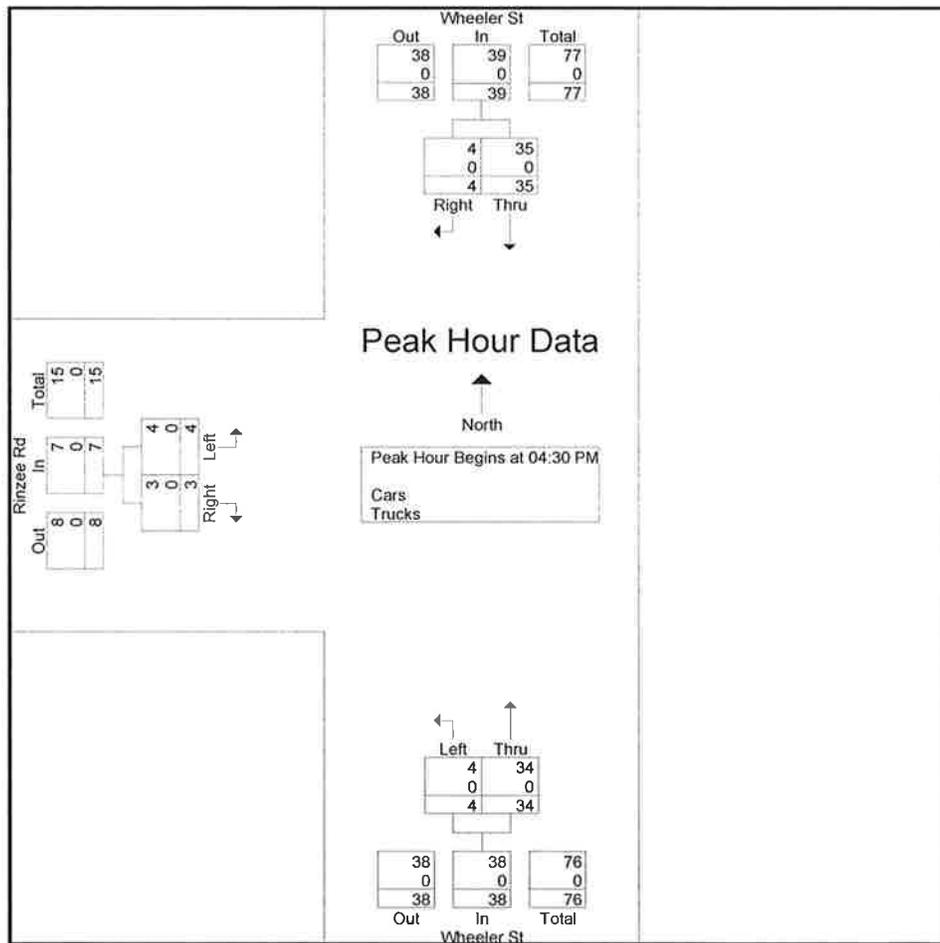
Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 2

Start Time	Wheeler St From North			Wheeler St From South			Rinzee Rd From West			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	8	1	9	0	11	11	1	1	2	22
04:45 PM	8	1	9	2	10	12	2	1	3	24
05:00 PM	9	0	9	0	2	2	0	0	0	11
05:15 PM	10	2	12	2	11	13	1	1	2	27
Total Volume	35	4	39	4	34	38	4	3	7	84
% App. Total	89.7	10.3		10.5	89.5		57.1	42.9		
PHF	.875	.500	.813	.500	.773	.731	.500	.750	.583	.778
Cars	35	4	39	4	34	38	4	3	7	84
% Cars	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 4

Groups Printed- Cars

Start Time	Wheeler St From North		Wheeler St From South		Rinzee Rd From West		Int. Total
	Thru	Right	Left	Thru	Left	Right	
04:00 PM	6	1	0	8	0	0	15
04:15 PM	3	2	0	5	2	1	13
04:30 PM	8	1	0	11	1	1	22
04:45 PM	8	1	2	10	2	1	24
Total	25	5	2	34	5	3	74
05:00 PM	9	0	0	2	0	0	11
05:15 PM	10	2	2	11	1	1	27
05:30 PM	2	1	2	7	3	0	15
05:45 PM	6	3	0	8	0	2	19
Total	27	6	4	28	4	3	72
Grand Total	52	11	6	62	9	6	146
Apprch %	82.5	17.5	8.8	91.2	60	40	
Total %	35.6	7.5	4.1	42.5	6.2	4.1	

Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 7

Groups Printed- Trucks

Start Time	Wheeler St From North		Wheeler St From South		Rinzee Rd From West		Int. Total
	Thru	Right	Left	Thru	Left	Right	
04:00 PM	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	
Total %							

Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Wheeler St From North			Wheeler St From South			Rinzee Rd From West			Exclu. Total	Inclu. Total	Int. Total
	Thru	Right	Peds	Left	Thru	Peds	Left	Right	Peds			
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

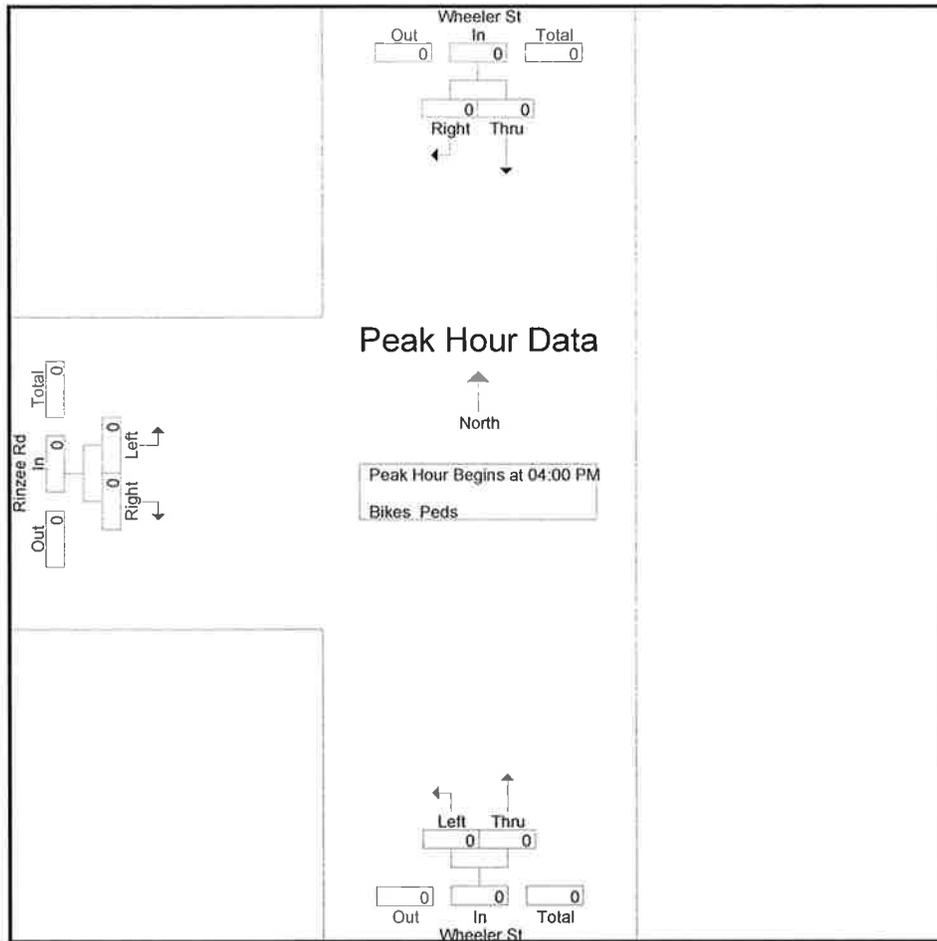
Accurate Counts

978-664-2565

N/S Street : Wheeler Street
 E/W Street : Rinzee Road
 City/State : Methuen, MA
 Weather : Cloudy

File Name : 74630003
 Site Code : 74630003
 Start Date : 9/27/2016
 Page No : 11

Start Time	Wheeler St From North			Wheeler St From South			Rinzee Rd From West			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



SEASONAL ADJUSTMENT DATA

Massachusetts Highway Department

5093: Monthly Hourly Volume for September 2015

Location ID:	5093		Seasonal Factor Group: U1-Essex																								TOTAL
	County:	ESSEX	Daily Factor Group:																								
Functional Class:	1		Axle Factor Group: U1-Essex																								
Location:	INTERSTATE 93		Growth Factor Group:																								
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL		
1																											
2	723	467	421	585	1795	5386	7418	8983	8357	6243	5927	6078	6428	6638	8033	8817	9300	9199	7648	5542	4387	3075	1961	1383	124794		
3	767	474	525	610	1874	5351	7633	9065	8226	6306	6281	6296	6629	7028	8390	8950	9329	9510	8302	6352	4559	3389	2324	1729	129899		
4	1163	688	549	665	1703	4661	6233	8003	7279	6466	7224	8259	8632	8410	9076	9644	9531	8762	7338	6465	5392	4000	2956	2102	135201		
5	1228	659	546	458	637	1353	2513	3822	5444	7038	8333	8802	8921	8258	7466	7333	6984	6578	5976	5554	4615	3843	3182	1954	111497		
6	1144	705	395	318	346	673	1366	2113	3449	5084	6888	8208	8401	7798	7053	6456	6490	6718	6214	5784	5047	4144	3044	1617	99455		
7	900	478	388	366	401	830	1388	2088	3063	4653	6828	7754	7642	7313	7139	7165	6969	6547	6547	5907	5100	3473	1885	1077	96956		
8	580	347	365	550	1915	5724	7711	8784	7302	6625	5991	6121	6340	6421	7891	8947	9150	8840	7366	4897	3572	2702	1842	1467	121450		
9	787	468	460	616	1924	5647	7679	8605	8255	6292	5561	5859	6165	6285	7936	8831	9030	8977	7851	5440	4210	2874	1957	1473	123182		
10	812	499	490	634	1937	5573	6787	8628	7975	6159	5602	5781	6157	6492	8339	8466	9010	8692	7407	5408	3665	2536	1939	1512	120500		
11	1050	829	697	647	1676	4922	6826	7034	6350	6448	6313	6836	7428	7773	8999	9251	9334	9544	8760	6972	4753	3602	2751	1991	130786		
12	1186	688	507	435	802	1846	2791	4076	5540	6753	7966	8853	8872	8551	8332	8080	7799	7610	6801	5634	4786	3676	2795	2047	116426		
13	1386	909	583	394	395	788	1399	2325	3926	4791	6681	8123	8523	8377	8126	7982	7701	7128	5633	4630	3415	2323	1438	1039	97415		
14	587	352	356	591	1910	5741	7763	8733	8064	5906	5591	5868	6165	6324	7582	8732	9242	9162	7186	4891	3483	2508	1789	1195	119721		
15	640	450	415	613	1927	5835	7667	8926	8155	6175	5545	5635	6076	6146	7784	8207	8808	8886	7389	5459	4137	2885	1826	1281	120867		
16	688	475	469	592	1913	5744	7762	8619	8241	6192	5792	5973	6109	6305	7718	8432	9315	8992	7922	5574	4201	3023	2005	1372	123428		
17	718	472	468	636	1945	5743	7581	8709	7939	6412	5907	6022	6491	6806	7722	7361	9501	8921	8174	5898	4526	3405	2128	1443	124928		
18	894	568	490	664	1890	5283	7245	8539	7565	6129	6453	7132	7332	7580	8725	9645	9302	9181	8564	7010	4911	3752	2831	2150	133835		
19	1384	776	589	486	793	1821	2853	4328	5718	6922	8245	8716	8709	8413	8359	7778	8149	7644	6828	5845	5107	3911	3066	2126	118566		
20	1277	767	466	341	411	866	1534	2663	3893	5320	7601	9004	8821	8323	7634	7434	7464	7975	7040	5702	4120	2589	1637	1153	104035		
21	599	365	393	608	2023	5750	7516	7881	8046	5921	5572	5794	6200	6213	7758	8672	8992	9091	7207	4760	3359	2480	1766	1309	118275		
22	708	467	434	617	2013	4315	4769	8920	8142	6010	5671	5628	5933	6301	7702	8920	9354	9402	7628	4975	3610	2904	2093	1392	117908		
23	726	434	458	598	1927	5704	7505	8542	8021	6026	5665	5795	6302	6449	8013	8875	8934	9177	7932	5555	4009	2979	1983	1472	123081		
24	732	509	498	618	1991	5724	7659	8547	8291	6573	5822	5954	6527	6928	8327	9114	9615	9195	8191	5667	4295	3292	2408	1764	128241		
25	909	613	502	648	1861	5230	5121	7668	7675	6543	6440	6732	7958	8000	9072	9553	9916	9501	8871	6807	4988	3742	2920	2230	135520		
26	1484	905	590	446	792	1769	2882	4263	5808	7145	8258	8899	8992	9018	8692	8404	8340	8259	7189	5926	5020	4046	3249	2442	122818		
27	1432	790	444	341	461	941	1845	3265	4598	6163	7665	8609	9268	8050	8021	7370	7994	8134	7490	6221	5014	3137	1834	1219	110306		
28	663	373	390	649	1995	4960	7222	8713	7861	5233	6160	6096	6204	6211	7666	8483	8928	9120	7256	4627	3301	2663	1770	1208	117752		
29	724	497	453	607	1994	5863	7659	8537	7918	5974	5503	5625	5870	6213	7662	8412	8985	8974	7817	4878	3811	2835	1801	1325	119937		
30	669	437	405	594	1821	5433	6987	7549	6939	5366	4841	4966	5626	5753	7131	7958	8779	8933	7379	4905	3612	2697	1885	1314	111979		
Average																											119198.6

$\frac{116506}{119199} \approx 0.98$

2015 Average Yearly = 116,586

VEHICLE TRAVEL SPEED DATA

Accurate Counts

978-664-2565

Location : Wheeler Road
 Location : East of Wilshire Circle
 City/State: Dracut, MA

7463SPD2

WB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
09/27/16	0	0	1	1	0	1	0	0	0	0	0	0	0	0	3
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
04:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
05:00	0	0	0	4	5	1	0	0	0	0	0	0	0	0	10
06:00	0	1	2	9	17	0	0	0	0	0	0	0	0	0	29
07:00	0	0	2	7	16	9	0	0	0	0	0	0	0	0	34
08:00	0	0	3	10	9	9	0	0	0	0	0	0	0	0	31
09:00	0	0	1	7	9	3	1	0	0	7	0	0	0	0	21
10:00	0	0	0	5	10	2	1	0	0	0	0	0	0	0	18
11:00	0	0	1	4	9	7	0	0	0	0	0	0	0	0	21
12 PM	0	0	0	1	13	4	2	0	0	0	0	0	0	0	20
13:00	0	0	2	11	9	5	1	0	0	0	0	0	0	0	28
14:00	0	0	2	8	17	13	1	0	0	0	0	0	0	0	41
15:00	0	0	0	10	24	13	2	0	0	0	0	0	0	0	49
16:00	0	0	1	4	22	11	0	0	0	0	0	0	0	0	38
17:00	2	0	2	12	34	9	2	0	0	0	0	0	0	0	61
18:00	1	0	1	16	19	13	0	0	0	0	0	0	0	0	50
19:00	0	0	4	16	10	2	1	0	0	0	0	0	0	0	33
20:00	0	1	1	11	16	5	0	0	0	0	0	0	0	0	34
21:00	0	0	0	3	5	2	1	0	0	0	0	0	0	0	11
22:00	1	0	0	3	4	2	0	0	0	0	0	0	0	0	10
23:00	0	0	0	3	0	2	0	0	0	0	0	0	0	0	5
Total	4	2	23	146	250	113	12	0	550						

Daily

- 15th Percentile : 26 MPH
- 50th Percentile : 32 MPH
- 85th Percentile : 36 MPH
- 95th Percentile : 39 MPH

- Mean Speed(Average) : 32 MPH
- 10 MPH Pace Speed : 26-35 MPH
- Number in Pace : 396
- Percent in Pace : 72.0%
- Number of Vehicles > 35 MPH : 125
- Percent of Vehicles > 35 MPH : 22.7%

Accurate Counts

978-664-2565

Location : Wheeler Road
 Location : East of Wilshire Circle
 City/State: Dracut, MA

7463SPD2

WB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
09/28/16	0	0	0	1	1	2	0	0	0	0	0	0	0	0	4
01:00	0	0	1	0	1	1	0	0	0	0	0	0	0	0	3
02:00	0	0	0	0	1	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	0
04:00	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
05:00	0	0	0	3	5	3	0	0	0	0	0	0	0	0	11
06:00	0	1	2	4	14	3	0	0	0	0	0	0	0	0	24
07:00	2	1	1	9	16	5	1	0	0	0	0	0	0	0	35
08:00	0	0	1	9	13	5	0	0	0	0	0	0	0	0	28
09:00	0	0	1	8	13	6	0	0	0	8	0	0	0	0	28
10:00	0	0	4	7	13	2	1	0	0	0	0	0	0	0	27
11:00	0	0	4	7	19	9	1	0	0	0	0	0	0	0	40
12 PM	0	0	2	8	14	6	0	0	0	0	0	0	0	0	30
13:00	0	0	1	6	14	4	0	0	0	0	0	0	0	0	25
14:00	0	0	4	7	16	11	0	0	0	0	0	0	0	0	38
15:00	1	0	3	10	25	9	1	0	0	0	0	0	0	0	49
16:00	0	0	1	15	12	10	0	0	0	0	0	0	0	0	38
17:00	0	0	1	16	26	14	1	0	0	0	0	0	0	0	58
18:00	1	0	0	15	27	11	1	0	0	0	0	0	0	0	55
19:00	0	0	1	14	15	6	0	0	0	0	0	0	0	0	36
20:00	0	0	0	5	13	3	1	0	0	0	0	0	0	0	22
21:00	0	0	4	3	6	0	0	0	0	0	0	0	0	0	13
22:00	0	0	3	3	9	1	1	0	0	0	0	0	0	0	17
23:00	0	0	0	2	5	1	0	0	0	0	0	0	0	0	8
Total	4	2	34	152	281	112	8	0	593						

Daily

- 15th Percentile : 26 MPH
- 50th Percentile : 31 MPH
- 85th Percentile : 36 MPH
- 95th Percentile : 39 MPH
- Mean Speed(Average) : 32 MPH
- 10 MPH Pace Speed : 26-35 MPH
- Number in Pace : 433
- Percent in Pace : 73.0%
- Number of Vehicles > 35 MPH : 120
- Percent of Vehicles > 35 MPH : 20.2%

Grand Total	8	4	57	298	531	225	20	0	1143						
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Overall

- 15th Percentile : 26 MPH
- 50th Percentile : 31 MPH
- 85th Percentile : 36 MPH
- 95th Percentile : 39 MPH
- Mean Speed(Average) : 32 MPH
- 10 MPH Pace Speed : 26-35 MPH
- Number in Pace : 829
- Percent in Pace : 72.5%
- Number of Vehicles > 35 MPH : 245
- Percent of Vehicles > 35 MPH : 21.4%

Accurate Counts

978-664-2565

Location : Wheeler Road
 Location : East of Wilshire Circle
 City/State: Dracut, MA

7463SPD2

EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
09/27/16	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5
04:00	0	0	0	1	2	2	1	0	0	0	0	0	0	0	6
05:00	0	0	0	3	3	4	0	0	0	0	0	0	0	0	10
06:00	0	1	1	5	14	5	2	0	0	0	0	0	0	0	28
07:00	0	0	0	6	7	9	4	0	0	0	0	0	0	0	26
08:00	0	0	1	1	10	12	4	0	0	0	0	0	0	0	28
09:00	0	0	2	4	9	11	5	0	0	0	0	0	0	0	31
10:00	0	0	0	2	11	7	2	0	0	0	0	0	0	0	22
11:00	0	0	0	2	12	6	1	0	0	0	0	0	0	0	21
12 PM	0	1	1	2	4	3	2	1	0	0	0	0	0	0	14
13:00	0	0	0	1	12	11	3	1	0	0	0	0	0	0	28
14:00	0	0	0	2	9	10	2	0	0	0	0	0	0	0	23
15:00	0	1	2	5	12	16	5	1	0	0	0	0	0	0	42
16:00	0	0	0	2	15	16	3	0	1	0	0	0	0	0	37
17:00	2	0	2	4	8	28	3	0	0	0	0	0	0	0	45
18:00	1	0	1	3	15	15	3	0	0	0	0	0	0	0	38
19:00	0	0	0	2	16	13	5	0	0	0	0	0	0	0	36
20:00	0	0	0	2	17	8	3	0	0	0	0	0	0	0	30
21:00	0	0	0	4	9	4	0	1	0	0	0	0	0	0	18
22:00	0	0	0	0	2	4	0	1	1	0	0	0	0	0	8
23:00	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
Total	3	3	10	52	190	188	49	5	2	0	0	0	0	0	502

Daily

- 15th Percentile : 30 MPH
- 50th Percentile : 34 MPH
- 85th Percentile : 39 MPH
- 95th Percentile : 43 MPH
- Mean Speed(Average) : 35 MPH
- 10 MPH Pace Speed : 31-40 MPH
- Number in Pace : 378
- Percent in Pace : 75.3%
- Number of Vehicles > 35 MPH : 244
- Percent of Vehicles > 35 MPH : 48.6%

Accurate Counts

978-664-2565

Location : Wheeler Road
 Location : East of Wilshire Circle
 City/State: Dracut, MA

7463SPD2

EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
09/28/16	0	0	0	0	2	1	0	0	1	0	0	0	0	0	4
01:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
04:00	0	0	0	3	1	3	1	0	0	0	0	0	0	0	8
05:00	0	0	0	0	2	7	2	1	0	0	0	0	0	0	12
06:00	0	1	1	3	10	6	5	0	0	0	0	0	0	0	26
07:00	1	0	2	3	13	13	6	0	0	0	0	0	0	0	38
08:00	0	0	0	4	13	9	1	1	0	0	0	0	0	0	28
09:00	0	1	4	4	12	10	2	0	0	4	0	0	0	0	33
10:00	0	1	0	4	5	17	1	1	0	0	0	0	0	0	29
11:00	0	0	0	3	14	10	9	0	1	0	0	0	0	0	37
12 PM	0	0	3	4	12	7	2	0	1	0	0	0	0	0	29
13:00	0	0	2	5	13	12	6	0	0	0	0	0	0	0	38
14:00	0	1	3	8	7	11	4	1	0	0	0	0	0	0	35
15:00	3	0	0	4	9	20	4	1	0	0	0	0	0	0	41
16:00	0	0	2	1	15	17	3	0	0	0	0	0	0	0	38
17:00	0	1	4	5	15	17	5	0	0	0	0	0	0	0	47
18:00	0	0	1	4	23	7	2	1	0	0	0	0	0	0	38
19:00	0	0	0	2	9	9	3	0	0	0	0	0	0	0	23
20:00	0	0	1	3	6	9	0	0	0	0	0	0	0	0	19
21:00	0	0	1	0	5	3	2	0	0	0	0	0	0	0	11
22:00	0	0	0	3	2	5	3	1	0	0	0	0	0	0	14
23:00	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
Total	4	5	24	63	189	195	64	7	3	0	0	0	0	0	554

Daily

- 15th Percentile : 28 MPH
- 50th Percentile : 34 MPH
- 85th Percentile : 39 MPH
- 95th Percentile : 43 MPH

Mean Speed(Average) : 35 MPH

10 MPH Pace Speed : 31-40 MPH

- Number in Pace : 384
- Percent in Pace : 69.3%
- Number of Vehicles > 35 MPH : 269
- Percent of Vehicles > 35 MPH : 48.6%

Grand Total	7	8	34	115	379	383	113	12	5	0	0	0	0	0	1056
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Overall

- 15th Percentile : 29 MPH
- 50th Percentile : 34 MPH
- 85th Percentile : 39 MPH
- 95th Percentile : 43 MPH

Mean Speed(Average) : 35 MPH

10 MPH Pace Speed : 31-40 MPH

- Number in Pace : 762
- Percent in Pace : 72.2%
- Number of Vehicles > 35 MPH : 513
- Percent of Vehicles > 35 MPH : 48.6%

Accurate Counts

978-664-2565

Location : Wheeler Road
 Location : East of Wilshire Circle
 City/State: Dracut, MA

7463SPD2

WB, EB

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	999	Total
	15	20	25	30	35	40	45	50	55	60	65	70	75			
09/27/16	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	6
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	1	1	5	0	0	0	0	0	0	0	0	0	7
04:00	0	0	0	1	3	2	1	0	0	0	0	0	0	0	0	7
05:00	0	0	0	7	8	5	0	0	0	0	0	0	0	0	0	20
06:00	0	2	3	14	31	5	2	0	0	0	0	0	0	0	0	57
07:00	0	0	2	13	23	18	4	0	0	0	0	0	0	0	0	60
08:00	0	0	4	11	19	21	4	0	0	0	0	0	0	0	0	59
09:00	0	0	3	11	18	14	6	0	0	0	0	0	0	0	0	52
10:00	0	0	0	7	21	9	3	0	0	0	0	0	0	0	0	40
11:00	0	0	1	6	21	13	1	0	0	0	0	0	0	0	0	42
12 PM	0	1	1	3	17	7	4	1	0	0	0	0	0	0	0	34
13:00	0	0	2	12	21	16	4	1	0	0	0	0	0	0	0	56
14:00	0	0	2	10	26	23	3	0	0	0	0	0	0	0	0	64
15:00	0	1	2	15	36	29	7	1	0	0	0	0	0	0	0	91
16:00	0	0	1	6	37	27	3	0	1	0	0	0	0	0	0	75
17:00	4	0	4	16	42	35	5	0	0	0	0	0	0	0	0	106
18:00	2	0	2	19	34	28	3	0	0	0	0	0	0	0	0	88
19:00	0	0	4	18	26	15	6	0	0	0	0	0	0	0	0	69
20:00	0	1	1	13	33	13	3	0	0	0	0	0	0	0	0	64
21:00	0	0	0	7	14	6	1	1	0	0	0	0	0	0	0	29
22:00	1	0	0	3	6	6	0	1	1	0	0	0	0	0	0	18
23:00	0	0	0	3	1	2	1	0	0	0	0	0	0	0	0	7
Total	7	5	33	198	440	301	61	5	2	0	0	0	0	0	0	1052

Daily	15th Percentile :	27 MPH
	50th Percentile :	33 MPH
	85th Percentile :	38 MPH
	95th Percentile :	41 MPH
	Mean Speed(Average) :	34 MPH
	10 MPH Pace Speed :	31-40 MPH
	Number in Pace :	741
	Percent in Pace :	70.4%
	Number of Vehicles > 35 MPH :	369
	Percent of Vehicles > 35 MPH :	35.1%

Accurate Counts

978-664-2565

Location : Wheeler Road
 Location : East of Wilshire Circle
 City/State: Dracut, MA

7463SPD2

WB, EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
09/28/16	0	0	0	1	3	3	0	0	1	0	0	0	0	0	8
01:00	0	0	1	0	2	2	0	0	0	0	0	0	0	0	5
02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
04:00	0	0	0	3	4	3	1	0	0	0	0	0	0	0	11
05:00	0	0	0	3	7	10	2	1	0	0	0	0	0	0	23
06:00	0	2	3	7	24	9	5	0	0	0	0	0	0	0	50
07:00	3	1	3	12	29	18	7	0	0	0	0	0	0	0	73
08:00	0	0	1	13	26	14	1	1	0	0	0	0	0	0	56
09:00	0	1	5	12	25	16	2	0	0	0	0	0	0	0	61
10:00	0	1	4	11	18	19	2	1	0	0	0	0	0	0	56
11:00	0	0	4	10	33	19	10	0	1	0	0	0	0	0	77
12 PM	0	0	5	12	26	13	2	0	1	0	0	0	0	0	59
13:00	0	0	3	11	27	16	6	0	0	0	0	0	0	0	63
14:00	0	1	7	15	23	22	4	1	0	0	0	0	0	0	73
15:00	4	0	3	14	34	29	5	1	0	0	0	0	0	0	90
16:00	0	0	3	16	27	27	3	0	0	0	0	0	0	0	76
17:00	0	1	5	21	41	31	6	0	0	0	0	0	0	0	105
18:00	1	0	1	19	50	18	3	1	0	0	0	0	0	0	93
19:00	0	0	1	16	24	15	3	0	0	0	0	0	0	0	59
20:00	0	0	1	8	19	12	1	0	0	0	0	0	0	0	41
21:00	0	0	5	3	11	3	2	0	0	0	0	0	0	0	24
22:00	0	0	3	6	11	6	4	1	0	0	0	0	0	0	31
23:00	0	0	0	2	5	2	1	0	0	0	0	0	0	0	10
Total	8	7	58	215	470	307	72	7	3	0	0	0	0	0	1147

Daily

- 15th Percentile : 27 MPH
- 50th Percentile : 33 MPH
- 85th Percentile : 38 MPH
- 95th Percentile : 41 MPH

Mean Speed(Average) : 33 MPH

10 MPH Pace Speed : 31-40 MPH

- Number in Pace : 777
- Percent in Pace : 67.7%
- Number of Vehicles > 35 MPH : 389
- Percent of Vehicles > 35 MPH : 33.9%

Grand Total	15	12	91	413	910	608	133	12	5	0	0	0	0	0	2199
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Overall

- 15th Percentile : 27 MPH
- 50th Percentile : 33 MPH
- 85th Percentile : 38 MPH
- 95th Percentile : 41 MPH

Mean Speed(Average) : 34 MPH

10 MPH Pace Speed : 31-40 MPH

- Number in Pace : 1518
- Percent in Pace : 69.0%
- Number of Vehicles > 35 MPH : 758
- Percent of Vehicles > 35 MPH : 34.5%

Accurate Counts

978-664-2565

Location : Wheeler Street
 Location : North of Rinzee Road
 City/State: Methuen, MA

7463SPD1

SB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
09/27/16	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
05:00	0	0	0	4	2	4	0	0	0	0	0	0	0	0	10
06:00	0	0	1	15	21	14	4	0	0	0	0	0	0	0	55
07:00	0	0	0	9	18	9	3	0	0	0	0	0	0	0	39
08:00	0	0	0	6	25	13	0	0	0	0	0	0	0	0	44
09:00	0	0	1	4	11	6	0	0	0	0	0	0	0	0	22
10:00	0	0	0	7	11	2	0	0	0	0	0	0	0	0	20
11:00	0	0	1	4	10	8	1	0	0	0	0	0	0	0	24
12 PM	1	0	0	7	11	2	0	1	0	0	0	0	0	0	22
13:00	0	0	3	2	7	3	0	0	0	0	0	0	0	0	15
14:00	0	0	2	3	6	4	0	0	0	0	0	0	0	0	15
15:00	1	0	0	6	10	3	1	0	0	0	0	0	0	0	21
16:00	1	0	2	7	7	9	0	0	0	0	0	0	0	0	26
17:00	0	0	1	6	10	7	3	0	0	0	0	0	0	0	27
18:00	0	0	1	2	13	4	1	0	0	0	0	0	0	0	21
19:00	0	0	1	2	2	2	1	0	0	0	0	0	0	0	8
20:00	1	0	2	2	9	1	0	0	0	0	0	0	0	0	15
21:00	0	0	1	2	5	1	0	0	0	0	0	0	0	0	9
22:00	0	0	0	1	1	0	1	0	0	0	0	0	0	0	3
23:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	4	0	16	91	182	93	15	1	0	0	0	0	0	0	402

Daily

- 15th Percentile : 27 MPH
- 50th Percentile : 32 MPH
- 85th Percentile : 37 MPH
- 95th Percentile : 39 MPH

- Mean Speed(Average) : 33 MPH
- 10 MPH Pace Speed : 30-39 MPH
- Number in Pace : 275
- Percent in Pace : 68.4%
- Number of Vehicles > 30 MPH : 291
- Percent of Vehicles > 30 MPH : 72.4%

Accurate Counts

978-664-2565

Location : Wheeler Street
 Location : North of Rinzee Road
 City/State: Methuen, MA

7463SPD1

SB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
09/28/16	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	2	2	0	0	0	0	0	0	0	0	4
05:00	0	0	0	1	1	4	2	0	0	0	0	0	0	0	8
06:00	0	0	2	8	7	4	1	0	0	0	0	0	0	0	22
07:00	1	1	0	5	19	12	1	0	0	0	0	0	0	0	39
08:00	0	0	1	7	12	9	1	0	0	0	0	0	0	0	30
09:00	0	0	3	6	5	2	1	0	0	0	0	0	0	0	17
10:00	0	0	0	4	10	3	0	0	0	0	0	0	0	0	17
11:00	1	0	1	2	8	1	3	0	0	0	0	0	0	0	16
12 PM	0	0	1	6	12	7	0	0	0	0	0	0	0	0	26
13:00	0	0	0	2	13	5	1	0	0	0	0	0	0	0	21
14:00	0	1	8	6	12	5	0	0	0	0	0	0	0	0	32
15:00	2	0	0	8	10	4	1	1	0	0	0	0	0	0	26
16:00	0	0	0	7	9	7	1	1	0	0	0	0	0	0	25
17:00	0	0	0	5	9	9	1	0	0	0	0	0	0	0	24
18:00	0	0	2	6	6	3	1	0	0	0	0	0	0	0	18
19:00	0	1	1	2	4	2	0	0	0	0	0	0	0	0	10
20:00	0	0	1	3	8	1	0	0	0	0	0	0	0	0	13
21:00	0	0	1	2	6	1	0	0	0	0	0	0	0	0	10
22:00	0	0	1	2	0	1	1	0	0	0	0	0	0	0	5
23:00	0	1	0	0	1	1	0	0	0	0	0	0	0	0	3
Total	4	4	22	82	155	85	15	2	0	0	0	0	0	0	369

Daily

- 15th Percentile : 26 MPH
- 50th Percentile : 32 MPH
- 85th Percentile : 37 MPH
- 95th Percentile : 39 MPH
- Mean Speed(Average) : 32 MPH
- 10 MPH Pace Speed : 31-40 MPH
- Number in Pace : 240
- Percent in Pace : 65.0%
- Number of Vehicles > 30 MPH : 257
- Percent of Vehicles > 30 MPH : 69.6%

Grand Total	8	4	38	173	337	178	30	3	0	0	0	0	0	0	771
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Overall

- 15th Percentile : 26 MPH
- 50th Percentile : 32 MPH
- 85th Percentile : 37 MPH
- 95th Percentile : 39 MPH
- Mean Speed(Average) : 33 MPH
- 10 MPH Pace Speed : 31-40 MPH
- Number in Pace : 515
- Percent in Pace : 66.8%
- Number of Vehicles > 30 MPH : 548
- Percent of Vehicles > 30 MPH : 71.1%

Accurate Counts

978-664-2565

Location : Wheeler Street
 Location : North of Rinzee Road
 City/State: Methuen, MA

7463SPD1

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
09/27/16	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
06:00	0	0	1	4	2	0	0	0	0	0	0	0	0	0	7
07:00	0	0	0	5	10	5	0	0	0	0	0	0	0	0	20
08:00	0	0	0	11	21	8	1	0	0	0	0	0	0	0	41
09:00	0	0	0	3	6	3	1	0	0	0	0	0	0	0	13
10:00	0	0	1	6	13	2	1	0	0	0	0	0	0	0	23
11:00	0	0	1	3	11	2	0	0	0	0	0	0	0	0	17
12 PM	1	0	1	3	7	6	0	0	0	0	0	0	0	0	18
13:00	0	1	0	2	1	5	0	0	0	0	0	0	0	0	9
14:00	0	0	1	8	5	1	0	0	0	0	0	0	0	0	15
15:00	0	0	2	5	14	5	0	0	0	0	0	0	0	0	28
16:00	0	0	2	11	14	11	0	0	0	0	0	0	0	0	38
17:00	1	0	1	7	17	6	0	0	0	0	0	0	0	0	32
18:00	0	0	0	7	8	3	0	0	0	0	0	0	0	0	18
19:00	0	0	1	6	5	3	0	0	0	0	0	0	0	0	15
20:00	1	1	1	5	6	1	0	0	0	0	0	0	0	0	15
21:00	0	0	0	2	4	3	0	0	0	0	0	0	0	0	9
22:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
23:00	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
Total	3	2	13	88	148	67	3	0	0	0	0	0	0	0	324

Daily	15th Percentile :	26 MPH
	50th Percentile :	31 MPH
	85th Percentile :	36 MPH
	95th Percentile :	39 MPH
	Mean Speed(Average) :	32 MPH
	10 MPH Pace Speed :	26-35 MPH
	Number in Pace :	236
	Percent in Pace :	72.8%
	Number of Vehicles > 30 MPH :	218
	Percent of Vehicles > 30 MPH :	67.3%

Accurate Counts

978-664-2565

Location : Wheeler Street
 Location : North of Rinzee Road
 City/State: Methuen, MA

7463SPD1

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
09/28/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
05:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
06:00	0	0	0	2	4	0	0	0	0	0	0	0	0	0	6
07:00	0	0	1	7	8	2	0	0	0	0	0	0	0	0	18
08:00	0	0	0	4	7	3	0	0	0	0	0	0	0	0	14
09:00	0	0	0	3	5	1	0	0	0	0	0	0	0	0	9
10:00	0	0	1	10	11	2	1	0	0	0	0	0	0	0	25
11:00	0	0	0	5	10	1	0	1	0	0	0	0	0	0	17
12 PM	1	1	1	6	11	0	0	0	0	0	0	0	0	0	20
13:00	0	0	1	6	8	1	0	0	0	0	0	0	0	0	16
14:00	0	2	1	6	13	6	1	0	0	0	0	0	0	0	29
15:00	0	0	2	2	12	2	0	1	0	0	0	0	0	0	19
16:00	0	0	1	6	13	8	1	0	0	0	0	0	0	0	29
17:00	0	0	1	4	12	5	0	0	0	0	0	0	0	0	22
18:00	0	0	1	15	6	4	0	0	0	0	0	0	0	0	26
19:00	0	0	0	3	9	0	1	0	0	0	0	0	0	0	13
20:00	1	2	0	1	5	1	0	0	0	0	0	0	0	0	10
21:00	0	0	0	0	7	2	0	0	0	0	0	0	0	0	9
22:00	0	0	1	1	2	0	0	0	0	0	0	0	0	0	4
23:00	0	1	0	1	2	2	1	0	0	0	0	0	0	0	7
Total	2	6	11	83	148	43	5	2	0	0	0	0	0	0	300

Daily

- 15th Percentile : 26 MPH
- 50th Percentile : 31 MPH
- 85th Percentile : 35 MPH
- 95th Percentile : 39 MPH

Mean Speed(Average) : 32 MPH

10 MPH Pace Speed : 26-35 MPH

- Number in Pace : 231
- Percent in Pace : 77.0%
- Number of Vehicles > 30 MPH : 198
- Percent of Vehicles > 30 MPH : 66.0%

Grand Total	5	8	24	171	296	110	8	2	0	0	0	0	0	0	624
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Overall

- 15th Percentile : 26 MPH
- 50th Percentile : 31 MPH
- 85th Percentile : 36 MPH
- 95th Percentile : 39 MPH

Mean Speed(Average) : 32 MPH

10 MPH Pace Speed : 26-35 MPH

- Number in Pace : 467
- Percent in Pace : 74.8%
- Number of Vehicles > 30 MPH : 416
- Percent of Vehicles > 30 MPH : 66.7%

Accurate Counts

978-664-2565

Location : Wheeler Street
 Location : North of Rinzee Road
 City/State: Methuen, MA

7463SPD1

SB, NB

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total
	15	20	25	30	35	40	45	50	55	60	65	70	75	999	
09/27/16	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	2	1	0	0	0	0	0	0	0	0	3
04:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
05:00	0	0	1	4	3	4	0	0	0	0	0	0	0	0	12
06:00	0	0	2	19	23	14	4	0	0	0	0	0	0	0	62
07:00	0	0	0	14	28	14	3	0	0	0	0	0	0	0	59
08:00	0	0	0	17	46	21	1	0	0	0	0	0	0	0	85
09:00	0	0	1	7	17	9	1	0	0	0	0	0	0	0	35
10:00	0	0	1	13	24	4	1	0	0	0	0	0	0	0	43
11:00	0	0	2	7	21	10	1	0	0	0	0	0	0	0	41
12 PM	2	0	1	10	18	8	0	1	0	0	0	0	0	0	40
13:00	0	1	3	4	8	8	0	0	0	0	0	0	0	0	24
14:00	0	0	3	11	11	5	0	0	0	0	0	0	0	0	30
15:00	1	0	2	11	24	8	1	0	0	0	0	0	0	0	47
16:00	1	0	4	18	21	20	0	0	0	0	0	0	0	0	64
17:00	1	0	2	13	27	13	3	0	0	0	0	0	0	0	59
18:00	0	0	1	9	21	7	1	0	0	0	0	0	0	0	39
19:00	0	0	2	8	7	5	1	0	0	0	0	0	0	0	23
20:00	2	1	3	7	15	2	0	0	0	0	0	0	0	0	30
21:00	0	0	1	4	9	4	0	0	0	0	0	0	0	0	18
22:00	0	0	0	1	2	0	1	0	0	0	0	0	0	0	4
23:00	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3
Total	7	2	29	179	330	160	18	1	0	0	0	0	0	0	726

Daily	15th Percentile :	26 MPH
	50th Percentile :	32 MPH
	85th Percentile :	37 MPH
	95th Percentile :	39 MPH
	Mean Speed(Average) :	32 MPH
	10 MPH Pace Speed :	26-35 MPH
	Number in Pace :	509
	Percent in Pace :	70.1%
	Number of Vehicles > 30 MPH :	509
	Percent of Vehicles > 30 MPH :	70.1%

Accurate Counts

978-664-2565

Location : Wheeler Street
 Location : North of Rinzee Road
 City/State: Methuen, MA

7463SPD1

SB, NB

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	999	Total
	15	20	25	30	35	40	45	50	55	60	65	70	75			
09/28/16	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	4
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	4	2	0	0	0	0	0	0	0	0	0	6
05:00	0	0	0	1	2	5	2	0	0	0	0	0	0	0	0	10
06:00	0	0	2	10	11	4	1	0	0	0	0	0	0	0	0	28
07:00	1	1	1	12	27	14	1	0	0	0	0	0	0	0	0	57
08:00	0	0	1	11	19	12	1	0	0	0	0	0	0	0	0	44
09:00	0	0	3	9	10	3	1	0	0	0	0	0	0	0	0	26
10:00	0	0	1	14	21	5	1	0	0	0	0	0	0	0	0	42
11:00	1	0	1	7	18	2	3	1	0	0	0	0	0	0	0	33
12 PM	1	1	2	12	23	7	0	0	0	0	0	0	0	0	0	46
13:00	0	0	1	8	21	6	1	0	0	0	0	0	0	0	0	37
14:00	0	3	9	12	25	11	1	0	0	0	0	0	0	0	0	61
15:00	2	0	2	10	22	6	1	2	0	0	0	0	0	0	0	45
16:00	0	0	1	13	22	15	2	1	0	0	0	0	0	0	0	54
17:00	0	0	1	9	21	14	1	0	0	0	0	0	0	0	0	46
18:00	0	0	3	21	12	7	1	0	0	0	0	0	0	0	0	44
19:00	0	1	1	5	13	2	1	0	0	0	0	0	0	0	0	23
20:00	1	2	1	4	13	2	0	0	0	0	0	0	0	0	0	23
21:00	0	0	1	2	13	3	0	0	0	0	0	0	0	0	0	19
22:00	0	0	2	3	2	1	1	0	0	0	0	0	0	0	0	9
23:00	0	2	0	1	3	3	1	0	0	0	0	0	0	0	0	10
Total	6	10	33	165	303	128	20	4	0	669						

Daily

- 15th Percentile : 26 MPH
- 50th Percentile : 31 MPH
- 85th Percentile : 37 MPH
- 95th Percentile : 39 MPH
- Mean Speed(Average) : 32 MPH
- 10 MPH Pace Speed : 26-35 MPH
- Number in Pace : 468
- Percent in Pace : 70.0%
- Number of Vehicles > 30 MPH : 455
- Percent of Vehicles > 30 MPH : 68.0%

Grand Total	13	12	62	344	633	288	38	5	0	1395						
--------------------	-----------	-----------	-----------	------------	------------	------------	-----------	----------	----------	----------	----------	----------	----------	----------	----------	-------------

Overall

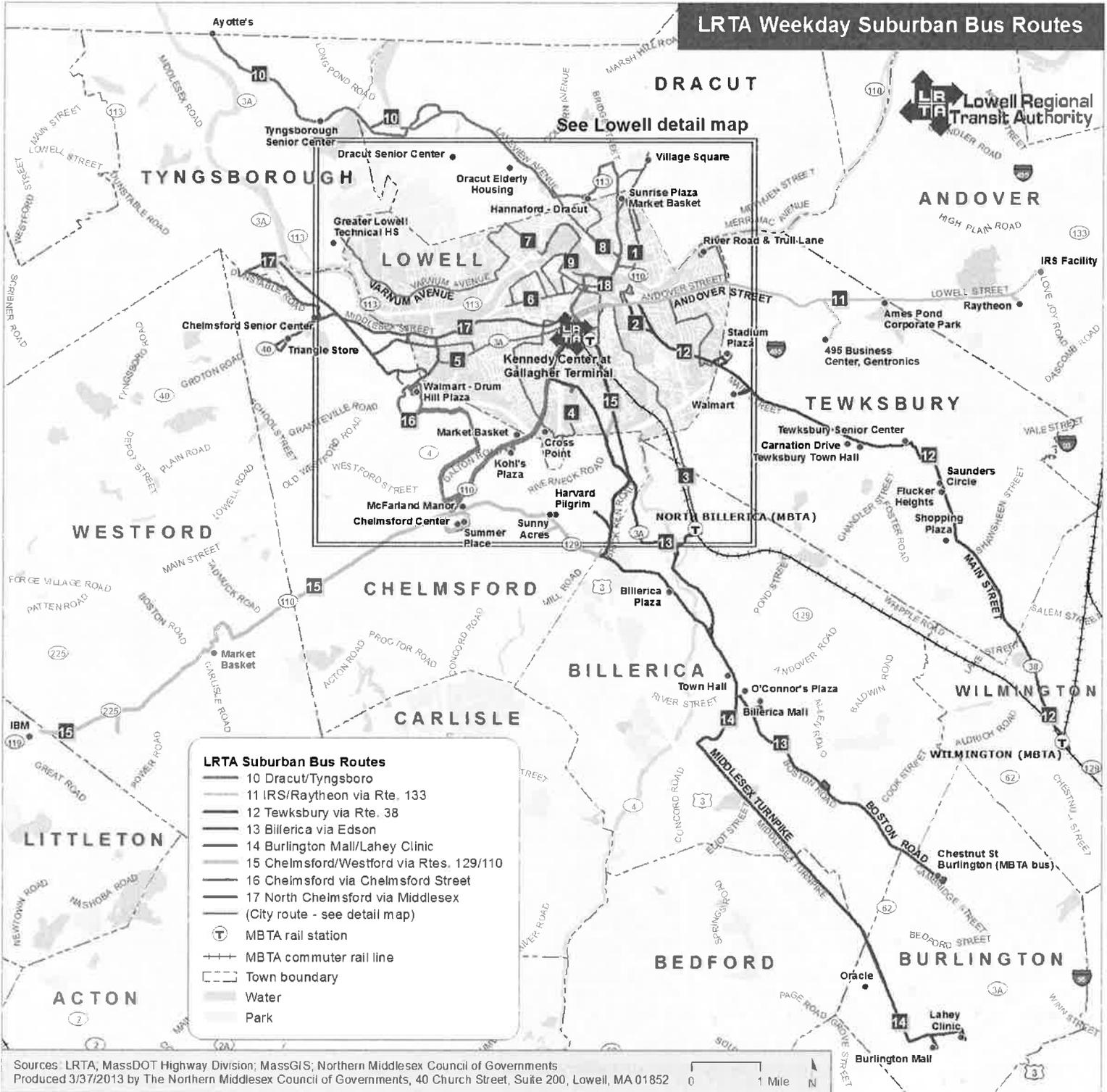
- 15th Percentile : 26 MPH
- 50th Percentile : 32 MPH
- 85th Percentile : 37 MPH
- 95th Percentile : 39 MPH
- Mean Speed(Average) : 32 MPH
- 10 MPH Pace Speed : 26-35 MPH
- Number in Pace : 977
- Percent in Pace : 70.0%
- Number of Vehicles > 30 MPH : 964
- Percent of Vehicles > 30 MPH : 69.1%

PUBLIC TRANSPORTATION SCHEDULE AND FARE INFORMATIONS

Lowell Regional Transit Authority

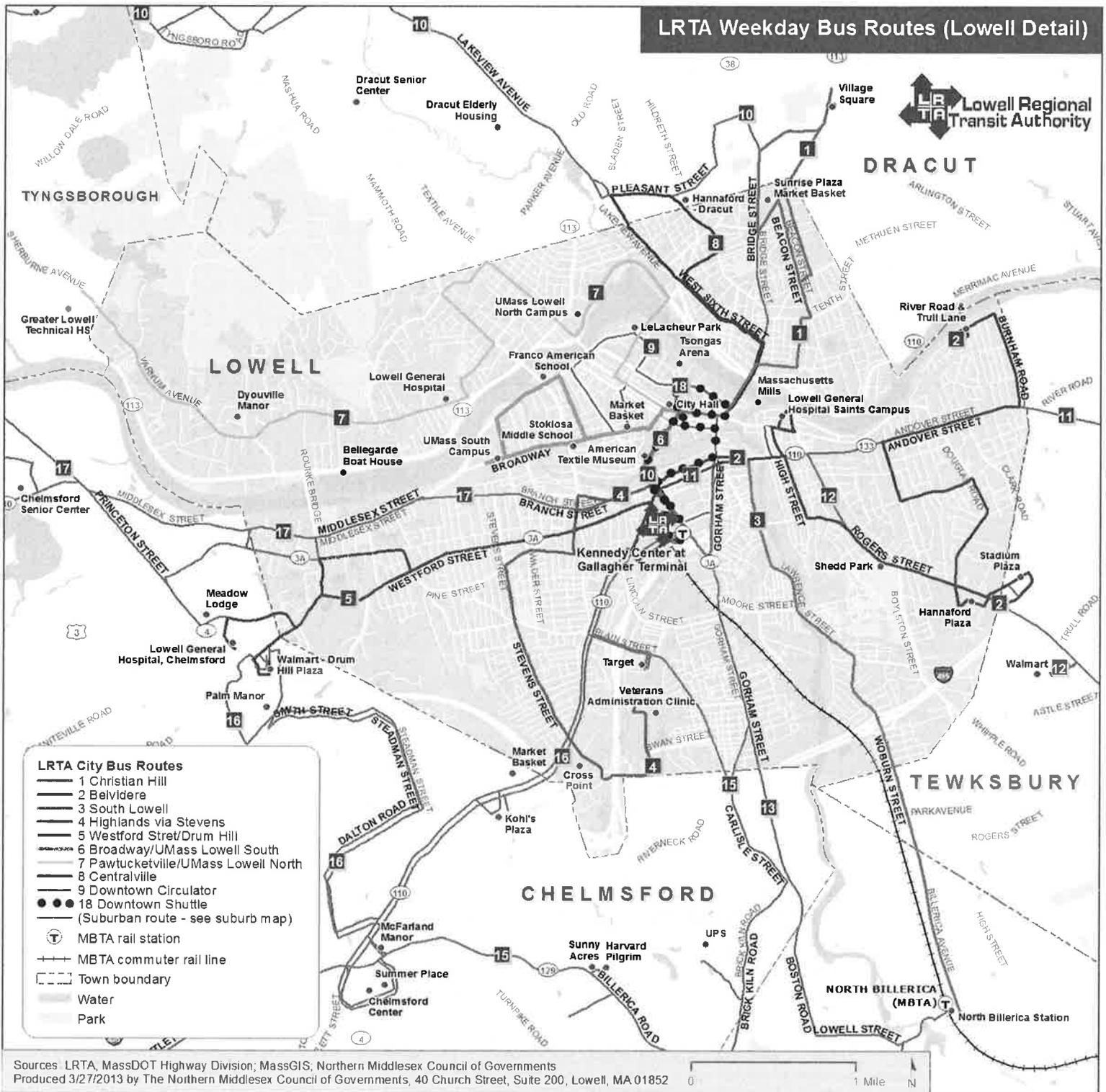
Weekday System Map

Last Updated: 3/27/13



Lowell Regional Transit Authority Weekday System Map – Lowell Detail Map

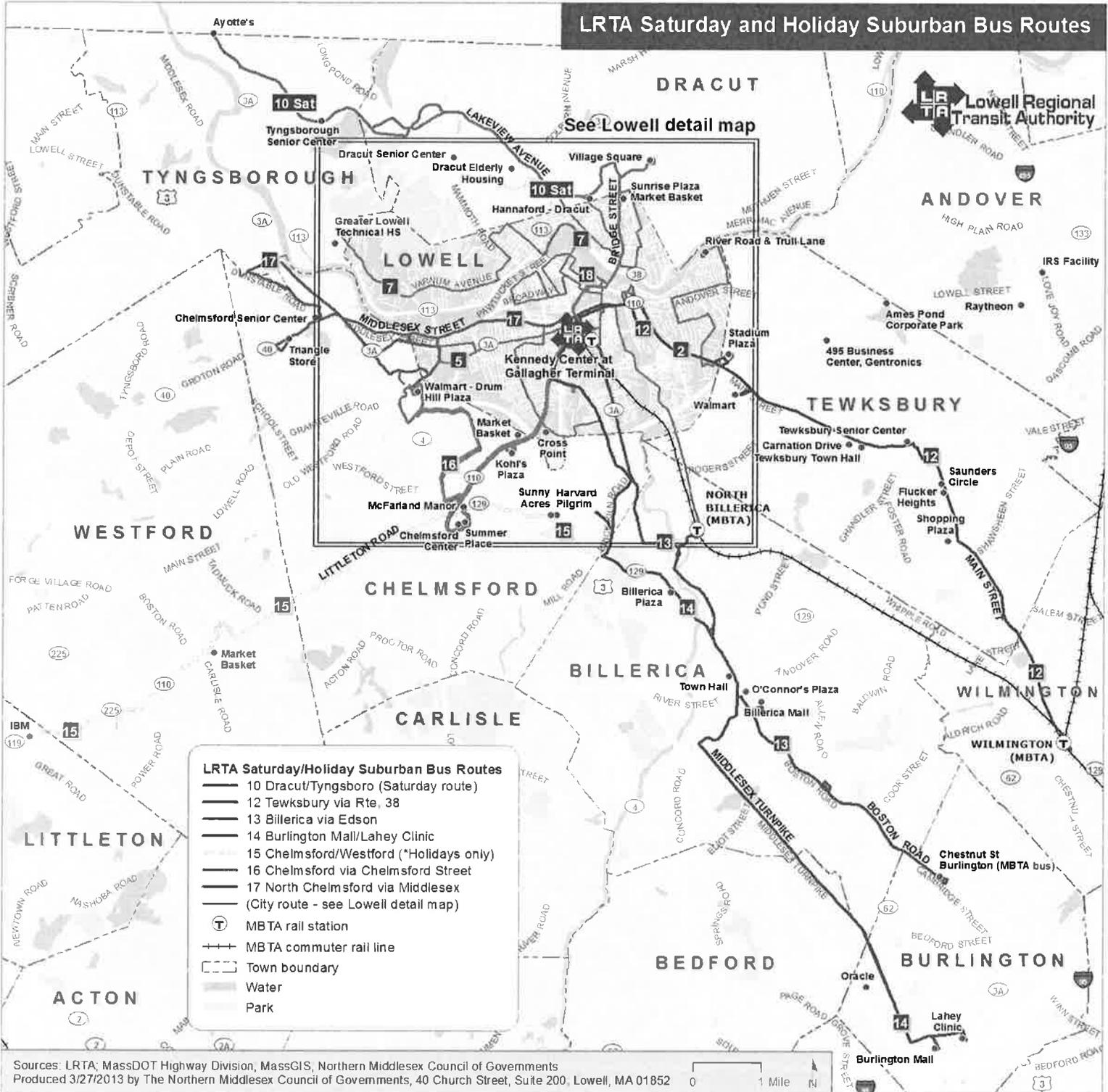
Last Updated: 3/27/13



Lowell Regional Transit Authority

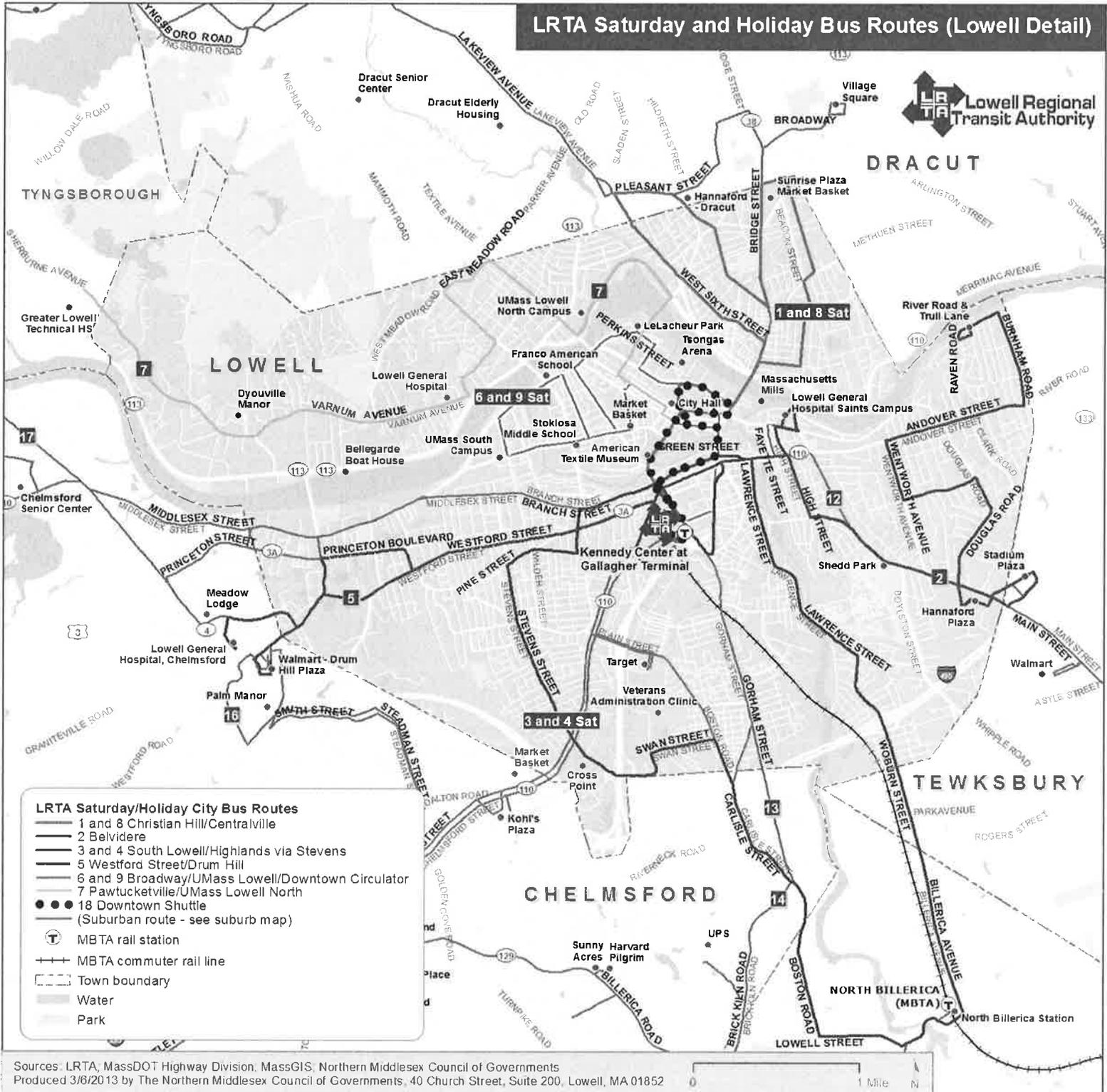
Saturday System Map

Last Updated: 3/27/13



Lowell Regional Transit Authority Weekday System Map – Lowell Detail Map

Last Updated: 3/27/13



01 Christian Hill

Please visit Irta.com or call (978) 452-6161 for more information

Weekday Schedule					
	Outbound				
	1	2	3	4	5
	Kennedy Center Departure	French St & John St	Beacon St & Methuen St	Sunrise Plaza	Village Square Arrival
AM	6:42	6:45	6:50	6:55	6:58
	7:40	7:45	7:50	7:55	7:58
	8:40	8:45	8:50	8:55	8:58
	9:40	9:45	9:50	9:55	9:58
	10:40	10:45	10:50	10:55	10:58
	11:40	11:45	11:50	11:55	11:58
PM	12:40	12:45	12:50	12:55	12:58
	1:40	1:45	1:50	1:55	1:58
	2:40	2:45	2:50	2:55	2:58
	3:40	3:45	3:50	3:55	3:58
	4:40	4:45	4:50	4:55	4:58
	5:45	5:50	5:55	6:00	6:03
	6:50	6:55	7:00	7:05	7:08

Weekday Schedule					
	Inbound				
	5	4	3	2	1
	Village Square Departure	Willard St & Humphrey	Beacon St & Methuen St	Merrimack St & John Street	Kennedy Center Arrival
AM	6:00	6:03	6:05	6:11	6:16
	7:05	7:08	7:10	7:16	7:21
	7:45	7:48	7:50	7:56	8:01
	8:05	8:08	8:10	8:16	8:21
	9:05	9:08	9:10	9:16	9:21
	10:05	10:08	10:10	10:16	10:21
	11:05	11:08	11:10	11:16	11:21
	PM	12:05	12:08	12:10	12:16
1:05		1:08	1:10	1:16	1:21
2:05		2:08	2:10	2:16	2:21
3:10		3:13	3:15	3:21	3:26
4:10		4:13	4:15	4:21	4:26
5:10		5:13	5:15	5:21	5:26
6:15		6:18	6:20	6:26	6:31
7:15		7:18	7:20	7:26	7:31

Combined - 01 Christian Hill / 08 Centralville Route

Saturday Schedule						
	Outbound					
	1 Kennedy Center Departure	2 French St & John St	3 Bridge St & W Sixth	4 Lowell Provision Aiken Ave	5 Slaten St & Pleasant	6 Shop & Save
AM	8:00	8:05	8:09	8:11	8:13	8:15
	9:00	9:05	9:09	9:11	9:13	9:15
	10:00	10:05	10:09	10:11	10:13	10:15
	11:00	11:05	11:09	11:11	11:13	11:15
PM	12:00	12:05	12:09	12:11	12:13	12:15
	1:00	1:05	1:09	1:11	1:13	1:15
	2:00	2:05	2:09	2:11	2:13	2:15
	3:00	3:05	3:09	3:11	3:13	3:15
	4:00	4:05	4:09	4:11	4:13	4:15
	5:00	5:05	5:09	5:11	5:13	5:15

Saturday Schedule						
	Inbound					
	5 Hildreth St & Liley Ave	4 Hildreth St & Bridge St	4 Sunrise Plaza	3 Beacon St & Methuen St	2 Merrimack St & John Street	1 Kennedy Center Arrival
AM	8:15	8:17	8:19	8:22	8:27	8:32
	9:15	9:17	9:19	9:22	9:27	9:32
	10:15	10:17	10:19	10:22	10:27	10:32
	11:15	11:17	11:19	11:22	11:27	11:32
PM	12:15	12:17	12:19	12:22	12:27	12:32
	1:15	1:17	1:19	1:22	1:27	1:32
	2:15	2:17	2:19	2:22	2:27	2:32
	3:15	3:17	3:19	3:22	3:27	3:32
	4:15	4:17	4:19	4:22	4:27	4:32
	5:15	5:17	5:19	5:22	5:27	5:32

10 Dracut/Tyngsborough

Please visit lra.com or call (978) 452-6161 for more information

Weekday Schedule									
	1 Kennedy Center Departure	2 Sunrise Plaza Bridge St	3 Village Square Plaza (Sat Only)	Outbound 4 Hannaford	5 Dracut High School	6 Lakeview Ave & Mammoth Rd	7 Lakeview Apartments Tyngsborough	8 Four Corners	9 Ayotte's Market Hudson, NH
AM	6:35	6:48	---	6:52	6:56	6:58	7:03	7:05	7:09
	7:35	7:48	---	7:52	7:56	7:58	8:03	8:05	8:09
	8:40	8:53	---	8:57	9:01	9:03	9:08	9:10	9:14
	9:40	9:53	---	9:57	10:01	10:03	10:08	10:10	10:14
	10:35	10:48	---	10:52	10:56	10:58	11:03	11:05	11:09
	11:40	11:53	---	11:57	12:01	12:03	12:08	12:10	12:14
PM	12:40	12:53	---	12:57	13:01	13:03	1:03	1:05	1:09
	1:40	1:53	---	1:57	2:01	2:03	2:08	2:10	2:14
	2:40	2:53	---	2:57	3:01	3:03	3:08	3:10	3:14
	3:40	3:53	---	3:57	4:01	4:03	4:08	4:10	4:14
	4:35	4:48	---	4:52	4:56	4:58	5:03	5:05	5:09
	5:50	6:03	---	6:07	6:11	6:13	6:18	6:20	6:24
	7:00	7:13	---	7:17	7:21	7:23	7:28	7:30	7:34

Weekday Schedule									
	9 Ayotte's Market Hudson, NH	8 Four Corners	7 Lakeview Apartments (Tyngsboro)	Inbound 6 Lakeview Ave & Mammoth Rd	5 Dracut High School	4 Hannaford	3 Village Square Plaza (Sat Only)	2 Sunrise Plaza Bridge St	1 Kennedy Center Arrival
AM	6:10	6:15	6:17	6:20	6:23	6:29	---	6:32	6:45
	7:20	7:25	7:27	7:30	7:33	7:39	---	7:42	7:55
	8:20	8:25	8:27	8:30	8:33	8:39	---	8:42	8:55
	9:25	9:30	9:32	9:35	9:38	9:44	---	9:47	10:00
	10:25	10:30	10:32	10:35	10:38	10:44	---	10:47	11:00
	11:20	11:25	11:27	11:30	11:33	11:39	---	11:42	11:55
PM	12:25	12:30	12:32	12:35	12:38	12:44	---	12:47	13:00
	1:25	1:30	1:32	1:35	1:38	1:44	---	1:47	2:00
	2:25	2:30	2:32	2:35	2:38	2:44	---	2:47	3:00
	3:25	3:30	3:32	3:35	3:38	3:44	---	3:47	4:00
	4:25	4:30	4:32	4:35	4:38	4:44	---	4:47	5:00
	5:20	5:25	5:27	5:30	5:33	5:39	---	5:42	5:55
	6:24	6:29	6:31	6:34	6:37	6:43	---	6:46	6:59
	7:35	7:40	7:42	7:45	7:48	7:54	---	7:57	8:10

Saturday Schedule

	Kennedy Center Departure	Sunrise Plaza Bridge St.	Village Square Plaza	Outbound Hannaford	Dracut High School	Lakeview Ave & Mammoth Rd.	Lakeview Apartments (Tyngsboro)	Four Corners	Ayotte's Market Hudson, NH
AM	8:30	8:43	8:47	8:52	8:56	8:58	9:03	9:05	9:09
	9:30	9:43	9:47	9:52	9:56	9:58	10:03	10:05	10:09
	10:30	10:43	10:47	10:52	10:56	10:58	11:03	11:05	11:09
	11:30	11:43	11:47	11:52	11:56	11:58	12:03	12:05	12:09
PM	12:30	12:43	12:47	12:52	12:56	12:58	13:03	13:05	13:09
	1:30	1:43	1:47	1:52	1:56	1:58	2:03	2:05	2:09
	2:30	2:43	2:47	2:52	2:56	2:58	3:03	3:05	3:09
	3:30	3:43	3:47	3:52	3:56	3:58	4:03	4:05	4:09
	4:30	4:43	4:47	4:52	4:56	4:58	5:03	5:05	5:09
	5:30	5:43	5:47	5:52	5:56	5:58	6:03	6:05	6:09

Saturday Schedule

	Ayotte's Market Hudson, NH	Four Corners	Lakeview Apartments (Tyngsboro)	Inbound Lakeview ave & Mammoth Rd.	Dracut High School	Hannaford	Village Square Plaza	Sunrise Plaza Bridge St.	Kennedy Center Arrival
AM	9:15	9:20	9:22	9:25	9:28	9:34	9:39	9:43	9:56
	10:15	10:20	10:22	10:25	10:28	10:34	10:39	10:43	10:56
	11:15	11:20	11:22	11:25	11:28	11:34	11:39	11:43	11:56
PM	12:15	12:20	12:22	12:25	12:28	12:34	12:39	12:43	12:56
	1:15	1:20	1:22	1:25	1:28	1:34	1:39	1:43	1:56
	2:15	2:20	2:22	2:25	2:28	2:34	2:39	2:43	2:56
	3:15	3:20	3:22	3:25	3:28	3:34	3:39	3:43	3:56
	4:15	4:20	4:22	4:25	4:28	4:34	4:39	4:43	4:56
	5:15	5:20	5:22	5:25	5:28	5:34	5:39	5:43	5:56
	6:15	6:20	6:22	6:25	6:28	6:34	6:39	6:43	6:56

HAVERHILL LINE Train Schedule Effective May 23, 2016

Monday to Friday Inbound to Boston

ZONE	STATION	TRAIN #	200	202	204	206	285	288	208	290	210	212	214	216	218	292	220	294	296	222	298	224	226	228
		3:45 ALEXANDER																						
b	7 Haverhill		5:05	5:40	6:10	6:40	7:30	7:35	7:35	9:06	10:44	12:18	1:53	3:30	3:30		B 4:30		B 6:09	6:19	7:45	9:10	10:50	
b	7 Bradford		5:07	5:42	6:12	6:42	7:37	7:46	7:46	9:08	10:46	12:20	1:55	3:32	3:32		4:40		6:39	6:39	7:55	9:20	11:00	
b	6 Lawrence		5:16	5:51	6:21	6:51	7:53	7:53	7:53	9:23	11:01	12:35	2:03	3:40	3:40		4:55		6:46	6:46	8:02	9:27	11:07	
b	5 Andover		5:23	5:58	6:28	6:58	7:59	7:59	7:59	9:28	11:06	12:40	2:15	3:52	3:52		5:07		6:51	6:51	8:07	9:32	11:12	
b	4 Ballardvale		5:29	6:04	6:34	7:04				9:35	11:13	12:47	2:22									9:39	11:19	
b	3 North Wilmington		5:36	6:11	6:41					9:42	11:20	12:54	2:29			4:50					8:07	9:46	11:26	
b	2 Reading		5:43	6:18	6:48					8:30	10:08	11:42	2:34			4:55					8:12	9:51	11:31	
b	2 Wakefield		5:49	6:24	6:54					8:36	10:14	11:48	2:37			4:58					8:15	9:54	11:34	
b	2 Greenwood		5:52	6:27	6:57					8:39	10:17	11:51	2:38			4:58					8:17	9:56	11:36	
b	1 Melrose Highlands		5:54	6:29	6:59					8:41	10:19	11:53	2:39			5:00					8:18	9:57	11:37	
b	1 Melrose/Cedar Park		5:56	6:31	7:01					8:43	10:21	11:55	2:40			5:01					8:18	9:58	11:38	
b	1 Wyoming Hill		5:58	6:33	7:03					8:45	10:23	11:57	2:41			5:03					8:20	9:59	11:40	
b	1A Malden Center		L 6:02	L 6:37	L 7:07					L 8:49	L 10:27	L 12:01	L 2:46			L 5:06					L 8:23	L 10:00	L 11:43	
b	1A NORTH STATION		6:15	6:50	7:20	7:38	8:00	8:30	8:35	9:00	10:11	11:49	1:23	2:58	4:28	5:17	5:43	6:05	7:22	7:25	8:34	10:15	11:55	

Trains in purple box indicate peak period trains.

Monday to Friday Outbound from Boston

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

Trains in purple box indicate peak period trains.

Saturday & Sunday Inbound to Boston

ZONE	STATION	TRAIN #	1200	1202	1204	1206	2206	1208	1210	2210	1212	1214	1216	1218	1220	1222	1224	1226	1228
		SATURDAY TRAIN #																	
		SUNDAY TRAIN #																	
		B 4:45 ALEXANDER																	
b	7 Haverhill		7:15	10:25	1:15	4:15	7:20	10:10	10:10	8:40	11:25	2:45	5:50	8:40	11:30				
b	7 Bradford		7:18	10:28	1:18	4:18	7:23	10:13	10:13	8:50	11:35	2:55	6:00	8:50	11:40				
b	6 Lawrence		7:27	10:37	1:27	4:27	7:32	10:22	10:22	8:54	11:39	2:59	6:04	8:54	11:44				
b	5 Andover		7:32	10:42	1:32	4:32	7:38	10:28	10:28	8:56	11:41	3:01	6:06	8:56	11:46				
b	4 Ballardvale		7:37	10:47	1:37	4:37	7:42	10:32	10:32	8:59	11:44	3:04	6:09	8:59	11:49				
b	3 North Wilmington		7:44	10:54	1:44	4:44	7:49	10:39	10:39	9:02	11:47	3:07	6:12	9:02	11:52				
b	2 Reading		7:50	11:00	1:50	4:50	7:55	10:45	10:45	9:05	11:50	3:10	6:15	9:05	11:55				
b	2 Wakefield		7:55	11:05	1:55	4:55	8:00	10:50	10:50	9:11	11:56	3:16	6:21	9:11	12:01				
b	1 Melrose Highlands		8:02	11:12	2:02	5:02	8:07	10:57	10:57	9:17	12:02	3:22	6:27	9:17	12:07				
b	1 Melrose/Cedar Park		8:04	11:14	2:04	5:04	8:09	10:59	10:59	9:19	12:04	3:24	6:29	9:19	12:09				
b	1 Wyoming Hill		8:06	11:16	2:06	5:06	8:11	11:01	11:01	9:21	12:06	3:26	6:31	9:21	12:11				
b	1A Malden Center		L 8:10	L 11:20	L 2:10	L 5:10	L 8:15	L 11:05	L 11:05	9:23	12:08	3:28	6:33	9:23	12:13				
b	1A North Station		8:21	11:31	2:21	5:21	8:26	11:16	11:16	9:27	12:12	3:33	6:38	9:28	12:18				

Trains in purple box indicate peak period trains.

Keep in Mind

- This schedule will be effective from **May 23, 2016, and will replace the schedule of December 14, 2015.**
- Holiday Service:**
- Saturday service:** Presidents' Day, 4th of July
- Sunday service:** New Year's Day, Memorial Day, Labor Day, Thanksgiving Day, Christmas Day.
- For additional holiday travel information and service modifications, please check MBTA.com or call 617-222-3200.

Saturday & Sunday Outbound from Boston

ZONE	STATION	TRAIN #	1201	1203	1205	1207	1209	1211	1213	1215	1217	1219	1221
		SATURDAY TRAIN #											
		SUNDAY TRAIN #											
		B 4:45 ALEXANDER											
b	1A North Station		8:40	11:25	2:45	5:50	8:40	11:30					
b	1A Malden Center		8:50	11:35	2:55	6:00	8:50	11:40					
b	1 Wyoming Hill		8:54	11:39	3:01	6:06	8:56	11:46					
b	1 Melrose/Cedar Park		8:56	11:41	3:03	6:08	8:58	11:48					
b	1 Melrose Highlands		8:59	11:44	3:04	6:09	8:59	11:49					
b	2 Greenwood		9:02	11:47	3:07	6:12	9:02	11:52					
b	2 Wakefield		9:05	11:50	3:10	6:15	9:05	11:55					
b	2 Reading		9:11	11:56	3:16	6:21	9:11	12:01					
b	3 North Wilmington		9:17	12:02	3:22	6:27	9:17	12:07					
b	3 Ballardvale		9:19	12:04	3:24	6:29	9:23	12:13					
b	5 Andover		9:28	12:13	3:33	6:38	9:28	12:18					
b	6 Lawrence		9:35	12:20	3:40	6:45	9:35	12:25					
b	7 Bradford		L 9:44	L 12:29	L 3:49	L 6:54	L 9:44	L 12:34					
b	7 Haverhill		9:47	12:32	3:52	6:57	9:47	12:37					

Trains in purple box indicate peak period trains.

- Times in purple with "M" indicate a flag stop:** Passengers must advise the conductor they wish to stop. Passengers waiting to board must be visible on the platform for the train to stop.
- Times in blue indicate an early departure (L stop):** 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.
- B:** Trains **211, 213 and 221** will be bused between Bradford and Haverhill Stations.
-

MASSDOT CRASH RATE WORKSHEETS

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Methuen COUNT DATE : Sep-16

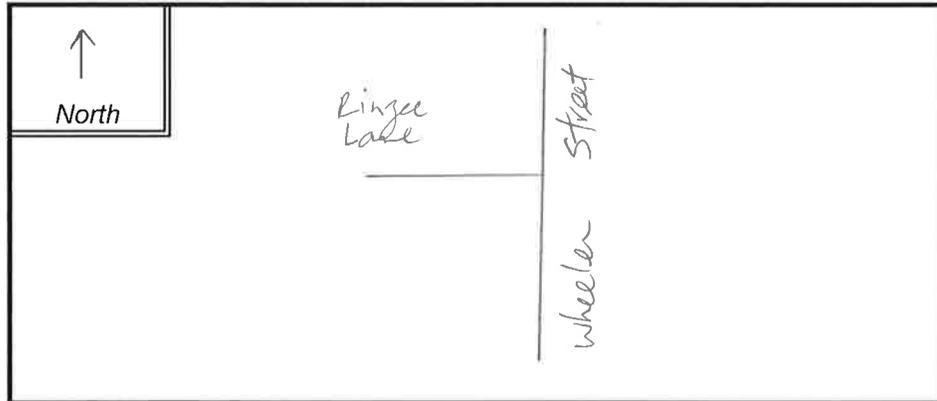
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Wheeler Street

MINOR STREET(S) : Rinzee lane

**INTERSECTION
 DIAGRAM**
 (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES :	11		43	38		92

"K" FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

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

Comments : Below District 4 crash rate of 0.56 for unsignalized intersection

Project Title & Date : Transportation Impact Assessment - 10/5/16

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Dracut COUNT DATE : Sep-16

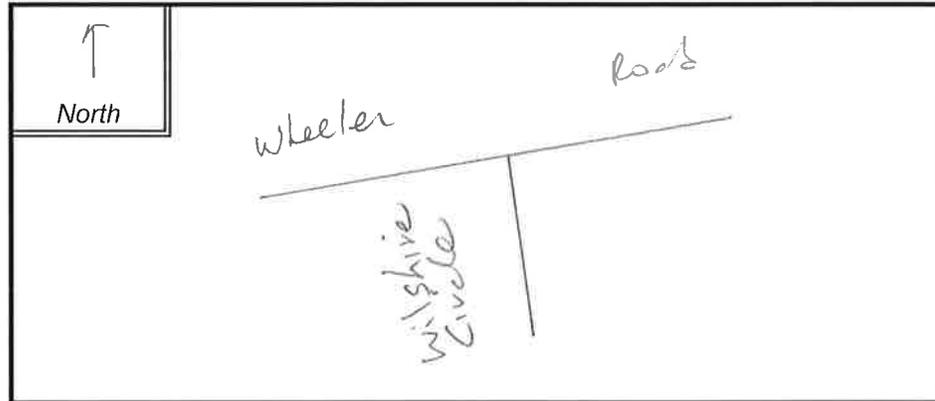
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Wheeler Road

MINOR STREET(S) : Wilshire Circle

**INTERSECTION
 DIAGRAM**
 (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES :	52	57	4			113

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

CRASH RATE CALCULATION :

0.44

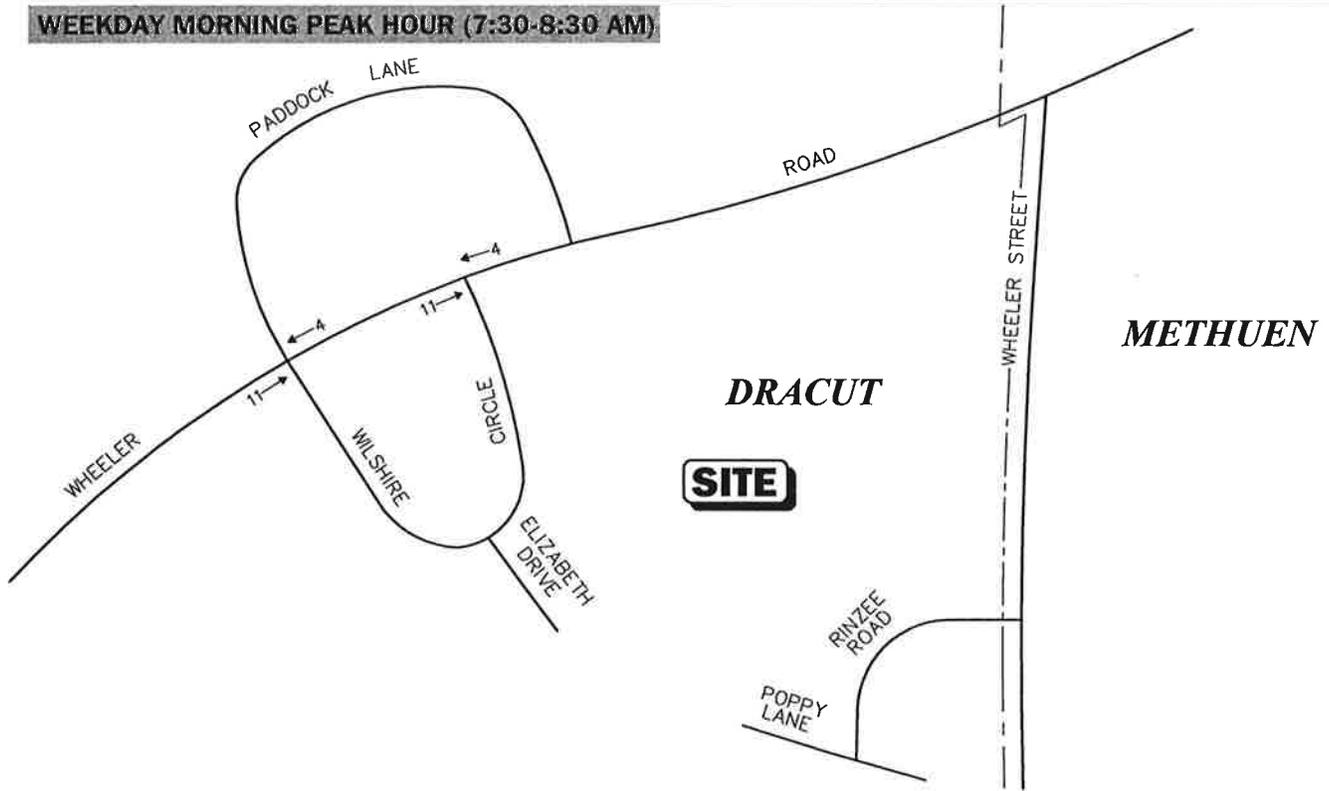
RATE = $\frac{(A * 1,000,000)}{(V * 365)}$

Comments : Below District 4 crash rate of 0.56 for unsignalized intersection

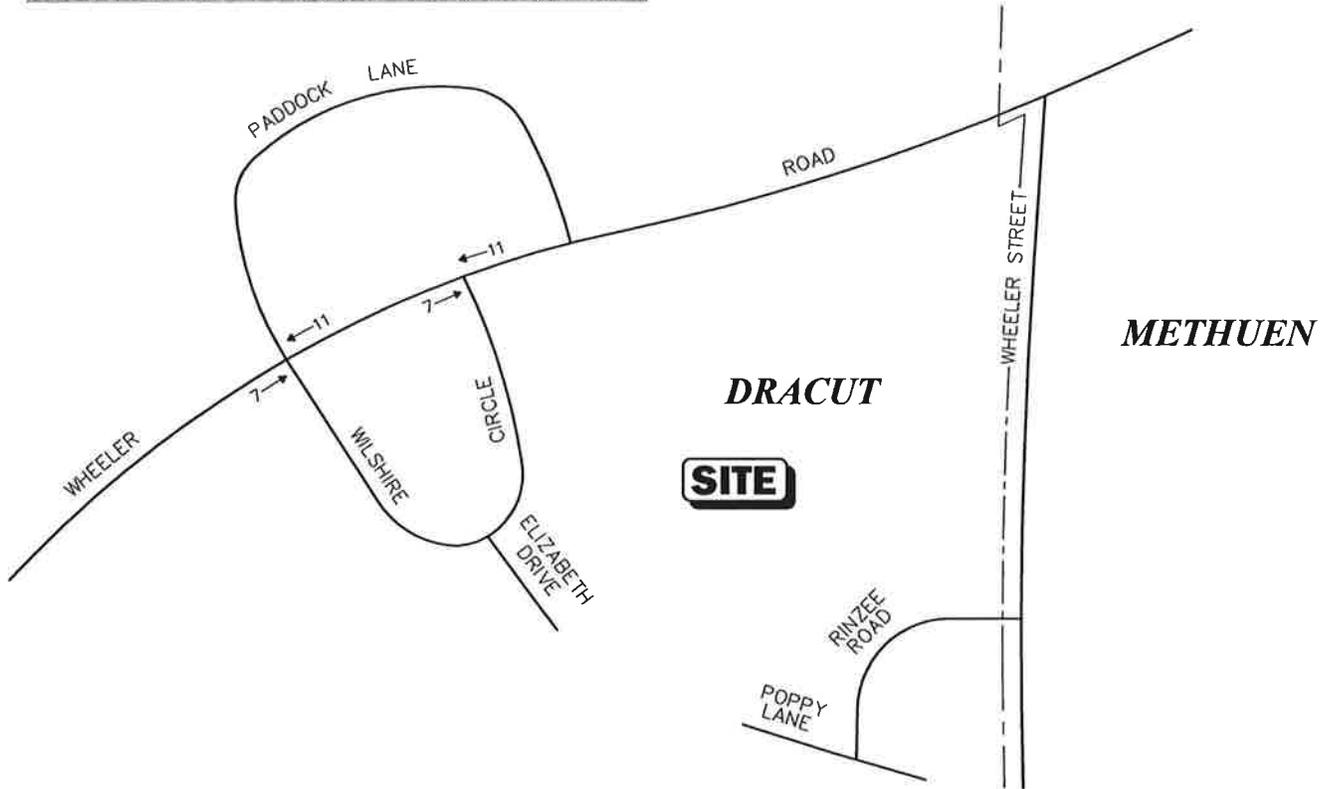
Project Title & Date : Transportation Impact Assessment - 10/5/16

SITE-SPECIFIC DEVELOPMENT TRAFFIC-VOLUME NETWORKS

WEEKDAY MORNING PEAK HOUR (7:30-8:30 AM)



WEEKDAY EVENING PEAK HOUR (5:00-6:00 PM)



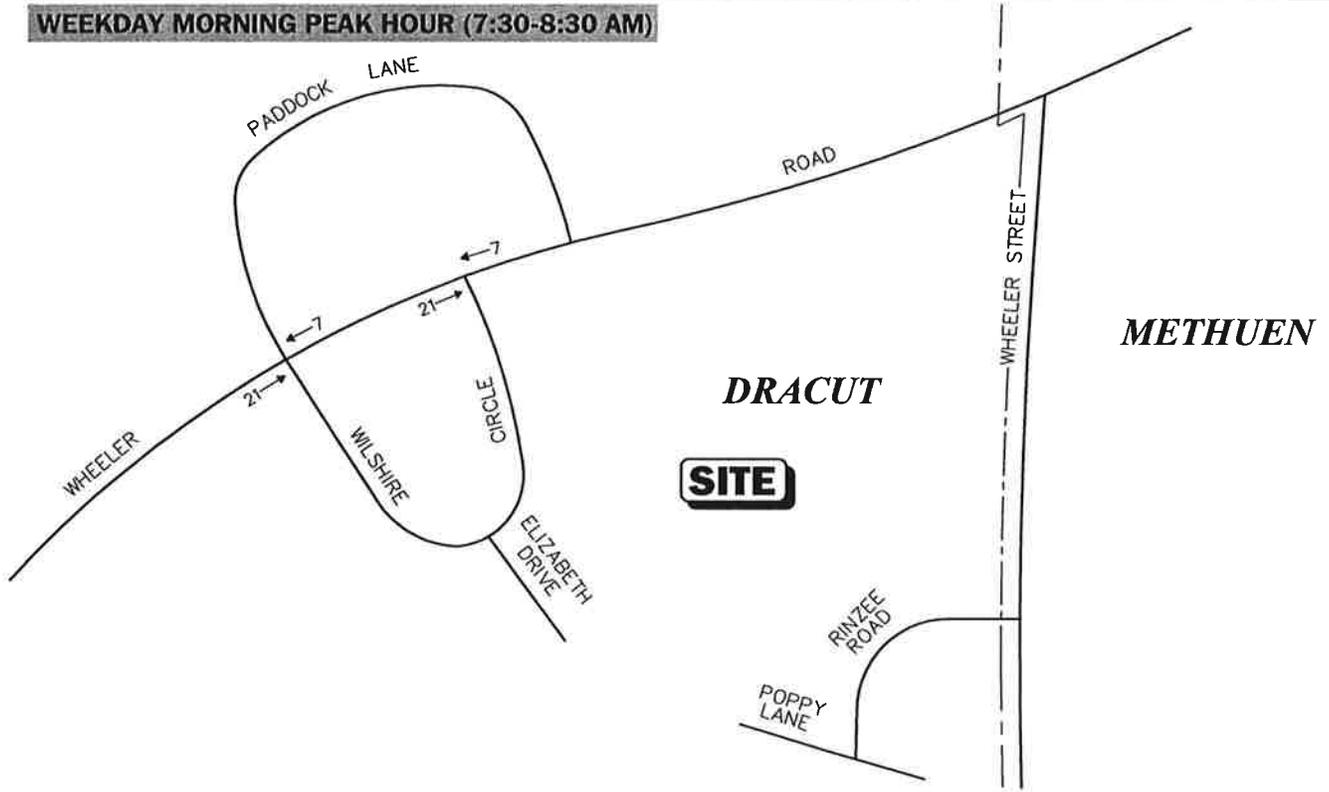
Not To Scale



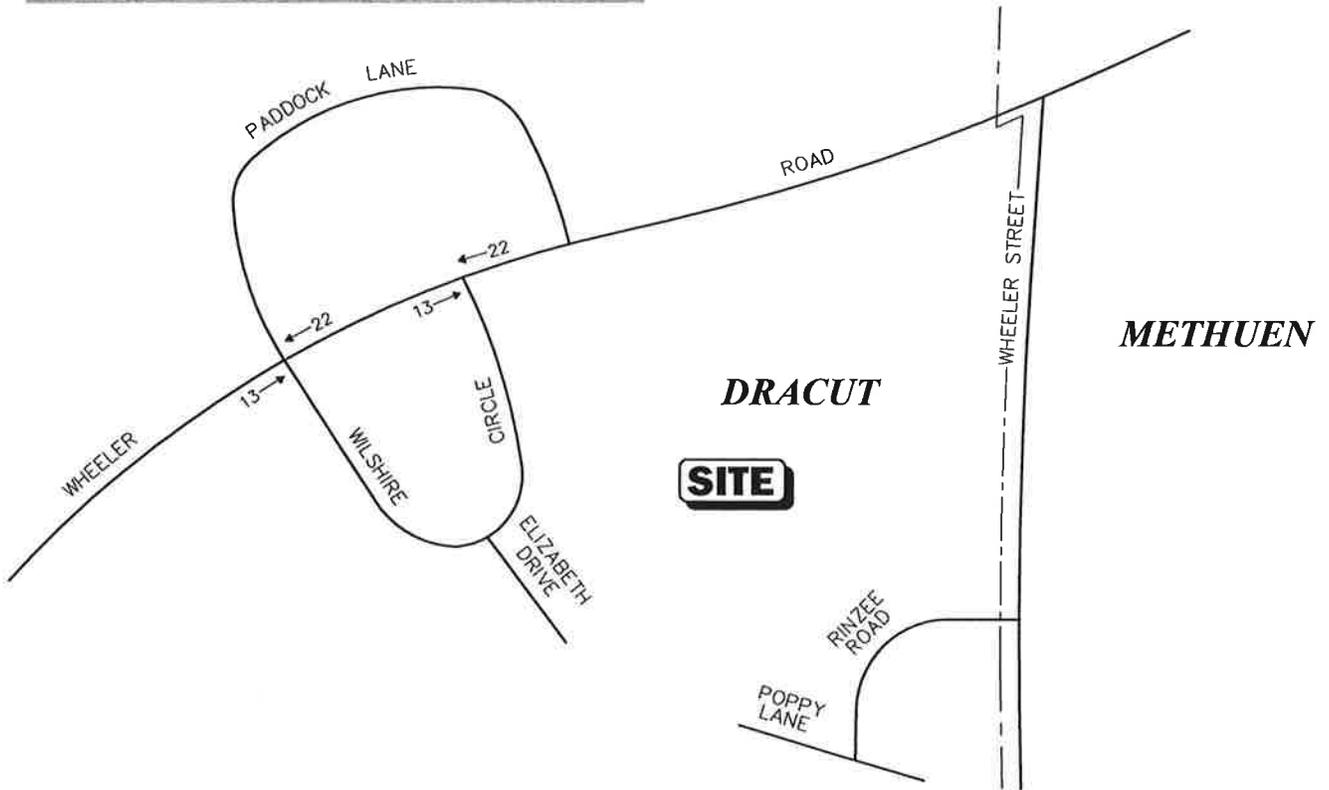
Figure A-1

**Berube Farms
Residential Development
Peak Hour Traffic Volumes**

WEEKDAY MORNING PEAK HOUR (7:30-8:30 AM)



WEEKDAY EVENING PEAK HOUR (5:00-6:00 PM)



Not To Scale



Figure A-2

**Wheeler Village
Residential Development
Peak Hour Traffic Volumes**

GENERAL BACKGROUND TRAFFIC GROWTH



Calculations

Job: Murphy's Farm
Location: Dracont, MA
Title: Growth Rate
Calculated by: BS

Job Number: 7463
Date: 10/6/16
Sheet _____ of _____
Checked by: _____

Station 5093, I-93 north of Rtes 110 & 113, Methuen, MA

2015 = 116,586 ADT (average)
2006 = 121,142 ADT (average)

$$\text{Growth} = \frac{116,586}{121,142} \approx -0.4 \text{ per yr.}$$

TRIP-GENERATION CALCULATIONS

Institute of Transportation Engineers (ITE)
Trip Generation, 9th Edition
Land Use Code (LUC) 210 - Single-Family Detached Housing

Average Vehicle Trips Ends vs: Dwelling Units
Independent Variable (X): 33

AVERAGE WEEKDAY DAILY

$$\ln T = 0.92 \ln (X) + 2.72$$

$$\ln T = 0.92 \ln 33 + (2.72)$$

$$\ln T = 5.94$$

$$T = 378.72$$

$$T = 380 \text{ vehicle trips}$$

with 50% (190 vpd) entering and 50% (190 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 0.70 * (X) + 9.74$$

$$T = 0.70 * 33 + (9.74)$$

$$T = 32.84$$

$$T = 33 \text{ vehicle trips}$$

with 25% (8 vph) entering and 75% (25 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$\ln T = 0.90 \ln (X) + 0.51$$

$$\ln T = 0.90 \ln 33 + (0.51)$$

$$\ln T = 3.66$$

$$T = 38.74$$

$$T = 39 \text{ vehicle trips}$$

with 63% (25 vph) entering and 37% (14 vph) exiting.

JOURNEY TO WORK TRIP DISTRIBUTION

Proposed Murphy's Farm
Residential Development

Residence		Workplace			North	South
State	County	MCD	State/U.S. Island Area/Foreign Country	County	MCD	Number
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Westford town	228
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Lexington town	116
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Bedford town	118
Massachusetts	Middlesex County	Dracut town	New Hampshire	Rockingham County	Salem town	251
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Tyngsborough town	267
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Cambridge city	278
Massachusetts	Middlesex County	Dracut town	Massachusetts	Essex County	Lawrence city	282
Massachusetts	Middlesex County	Dracut town	New Hampshire	Hillsborough County	Nashua city	306
Massachusetts	Middlesex County	Dracut town	Massachusetts	Essex County	Methuen Town city	325
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Woburn city	397
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Burlington town	230
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Wilmington town	540
Massachusetts	Middlesex County	Dracut town	Massachusetts	Suffolk County	Boston city	571
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Tewksbury town	605
Massachusetts	Middlesex County	Dracut town	Massachusetts	Essex County	Andover town	616
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Chelmsford town	709
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Billerica town	754
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Dracut town	1607
Massachusetts	Middlesex County	Dracut town	Massachusetts	Middlesex County	Lowell city	2,885
					5,399	12,084
					45%	6,685
						55%

CAPACITY ANALYSIS WORKSHEETS

Wheeler Road at Wilshire Circle

Wheeler Road at Wilshire Circle and Paddock Lane

Wheeler Street at Rinzee Road

Wheeler Road at Wilshire Circle

2016 Existing Wkday AM Peak Hour
 1: Wilshire Circle & Wheeler Road

10/4/2016

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Volume (vph)	28	1	0	32	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	13	16	12
Satd. Flow (prot)	1882	0	0	1906	1913	0
Flt Permitted					0.988	
Satd. Flow (perm)	1882	0	0	1906	1913	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	148			772	212	
Travel Time (s)	3.4			17.5	4.8	
Peak Hour Factor	0.88	0.88	0.86	0.86	0.33	0.33
Heavy Vehicles (%)	4%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	0	37	12	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 13.3% ICU Level of Service A
 Analysis Period (min) 15

2016 Existing Wkday AM Peak Hour
1: Wilshire Circle & Wheeler Road

10/4/2016

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	28	1	0	32	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	86	86	33	33
Heavy Vehicles, %	4	0	0	3	0	0
Mvmt Flow	32	1	0	37	3	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	33	0	69	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	37	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1592	-	941	1048
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	991	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1592	-	941	1048
Mov Cap-2 Maneuver	-	-	-	-	941	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	991	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1019	-	-	1592	-
HCM Lane V/C Ratio	0.012	-	-	-	-
HCM Control Delay (s)	8.6	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

2016 Existing Wkday PM Peak Hour
1: Wilshire Circle & Wheeler Road

10/4/2016

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	
Volume (vph)	50	2	4	53	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	13	16	12
Satd. Flow (prot)	1952	0	0	1957	1959	0
Flt Permitted				0.997	0.976	
Satd. Flow (perm)	1952	0	0	1957	1959	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	148			772	212	
Travel Time (s)	3.4			17.5	4.8	
Peak Hour Factor	0.57	0.57	0.79	0.79	0.50	0.50
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	72	8	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 16.1% ICU Level of Service A
 Analysis Period (min) 15

2016 Existing Wkday PM Peak Hour
1: Wilshire Circle & Wheeler Road

10/4/2016

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	50	2	4	53	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	79	79	50	50
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	88	4	5	67	4	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	91	0	166	89
Stage 1	-	-	-	-	89	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1517	-	829	975
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	951	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1517	-	827	975
Mov Cap-2 Maneuver	-	-	-	-	827	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	895	-	-	1517	-
HCM Lane V/C Ratio	0.009	-	-	0.003	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

2023 No-Build Wkday AM Peak Hour
1: Wilshire Circle & Wheeler Road

10/4/2016

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	
Volume (vph)	62	1	0	45	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	13	16	12
Satd. Flow (prot)	1885	0	0	1906	1913	0
Flt Permitted					0.988	
Satd. Flow (perm)	1885	0	0	1906	1913	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	148			772	212	
Travel Time (s)	3.4			17.5	4.8	
Peak Hour Factor	0.88	0.88	0.86	0.86	0.33	0.33
Heavy Vehicles (%)	4%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	0	0	52	12	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 13.3% ICU Level of Service A
 Analysis Period (min) 15

2023 No-Build Wkday AM Peak Hour
1: Wilshire Circle & Wheeler Road

10/4/2016

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	62	1	0	45	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	86	86	33	33
Heavy Vehicles, %	4	0	0	3	0	0
Mvmt Flow	70	1	0	52	3	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	72	0	123	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	52	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1541	-	877	997
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1541	-	877	997
Mov Cap-2 Maneuver	-	-	-	-	877	-
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	976	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	964	-	-	1541	-
HCM Lane V/C Ratio	0.013	-	-	-	-
HCM Control Delay (s)	8.8	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

2023 No-Build Wkday PM Peak Hour
1: Wilshire Circle & Wheeler Road

10/4/2016

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Volume (vph)	74	2	4	90	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	13	16	12
Satd. Flow (prot)	1955	0	0	1959	1959	0
Flt Permitted				0.998	0.976	
Satd. Flow (perm)	1955	0	0	1959	1959	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	148			772	212	
Travel Time (s)	3.4			17.5	4.8	
Peak Hour Factor	0.57	0.57	0.79	0.79	0.50	0.50
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	0	0	119	8	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 18.0% ICU Level of Service A
 Analysis Period (min) 15

2023 No-Build Wkday PM Peak Hour
1: Wilshire Circle & Wheeler Road

10/4/2016

Intersection

Int Delay, s/veh 0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	74	2	4	90	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	79	79	50	50
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	130	4	5	114	4	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	133
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1464
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1464
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	818	-	-	1464	-
HCM Lane V/C Ratio	0.01	-	-	0.003	-
HCM Control Delay (s)	9.4	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

2023 Build Wkday AM Peak Hour
 1: Wilshire Circle & Wheeler Road

10/4/2016

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Volume (vph)	62	1	3	45	1	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	13	16	12
Satd. Flow (prot)	1885	0	0	1903	1877	0
Flt Permitted				0.997	0.996	
Satd. Flow (perm)	1885	0	0	1903	1877	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	148			772	212	
Travel Time (s)	3.4			17.5	4.8	
Peak Hour Factor	0.88	0.88	0.86	0.86	0.33	0.33
Heavy Vehicles (%)	4%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	0	0	55	39	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 14.8% ICU Level of Service A
 Analysis Period (min) 15

2023 Build Wkday AM Peak Hour
1: Wilshire Circle & Wheeler Road

10/4/2016

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	62	1	3	45	1	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	86	86	33	33
Heavy Vehicles, %	4	0	0	3	0	0
Mvmt Flow	70	1	3	52	3	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	72	0	130	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	59	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1541	-	869	997
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	969	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1541	-	867	997
Mov Cap-2 Maneuver	-	-	-	-	867	-
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	967	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	986	-	-	1541	-
HCM Lane V/C Ratio	0.04	-	-	0.002	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

2023 Build Wkday PM Peak Hour
 1: Wilshire Circle & Wheeler Road

10/4/2016

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↓	↘	↙
Volume (vph)	74	2	13	90	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	13	16	12
Satd. Flow (prot)	1955	0	0	1952	1906	0
Flt Permitted				0.994	0.989	
Satd. Flow (perm)	1955	0	0	1952	1906	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	148			772	212	
Travel Time (s)	3.4			17.5	4.8	
Peak Hour Factor	0.57	0.57	0.79	0.79	0.50	0.50
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	0	0	130	18	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 22.1%

ICU Level of Service A

Analysis Period (min) 15

2023 Build Wkday PM Peak Hour
1: Wilshire Circle & Wheeler Road

10/4/2016

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	74	2	13	90	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	79	79	50	50
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	130	4	16	114	4	14

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	133	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.1	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.2	-
Pot Cap-1 Maneuver	-	-	1464	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1464	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	864	-	-	1464	-
HCM Lane V/C Ratio	0.021	-	-	0.011	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Wheeler Road at Wilshire Circle and Paddock Lane

2016 Existing Wkday AM Peak Hour
 2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	1	26	1	0	33	0	13	0	2	1	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	16	12
Satd. Flow (prot)	0	1820	0	0	1845	0	0	1968	0	0	1899	0
Flt Permitted		0.998						0.958			0.991	
Satd. Flow (perm)	0	1820	0	0	1845	0	0	1968	0	0	1899	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		453			148			185			141	
Travel Time (s)		10.3			3.4			4.2			3.2	
Peak Hour Factor	0.84	0.84	0.84	0.83	0.83	0.83	0.63	0.63	0.63	0.31	0.31	0.31
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	40	0	0	24	0	0	16	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 13.3% ICU Level of Service A
 Analysis Period (min) 15

2016 Existing Wkday AM Peak Hour
2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

Intersection												
Int Delay, s/veh	3.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	26	1	0	33	0	13	0	2	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	83	83	83	63	63	63	31	31	31
Heavy Vehicles, %	0	4	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	1	31	1	0	40	0	21	0	3	3	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	40	0	0	32	0	0	80	74	32	76	75	40
Stage 1	-	-	-	-	-	-	34	34	-	40	40	-
Stage 2	-	-	-	-	-	-	46	40	-	36	35	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1583	-	-	1593	-	-	913	820	1048	919	819	1037
Stage 1	-	-	-	-	-	-	987	871	-	980	866	-
Stage 2	-	-	-	-	-	-	973	866	-	985	870	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1583	-	-	1593	-	-	901	819	1048	916	818	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	901	819	-	916	818	-
Stage 1	-	-	-	-	-	-	986	870	-	979	866	-
Stage 2	-	-	-	-	-	-	961	866	-	981	869	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	9	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	918	1583	-	-	1593	-	-	1010
HCM Lane V/C Ratio	0.026	0.001	-	-	-	-	-	0.016
HCM Control Delay (s)	9	7.3	0	-	0	-	-	8.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

2016 Existing Wkday PM Peak Hour
 2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				↕
Volume (vph)	3	52	6	3	51	1	2	0	0	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	16	12
Satd. Flow (prot)	0	1870	0	0	1889	0	0	1986	0	0	1863	0
Flt Permitted		0.997			0.997			0.950				
Satd. Flow (perm)	0	1870	0	0	1889	0	0	1986	0	0	1863	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		453			148			185			141	
Travel Time (s)		10.3			3.4			4.2			3.2	
Peak Hour Factor	0.66	0.66	0.66	0.59	0.59	0.59	0.50	0.50	0.50	0.25	0.25	0.25
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	0	0	93	0	0	4	0	0	8	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 14.1%

ICU Level of Service A

Analysis Period (min) 15

2016 Existing Wkday PM Peak Hour
2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

Intersection												
Int Delay, s/veh	0.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	52	6	3	51	1	2	0	0	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	59	59	59	50	50	50	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	79	9	5	86	2	4	0	0	0	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	88	0	0	88	0	0	193	190	83	189	194	87
Stage 1	-	-	-	-	-	-	92	92	-	97	97	-
Stage 2	-	-	-	-	-	-	101	98	-	92	97	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1520	-	-	1520	-	-	771	708	982	776	705	977
Stage 1	-	-	-	-	-	-	920	823	-	914	819	-
Stage 2	-	-	-	-	-	-	910	818	-	920	819	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1520	-	-	1520	-	-	761	704	982	772	701	977
Mov Cap-2 Maneuver	-	-	-	-	-	-	761	704	-	772	701	-
Stage 1	-	-	-	-	-	-	917	821	-	911	817	-
Stage 2	-	-	-	-	-	-	900	816	-	917	817	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	9.8	8.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	761	1520	-	-	1520	-	-	977
HCM Lane V/C Ratio	0.005	0.003	-	-	0.003	-	-	0.008
HCM Control Delay (s)	9.8	7.4	0	-	7.4	0	-	8.7
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

2023 No-Build Wkday AM Peak Hour
 2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	1	60	1	0	46	0	14	0	2	1	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	16	12
Satd. Flow (prot)	0	1823	0	0	1845	0	0	1970	0	0	1899	0
Flt Permitted		0.999						0.958			0.991	
Satd. Flow (perm)	0	1823	0	0	1845	0	0	1970	0	0	1899	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		453			148			185			141	
Travel Time (s)		10.3			3.4			4.2			3.2	
Peak Hour Factor	0.84	0.84	0.84	0.83	0.83	0.83	0.63	0.63	0.63	0.31	0.31	0.31
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	0	55	0	0	25	0	0	16	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 14.0% ICU Level of Service A
 Analysis Period (min) 15

2023 No-Build Wkday AM Peak Hour
 2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

Intersection												
Int Delay, s/veh	2.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	60	1	0	46	0	14	0	2	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	83	83	83	63	63	63	31	31	31
Heavy Vehicles, %	0	4	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	1	71	1	0	55	0	22	0	3	3	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	55	0	0	73	0	0	136	129	72	131	130	55
Stage 1	-	-	-	-	-	-	74	74	-	55	55	-
Stage 2	-	-	-	-	-	-	62	55	-	76	75	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1563	-	-	1540	-	-	840	765	996	846	764	1018
Stage 1	-	-	-	-	-	-	940	837	-	962	853	-
Stage 2	-	-	-	-	-	-	954	853	-	938	836	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1563	-	-	1540	-	-	829	764	996	843	763	1018
Mov Cap-2 Maneuver	-	-	-	-	-	-	829	764	-	843	763	-
Stage 1	-	-	-	-	-	-	939	836	-	961	853	-
Stage 2	-	-	-	-	-	-	942	853	-	934	835	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	9.4	8.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	847	1563	-	-	1540	-	-	977
HCM Lane V/C Ratio	0.03	0.001	-	-	-	-	-	0.017
HCM Control Delay (s)	9.4	7.3	0	-	0	-	-	8.7
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

2023 No-Build Wkday PM Peak Hour
 2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	3	76	6	3	88	1	2	0	0	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	16	12
Satd. Flow (prot)	0	1879	0	0	1892	0	0	1986	0	0	1863	0
Flt Permitted		0.998			0.998			0.950				
Satd. Flow (perm)	0	1879	0	0	1892	0	0	1986	0	0	1863	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		453			148			185			141	
Travel Time (s)		10.3			3.4			4.2			3.2	
Peak Hour Factor	0.66	0.66	0.66	0.59	0.59	0.59	0.50	0.50	0.50	0.25	0.25	0.25
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	129	0	0	156	0	0	4	0	0	8	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	15.9%
ICU Level of Service	A
Analysis Period (min)	15

2023 No-Build Wkday PM Peak Hour
2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

Intersection												
Int Delay, s/veh	0.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	76	6	3	88	1	2	0	0	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	59	59	59	50	50	50	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	115	9	5	149	2	4	0	0	0	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	151	0	0	124	0	0	293	290	120	289	293	150
Stage 1	-	-	-	-	-	-	129	129	-	160	160	-
Stage 2	-	-	-	-	-	-	164	161	-	129	133	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1442	-	-	1475	-	-	663	624	937	667	621	902
Stage 1	-	-	-	-	-	-	880	793	-	847	769	-
Stage 2	-	-	-	-	-	-	843	769	-	880	790	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1442	-	-	1475	-	-	653	619	937	663	616	902
Mov Cap-2 Maneuver	-	-	-	-	-	-	653	619	-	663	616	-
Stage 1	-	-	-	-	-	-	876	790	-	844	766	-
Stage 2	-	-	-	-	-	-	832	766	-	876	787	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	10.5	9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	653	1442	-	-	1475	-	-	902
HCM Lane V/C Ratio	0.006	0.003	-	-	0.003	-	-	0.009
HCM Control Delay (s)	10.5	7.5	0	-	7.4	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

2023 Build Wkday AM Peak Hour

2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	1	60	4	0	46	0	23	0	2	1	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	16	12
Satd. Flow (prot)	0	1814	0	0	1845	0	0	1978	0	0	1899	0
Flt Permitted		0.999						0.956			0.991	
Satd. Flow (perm)	0	1814	0	0	1845	0	0	1978	0	0	1899	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		453			148			185			141	
Travel Time (s)		10.3			3.4			4.2			3.2	
Peak Hour Factor	0.84	0.84	0.84	0.83	0.83	0.83	0.63	0.63	0.63	0.31	0.31	0.31
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	0	55	0	0	40	0	0	16	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.8%

ICU Level of Service A

Analysis Period (min) 15

2023 Build Wkday AM Peak Hour
2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

Intersection													
Int Delay, s/veh	2.8												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	60	4	0	46	0	23	0	2	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	83	83	83	63	63	63	31	31	31
Heavy Vehicles, %	0	4	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	1	71	5	0	55	0	37	0	3	3	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	55	0	0	76	0	0	138	131	74	133	134	55
Stage 1	-	-	-	-	-	-	76	76	-	55	55	-
Stage 2	-	-	-	-	-	-	62	55	-	78	79	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1563	-	-	1536	-	-	837	763	993	844	760	1018
Stage 1	-	-	-	-	-	-	938	836	-	962	853	-
Stage 2	-	-	-	-	-	-	954	853	-	936	833	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1563	-	-	1536	-	-	826	762	993	841	759	1018
Mov Cap-2 Maneuver	-	-	-	-	-	-	826	762	-	841	759	-
Stage 1	-	-	-	-	-	-	937	835	-	961	853	-
Stage 2	-	-	-	-	-	-	942	853	-	932	832	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	9.5	8.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	837	1563	-	-	1536	-	-	977
HCM Lane V/C Ratio	0.047	0.001	-	-	-	-	-	0.017
HCM Control Delay (s)	9.5	7.3	0	-	0	-	-	8.7
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

2023 Build Wkday PM Peak Hour

2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	3	76	15	3	88	1	7	0	0	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	16	12
Satd. Flow (prot)	0	1854	0	0	1892	0	0	1986	0	0	1863	0
Flt Permitted		0.998			0.998			0.950				
Satd. Flow (perm)	0	1854	0	0	1892	0	0	1986	0	0	1863	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		453			148			185			141	
Travel Time (s)		10.3			3.4			4.2			3.2	
Peak Hour Factor	0.66	0.66	0.66	0.59	0.59	0.59	0.50	0.50	0.50	0.25	0.25	0.25
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	143	0	0	156	0	0	14	0	0	8	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.7%
Analysis Period (min)	15
	ICU Level of Service A

2023 Build Wkday PM Peak Hour
 2: Paddock Lane/Wilshire Circle & Wheeler Road

10/4/2016

Intersection												
Int Delay, s/veh	0.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	76	15	3	88	1	7	0	0	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	59	59	59	50	50	50	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	115	23	5	149	2	14	0	0	0	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	151	0	0	138	0	0	300	297	127	296	307	150
Stage 1	-	-	-	-	-	-	136	136	-	160	160	-
Stage 2	-	-	-	-	-	-	164	161	-	136	147	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1442	-	-	1458	-	-	656	618	929	660	610	902
Stage 1	-	-	-	-	-	-	872	788	-	847	769	-
Stage 2	-	-	-	-	-	-	843	769	-	872	779	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1442	-	-	1458	-	-	646	613	929	656	605	902
Mov Cap-2 Maneuver	-	-	-	-	-	-	646	613	-	656	605	-
Stage 1	-	-	-	-	-	-	869	785	-	844	766	-
Stage 2	-	-	-	-	-	-	832	766	-	869	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	10.7	9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	646	1442	-	-	1458	-	-	902
HCM Lane V/C Ratio	0.022	0.003	-	-	0.003	-	-	0.009
HCM Control Delay (s)	10.7	7.5	0	-	7.5	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Wheeler Street at Rinzee Road

2016 Existing Wkday AM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	5	6	4	39	36	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	11	12	12
Satd. Flow (prot)	1891	0	0	1829	1885	0
Flt Permitted	0.979			0.996		
Satd. Flow (perm)	1891	0	0	1829	1885	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	247			568	790	
Travel Time (s)	5.6			12.9	18.0	
Peak Hour Factor	0.69	0.69	0.63	0.63	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	68	49	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.4%

ICU Level of Service A

Analysis Period (min) 15

2016 Existing Wkday AM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

Intersection

Int Delay, s/veh 1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	6	4	39	36	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	63	63	79	79
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	9	6	62	46	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	122	47	48	0	-	0
Stage 1	47	-	-	-	-	-
Stage 2	75	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	878	1028	1572	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	874	1028	1572	-	-	-
Mov Cap-2 Maneuver	874	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	949	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1572	-	952	-	-
HCM Lane V/C Ratio	0.004	-	0.017	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

2016 Existing Wkday PM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	4	3	4	34	35	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	11	12	12
Satd. Flow (prot)	1918	0	0	1827	1873	0
Flt Permitted	0.972			0.995		
Satd. Flow (perm)	1918	0	0	1827	1873	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	247			568	790	
Travel Time (s)	5.6			12.9	18.0	
Peak Hour Factor	0.58	0.58	0.73	0.73	0.81	0.81
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	52	48	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.1%

ICU Level of Service A

Analysis Period (min) 15

2016 Existing Wkday PM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	4	3	4	34	35	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	73	73	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	5	5	47	43	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	104	46	48	0	-	0
Stage 1	46	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	899	1029	1572	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	896	1029	1572	-	-	-
Mov Cap-2 Maneuver	896	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	967	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1572	-	949	-	-
HCM Lane V/C Ratio	0.003	-	0.013	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

2023 No-Build Wkday AM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	5	6	4	42	39	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	11	12	12
Satd. Flow (prot)	1891	0	0	1829	1885	0
Flt Permitted	0.979			0.996		
Satd. Flow (perm)	1891	0	0	1829	1885	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	247			568	790	
Travel Time (s)	5.6			12.9	18.0	
Peak Hour Factor	0.69	0.69	0.63	0.63	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	73	52	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 15.5%

ICU Level of Service A

Analysis Period (min) 15

2023 No-Build Wkday AM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	6	4	42	39	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	63	63	79	79
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	9	6	67	49	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	130	51	52	0	-	0
Stage 1	51	-	-	-	-	-
Stage 2	79	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	869	1023	1567	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	866	1023	1567	-	-	-
Mov Cap-2 Maneuver	866	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1567	-	945	-	-
HCM Lane V/C Ratio	0.004	-	0.017	-	-
HCM Control Delay (s)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

2023 No-Build Wkday PM Peak Hour
 3: Wheeler Street & Rinzee Road

10/4/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↓	
Volume (vph)	4	3	4	36	38	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	11	12	12
Satd. Flow (prot)	1918	0	0	1827	1875	0
Flt Permitted	0.972			0.995		
Satd. Flow (perm)	1918	0	0	1827	1875	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	247			568	790	
Travel Time (s)	5.6			12.9	18.0	
Peak Hour Factor	0.58	0.58	0.73	0.73	0.81	0.81
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	54	52	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	15.2% ICU Level of Service A
Analysis Period (min)	15

2023 No-Build Wkday PM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	4	3	4	36	38	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	73	73	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	5	5	49	47	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	109	49	52	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	893	1025	1567	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	890	1025	1567	-	-	-
Mov Cap-2 Maneuver	890	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1567	-	943	-	-
HCM Lane V/C Ratio	0.003	-	0.013	-	-
HCM Control Delay (s)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

2023 Build Wkday AM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	7	11	5	42	39	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	11	12	12
Satd. Flow (prot)	1880	0	0	1827	1881	0
Flt Permitted	0.981			0.995		
Satd. Flow (perm)	1880	0	0	1827	1881	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	247			568	790	
Travel Time (s)	5.6			12.9	18.0	
Peak Hour Factor	0.69	0.69	0.63	0.63	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	0	75	53	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.4%
	ICU Level of Service A
Analysis Period (min)	15

2023 Build Wkday AM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	7	11	5	42	39	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	63	63	79	79
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	10	16	8	67	49	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	134	51	53	0	-	0
Stage 1	51	-	-	-	-	-
Stage 2	83	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	864	1023	1566	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	860	1023	1566	-	-	-
Mov Cap-2 Maneuver	860	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	940	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1566	-	953	-	-
HCM Lane V/C Ratio	0.005	-	0.027	-	-
HCM Control Delay (s)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

2023 Build Wkday PM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	5	6	9	36	38	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	11	12	12
Satd. Flow (prot)	1897	0	0	1818	1866	0
Flt Permitted	0.977			0.990		
Satd. Flow (perm)	1897	0	0	1818	1866	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	247			568	790	
Travel Time (s)	5.6			12.9	18.0	
Peak Hour Factor	0.58	0.58	0.73	0.73	0.81	0.81
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	0	61	54	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 19.1%

ICU Level of Service A

Analysis Period (min) 15

2023 Build Wkday PM Peak Hour
3: Wheeler Street & Rinzee Road

10/4/2016

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	6	9	36	38	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	73	73	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	10	12	49	47	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	125	51	54	0	-	0
Stage 1	51	-	-	-	-	-
Stage 2	74	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	875	1023	1564	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	954	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	868	1023	1564	-	-	-
Mov Cap-2 Maneuver	868	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	946	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1564	-	946	-	-
HCM Lane V/C Ratio	0.008	-	0.02	-	-
HCM Control Delay (s)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-