

ROAD SAFETY AUDIT

Town Farm Road / Forge Village Road / Abbot Street /
Pine Street

Town of Westford

November 2, 2017

Prepared For:
Town of Westford, Massachusetts



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Background

The Town of Westford, Massachusetts is currently evaluating potential traffic and transportation improvements at various intersections and roadways within the town limits. TEC, Inc. (TEC) has been retained by the Town of Westford to prepare and submit this Road Safety Audit (RSA) report for the intersection of Town Farm Road / Forge Village Road / Abbot Street / Pine Street. Elements of the RSA will be considered for incorporation into immediate roadway and traffic control improvements, as well as the potential for a future project if any design is advanced through the Town of Westford and North Middlesex Council of Governments (NMCOG) design and development processes.

Road Safety Audit Justification

An RSA, as defined by the Federal Highway Administration (FHWA), is the *formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team*. The purpose of the RSA is to observe, identify, and report all safety issues and identify future opportunities for safety enhancement improvements for all roadway users. This includes identifying both short-term and long-term safety enhancements that can be implemented through general maintenance, immediate installation/removal, or could be potentially incorporated into future improvement projects. Enhancements, or improvements, can take the form of one or more of the 4 E's; including: **E**ngineering, **E**ducation, **E**mergency Response, and **E**nforcement.

Project Data

TEC of Lawrence, Massachusetts is the primary traffic safety investigation consultant in this RSA for the Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection. The RSA was conducted on Thursday, October 5, 2017 at 10:00 AM, with the pre-audit meetings held at the Westford Town Hall, located at #55 Main Street in Westford, Massachusetts. A copy of the RSA agenda can be found in Appendix A. TEC has also conducted various other field visits to the audit location as part of its project scoping process.

As presented in Table 1, the audit team consisted of a cross-section of state, regional, and local engineering, enforcement, maintenance, and emergency response professionals and was assembled in conjunction with input from MassDOT's Traffic Safety Management Unit. Contact information for all participating audit team members is provided in Appendix B.

Audit participants were provided with materials to review prior to the audit meeting. The materials included a summary of crash data, collision diagrams (See Appendix), a summary of the type and severity of crashes, and traffic volume data. Participants were encouraged to visit the site prior to the audit and were urged to consider elements on MassDOT's Safety Review Prompt List.

On the day of the audit, a pre-audit meeting was held to discuss the project's background, the audit process, review the distributed materials, and discuss some of the issues that Team members had observed individually. The audit site walk consisted of field observations at the audit intersection. Handwritten notes and photographs documented the observations made by audit team members during the site walk. Following the audit site walk, a post-audit meeting was held where the Team confirmed

the observations made in the field and offered solutions to enhance the safety of areas noted in the site walk and pre-audit meeting.

Table 1: Participating Audit Team Members

Audit Team Member	Agency/Affiliation
Paul Starratt	Westford Engineering Department
Chip Barrett	Westford Highway Department
Don Galya	Pedestrian Safety Committee
Samuel W. Gregorio	TEC, Inc.

Project Location and Description

The RSA was conducted at the Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection in the Town of Westford, Massachusetts. A Study Area Location Map is provided in Figure 1. A detailed description of the study area roadways and intersection is provided below:

Existing Geometry and Infrastructure Summary

Forge Village Road / Pine Street

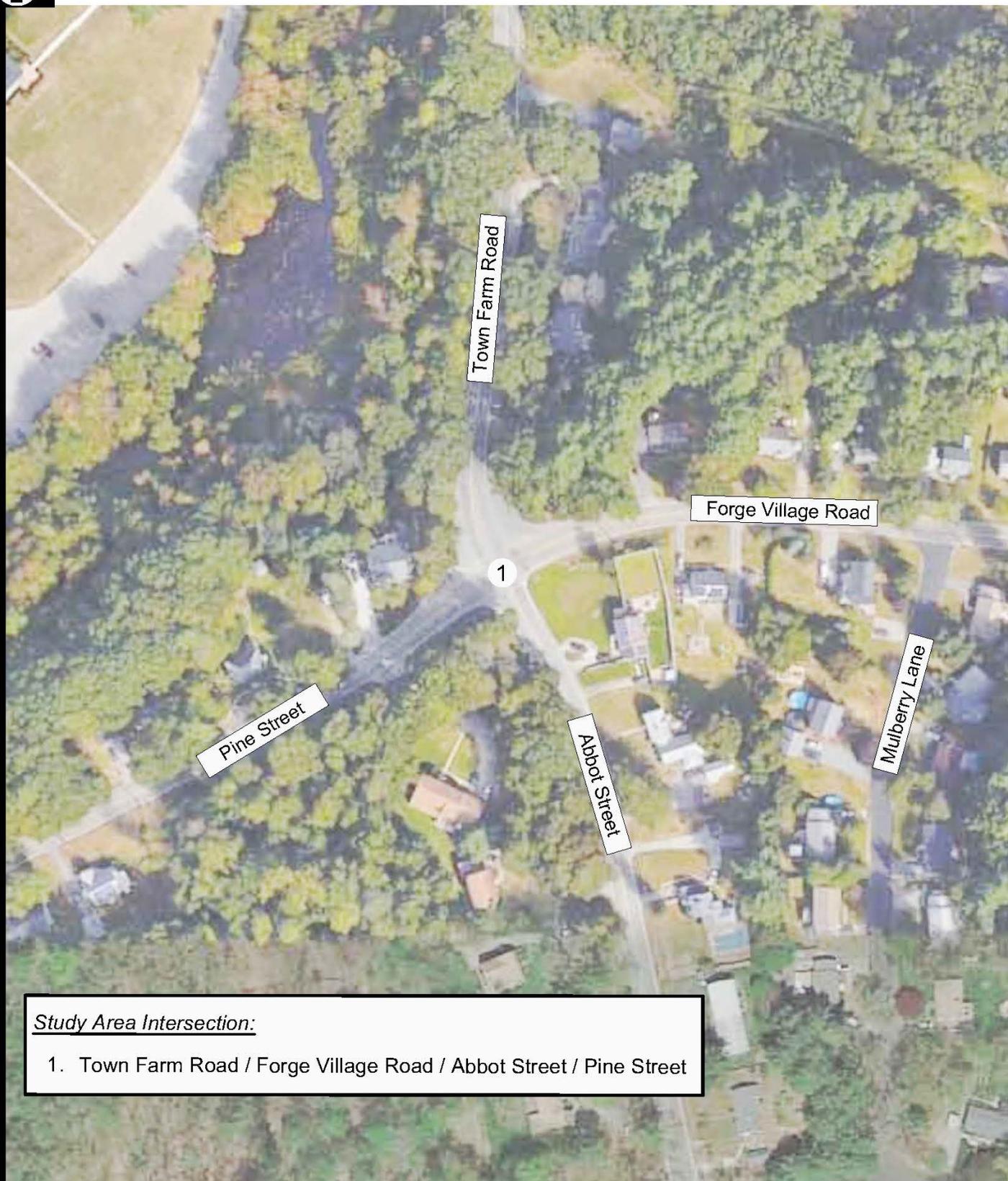
The Forge Village Road / Pine Street corridor is a two-lane, east-west, urban minor arterial roadway under the jurisdiction of the Town of Westford. The roadway is signed as Pine Street, west of Town Farm Road, and signed as Forge Village Road, east of Town Farm Road. The roadway provides local connection between Main Street and Westford Town Center to the east and Pleasant Street (Route 225) and the Forge Village neighborhood to the west. Forge Village Road / Pine Street are approximately 30 to 40 feet wide with one travel lane in each direction. Directional flow along the corridor is separated by a marked centerline. The posted speed limit is 30 MPH. Land uses along Forge Village Road / Pine Street are primarily residential uses. Sidewalks and bicycle accommodations are not provided along the corridor in the vicinity of the audit area.

Town Farm Road / Abbot Street

The Town Farm Road / Abbot Street corridor are two-lane, north-south, local roadways under the jurisdiction of the Town of Westford. The roadway is signed as Town Farm Road, north of Forge Village Road, and signed as Abbot Street, south of Forge Village Road. The roadways provide local connection between North Main Street and the Graniteville neighborhood to the north and Pleasant Street to the south. Town Farm Road / Abbot Street are approximately 30 to 37 feet wide with one travel lane in each direction. Directional flow along the corridor is separated by a marked centerline. The posted speed limit along Abbot Street is 30 MPH; however, there is no posted speed limit sign along Town Farm Road within the vicinity of the audit area. Land uses along Town Farm Road / Abbot Street are primarily residential uses. Sidewalks and bicycle accommodations are not provided along the corridor in the vicinity of the audit area.



1" = 40'



Study Area Intersection:

1. Town Farm Road / Forge Village Road / Abbot Street / Pine Street

Figure 1

Project Location Map &
Study Area Intersection



Intersection: Town Farm Road / Forge Village Road / Abbot Street / Pine Street

Town Farm Road and Abbot Street intersect Forge Village Road and Pine Street to form a four-legged, unsignalized intersection. The Town Farm Road southbound and Abbot Street northbound approaches operate under STOP-control, while the Forge Village Road westbound and Pine Street eastbound approaches are free-flowing. All four intersection approaches currently are situated on significant grades; including Town Farm Road and Pine Street on a steep upgrade entering the intersection and both Abbot Street and Forge Village Road entering the intersection on a moderate downgrade. Each approach consists of a single general purpose lane with directional flow separated by a marked centerline. Pedestrian and bicycle accommodations are not provided formally at the intersection.

Sight Distance Measurements

TEC visited the site on Tuesday, May 30, 2017 to measure the available sight distances along the study area roadways. The available sight distances were compared to minimum requirements established by the American Association of State Highway and Transportation Officials (AASHTO).

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

ISD represents the length of the roadway visible to a driver waiting to exit a driveway or minor street. The minimum ISD desired are based on the distance required for a driver to exit a minor street onto a major street without requiring an approaching vehicle to reduce its speed from the design speed to less than 70 percent of the design speed. ISD is measured from an eye height of 3.5 feet to an object height of 3.5 feet, and is measured from a distance 14.5 feet off the edge of the travel-way of the major roadway to represent a driver waiting to exit a driveway or minor roadway. Note that at the audit intersection, the STOP-line on the South Street northbound approach is marked 32 feet back from the intersection. The ISD in this case is still measured from a point 14.5 feet off the edge of the travel-way (the near shoulder line) along Salem Road.

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

“If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance

traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road.”

Tables 2 and 3 provide a summary of the available SSD and ISD at the intersection of Town Farm Road / Forge Village Road / Abbot Street / Pine Street, respectively. For calculation purposes, the 85th percentile speed measured from the Automatic Traffic Recorders (ATRs) was utilized as the design speed to provide a conservative depiction of sight distance criteria.

Table 2: Stopping Sight Distance Summary

Approach / Direction	Design Speed ^(a)	Minimum Required	Measured Sight Distance
Pine Street EB	35 ^(b)	235 FT	>500 FT
Forge Village Road WB	34 ^(b)	255 FT	350 FT

^a 85th percentile speed utilized as measurement of “Design Speed” for Forge Village Road approaches

^b Based on 5% upgrade/downgrade on Pine Street / Forge Village Road approach.

Table 3: Intersection Sight Distance Summary

Approach / Direction	Design Speed ^(a)	Minimum Recommended ISD	Desired Recommended ISD	Field Measured ISD
Town Farm Road SB – Looking East	34	255 FT	375 FT	240 FT
Town Farm Road SB – Looking West	35	235 FT	390 FT	320 FT
Abbot Street NB – Looking East	34	255 FT	375 FT	260 FT
Abbot Street NB – Looking West	35	235 FT	390 FT	>500 FT

^a 85th percentile speed utilized as measurement of “Design Speed” for Forge Village Road approaches

The sight distance measurements as shown in Tables 2 and 3 indicate that the SSD and ISD approaching the intersections meet minimum recommendations for safe operations on all approaches with exception of the Town Farm Road southbound approach looking east up to Forge Village Road westbound. This sight line is currently limited by the vertical and horizontal curvature of the roadway. Note that these measurements were conducted assuming a driver eye distance of 14.5 feet from the edge of travel way. It is important to note that the experienced sight line along Town Farm Road southbound, looking west, is also obstructed based on the location of the stop-line. The stop-line on this approach is set back to a point that vehicles making an initial stop in compliance with the stop-line would not have sufficient sight lines looking west based on the proximity of the vegetation to the roadway. Sight lines in both directions from the Town Farm Road approach do not meet desired sight distances.

The visibility from Abbot Street looking east towards Forge Village Road only marginally meets minimum recommendations. This sight line is currently limited by the horizontal curvature of the roadway and the vegetation along the southerly edge of Forge Village Road. During periods of heavy vegetation, this sight line is more likely to be obstructed at a level below minimum recommendations. Sight lines looking east from the Abbot Street approach do not meet desired sight distances.

Vehicle Count Data

Turning Movement Count Data

To establish existing traffic-volume conditions at the audit intersection, manual Turning Movement Counts (TMCs) were conducted during the weekday morning (7:00 AM – 9:00 AM) peak period, school dismissal (1:00 PM – 3:00 PM), and weekday evening (4:00 PM – 6:00 PM) peak period on Wednesday, May 31, 2017. Area schools were in regular session during the period of traffic counts. A detailed summary of the TMCs, partitioned into 15-minute intervals, is provided within Appendix C.

Automatic Traffic Recorder Count Data

Automatic Traffic Recorder (ATR) counts were conducted for a 48-hour period from Wednesday, May 31, 2017 through Thursday, June 1, 2017 on Forge Village Road east of Abbot Road, and Town Farm Road north of Forge Village Road. The counts were utilized to determine typical traffic volumes, vehicle speeds, and vehicle classifications along the specified roadways. A summary of the weekday ATR traffic data is presented in Table 4. A detailed summary of the ATR data, partitioned into one-hour intervals, is provided within Appendix D.

Table 4: Existing Weekday Traffic Volume Summary

Location	Weekday Traffic Volume ^(a)	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		Traffic Volume ^(b)	K Factor ^(c)	Directional Distribution ^(d)	Traffic Volume	K Factor	Directional Distribution
Forge Village Road (east of Abbot Street)	3,555	319	9.0	71% EB	262	7.4	62% WB
Town Farm Road (north of Forge Village Road)	4,257	499	11.7	66% SB	482	11.3	70% NB

^a Daily traffic expressed in vehicles per day

^b Hourly traffic expressed in vehicles per hour

^c Percent of daily traffic volumes which occurs during the peak hour

^d Percent of peak-hour volume in the predominant direction of travel

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

On an average weekday, Forge Village Road carries approximately 3,555 vehicles-per-day (vpd) east of Abbot Street. The majority of the vehicles along Forge Village Road are travelling eastbound in the weekday morning peak period and westbound during the weekday evening peak period, which is consistent with commuter flows to/from Westford Town Center and in the direction of the Westford Academy.

On an average weekday, Town Farm Road carries approximately 4,257 vpd north of Forge Village Road. The majority of the vehicles along Town Farm Road are travelling southbound in the weekday morning peak period and northbound during the weekday evening peak period, which is consistent with commuter flows from the Graniteville neighborhood to Westford Town Center and in the direction of the Westford Academy.

General Crash History

Crash incident reports for the Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection were compiled and analyzed for the most-recent consecutive five-year period (2012-2016) on file with the Town of Westford Police Department. The motor vehicle crash data was reviewed to determine if any crash trends exist within the study area.

In addition to examining the number of crashes at the Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection, a crash rate was calculated to compare the occurrence of crashes to the volume of traffic passing through the intersection. The crash rate per million entering vehicles (MEV) was calculated using the evening peak hour volume from the TMCs, and the K-factor of 0.117 was determined from ATR counts conducted along Town Farm Road. The crash rate at the Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection was compared to the statewide and district-wide averages published by MassDOT in February 2016 to determine the significance of the crash occurrence. The statewide average for unsignalized intersections is 0.58, and the District 3 average for unsignalized intersections is 0.65.

The crash rate per MEV for the Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection is provided in Table 5.

Table 5: Crash Rates by Intersection

Intersection	Total Crashes	Crash Rate
Town Farm Road / Forge Village Road / Abbot Street / Pine Street	14	1.14

Below is a crash history summary for the Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection. Further information regarding crashes is provided in the General Observations chapter. A detailed breakdown of the reported collisions is provided in Table 6.

Intersection: Town Farm Road / Forge Village Road / Abbot Street / Pine Street

The Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection experienced an average of approximately three (2.8) crashes per year over the five-year (2012-2016) study period, yielding a crash rate of 1.14 crashes per MEV, significantly greater than the statewide and district-wide averages for unsignalized intersections. Of the reported crashes, approximately 86 percent (12 of 14) of the crashes were angled crashes. Of these angled crashes, ten (10) involved a vehicle exiting the Town Farm Road southbound approach. Of these angled crashes, eight (8) occurred where the second vehicle was approaching from the Pine Street eastbound approach. This direction is where the sight line meets AASHTO minimum recommendations; however the stop-line on this approach is set back to a point that vehicles making an initial stop in compliance with the stop-line would not have sufficient sight lines looking west based on the proximity of the vegetation to the roadway.

Nine (9) of the 14 crashes occurred between the months of September and December which may indicate that students, parents, and commuters getting back into the non-summer driving patterns may be a contributing factor to crashes. Additionally, 36 percent (5 of 14) of all the crashes listed “inattention/distracted” as the contributing factor for the crash.

Table 6: Crash Data Summary

Parameters	Town Farm Road / Forge Village Road / Abbot Street / Pine Street
Crash Year:	
2012	1
2013	2
2014	3
2015	4
2016	4
TOTAL	14
Annual Average	2.80
Crash Rate (MEV)	1.14
Occurrence Significance?	Yes
Type:	
Angle	12
Rear-End	0
Rear-to-Rear	0
Sideswipe	0
Head-on	0
Single Vehicle	1
Ped / Bike	1
Not Reported	0
TOTAL	14
Surface Conditions:	
Dry	9
Wet	5
Snow / Ice / Slush	0
Other / Unknown	0
TOTAL	14
Severity:	
Property Damage	9
Non-Fatal Injury	5
Not Reported	0
TOTAL	14
Day of Week:	
Monday-Friday	10
Saturday-Sunday	4
TOTAL	14
Time of Day:	
6:00AM-9:00AM	2
9:00AM-12:00PM	4
12:00PM-3:00PM	3
3:00PM-6:00PM	1
6:00PM-9:00PM	1
9:00PM-6:00AM	3
TOTAL	14

Audit Observations and Potential Safety Enhancements

The Pre-RSA site walk meetings were held at the Westford Town Hall, located at #55 Main Street in Westford, Massachusetts. The pre-audit meeting included brief introductions, an overview of the future design project and RSA process, and an overview of the safety characteristics of the intersection of Town Farm Road / Forge Village Road / Abbot Street / Pine Street. Each participant was asked to provide his or her concerns and comments related to the safety issues at the intersection.

The RSA Team's field observations and discussions show that the Team has several general concerns about existing conditions at the Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection that may negatively impact safety. Several of these concerns require further evaluation and design work to develop appropriate safety enhancements. More specific safety challenges located at the audit area intersection are also included.

Summary of Safety Concerns

The RSA Team identified the following safety issues at the Town Farm Road / Forge Village Road / Abbot Street / Pine Street intersection prior to, during, and after the field visit:

- Intersection Geometry and Grades;
- Restricted Sightlines;
- Lane Departure;
- Inappropriate or Incorrectly Located Signage;
- Lack of Bicycle and Pedestrian Accommodations, and
- Distracted Driving.

The following section provides a detailed summary of the identified safety concerns and potential safety enhancements at the intersection.

Safety Issue #1: Intersection Geometry and Grades

Specific Observations:

Expanse of Pavement - The intersection of Town Farm Road / Forge Village Road / Abbot Street / Pine Street is situated on a large expanse of asphalt pavement, specifically due to the large corner radii along the Town Farm Road southbound approach and Forge Village Road westbound approach to the intersection. The radius of the northwest corner is laid-out at approximately 120 feet, and the radius of the northeast corner is laid-out at approximately 60-feet. The large expanse of pavement allows for vehicles to enter and exit the intersection at a higher rate of speed. The



Image 1: From east to west looking across open expanse of pavement.

intersection's current layout is more recently a product of increased truck traffic from commercial development such as Carrier; which is no longer present near the intersection. In addition, the stop-line on the Town Farm Road approach is further back from the intended path of travel. This causes vehicles to initially stop in a location where sight lines are restricted by vegetation [discussed further in Safety Issue #2]. Finally, the geometry also forces the non-typical location of intersection signage, such as the location of the stop-sign along Town Farm Road, which is located well off the stop-line due to the expanse of pavement. Four (4) of the crashes at this location were the result of vehicles running through the stop-sign along the Town Farm Road approach.

Intersection Grades – All four intersection approaches currently are situated on significant grades; including Town Farm Road and Pine Street on a steep upgrade entering the intersection and both Abbot Street and Forge Village Road entering the intersection on a moderate downgrade. The presence of these grades may make it more challenging for vehicles to slow along the downgrades and start-up along the upgrades, which effectively alters the standard sight distances measured during prevailing conditions. It was noted during the audit meeting that the Abbot Street approach is sometimes slippery immediately after rain or snow events. This is generally due to the path of travel of water and snow melt coming down Abbot Street and crossing the intersection near Pine Street.

Potential Safety Enhancements:

1. Consider a reduction of the corner radius on the northeastern and northwestern corners of the intersection of Town Farm Road / Forge Village Road / Abbot Street / Pine Street. This improvement has the added benefit of reducing the potential crossing distance for pedestrians (although no formal pedestrian accommodations are present).
2. Should the corner radius not be reduced, consider the installation of a raised truck apron to allow for wider truck turns but providing a traditional turning radius for passenger vehicles to lower speeds.
3. Consider the realignment of the Town Farm Road northbound approach to form a more traditional perpendicular approach.
4. Consider the reconstruction of the intersection approach to provide a more temperate transition from the approaches into the central intersection. This may require significant amounts of cut and fill along the approaches and may require alterations to private driveways and properties.
5. Consider the installation of minor drainage modifications, such as catch basins, at the intersection to disallow approach stormwater from traveling through the intersection.
6. Modify the profile of the internal intersection to shift the path of stormwater travel through the intersection.

Safety Issue #2: Restricted Sightlines

The sight distances approaching the intersections meet minimum recommendations for safe operations on all approaches with exception of the Town Farm Road southbound approach looking east up to Forge Village Road westbound. This sight line is currently limited by the vertical and horizontal curvature of the roadway. It is important to note that the experienced sight line along Town Farm Road southbound, looking west, is also obstructed based on the location of the stop-line, as previously noted. The stop-line on this approach is set back to a point that vehicles making an initial stop in compliance with the stop-line would not have sufficient sight lines looking west based on the proximity of the vegetation to the roadway. Sight lines in both directions from the Town Farm Road approach do not meet desired sight distances. Ten (10) of the intersection's crashes involved a vehicle exiting Town Farm Road where sight distance challenges are present looking both east and west.



Image 2: Sight line from Town Farm Road looking east.

The visibility from Abbot Street looking east towards Forge Village Road only marginally meets minimum recommendations. This sight line is currently limited by the horizontal curvature of the roadway and the vegetation along the southerly edge of Forge Village Road. During periods of heavy vegetation, this sight line is more likely to be obstructed at a level below minimum recommendations. Sight lines looking east from the Abbot Street approach do not meet desired sight distances. Two (2) of the intersection's crashes involved a vehicle exiting Abbot Street and a vehicle travelling along Forge Village Road westbound where sight distance challenges are present looking east.



Image 3: Sight line from Abbot Street looking east.

Potential Safety Enhancements:

1. Consider modifications to the Forge Village Road profile to cut a segment of the crest, east of the intersection, to extend the sight line to minimum recommendations.
2. Contact and work with the property owners to consider modifications to the slope grading at #1 Abbot Street on the southeast corner of the intersection to slightly modify the steep slope on the northerly edge of the property to increase the sight line from Abbot Street to the east.
3. Contact and work with the property owners at #25 Pine Street on the northwest corner of the intersection to trim and provide continued maintenance of the vegetation on private property and along the Town ROW. This may also require relocation of vegetation within private property.
4. Contact and work with the property owners at #1 Abbot Street on the southeast corner of the intersection to trim and provide continued maintenance of the vegetation on private

property and along the Town ROW. This may also require relocation of vegetation within private property.

5. Consider a reduction of the corner radius on the northwestern corner of the intersection to set the location of stopped vehicles along Town Farm Road further from the vegetation along the northwest corner of the intersection.
6. Relocate stop-line, and associated signage, along the Town Farm Road southbound approach closer to the edge of travel way along Forge Village Road / Pine Street to change the point that vehicles making an initial stop in compliance with the stop-line would have sufficient sight lines looking west based on the proximity of the vegetation to the roadway.
7. Consider modifying the traffic control at the intersection to four-way STOP-control to reduce the impact of limited sight lines on the side-street approaches and sight lines past adjacent vehicles. Note that traffic warrants should be conducted at the intersection prior to the installation of additional STOP-controlled approaches.
8. Evaluate and consider installation of a roundabout to utilize the space provided and to eliminate the impact of limited sightlines. This may require significant amounts of cut and fill along the approaches to provide a leveled area for the roundabout's inscribed diameter.

Safety Issue #3: Lane Departure

Multiple tire tread depressions were visible and noted on both the southeast and southwest corners of the intersection, adjacent to Abbot Street. This indicates that vehicles may have tendency to leave the travel way while turning to/from Abbot Street. Repeated lane departure incidents are not only a specific safety concern for the vehicles involved; but also contribute to future safety issues such as destruction of the edge of pavement and creation of new areas of stormwater ponding. One (1) crash at the intersection involved lane departure at the intersection; however this crash occurred as a result of driver impairment due to alcohol.

Audit participants noted that there is no vertical curbing provided along either side of the four intersection approaches. The edge of roadway was noted to be predominately a sandy soil that requires street sweeping. There are no catch basins located in the vicinity of the intersection and run-off is directed towards the northwest corner of the intersection.



Image 4: Tire marks off of the roadway edge line.

Potential Safety Enhancements:

1. Consider installing vertical curbing at strategic locations at the intersection to define edge of roadway, reduce roadway erosion, and reduce lane departures by vehicles. Curbing should be placed in a manner to supplement the current drainage patterns at the

intersection. This would have an added benefit as a traffic calming measure. Some drainage infrastructure improvements may be required as part of this improvement.

Safety Issue #4: Inappropriate or Incorrectly Located Signage

Specific Observations:

Blind Driveway Sign – A ‘Blind Driveway’ sign is present along Abbot Street southbound, immediately south of the intersection. This sign is not compliant for the Manual on Uniform Traffic Control Devices (MUTCD) practice.

Stop Sign on Utility Pole – The stop-sign (R1-1) for the Abbot Street northbound approach is attached to the adjacent utility pole. All signage should be located on its own post as the sign is not certain to be replaced should damage occur to the utility pole.

Town Farm Road Sign Progression - The Town Farm Road southbound approach provides two stop-signs (R1-1) to regulate the traffic control condition along the approach. In addition, the approach to the intersection also provides an intersection warning sign (W2-1) and an advanced stop-control sign (W3-1). The locations and progression of these signs is not consistent with standard practice identified in the MUTCD. This includes the position of a stop-sign directly opposite the approach, the other stop-sign 110-feet in front of the defined STOP-line, and both intersection and STOP-controlled warning signage on the same approach. Much of the signage placement is directly related to the large corner radii along the Town Farm Road southbound approach.



Image 5: Sign progression along Town Farm Road southbound approach.

Potential Safety Enhancements:

1. Remove the intersection warning sign (W2-1) from the Town Farm Road southbound approach.
2. Relocate the stop-sign (R1-1) along the Town Farm Road southbound to the stop-line. Modifications to the intersection geometry will improve the location of the stop-sign.
3. Should additional intersection geometry changes occur, remove the stop-sign directly opposite the Town Farm Road southbound approach.
4. Remove the ‘Blind Driveway’ sign along Abbot Street southbound exiting the intersection.
5. Relocate the stop-sign (R1-1) for the Abbot Street northbound approach to its own pole adjacent to the provided stop-line.

Safety Issue #5: Lack of Bicycle and Pedestrian Accommodations

Specific Observations:

Bicycle or pedestrian accommodations are not provided along Town Farm Road, Forge Village Road, Abbot Street or Pine Street. Since pedestrian accommodations do not exist, pedestrians typically travel in the roadway, moving off the edge when vehicular traffic attempts to pass. During the Audit field visit, several pedestrians were observed traversing through the intersection. An Audit participant also noted that the level of bicycle traffic through the Town and at the Audit intersection has increased significantly recently as a result of new developments, such as the Juniper Networks facility or the nearby Mill Works recreational facility along Town Farm Road. The nearby Mill Works facility operates an outside running course through the intersection. There was one (1) reported crash at this intersection involving a pedestrian during five-year (2012-2016) study period.



Image 6: Pedestrian approaching the intersection from Town Farm Road.

Potential Safety Enhancements:

1. Consider the construction of sidewalks along each of the intersection approaches. This should be considered as part of a corridor-wide improvement
2. Consider the construction of sidewalks to provide connectivity to the existing sidewalk network along Pleasant Street to the west. This should be considered as part of a corridor-wide improvement.
3. With the installation of sidewalks, provide new ADA/AAB-compliant accessible curb ramps along each corner of the intersection and stripe new crosswalks at the intersection if the construction of sidewalks is considered.
4. Evaluate, based on MassDOT Guidelines, and consider the installation of shared-use lane markings “sharrows” (see right) with accompanying “Share the Road” (W16-1) signage along Town Farm Road, Forge Village Road, Abbot Street and Pine Street to improve bicyclist safety. This should be considered as part of a corridor-wide improvement.
5. Consider the construction of dedicated bicycle lanes along Town Farm Road, Forge Village Road, Abbot Street and Pine Street on the approaches to the intersection. This should be considered as part of a corridor-wide improvement.
6. Consider a reduction of the corner radius on the northeastern and northwestern corners of the intersection of Town Farm Road / Forge Village Road / Abbot Street / Pine Street to reduce the potential crossing distance for pedestrians (although no formal pedestrian accommodations are present today).



Safety Issue #6: Distracted Driving

Specific Observations:

Audit participants indicated that distracted driving due to cell phone usage and other in-vehicle difficulties is an upcoming problem in the vicinity of the audit area and throughout the Town of Westford. Although no specific crash report noted cell phone use, of the reported crashes within the audit area, five (5) listed “inattention / distracted” as the main contributing factor.

Potential Safety Enhancements:

1. Increase police enforcement of cell phone usage and other distracted driving occurrences in the vicinity of the audit area.
2. Conduct educational events or distribute pamphlets at the surrounding schools, within Town Hall, notable pedestrian-heavy destinations, and other locations to help promote driving safety. Use these events and pamphlets to discuss the dangers of distracted driving, including texting while behind the wheel of a motor vehicle.

Summary of Road Safety Audit

Each improvement considered has been categorized as short-term, mid-term, or long-term. Additionally, a cost category has been assigned to each improvement based on the definitions shown in Table 7. Table 8 includes a summary of the several potential safety enhancements. Safety benefit estimates are subjective and are based on engineering experience, the relative percent of crashes that may be reduced by the enhancement based on known, and documented crash reduction factors (such as FHWA documented crash reduction factors).

Note that some costs are noted with three cost thresholds. In addition, some enhancements are defined to mitigate multiple safety issues. For those enhancements identified for multiple issues, such as the construction of a roundabout, the enhancement has only been listed once in Table 8.

Table 6: Estimated Time Frame and Costs Breakdown

Time Frame		Costs	
Short-Term	<1 Year	Low	<\$10,000
Mid-Term	1-3 Years	Medium	\$10,001-\$50,000
Long-Term	>3 Years	High	>\$50,000

Table 7: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost
Intersection Geometry and Grades	Consider a reduction of the corner radius on the northeastern and northwestern corners of the intersection of Town Farm Road / Forge Village Road / Abbot Street / Pine Street	High	Long-Term	Medium
	Should the corner radius not be reduced, consider the installation of a raised truck apron to allow for wider truck turns but providing a traditional turning radius for passenger vehicles to lower speeds.	Medium	Mid-Term	Medium
	Consider the realignment of the Town Farm Road northbound approach to form a more traditional perpendicular approach.	Medium	Long-Term	Medium
	Consider the reconstruction of the intersection approach to provide a more temperate transition from the approaches into the central intersection.	Medium	Long-Term	High
	Consider the installation of minor drainage modifications, such as catch basins, at the intersection to disallow approach stormwater from traveling through the intersection.	Medium	Long-Term	High
	Modify the profile of the internal intersection to shift the path of stormwater travel through the intersection.	Medium	Long-Term	High
Restricted Sightlines	Consider modifications to the Forge Village Road profile to cut a segment of the crest, east of the intersection, to extend the sight line to minimum recommendations.	Medium	Long-Term	High
	Contact and work with the property owners at consider modifications to the slope grading at #1 Abbot Street on the southeast corner of the intersection to slightly modify the steep slope on the northerly edge of the property to increase the slight line from Abbot Street to the east.	High	Short-Term	Medium
	Contact and work with the property owners at #25 Pine Street on the northwest corner of the intersection to trim and provide continued maintenance of the vegetation on private property and along the Town ROW.	High	Short-Term / Ongoing	Low
	Contact and work with the property owners at #1 Abbot Street on the southeast corner of the intersection to trim and provide continued maintenance of the vegetation on private property and along the Town ROW.	High	Short-Term / Ongoing	Low

Table 8: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost
Restricted Sightlines	Consider a reduction of the corner radius on the northwestern corner of the intersection to set the location of stopped vehicles along Town Farm Road further from the vegetation along the northwest corner of the intersection.	Medium	Mid-Term	Medium
	Relocate stop-line, and associated signage, along the Town Farm Road southbound approach closer to the edge of travel way along Forge Village Road / Pine Street.	Medium	Short-Term	Low
	Consider modifying the traffic control at the intersection to four-way STOP-control to reduce the impact of limited sight lines on the side-street approaches and sight lines past adjacent vehicles.	Medium	Mid-Term	Low
	Evaluate and consider installation of a roundabout to utilize the space provided and to eliminate the impact of limited sightlines.	High	Long-Term	High
Lane Departure	Consider installing vertical curbing at strategic locations at the intersection to define edge of roadway, reduce roadway erosion, and reduce land departures by vehicles. Curbing should be placed in a manner to supplement the current drainage patterns at the intersection.	Medium	Mid-Term / Long-Term	Medium / High
Inappropriate or Incorrectly Located Signage	Remove the intersection warning sign (W2-1) from the Town Farm Road southbound approach.	Medium	Short-Term	Low
	Relocate the stop-sign (R1-1) along the Town Farm Road southbound to the stop-line. Modifications to the intersection geometry will improve the location of the stop-sign.	High	Short-Term	Low
	Should additional intersection geometry changes occur, remove the stop-sign directly opposite the Town Farm Road southbound approach.	Low	Short-Term	Low
	Remove the 'Blind Driveway' sign along Abbot Street southbound exiting the intersection.	Low	Short-Term	Low
	Relocate the stop-sign (R1-1) for the Abbot Street northbound approach to its own pole adjacent to the stop-line provided.	Low	Short-Term	Low

Table 8 Continued: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost
Lack of Bicycle and Pedestrian Accommodation	Consider the construction of sidewalks along each of the intersection approaches. This should be considered as part of a corridor-wide improvement.	High	Long-Term	High
	Consider the construction of sidewalks to provide connectivity to the existing sidewalk network along Pleasant Street to the west. This should be considered as part of a corridor-wide improvement.	High	Long-Term	High
	With the installation of sidewalks, provide new ADA/AAB-compliant accessible curb ramps along each corner of the intersection and stripe new crosswalks at the intersection if the construction of sidewalks is considered, and where sidewalk is considered.	Medium	Long-Term	High
	Evaluate, based on MassDOT Guidelines, and consider the installation of shared-use lane markings "sharrows" (see right) with accompanying "Share the Road" (W16-1) signage along Town Farm Road, Forge Village Road, Abbot Street and Pine Street to improve bicyclist safety. This should be considered as part of a corridor-wide improvement.	Medium	Short-Term	Low
	Consider the construction of dedicated bicycle lanes along Town Farm Road, Forge Village Road, Abbot Street and Pine Street on the approaches to the intersection. This should be considered as part of a corridor-wide improvement.	High	Long-Term	High
	Consider a reduction of the corner radius on the northeastern and northwestern corners of the intersection of Town Farm Road / Forge Village Road / Abbot Street / Pine Street to reduce the potential crossing distance for pedestrians.	High	Long-Term	Medium
Distracted Driving	Increase police enforcement of cell phone usage and other distracted driving occurrences in the vicinity of the audit area	Medium	On-Going	Low / Medium
	Conduct educational events or distribute pamphlets at the surrounding schools, within Town Hall, notable pedestrian-heavy destinations, and other locations to help promote driving safety	Low	Short-Term	Low

Appendix A. RSA Meeting Agenda

Appendix B. RSA Audit Team Contact List

Participating Audit Team Members

Date: October 5, 2017 Location: Westford, Massachusetts

Audit Team Members	Agency/Affiliation	Email Address
<i>Name</i>	<i>Agency</i>	<i>Email</i>
Paul Starratt	Westford Engineering Department	pstarratt@westfordma.gov
Chip Barrett	Westford Highway Department	rbarrett@westfordma.gov
Don Galya	Pedestrian Safety Committee	donald.galya@gmail.com
Samuel W. Gregorio	TEC, Inc.	sgregorio@theengineeringcorp.com

Appendix C. Turning Movement Counts (TMC)

Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Town Farm Rd From North			Forge Village Rd From East			Abbot St From South			Pine St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	14	53	4	2	15	11	0	47	1	0	45	0	192
07:15 AM	13	86	3	3	8	13	1	68	4	4	47	1	251
07:30 AM	17	92	2	1	13	7	0	15	0	1	54	0	202
07:45 AM	5	44	5	2	17	9	0	10	1	2	45	0	140
Total	49	275	14	8	53	40	1	140	6	7	191	1	785
08:00 AM	3	44	1	3	10	9	0	23	2	1	40	0	136
08:15 AM	10	67	1	2	11	8	0	11	1	0	39	0	150
08:30 AM	7	41	1	3	11	5	0	16	2	1	41	0	128
08:45 AM	4	42	1	0	17	3	1	17	1	4	30	0	120
Total	24	194	4	8	49	25	1	67	6	6	150	0	534
Grand Total	73	469	18	16	102	65	2	207	12	13	341	1	1319
Apprch %	13	83.8	3.2	8.7	55.7	35.5	0.9	93.7	5.4	3.7	96.1	0.3	
Total %	5.5	35.6	1.4	1.2	7.7	4.9	0.2	15.7	0.9	1	25.9	0.1	
Cars	67	460	18	14	100	59	2	192	12	13	337	1	1275
% Cars	91.8	98.1	100	87.5	98	90.8	100	92.8	100	100	98.8	100	96.7
Trucks	6	9	0	2	2	6	0	15	0	0	4	0	44
% Trucks	8.2	1.9	0	12.5	2	9.2	0	7.2	0	0	1.2	0	3.3

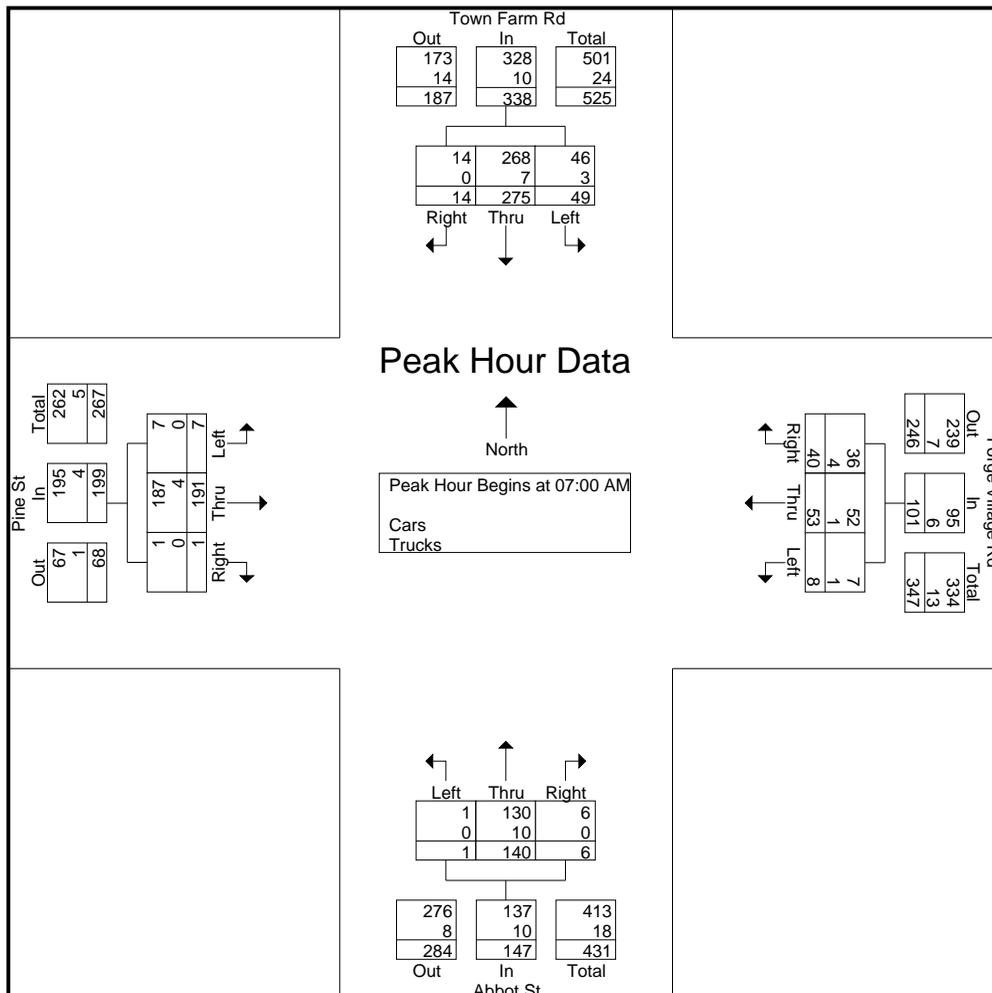
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 2

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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	14	53	4	71	2	15	11	28	0	47	1	48	0	45	0	45	192
07:15 AM	13	86	3	102	3	8	13	24	1	68	4	73	4	47	1	52	251
07:30 AM	17	92	2	111	1	13	7	21	0	15	0	15	1	54	0	55	202
07:45 AM	5	44	5	54	2	17	9	28	0	10	1	11	2	45	0	47	140
Total Volume	49	275	14	338	8	53	40	101	1	140	6	147	7	191	1	199	785
% App. Total	14.5	81.4	4.1		7.9	52.5	39.6		0.7	95.2	4.1		3.5	96	0.5		
PHF	.721	.747	.700	.761	.667	.779	.769	.902	.250	.515	.375	.503	.438	.884	.250	.905	.782
Cars	46	268	14	328	7	52	36	95	1	130	6	137	7	187	1	195	755
% Cars	93.9	97.5	100	97.0	87.5	98.1	90.0	94.1	100	92.9	100	93.2	100	97.9	100	98.0	96.2
Trucks	3	7	0	10	1	1	4	6	0	10	0	10	0	4	0	4	30
% Trucks	6.1	2.5	0	3.0	12.5	1.9	10.0	5.9	0	7.1	0	6.8	0	2.1	0	2.0	3.8



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

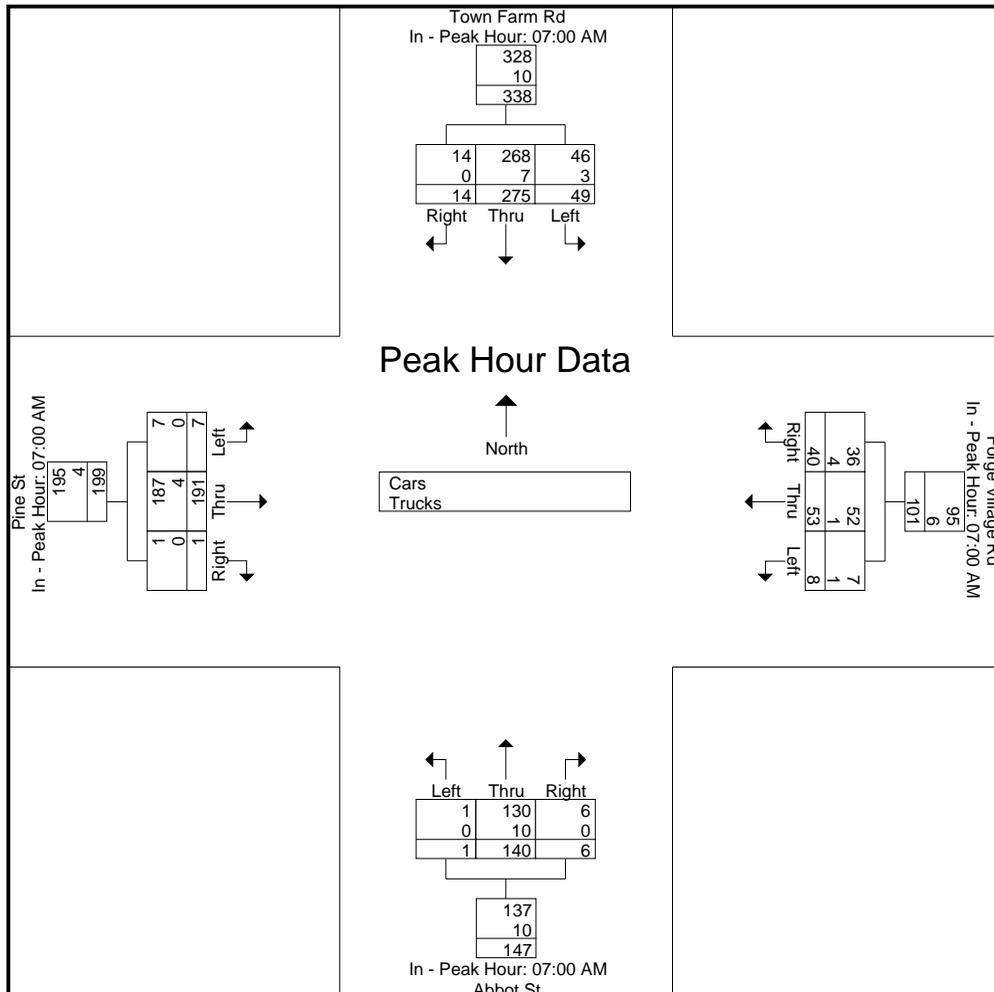
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 3

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	14	53	4	71	2	15	11	28	0	47	1	48	0	45	0	45
+15 mins.	13	86	3	102	3	8	13	24	1	68	4	73	4	47	1	52
+30 mins.	17	92	2	111	1	13	7	21	0	15	0	15	1	54	0	55
+45 mins.	5	44	5	54	2	17	9	28	0	10	1	11	2	45	0	47
Total Volume	49	275	14	338	8	53	40	101	1	140	6	147	7	191	1	199
% App. Total	14.5	81.4	4.1		7.9	52.5	39.6		0.7	95.2	4.1		3.5	96	0.5	
PHF	.721	.747	.700	.761	.667	.779	.769	.902	.250	.515	.375	.503	.438	.884	.250	.905
Cars	46	268	14	328	7	52	36	95	1	130	6	137	7	187	1	195
% Cars	93.9	97.5	100	97	87.5	98.1	90	94.1	100	92.9	100	93.2	100	97.9	100	98
Trucks	3	7	0	10	1	1	4	6	0	10	0	10	0	4	0	4
% Trucks	6.1	2.5	0	3	12.5	1.9	10	5.9	0	7.1	0	6.8	0	2.1	0	2



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 4

Groups Printed- Cars

Start Time	Town Farm Rd From North			Forge Village Rd From East			Abbot St From South			Pine St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	13	53	4	2	15	9	0	41	1	0	42	0	180
07:15 AM	12	81	3	3	8	13	1	65	4	4	46	1	241
07:30 AM	16	90	2	1	13	7	0	15	0	1	54	0	199
07:45 AM	5	44	5	1	16	7	0	9	1	2	45	0	135
Total	46	268	14	7	52	36	1	130	6	7	187	1	755
08:00 AM	2	44	1	3	10	7	0	22	2	1	40	0	132
08:15 AM	9	66	1	2	10	8	0	9	1	0	39	0	145
08:30 AM	6	41	1	2	11	5	0	16	2	1	41	0	126
08:45 AM	4	41	1	0	17	3	1	15	1	4	30	0	117
Total	21	192	4	7	48	23	1	62	6	6	150	0	520
Grand Total	67	460	18	14	100	59	2	192	12	13	337	1	1275
Apprch %	12.3	84.4	3.3	8.1	57.8	34.1	1	93.2	5.8	3.7	96	0.3	
Total %	5.3	36.1	1.4	1.1	7.8	4.6	0.2	15.1	0.9	1	26.4	0.1	

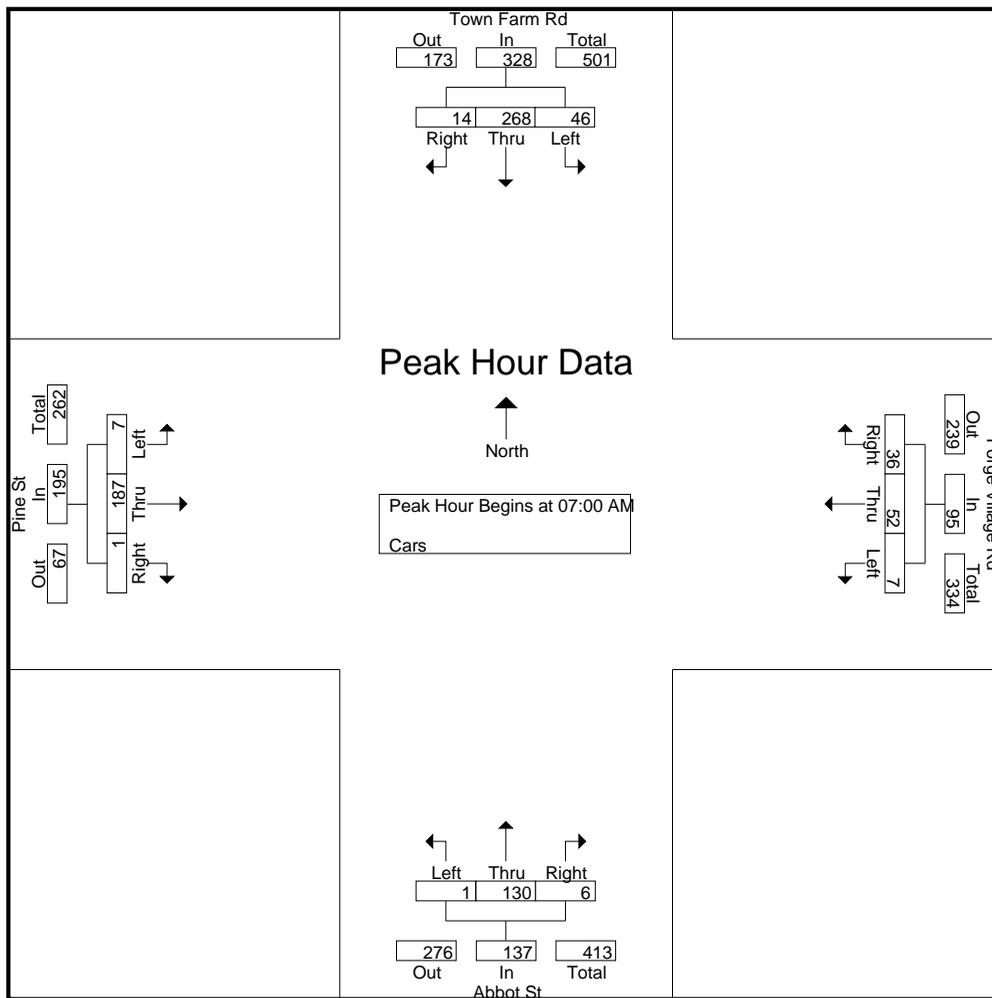
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 5

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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	13	53	4	70	2	15	9	26	0	41	1	42	0	42	0	42	180
07:15 AM	12	81	3	96	3	8	13	24	1	65	4	70	4	46	1	51	241
07:30 AM	16	90	2	108	1	13	7	21	0	15	0	15	1	54	0	55	199
07:45 AM	5	44	5	54	1	16	7	24	0	9	1	10	2	45	0	47	135
Total Volume	46	268	14	328	7	52	36	95	1	130	6	137	7	187	1	195	755
% App. Total	14	81.7	4.3		7.4	54.7	37.9		0.7	94.9	4.4		3.6	95.9	0.5		
PHF	.719	.744	.700	.759	.583	.813	.692	.913	.250	.500	.375	.489	.438	.866	.250	.886	.783



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

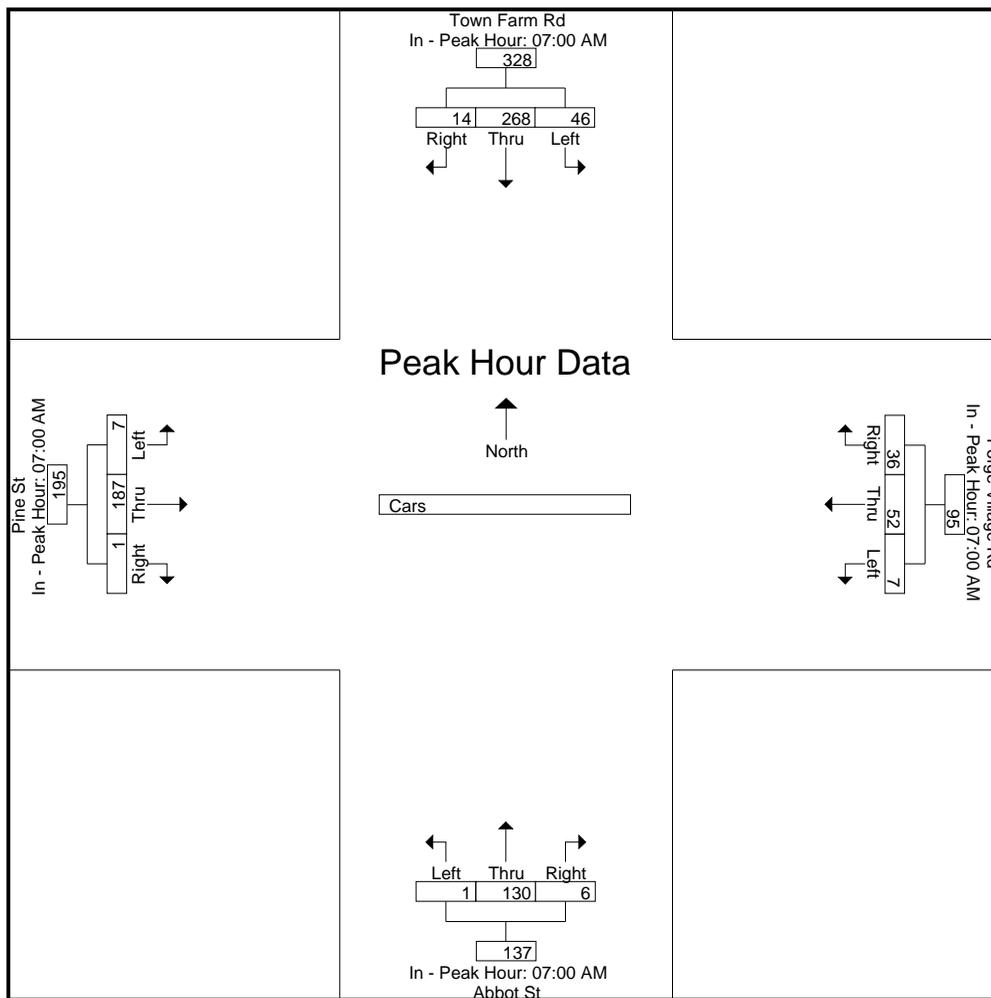
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 6

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	13	53	4	70	2	15	9	26	0	41	1	42	0	42	0	42
+15 mins.	12	81	3	96	3	8	13	24	1	65	4	70	4	46	1	51
+30 mins.	16	90	2	108	1	13	7	21	0	15	0	15	1	54	0	55
+45 mins.	5	44	5	54	1	16	7	24	0	9	1	10	2	45	0	47
Total Volume	46	268	14	328	7	52	36	95	1	130	6	137	7	187	1	195
% App. Total	14	81.7	4.3		7.4	54.7	37.9		0.7	94.9	4.4		3.6	95.9	0.5	
PHF	.719	.744	.700	.759	.583	.813	.692	.913	.250	.500	.375	.489	.438	.866	.250	.886



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Town Farm Rd From North			Forge Village Rd From East			Abbot St From South			Pine St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	1	0	0	0	0	2	0	6	0	0	3	0	12
07:15 AM	1	5	0	0	0	0	0	3	0	0	1	0	10
07:30 AM	1	2	0	0	0	0	0	0	0	0	0	0	3
07:45 AM	0	0	0	1	1	2	0	1	0	0	0	0	5
Total	3	7	0	1	1	4	0	10	0	0	4	0	30
08:00 AM	1	0	0	0	0	2	0	1	0	0	0	0	4
08:15 AM	1	1	0	0	1	0	0	2	0	0	0	0	5
08:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	2
08:45 AM	0	1	0	0	0	0	0	2	0	0	0	0	3
Total	3	2	0	1	1	2	0	5	0	0	0	0	14
Grand Total	6	9	0	2	2	6	0	15	0	0	4	0	44
Apprch %	40	60	0	20	20	60	0	100	0	0	100	0	
Total %	13.6	20.5	0	4.5	4.5	13.6	0	34.1	0	0	9.1	0	

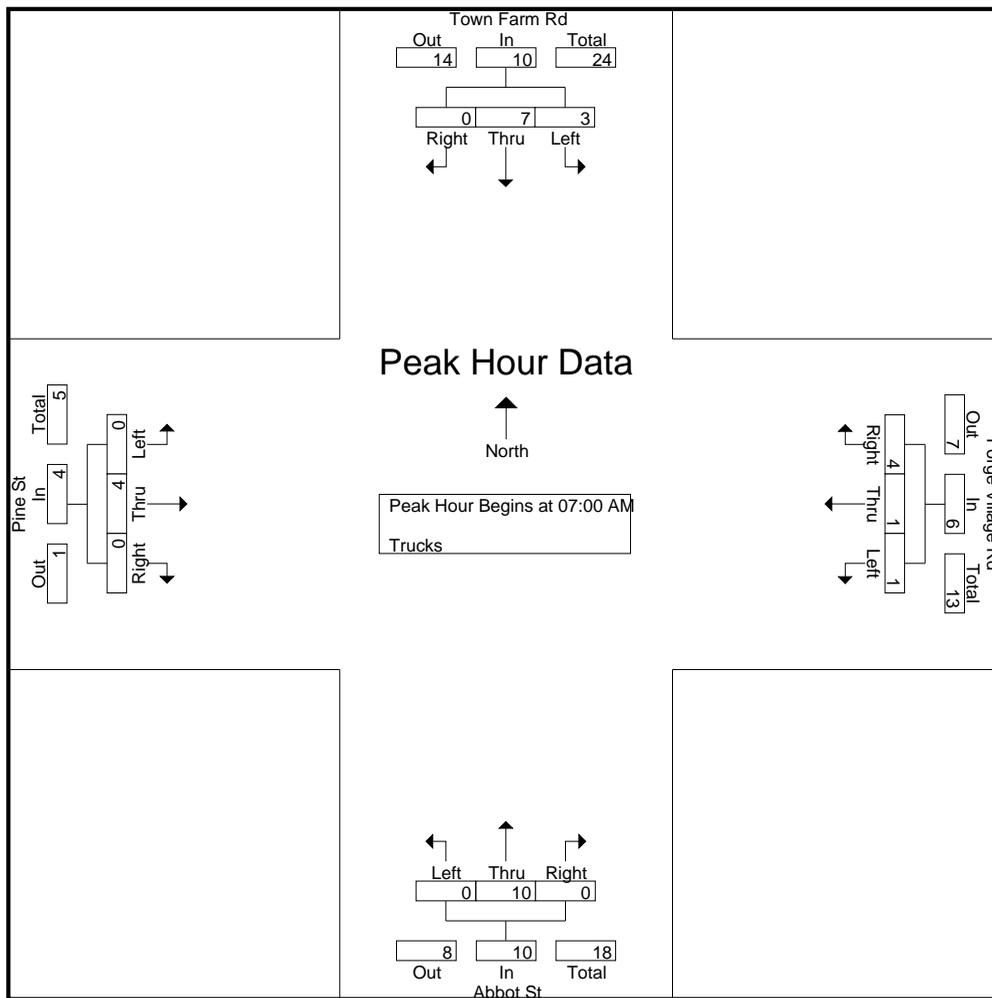
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 8

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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	1	0	0	1	0	0	2	2	0	6	0	6	0	3	0	3	12
07:15 AM	1	5	0	6	0	0	0	0	0	3	0	3	0	1	0	1	10
07:30 AM	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
07:45 AM	0	0	0	0	1	1	2	4	0	1	0	1	0	0	0	0	5
Total Volume	3	7	0	10	1	1	4	6	0	10	0	10	0	4	0	4	30
% App. Total	30	70	0		16.7	16.7	66.7		0	100	0		0	100	0		
PHF	.750	.350	.000	.417	.250	.250	.500	.375	.000	.417	.000	.417	.000	.333	.000	.333	.625



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

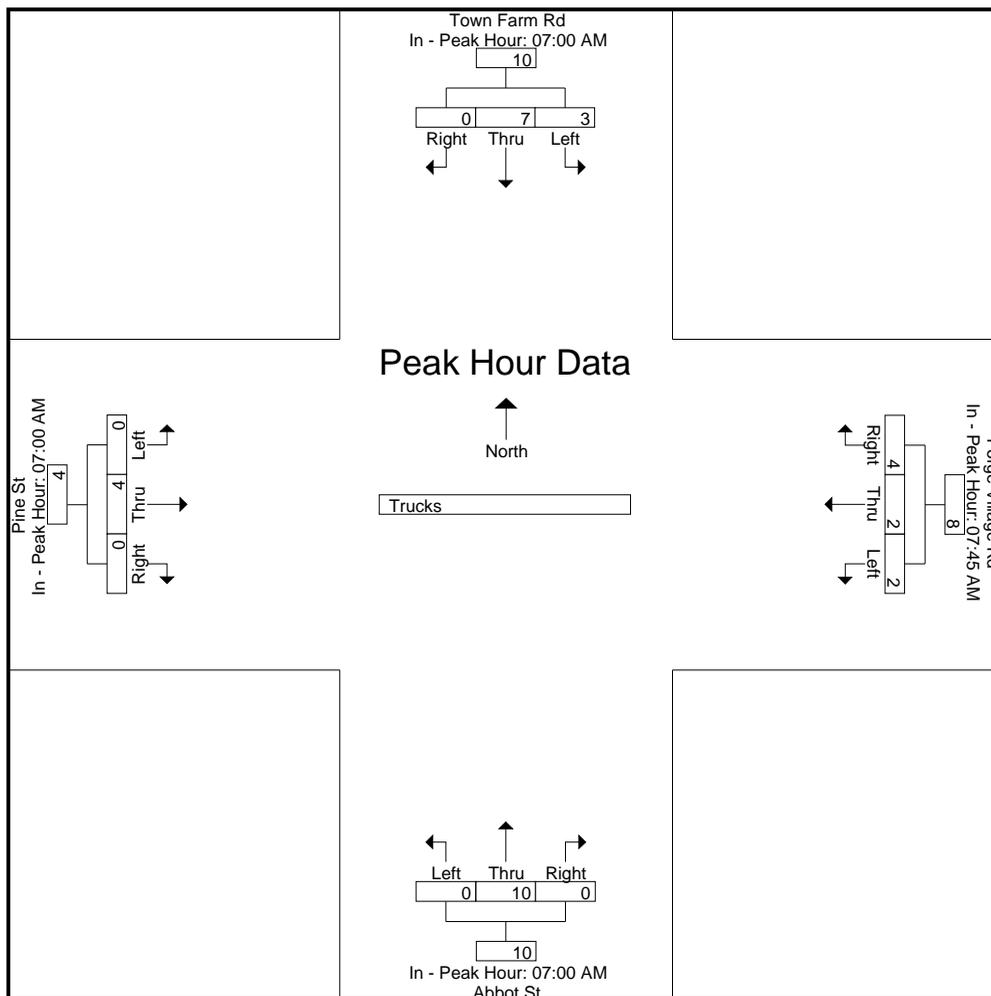
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 9

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 Each Approach Begins at:

	07:00 AM				07:45 AM				07:00 AM				07:00 AM			
+0 mins.	1	0	0	1	1	1	2	4	0	6	0	6	0	3	0	3
+15 mins.	1	5	0	6	0	0	2	2	0	3	0	3	0	1	0	1
+30 mins.	1	2	0	3	0	1	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0
Total Volume	3	7	0	10	2	2	4	8	0	10	0	10	0	4	0	4
% App. Total	30	70	0		25	25	50		0	100	0		0	100	0	
PHF	.750	.350	.000	.417	.500	.500	.500	.500	.000	.417	.000	.417	.000	.333	.000	.333



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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	0	0	0	0
Total	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	1	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	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	1	0	0	0	0	0	0	0	0	1	0	1
Grand Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

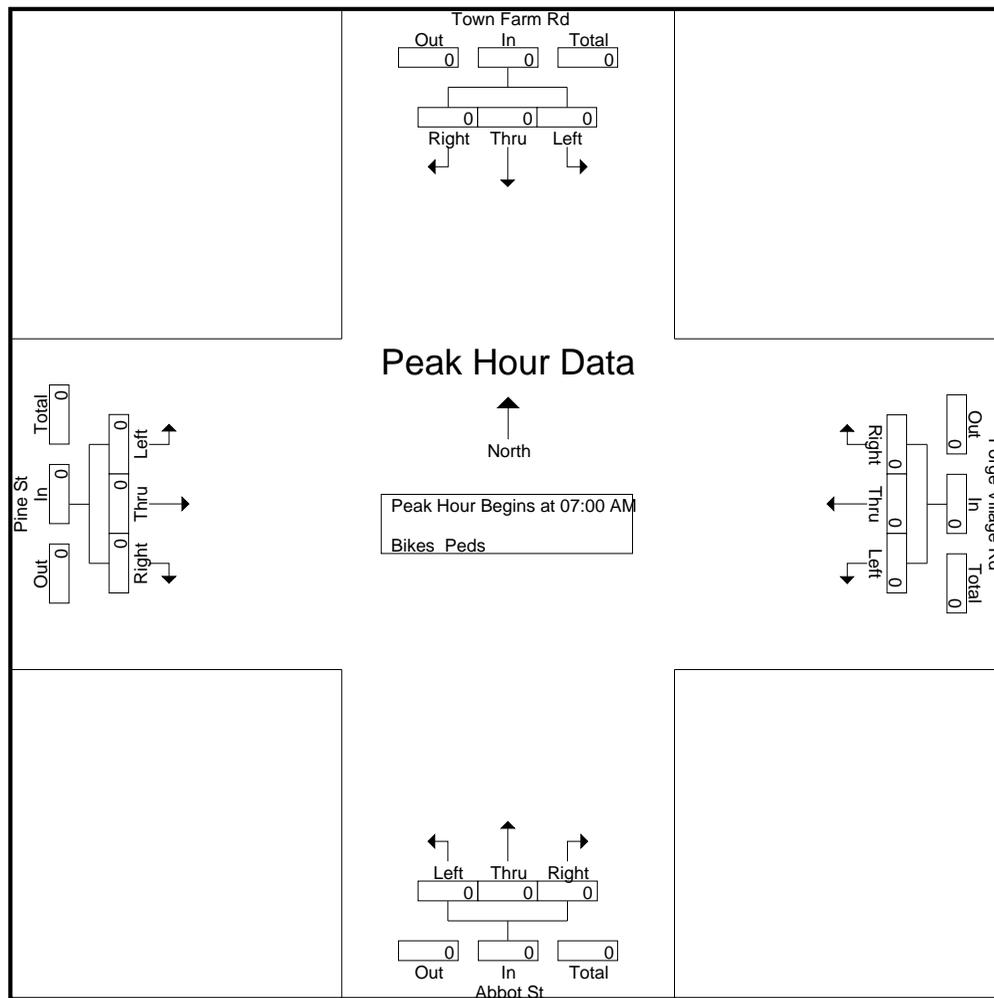
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 11

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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
07:15 AM	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
07:45 AM	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
% App. Total	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



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

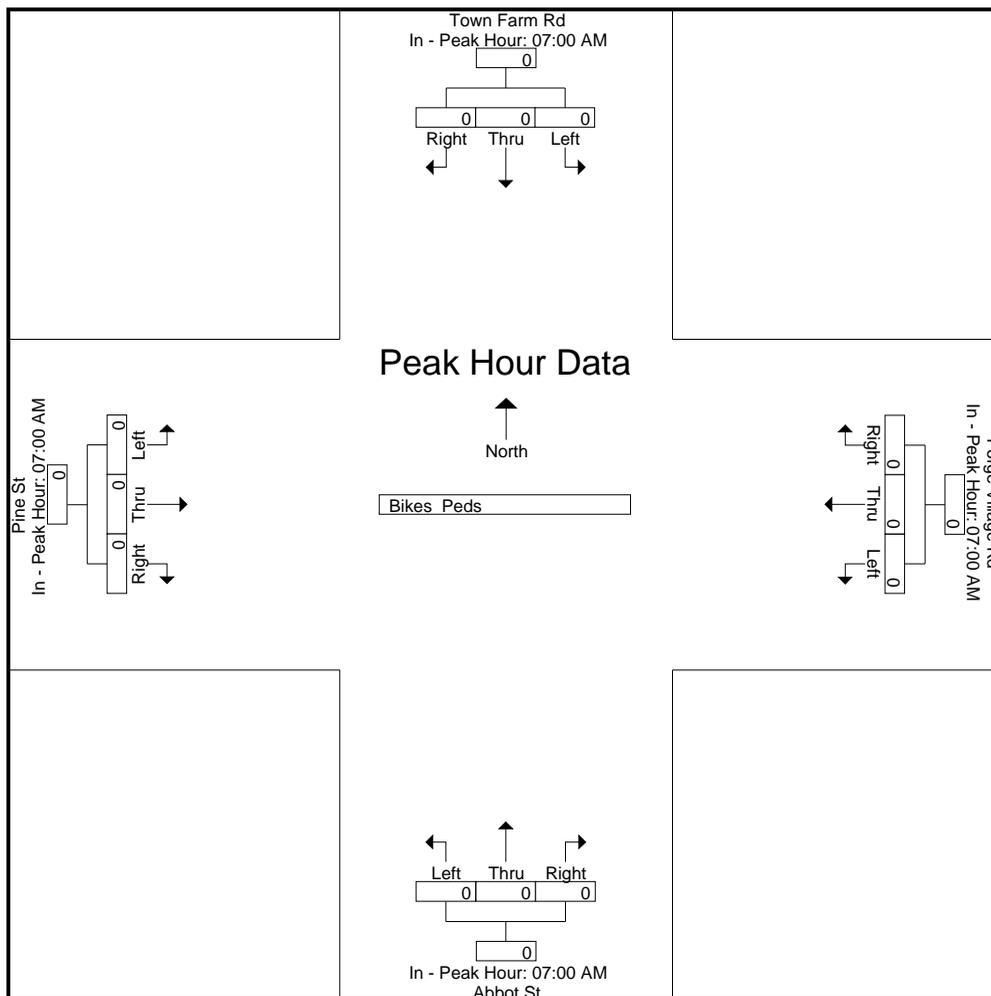
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 12

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	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
% App. Total	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



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Town Farm Rd From North			Forge Village Rd From East			Abbot St From South			Pine St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
01:00 PM	3	11	0	2	18	3	0	13	2	0	14	0	66
01:15 PM	2	16	3	2	22	3	0	11	0	3	7	0	69
01:30 PM	14	11	1	1	22	6	0	14	1	2	11	0	83
01:45 PM	4	17	2	0	13	3	0	29	2	1	14	0	85
Total	23	55	6	5	75	15	0	67	5	6	46	0	303
02:00 PM	9	32	1	4	21	7	0	32	3	2	24	0	135
02:15 PM	3	20	1	2	19	7	0	22	1	4	8	0	87
02:30 PM	15	17	3	2	27	6	0	19	1	2	30	0	122
02:45 PM	8	22	0	6	38	6	0	24	3	2	24	0	133
Total	35	91	5	14	105	26	0	97	8	10	86	0	477
Grand Total	58	146	11	19	180	41	0	164	13	16	132	0	780
Aprch %	27	67.9	5.1	7.9	75	17.1	0	92.7	7.3	10.8	89.2	0	
Total %	7.4	18.7	1.4	2.4	23.1	5.3	0	21	1.7	2.1	16.9	0	
Cars	54	134	11	18	179	39	0	159	12	16	130	0	752
% Cars	93.1	91.8	100	94.7	99.4	95.1	0	97	92.3	100	98.5	0	96.4
Trucks	4	12	0	1	1	2	0	5	1	0	2	0	28
% Trucks	6.9	8.2	0	5.3	0.6	4.9	0	3	7.7	0	1.5	0	3.6

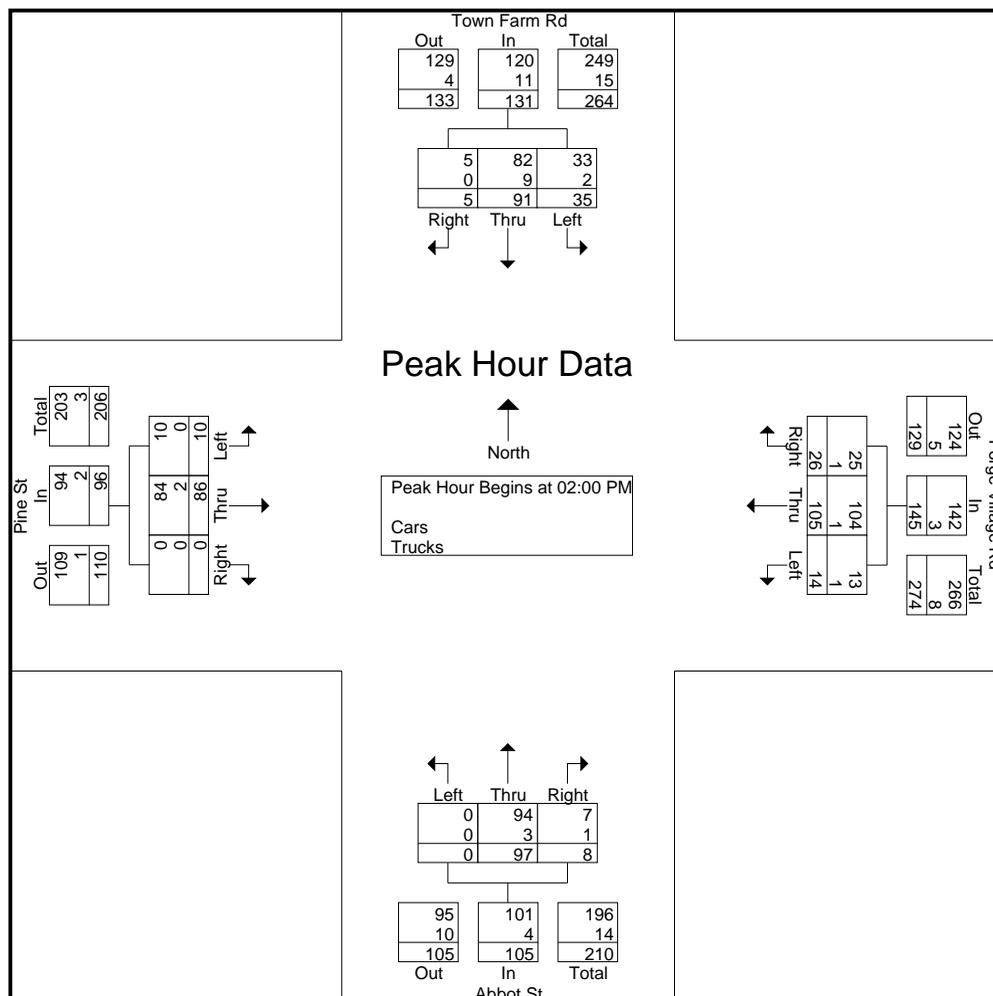
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 2

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	9	32	1	42	4	21	7	32	0	32	3	35	2	24	0	26	135
02:15 PM	3	20	1	24	2	19	7	28	0	22	1	23	4	8	0	12	87
02:30 PM	15	17	3	35	2	27	6	35	0	19	1	20	2	30	0	32	122
02:45 PM	8	22	0	30	6	38	6	50	0	24	3	27	2	24	0	26	133
Total Volume	35	91	5	131	14	105	26	145	0	97	8	105	10	86	0	96	477
% App. Total	26.7	69.5	3.8		9.7	72.4	17.9		0	92.4	7.6		10.4	89.6	0		
PHF	.583	.711	.417	.780	.583	.691	.929	.725	.000	.758	.667	.750	.625	.717	.000	.750	.883
Cars	33	82	5	120	13	104	25	142	0	94	7	101	10	84	0	94	457
% Cars	94.3	90.1	100	91.6	92.9	99.0	96.2	97.9	0	96.9	87.5	96.2	100	97.7	0	97.9	95.8
Trucks	2	9	0	11	1	1	1	3	0	3	1	4	0	2	0	2	20
% Trucks	5.7	9.9	0	8.4	7.1	1.0	3.8	2.1	0	3.1	12.5	3.8	0	2.3	0	2.1	4.2



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

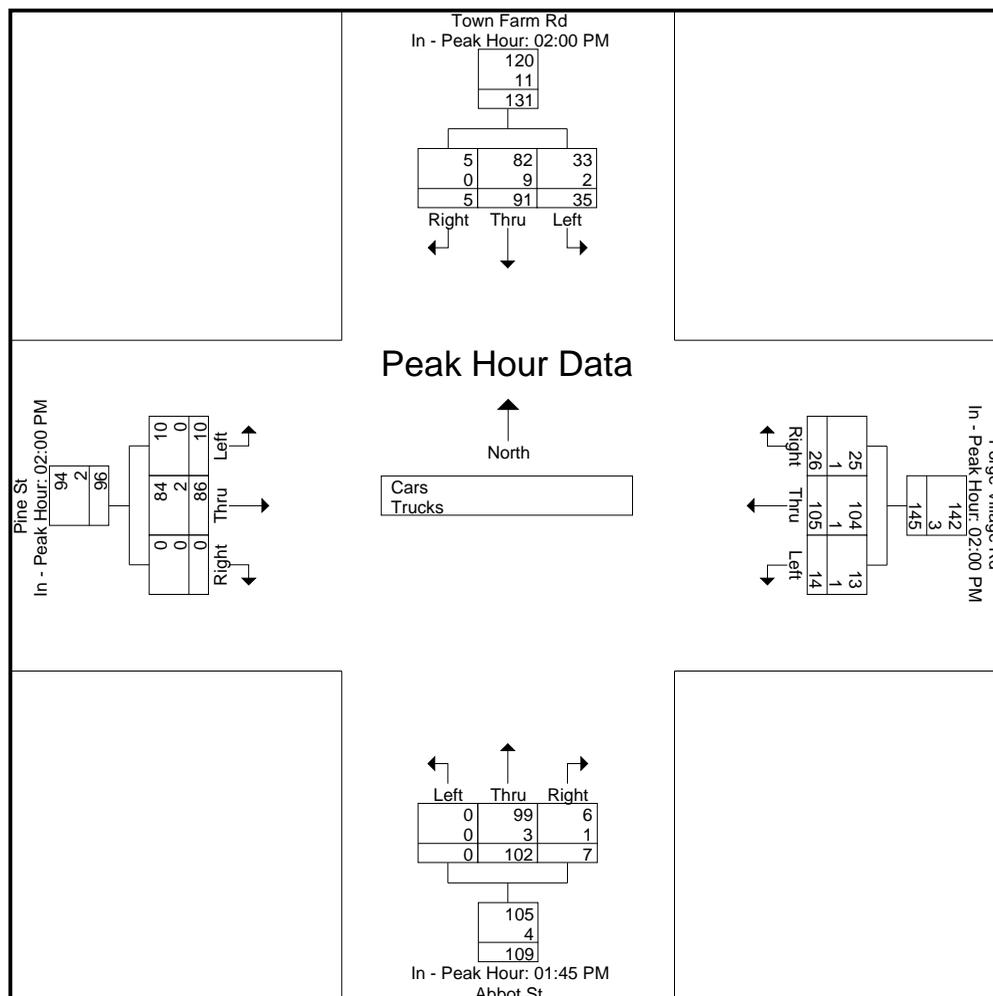
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 3

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 01:00 PM to 02:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				01:45 PM				02:00 PM			
+0 mins.	9	32	1	42	4	21	7	32	0	29	2	31	2	24	0	26
+15 mins.	3	20	1	24	2	19	7	28	0	32	3	35	4	8	0	12
+30 mins.	15	17	3	35	2	27	6	35	0	22	1	23	2	30	0	32
+45 mins.	8	22	0	30	6	38	6	50	0	19	1	20	2	24	0	26
Total Volume	35	91	5	131	14	105	26	145	0	102	7	109	10	86	0	96
% App. Total	26.7	69.5	3.8		9.7	72.4	17.9		0	93.6	6.4		10.4	89.6	0	
PHF	.583	.711	.417	.780	.583	.691	.929	.725	.000	.797	.583	.779	.625	.717	.000	.750
Cars	33	82	5	120	13	104	25	142	0	99	6	105	10	84	0	94
% Cars	94.3	90.1	100	91.6	92.9	99	96.2	97.9	0	97.1	85.7	96.3	100	97.7	0	97.9
Trucks	2	9	0	11	1	1	1	3	0	3	1	4	0	2	0	2
% Trucks	5.7	9.9	0	8.4	7.1	1	3.8	2.1	0	2.9	14.3	3.7	0	2.3	0	2.1



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 4

Groups Printed- Cars

Start Time	Town Farm Rd From North			Forge Village Rd From East			Abbot St From South			Pine St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
01:00 PM	2	11	0	2	18	3	0	12	2	0	14	0	64
01:15 PM	2	14	3	2	22	2	0	10	0	3	7	0	65
01:30 PM	13	10	1	1	22	6	0	14	1	2	11	0	81
01:45 PM	4	17	2	0	13	3	0	29	2	1	14	0	85
Total	21	52	6	5	75	14	0	65	5	6	46	0	295
02:00 PM	7	25	1	4	21	7	0	30	2	2	24	0	123
02:15 PM	3	18	1	2	19	7	0	21	1	4	8	0	84
02:30 PM	15	17	3	2	27	6	0	19	1	2	30	0	122
02:45 PM	8	22	0	5	37	5	0	24	3	2	22	0	128
Total	33	82	5	13	104	25	0	94	7	10	84	0	457
Grand Total	54	134	11	18	179	39	0	159	12	16	130	0	752
Apprch %	27.1	67.3	5.5	7.6	75.8	16.5	0	93	7	11	89	0	
Total %	7.2	17.8	1.5	2.4	23.8	5.2	0	21.1	1.6	2.1	17.3	0	

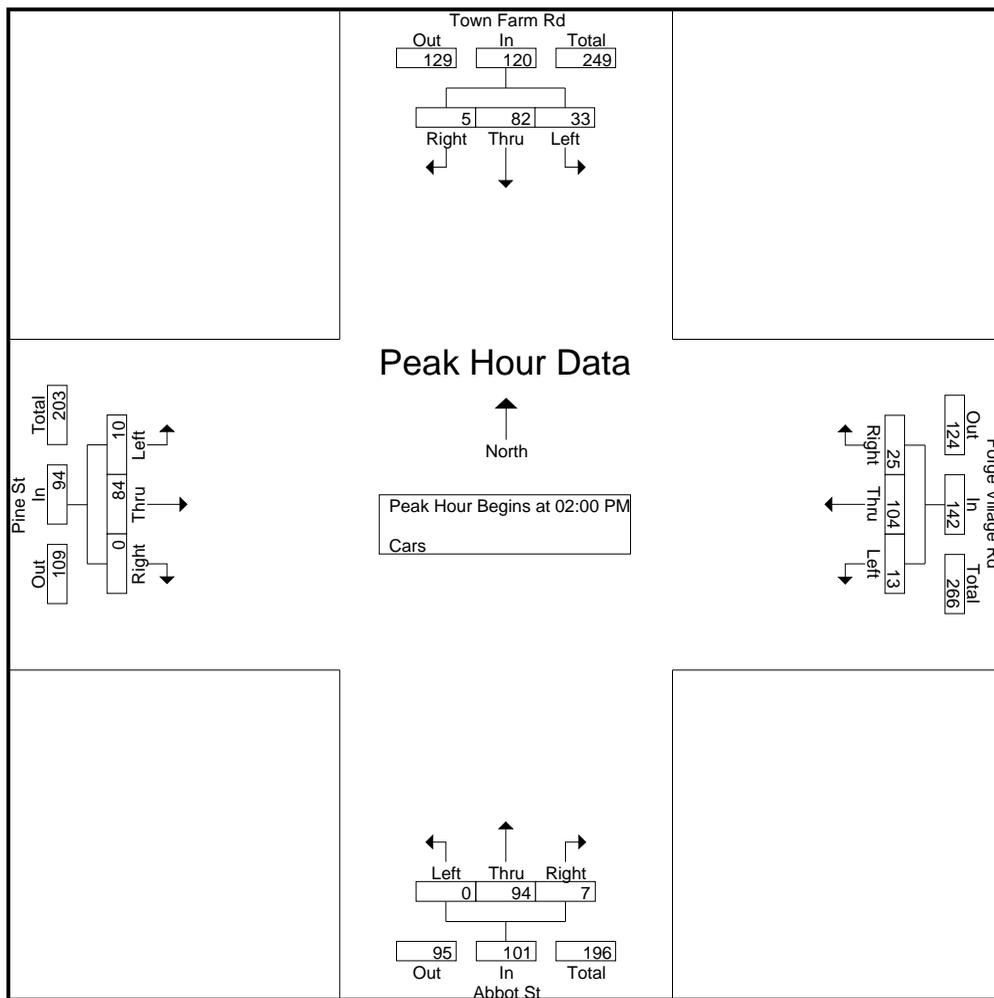
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 5

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	7	25	1	33	4	21	7	32	0	30	2	32	2	24	0	26	123
02:15 PM	3	18	1	22	2	19	7	28	0	21	1	22	4	8	0	12	84
02:30 PM	15	17	3	35	2	27	6	35	0	19	1	20	2	30	0	32	122
02:45 PM	8	22	0	30	5	37	5	47	0	24	3	27	2	22	0	24	128
Total Volume	33	82	5	120	13	104	25	142	0	94	7	101	10	84	0	94	457
% App. Total	27.5	68.3	4.2		9.2	73.2	17.6		0	93.1	6.9		10.6	89.4	0		
PHF	.550	.820	.417	.857	.650	.703	.893	.755	.000	.783	.583	.789	.625	.700	.000	.734	.893



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

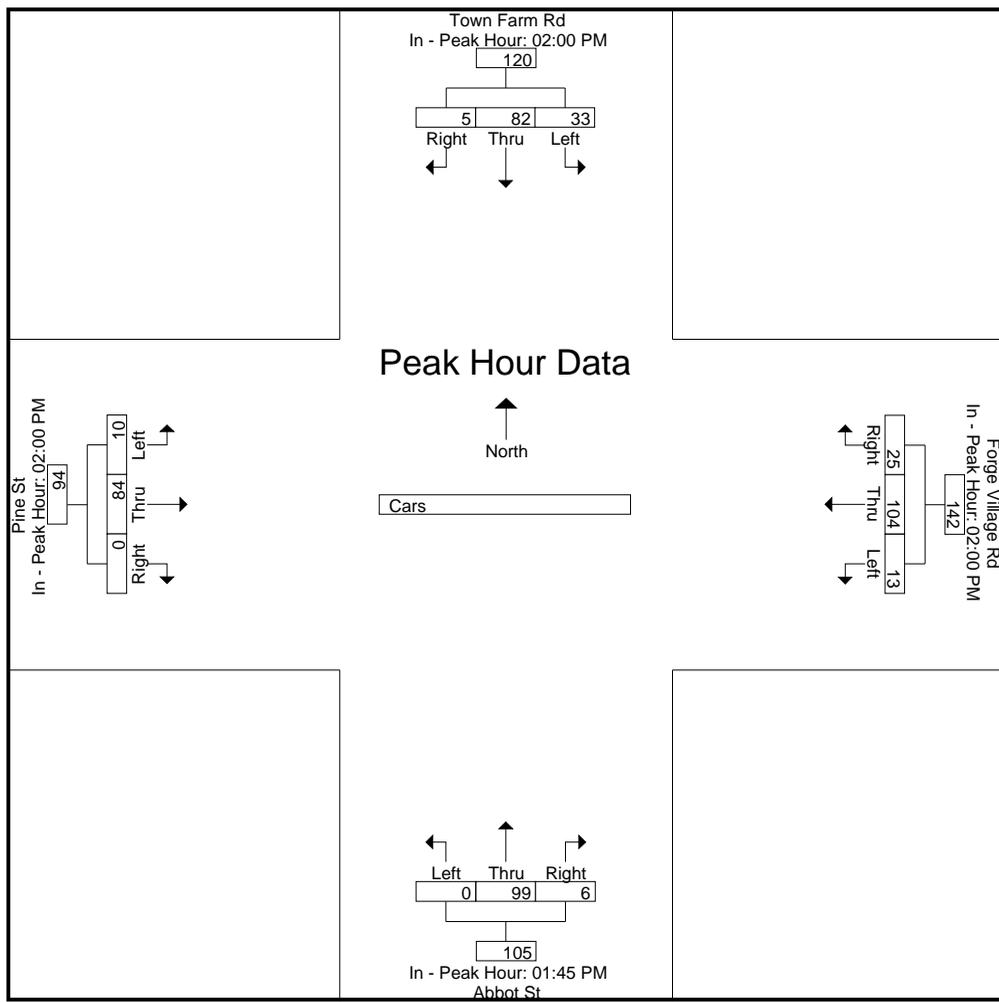
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 6

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 01:00 PM to 02:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				01:45 PM				02:00 PM			
+0 mins.	7	25	1	33	4	21	7	32	0	29	2	31	2	24	0	26
+15 mins.	3	18	1	22	2	19	7	28	0	30	2	32	4	8	0	12
+30 mins.	15	17	3	35	2	27	6	35	0	21	1	22	2	30	0	32
+45 mins.	8	22	0	30	5	37	5	47	0	19	1	20	2	22	0	24
Total Volume	33	82	5	120	13	104	25	142	0	99	6	105	10	84	0	94
% App. Total	27.5	68.3	4.2		9.2	73.2	17.6		0	94.3	5.7		10.6	89.4	0	
PHF	.550	.820	.417	.857	.650	.703	.893	.755	.000	.825	.750	.820	.625	.700	.000	.734



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Town Farm Rd From North			Forge Village Rd From East			Abbot St From South			Pine St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
01:00 PM	1	0	0	0	0	0	0	1	0	0	0	0	2
01:15 PM	0	2	0	0	0	1	0	1	0	0	0	0	4
01:30 PM	1	1	0	0	0	0	0	0	0	0	0	0	2
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	3	0	0	0	1	0	2	0	0	0	0	8
02:00 PM	2	7	0	0	0	0	0	2	1	0	0	0	12
02:15 PM	0	2	0	0	0	0	0	1	0	0	0	0	3
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	1	1	1	0	0	0	0	2	0	5
Total	2	9	0	1	1	1	0	3	1	0	2	0	20
Grand Total	4	12	0	1	1	2	0	5	1	0	2	0	28
Apprch %	25	75	0	25	25	50	0	83.3	16.7	0	100	0	
Total %	14.3	42.9	0	3.6	3.6	7.1	0	17.9	3.6	0	7.1	0	

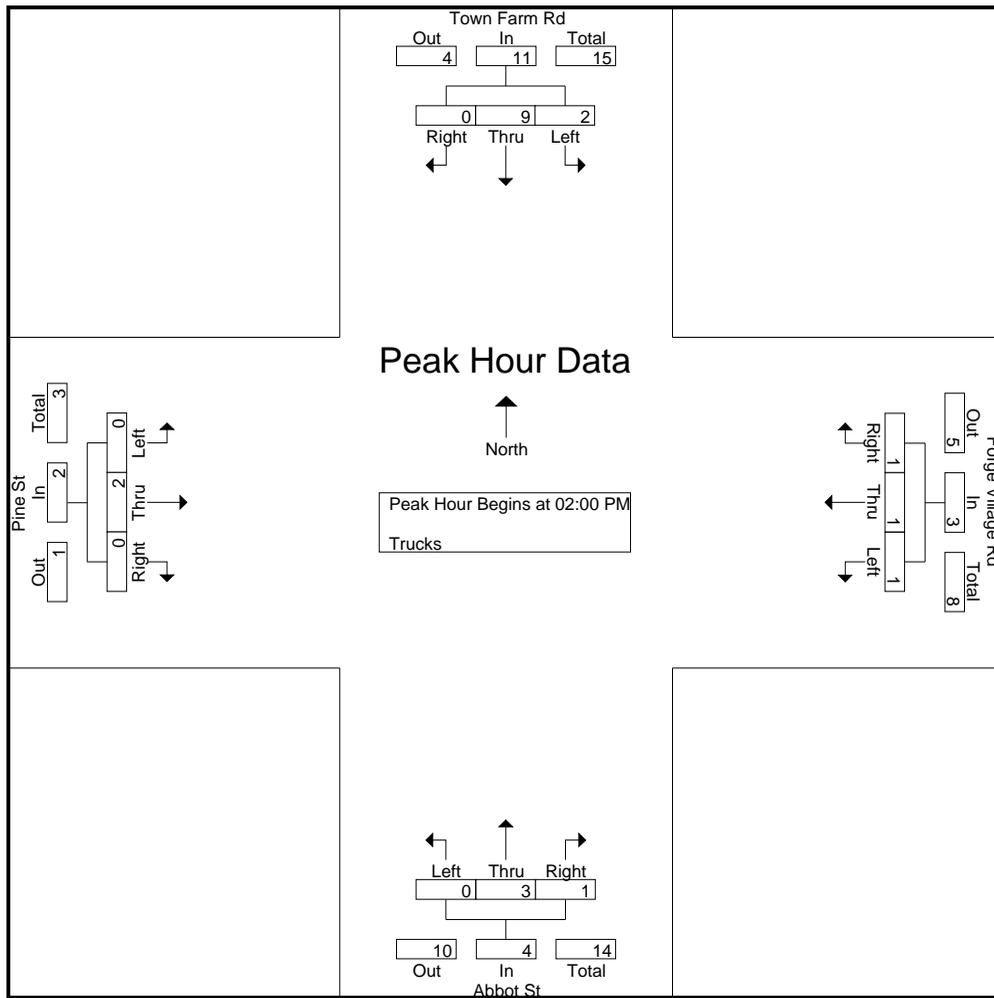
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 8

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	2	7	0	9	0	0	0	0	0	2	1	3	0	0	0	0	12
02:15 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	1	1	1	3	0	0	0	0	0	2	0	2	5
Total Volume	2	9	0	11	1	1	1	3	0	3	1	4	0	2	0	2	20
% App. Total	18.2	81.8	0		33.3	33.3	33.3		0	75	25		0	100	0		
PHF	.250	.321	.000	.306	.250	.250	.250	.250	.000	.375	.250	.333	.000	.250	.000	.250	.417



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

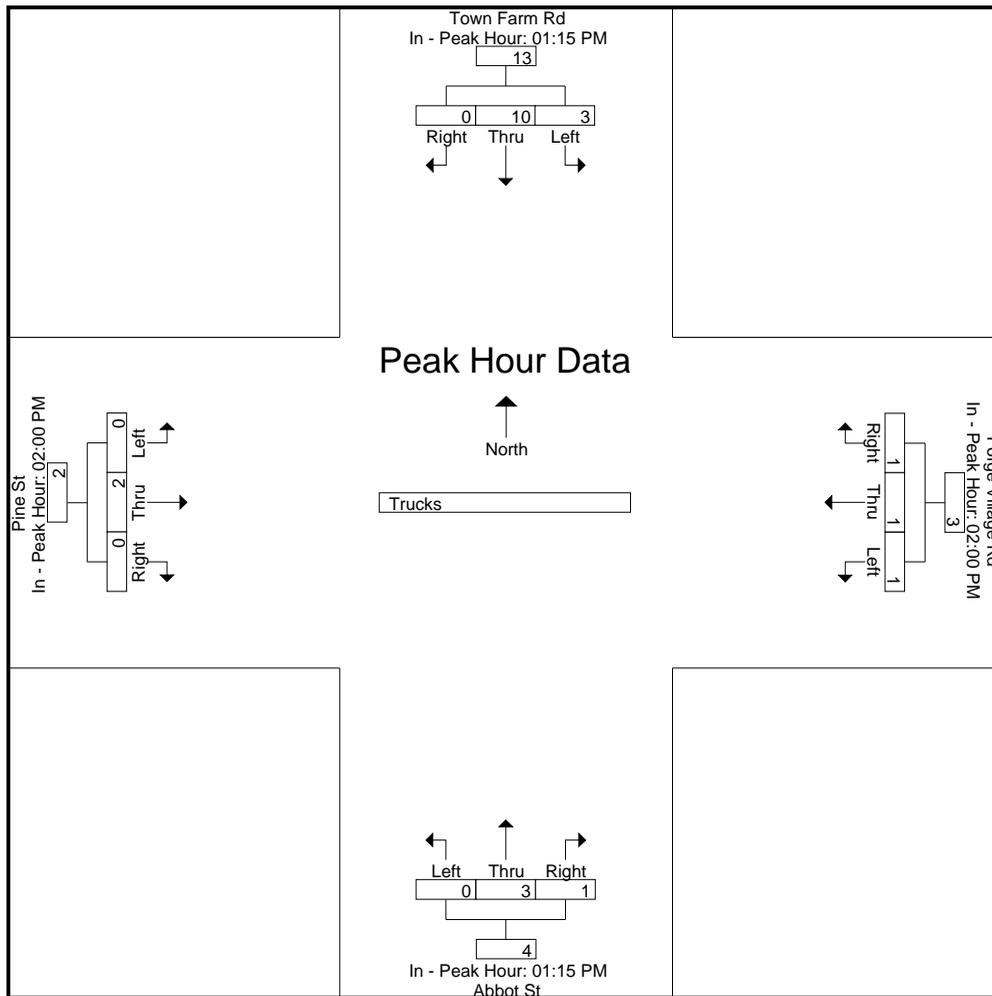
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 9

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 01:00 PM to 02:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	01:15 PM				02:00 PM				01:15 PM				02:00 PM			
+0 mins.	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0
+15 mins.	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	2	7	0	9	1	1	1	3	0	2	1	3	0	2	0	2
Total Volume	3	10	0	13	1	1	1	3	0	3	1	4	0	2	0	2
% App. Total	23.1	76.9	0		33.3	33.3	33.3		0	75	25		0	100	0	
PHF	.375	.357	.000	.361	.250	.250	.250	.250	.000	.375	.250	.333	.000	.250	.000	.250



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 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
02:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
02:45 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	1	1	0	0	0	0	0	0	0	0	1	1	2
Grand Total	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
Apprch %	0	0	0		0	0	100		0	0	0		0	0	0				
Total %	0	0	0		0	0	100		0	0	0		0	0	0		50	50	

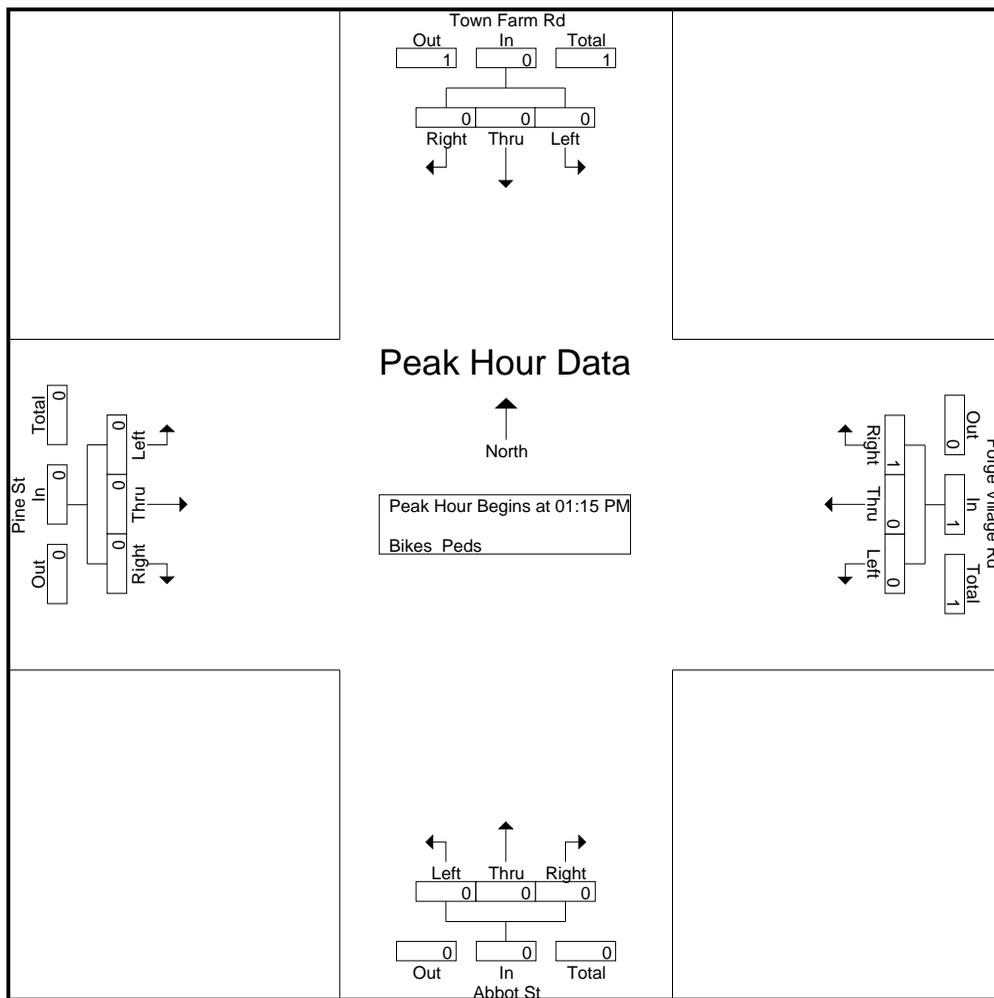
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 11

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:15 PM																	
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0		0	0	100		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

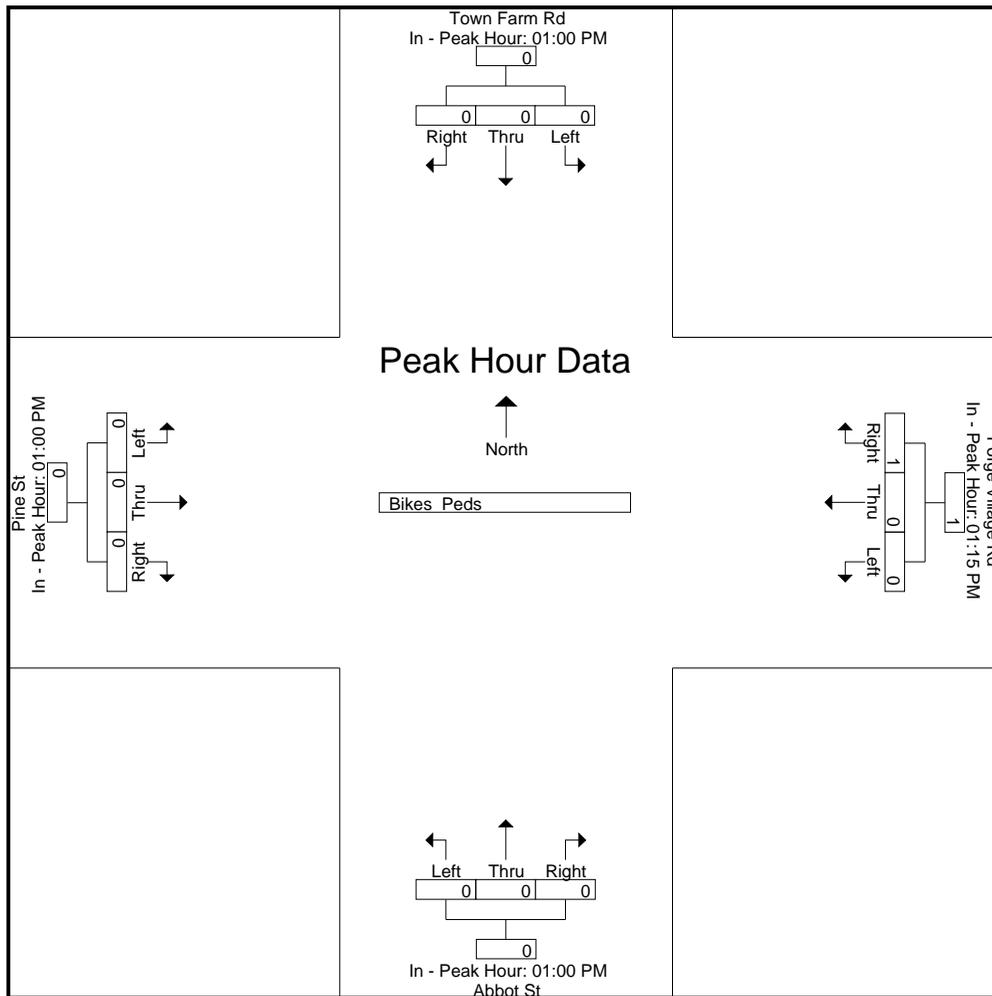
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 12

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 01:00 PM to 02:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	01:00 PM				01:15 PM				01:00 PM				01:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

File Name : 1768B001

Site Code : 1768B001

Start Date : 5/31/2017

Page No : 2

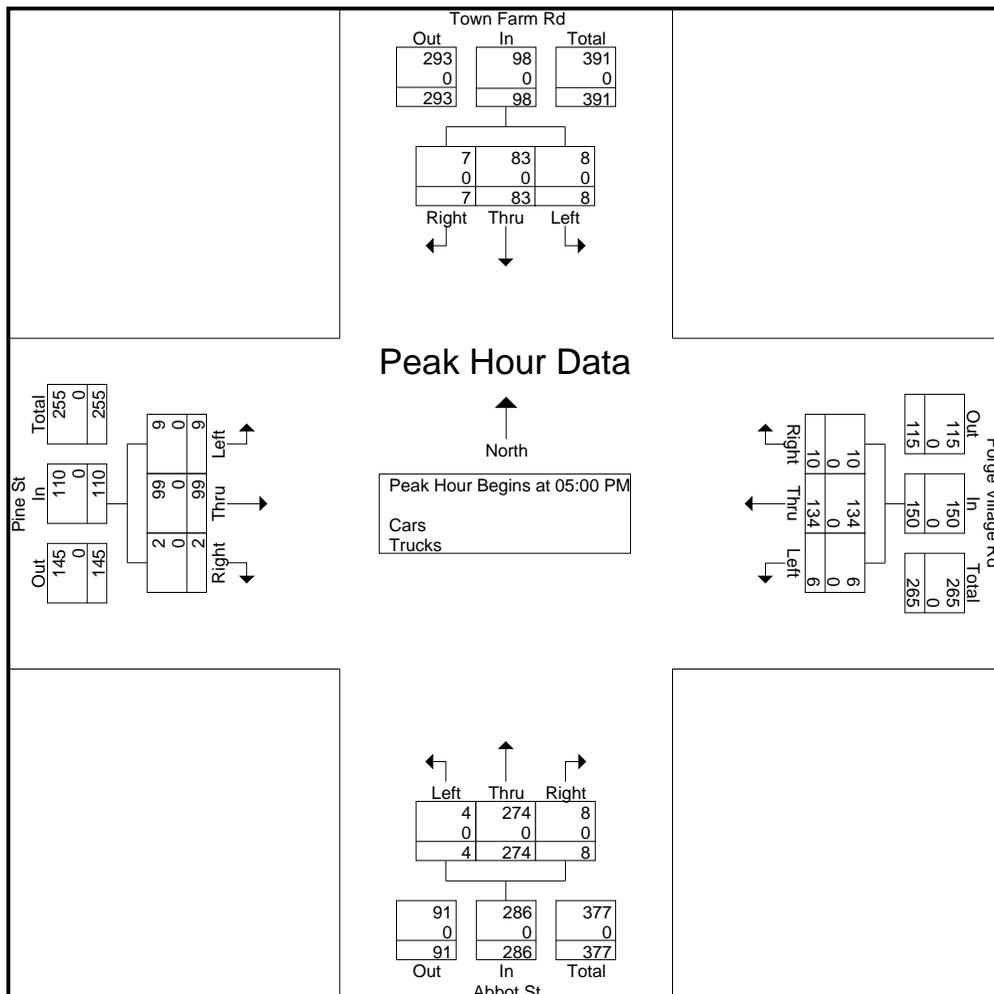
N/S Street : Town Farm Rd / Abbot St

E/W Street : Forge Village Rd / Pine St

City/State : Westford, MA

Weather : Cloudy

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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	2	20	1	23	1	35	3	39	0	66	2	68	0	19	0	19	149
05:15 PM	3	17	0	20	2	20	3	25	1	70	1	72	2	27	1	30	147
05:30 PM	3	22	4	29	1	41	2	44	2	67	5	74	6	25	0	31	178
05:45 PM	0	24	2	26	2	38	2	42	1	71	0	72	1	28	1	30	170
Total Volume	8	83	7	98	6	134	10	150	4	274	8	286	9	99	2	110	644
% App. Total	8.2	84.7	7.1		4	89.3	6.7		1.4	95.8	2.8		8.2	90	1.8		
PHF	.667	.865	.438	.845	.750	.817	.833	.852	.500	.965	.400	.966	.375	.884	.500	.887	.904
Cars	8	83	7	98	6	134	10	150	4	274	8	286	9	99	2	110	644
% Cars	100	100	100	100	100	100	100	100	100	100	100	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 : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

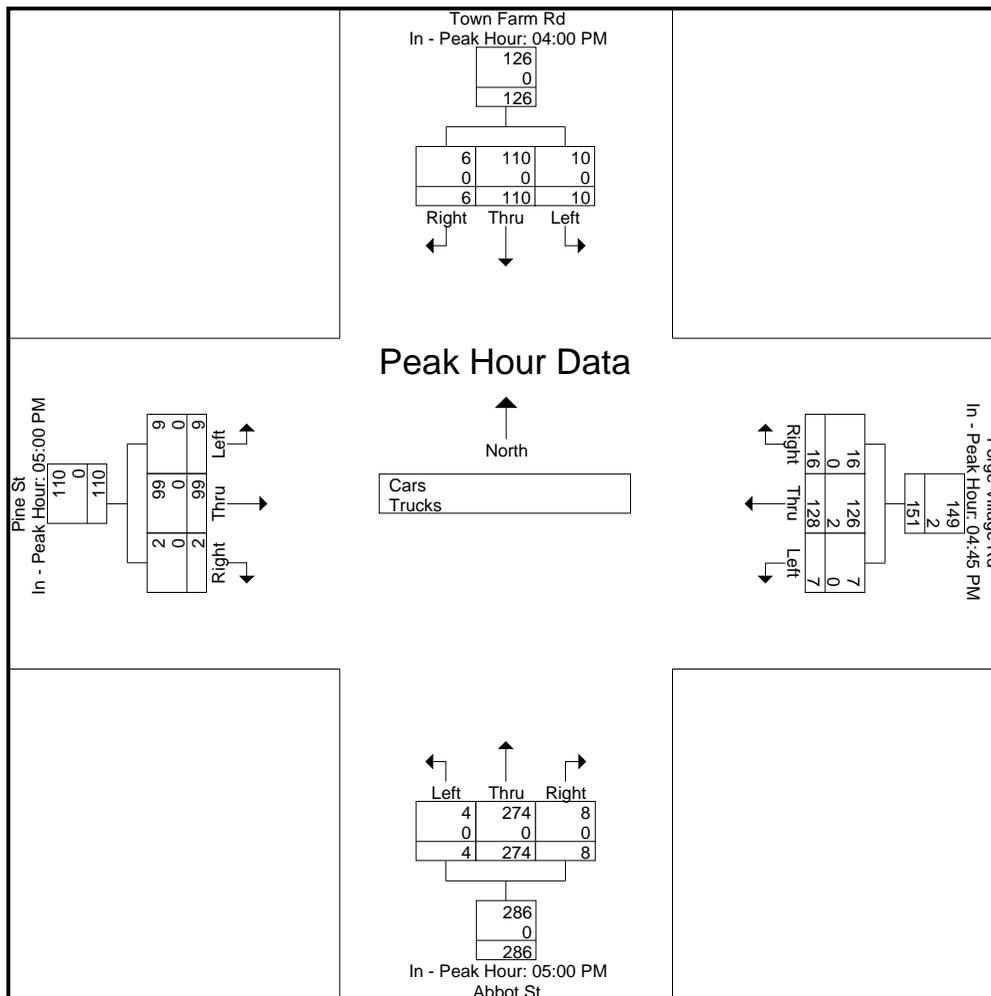
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 3

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 Each Approach Begins at:

	04:00 PM				04:45 PM				05:00 PM				05:00 PM			
+0 mins.	2	35	3	40	3	32	8	43	0	66	2	68	0	19	0	19
+15 mins.	3	39	0	42	1	35	3	39	1	70	1	72	2	27	1	30
+30 mins.	2	21	2	25	2	20	3	25	2	67	5	74	6	25	0	31
+45 mins.	3	15	1	19	1	41	2	44	1	71	0	72	1	28	1	30
Total Volume	10	110	6	126	7	128	16	151	4	274	8	286	9	99	2	110
% App. Total	7.9	87.3	4.8		4.6	84.8	10.6		1.4	95.8	2.8		8.2	90	1.8	
PHF	.833	.705	.500	.750	.583	.780	.500	.858	.500	.965	.400	.966	.375	.884	.500	.887
Cars	10	110	6	126	7	126	16	149	4	274	8	286	9	99	2	110
% Cars	100	100	100	100	100	98.4	100	98.7	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	1.6	0	1.3	0	0	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 4

Groups Printed- Cars

Start Time	Town Farm Rd From North			Forge Village Rd From East			Abbot St From South			Pine St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	2	35	3	2	30	4	0	50	3	1	20	0	150
04:15 PM	3	39	0	1	28	2	1	39	4	1	20	1	139
04:30 PM	2	21	2	2	18	2	1	39	4	1	17	0	109
04:45 PM	3	15	1	3	30	8	0	51	1	0	15	0	127
Total	10	110	6	8	106	16	2	179	12	3	72	1	525
05:00 PM	2	20	1	1	35	3	0	66	2	0	19	0	149
05:15 PM	3	17	0	2	20	3	1	70	1	2	27	1	147
05:30 PM	3	22	4	1	41	2	2	67	5	6	25	0	178
05:45 PM	0	24	2	2	38	2	1	71	0	1	28	1	170
Total	8	83	7	6	134	10	4	274	8	9	99	2	644
Grand Total	18	193	13	14	240	26	6	453	20	12	171	3	1169
Apprch %	8	86.2	5.8	5	85.7	9.3	1.3	94.6	4.2	6.5	91.9	1.6	
Total %	1.5	16.5	1.1	1.2	20.5	2.2	0.5	38.8	1.7	1	14.6	0.3	

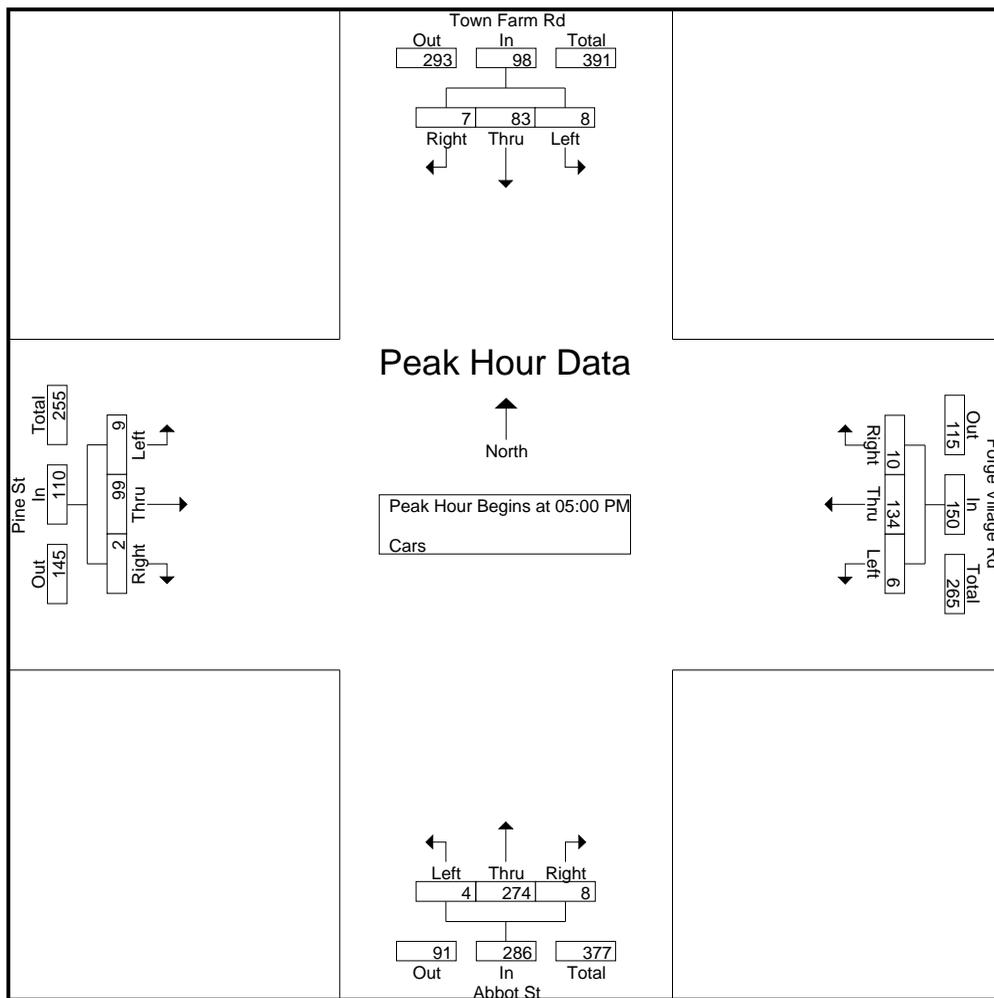
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 5

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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	2	20	1	23	1	35	3	39	0	66	2	68	0	19	0	19	149
05:15 PM	3	17	0	20	2	20	3	25	1	70	1	72	2	27	1	30	147
05:30 PM	3	22	4	29	1	41	2	44	2	67	5	74	6	25	0	31	178
05:45 PM	0	24	2	26	2	38	2	42	1	71	0	72	1	28	1	30	170
Total Volume	8	83	7	98	6	134	10	150	4	274	8	286	9	99	2	110	644
% App. Total	8.2	84.7	7.1		4	89.3	6.7		1.4	95.8	2.8		8.2	90	1.8		
PHF	.667	.865	.438	.845	.750	.817	.833	.852	.500	.965	.400	.966	.375	.884	.500	.887	.904



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

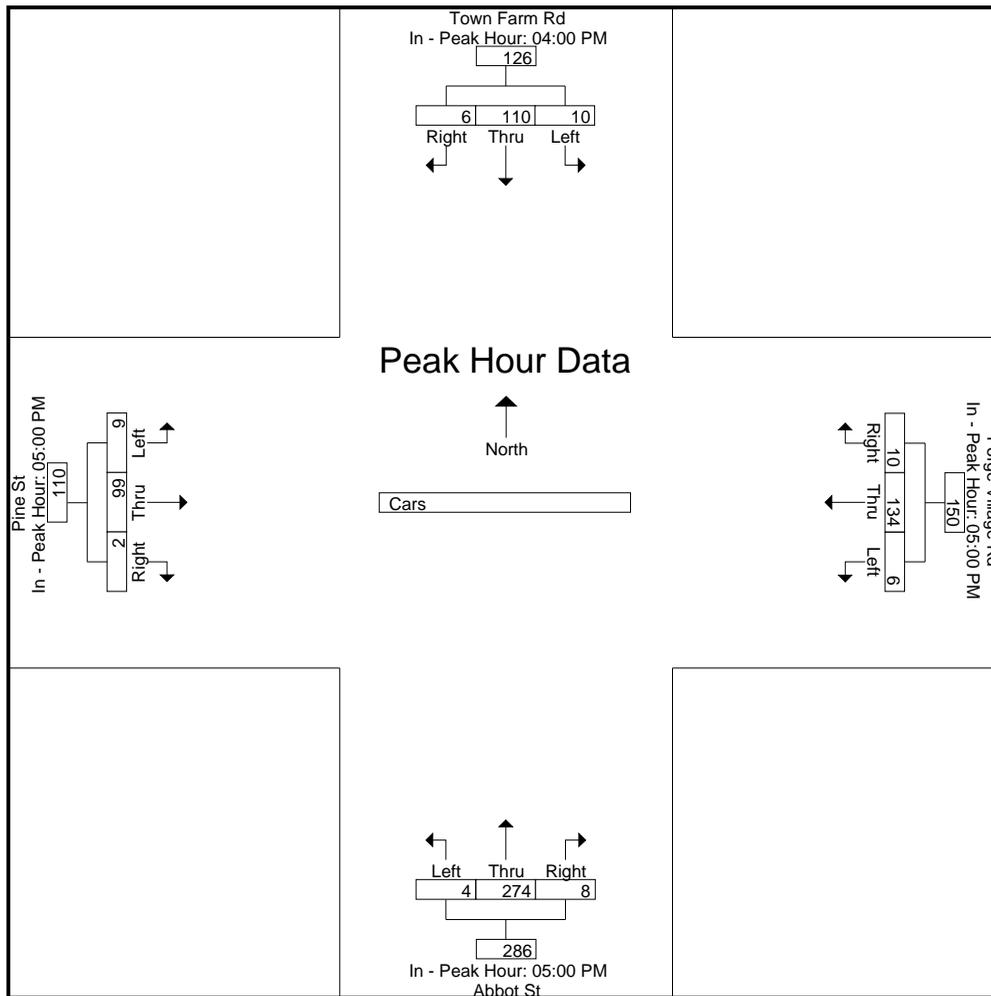
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 6

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 Each Approach Begins at:

	04:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	2	35	3	40	1	35	3	39	0	66	2	68	0	19	0	19
+15 mins.	3	39	0	42	2	20	3	25	1	70	1	72	2	27	1	30
+30 mins.	2	21	2	25	1	41	2	44	2	67	5	74	6	25	0	31
+45 mins.	3	15	1	19	2	38	2	42	1	71	0	72	1	28	1	30
Total Volume	10	110	6	126	6	134	10	150	4	274	8	286	9	99	2	110
% App. Total	7.9	87.3	4.8		4	89.3	6.7		1.4	95.8	2.8		8.2	90	1.8	
PHF	.833	.705	.500	.750	.750	.817	.833	.852	.500	.965	.400	.966	.375	.884	.500	.887



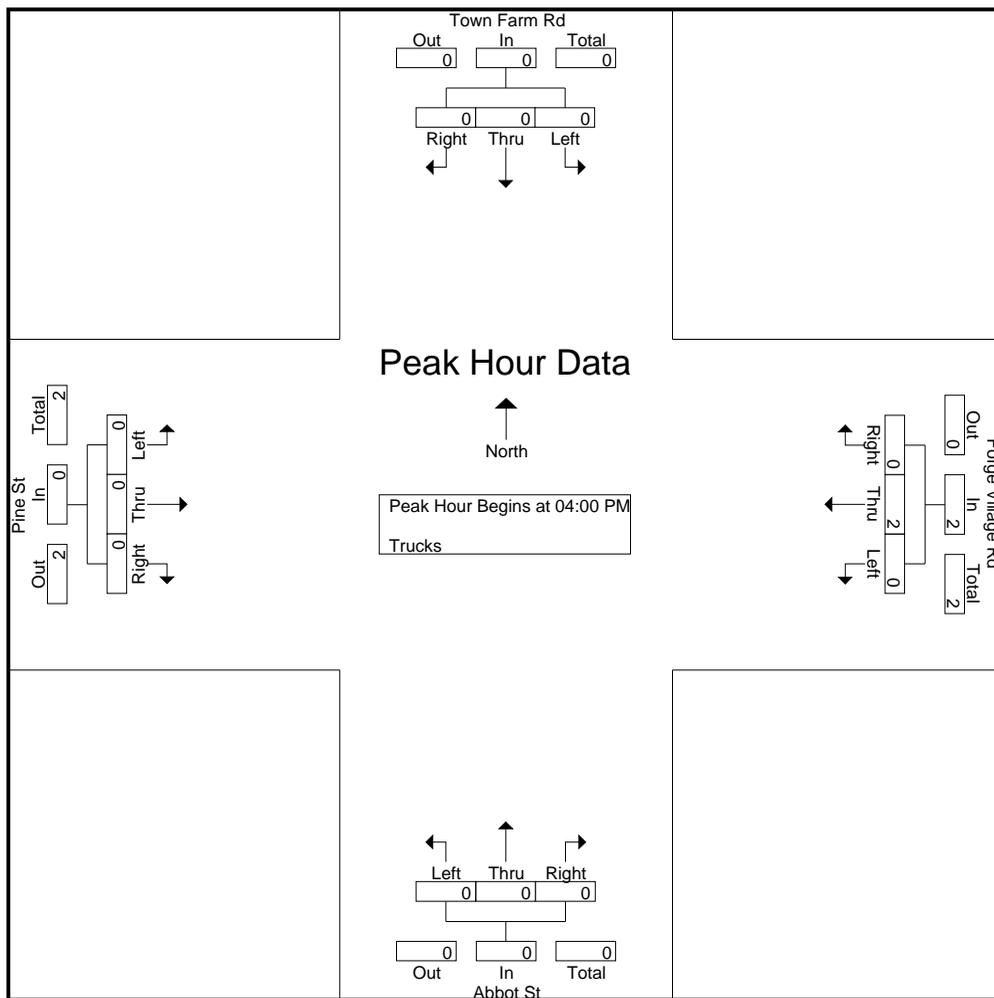
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 8

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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
04:15 PM	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
04:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
% App. Total	0	0	0	0	0	100	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

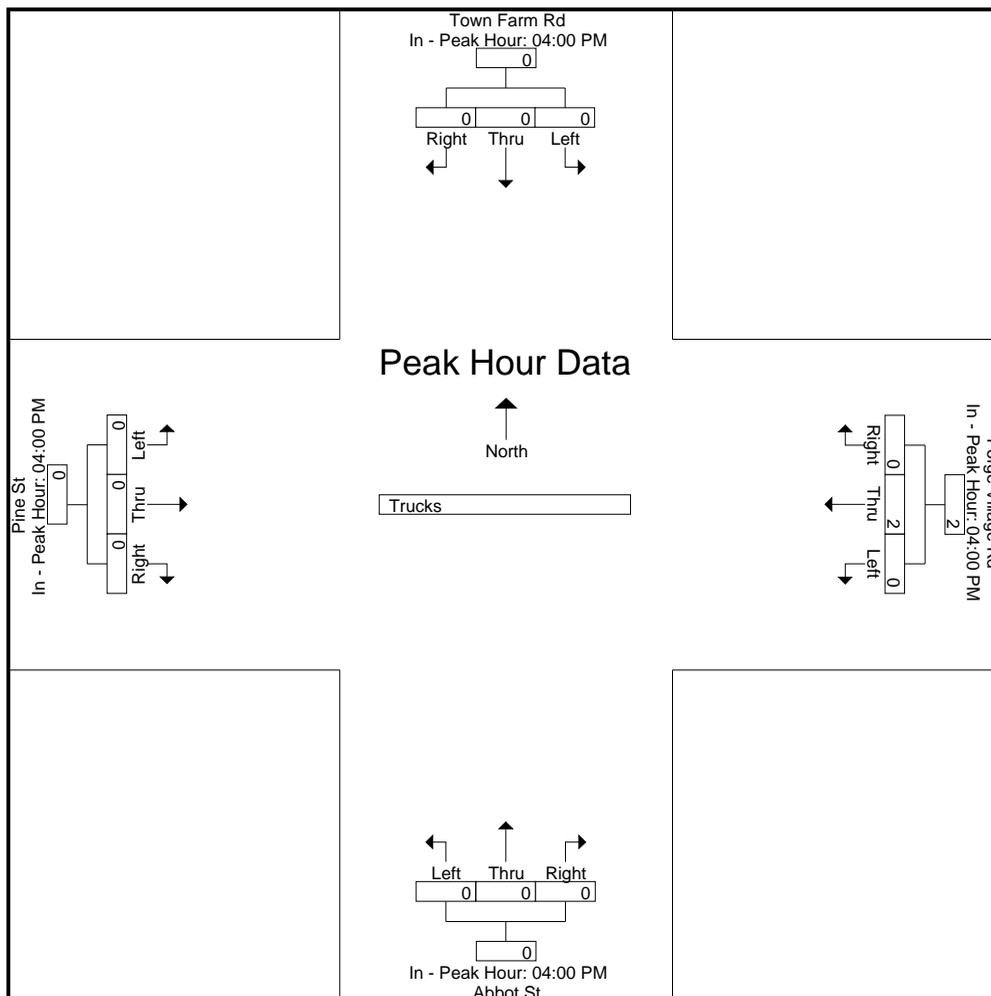
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 9

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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	3	0	0	0	0	3	0	3
04:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	4	4
04:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2	2	4
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	4	4
Total	0	1	0	0	0	1	0	0	0	1	0	4	0	5	2	1	5	10	15
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
05:15 PM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2
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	1	0	0	0	0	0	0	0	1	2	0	0	0	2	4	2	6
Grand Total	0	1	1	0	0	1	0	0	0	1	1	6	0	5	2	3	9	12	21
Apprch %	0	50	50		0	100	0		0	50	50		0	71.4	28.6				
Total %	0	8.3	8.3		0	8.3	0		0	8.3	8.3		0	41.7	16.7		42.9	57.1	

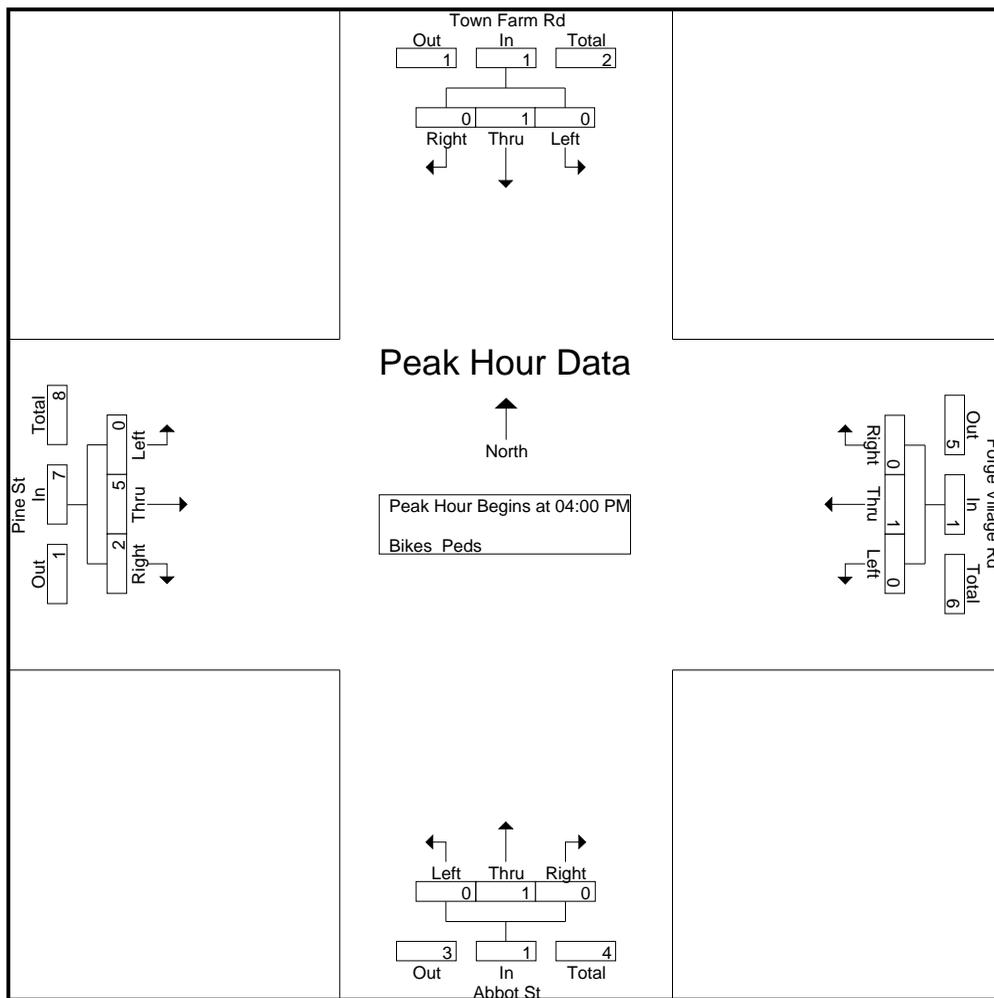
Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 11

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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
04:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	2	0	2	4
04:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4	4
Total Volume	0	1	0	1	0	1	0	1	0	1	0	1	0	5	2	7	10
% App. Total	0	100	0		0	100	0		0	100	0		0	71.4	28.6		
PHF	.000	.250	.000	.250	.000	.250	.000	.250	.000	.250	.000	.250	.000	.625	.250	.438	.625



Accurate Counts

978-664-2565

N/S Street : Town Farm Rd / Abbot St
 E/W Street : Forge Village Rd / Pine St
 City/State : Westford, MA
 Weather : Cloudy

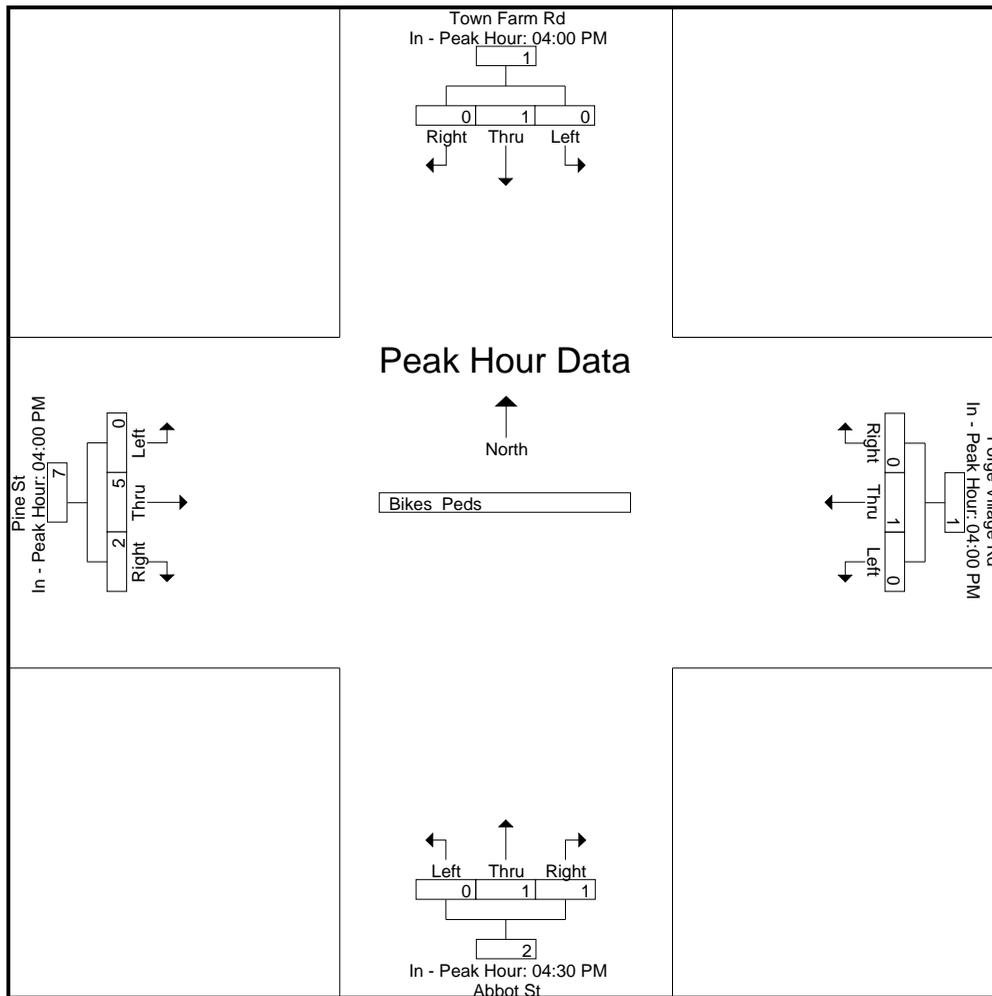
File Name : 1768B001
 Site Code : 1768B001
 Start Date : 5/31/2017
 Page No : 12

Start Time	Town Farm Rd From North				Forge Village Rd From East				Abbot St From South				Pine St 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 Each Approach Begins at:

	04:00 PM				04:00 PM				04:30 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+15 mins.	0	1	0	1	0	1	0	1	0	0	0	0	0	2	0	2
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2	4
Total Volume	0	1	0	1	0	1	0	1	0	1	1	2	0	5	2	7
% App. Total	0	100	0		0	100	0		0	50	50		0	71.4	28.6	
PHF	.000	.250	.000	.250	.000	.250	.000	.250	.000	.250	.250	.500	.000	.625	.250	.438



Appendix D. Automatic Traffic Recorders (ATR)

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BVL1

Start Time	5/31/2017 Wed	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		5	17			1	19				
12:15		1	21			1	26				
12:30		0	20			0	26				
12:45		3	22	9	80	1	16	3	87	12	167
01:00		1	23			0	19				
01:15		2	26			0	9				
01:30		0	32			1	26				
01:45		2	17	5	98	1	19	2	73	7	171
02:00		1	32			0	37				
02:15		0	31			0	13				
02:30		0	36			0	46				
02:45		0	50	1	149	0	35	0	131	1	280
03:00		1	28			0	24				
03:15		0	36			0	22				
03:30		0	38			0	35				
03:45		0	40	1	142	0	33	0	114	1	256
04:00		0	36			1	25				
04:15		2	33			2	28				
04:30		2	22			4	23				
04:45		1	45	5	136	6	20	13	96	18	232
05:00		2	42			6	24				
05:15		13	27			4	33				
05:30		4	44			14	31				
05:45		10	43	29	156	11	30	35	118	64	274
06:00		9	39			20	33				
06:15		8	29			23	21				
06:30		18	33			38	19				
06:45		11	38	46	139	46	23	127	96	173	235
07:00		31	37			61	30				
07:15		27	26			62	24				
07:30		25	13			73	24				
07:45		31	25	114	101	51	14	247	92	361	193
08:00		24	19			45	16				
08:15		24	28			47	30				
08:30		20	17			53	23				
08:45		25	15	93	79	34	7	179	76	272	155
09:00		18	13			25	6				
09:15		18	10			33	8				
09:30		13	13			30	1				
09:45		19	10	68	46	22	3	110	18	178	64
10:00		19	6			21	1				
10:15		21	9			28	4				
10:30		15	4			23	3				
10:45		22	4	77	23	26	2	98	10	175	33
11:00		18	5			24	1				
11:15		26	5			19	2				
11:30		22	5			21	2				
11:45		18	6	84	21	17	4	81	9	165	30
Total		532	1170			895	920			1427	2090
Percent		31.3%	68.7%			49.3%	50.7%			40.6%	59.4%

Accurate Counts

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

978-664-2565

1768BVL1

Start Time	6/1/2017 Thu	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		3	25			0	20				
12:15		2	23			1	26				
12:30		2	28			3	17				
12:45		0	25	7	101	1	28	5	91	12	192
01:00		1	22			0	30				
01:15		0	26			1	22				
01:30		2	25			0	22				
01:45		2	23	5	96	0	33	1	107	6	203
02:00		1	33			0	41				
02:15		0	38			1	19				
02:30		0	39			0	32				
02:45		0	37	1	147	0	34	1	126	2	273
03:00		0	29			1	26				
03:15		0	40			0	26				
03:30		0	34			1	28				
03:45		1	43	1	146	0	32	2	112	3	258
04:00		0	30			1	30				
04:15		2	26			1	18				
04:30		2	36			3	28				
04:45		0	26	4	118	5	34	10	110	14	228
05:00		2	35			12	37				
05:15		5	37			8	26				
05:30		6	35			8	17				
05:45		11	55	24	162	16	20	44	100	68	262
06:00		5	45			15	24				
06:15		10	39			33	15				
06:30		10	36			30	20				
06:45		17	33	42	153	36	18	114	77	156	230
07:00		15	23			54	16				
07:15		25	31			67	15				
07:30		29	27			51	19				
07:45		25	24	94	105	53	14	225	64	319	169
08:00		27	27			55	21				
08:15		22	20			48	30				
08:30		29	22			43	17				
08:45		19	12	97	81	45	29	191	97	288	178
09:00		17	20			27	9				
09:15		19	10			25	10				
09:30		16	10			27	13				
09:45		23	5	75	45	38	5	117	37	192	82
10:00		23	4			19	4				
10:15		14	6			31	4				
10:30		10	6			31	6				
10:45		21	3	68	19	23	5	104	19	172	38
11:00		23	4			28	0				
11:15		22	6			31	2				
11:30		22	2			16	1				
11:45		31	3	98	15	17	2	92	5	190	20
Total		516	1188			906	945			1422	2133
Percent		30.3%	69.7%			48.9%	51.1%			40.0%	60.0%
Grand Total		1048	2358			1801	1865			2849	4223
Percent		30.8%	69.2%			49.1%	50.9%			40.3%	59.7%

ADT ADT 3,536 AADT 3,536

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BVL1

Start Time	5/29/2017		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	*	*	9	3	7	5	*	*	*	*	*	*	8	4
01:00	*	*	*	*	5	2	5	1	*	*	*	*	*	*	5	2
02:00	*	*	*	*	1	0	1	1	*	*	*	*	*	*	1	0
03:00	*	*	*	*	1	0	1	2	*	*	*	*	*	*	1	1
04:00	*	*	*	*	5	13	4	10	*	*	*	*	*	*	4	12
05:00	*	*	*	*	29	35	24	44	*	*	*	*	*	*	26	40
06:00	*	*	*	*	46	127	42	114	*	*	*	*	*	*	44	120
07:00	*	*	*	*	114	247	94	225	*	*	*	*	*	*	104	236
08:00	*	*	*	*	93	179	97	191	*	*	*	*	*	*	95	185
09:00	*	*	*	*	68	110	75	117	*	*	*	*	*	*	72	114
10:00	*	*	*	*	77	98	68	104	*	*	*	*	*	*	72	101
11:00	*	*	*	*	84	81	98	92	*	*	*	*	*	*	91	86
12:00 PM	*	*	*	*	80	87	101	91	*	*	*	*	*	*	90	89
01:00	*	*	*	*	98	73	96	107	*	*	*	*	*	*	97	90
02:00	*	*	*	*	149	131	147	126	*	*	*	*	*	*	148	128
03:00	*	*	*	*	142	114	146	112	*	*	*	*	*	*	144	113
04:00	*	*	*	*	136	96	118	110	*	*	*	*	*	*	127	103
05:00	*	*	*	*	156	118	162	100	*	*	*	*	*	*	159	109
06:00	*	*	*	*	139	96	153	77	*	*	*	*	*	*	146	86
07:00	*	*	*	*	101	92	105	64	*	*	*	*	*	*	103	78
08:00	*	*	*	*	79	76	81	97	*	*	*	*	*	*	80	86
09:00	*	*	*	*	46	18	45	37	*	*	*	*	*	*	46	28
10:00	*	*	*	*	23	10	19	19	*	*	*	*	*	*	21	14
11:00	*	*	*	*	21	9	15	5	*	*	*	*	*	*	18	7
Lane	0	0	0	0	1702	1815	1704	1851	0	0	0	0	0	0	1702	1832
Day	0		0		3517		3555		0		0		0		3534	
AM Peak Vol.	-	-	-	-	07:00	07:00	11:00	07:00	-	-	-	-	-	-	07:00	07:00
PM Peak Vol.	-	-	-	-	17:00	14:00	17:00	14:00	-	-	-	-	-	-	17:00	14:00
Vol.	-	-	-	-	156	131	162	126	-	-	-	-	-	-	159	128

Comb. Total	0	0	3517	3555	0	0	0	3534
ADT	ADT 3,536	AADT 3,536						

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BCL1

WB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/31/17	0	9	0	0	0	0	0	0	0	0	0	0	0	9
01:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
02:00	0	0	0	0	0	1	0	0	0	0	0	0	0	1
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
05:00	1	24	0	0	0	1	0	1	0	0	0	0	0	27
06:00	4	32	9	0	0	0	0	1	0	0	0	0	0	46
07:00	14	69	21	4	2	1	0	1	0	0	0	0	0	112
08:00	10	58	14	2	4	2	0	0	0	0	0	0	0	90
09:00	4	41	12	5	4	0	0	0	1	0	0	0	0	67
10:00	5	49	16	0	6	0	0	0	0	0	0	0	0	76
11:00	2	63	13	1	5	0	0	0	0	0	0	0	0	84
12 PM	6	58	11	1	3	1	0	0	0	0	0	0	0	80
13:00	4	77	14	0	3	0	0	0	0	0	0	0	0	98
14:00	3	112	26	2	4	1	0	0	0	0	0	0	0	148
15:00	5	90	34	6	6	1	0	0	0	0	0	0	0	142
16:00	2	103	25	2	2	0	1	1	0	0	0	0	0	136
17:00	4	126	18	0	6	1	0	0	0	0	0	0	0	155
18:00	7	104	22	0	4	0	0	0	0	0	0	0	0	137
19:00	3	75	20	0	3	0	0	0	0	0	0	0	0	101
20:00	3	61	14	0	1	0	0	0	0	0	0	0	0	79
21:00	4	38	3	0	1	0	0	0	0	0	0	0	0	46
22:00	1	20	2	0	0	0	0	0	0	0	0	0	0	23
23:00	2	18	0	0	1	0	0	0	0	0	0	0	0	21
Day Total	84	1235	277	23	55	9	1	4	1	0	0	0	0	1689
Percent	5.0%	73.1%	16.4%	1.4%	3.3%	0.5%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	09:00	10:00	08:00		05:00	09:00					07:00
Vol.	14	69	21	5	6	2		1	1					112
PM Peak	18:00	17:00	15:00	15:00	15:00	12:00	16:00	16:00						17:00
Vol.	7	126	34	6	6	1	1	1						155

Accurate Counts

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1768BCL1

WB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/01/17	0	6	1	0	0	0	0	0	0	0	0	0	0	7
01:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
05:00	1	18	2	0	1	2	0	0	0	0	0	0	0	24
06:00	3	29	7	0	1	1	0	0	0	0	0	0	0	41
07:00	9	56	21	4	2	0	1	0	0	0	0	0	0	93
08:00	7	70	14	1	3	0	0	1	1	0	0	0	0	97
09:00	3	52	12	1	4	1	0	0	0	0	0	0	0	73
10:00	2	48	13	2	2	0	0	0	1	0	0	0	0	68
11:00	3	63	20	1	6	3	0	0	1	0	0	0	0	97
12 PM	2	76	17	0	4	1	0	0	0	0	0	0	0	100
13:00	5	68	15	0	5	3	0	0	0	0	0	0	0	96
14:00	6	99	34	3	1	3	0	0	0	0	0	0	0	146
15:00	10	100	24	6	2	1	0	0	0	0	0	0	0	143
16:00	2	94	17	1	2	0	0	1	0	0	0	0	0	117
17:00	2	125	30	0	5	0	0	0	0	0	0	0	0	162
18:00	4	119	24	0	6	0	0	0	0	0	0	0	0	153
19:00	8	83	11	0	0	0	0	2	0	0	0	0	0	104
20:00	6	66	7	0	1	1	0	0	0	0	0	0	0	81
21:00	0	43	2	0	0	0	0	0	0	0	0	0	0	45
22:00	0	14	5	0	0	0	0	0	0	0	0	0	0	19
23:00	0	13	0	0	2	0	0	0	0	0	0	0	0	15
Day Total	73	1252	277	19	47	16	1	4	3	0	0	0	0	1692
Percent	4.3%	74.0%	16.4%	1.1%	2.8%	0.9%	0.1%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	07:00	07:00	11:00	11:00	07:00	08:00	08:00					08:00
Vol.	9	70	21	4	6	3	1	1	1					97
PM Peak	15:00	17:00	14:00	15:00	18:00	13:00		19:00						17:00
Vol.	10	125	34	6	6	3		2						162
Grand Total	157	2487	554	42	102	25	2	8	4	0	0	0	0	3381
Percent	4.6%	73.6%	16.4%	1.2%	3.0%	0.7%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	

Accurate Counts

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 City/State: Westford, MA

1768BCL1

EB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/31/17	0	1	2	0	0	0	0	0	0	0	0	0	0	3
01:00	0	2	0	0	0	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
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	13	0	0	0	0	0	0	0	0	0	0	0	13
05:00	2	21	9	2	1	0	0	0	0	0	0	0	0	35
06:00	0	85	27	9	5	0	0	0	0	0	0	0	0	126
07:00	0	192	41	7	6	0	0	0	0	0	0	0	0	246
08:00	0	141	28	3	4	0	0	1	0	0	0	0	0	177
09:00	2	81	20	1	4	1	0	0	0	0	0	0	0	109
10:00	0	72	16	1	8	0	0	1	0	0	0	0	0	98
11:00	2	56	16	1	3	2	0	1	0	0	0	0	0	81
12 PM	0	67	11	2	7	0	0	0	0	0	0	0	0	87
13:00	2	50	16	1	4	0	0	0	0	0	0	0	0	73
14:00	0	98	24	4	4	0	0	0	0	0	0	0	0	130
15:00	0	83	22	3	4	0	0	0	1	0	0	0	0	113
16:00	3	69	19	0	4	1	0	0	0	0	0	0	0	96
17:00	0	89	21	0	5	1	0	0	0	0	0	0	0	116
18:00	1	71	18	0	5	1	0	0	0	0	0	0	0	96
19:00	0	71	18	1	2	0	0	0	0	0	0	0	0	92
20:00	0	61	13	0	2	0	0	0	0	0	0	0	0	76
21:00	0	15	3	0	0	0	0	0	0	0	0	0	0	18
22:00	0	6	4	0	0	0	0	0	0	0	0	0	0	10
23:00	0	7	1	0	1	0	0	0	0	0	0	0	0	9
Day Total	12	1351	329	35	69	6	0	3	1	0	0	0	0	1806
Percent	0.7%	74.8%	18.2%	1.9%	3.8%	0.3%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	05:00	07:00	07:00	06:00	10:00	11:00		08:00						07:00
Vol.	2	192	41	9	8	2		1						246
PM Peak	16:00	14:00	14:00	14:00	12:00	16:00			15:00					14:00
Vol.	3	98	24	4	7	1			1					130

Accurate Counts

978-664-2565

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1768BCL1

EB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/01/17	0	5	0	0	0	0	0	0	0	0	0	0	0	5
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	9	1	0	0	0	0	0	0	0	0	0	0	10
05:00	1	31	9	2	1	0	0	0	0	0	0	0	0	44
06:00	1	74	26	9	4	0	0	0	0	0	0	0	0	114
07:00	2	168	42	6	5	2	0	0	0	0	0	0	0	225
08:00	0	152	26	1	9	0	0	1	0	0	0	0	0	189
09:00	1	80	27	1	7	0	0	0	0	0	0	0	0	116
10:00	3	84	11	1	3	0	0	2	0	0	0	0	0	104
11:00	0	72	12	1	3	2	0	0	0	0	0	0	0	90
12 PM	2	64	19	2	3	1	0	0	0	0	0	0	0	91
13:00	3	71	24	5	3	0	0	0	0	0	0	0	0	106
14:00	1	90	25	5	3	2	0	0	0	0	0	0	0	126
15:00	0	79	24	1	6	0	0	0	1	0	0	0	0	111
16:00	4	85	17	0	1	1	0	2	0	0	0	0	0	110
17:00	4	73	20	0	3	0	0	0	0	0	0	0	0	100
18:00	1	62	12	0	2	0	0	0	0	0	0	0	0	77
19:00	1	53	8	0	2	0	0	0	0	0	0	0	0	64
20:00	0	79	15	0	3	0	0	0	0	0	0	0	0	97
21:00	1	29	5	0	2	0	0	0	0	0	0	0	0	37
22:00	0	13	6	0	0	0	0	0	0	0	0	0	0	19
23:00	0	3	1	0	1	0	0	0	0	0	0	0	0	5
Day Total	25	1380	330	34	61	8	0	5	1	0	0	0	0	1844
Percent	1.4%	74.8%	17.9%	1.8%	3.3%	0.4%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	07:00	07:00	06:00	08:00	07:00		10:00						07:00
Vol.	3	168	42	9	9	2		2						225
PM Peak	16:00	14:00	14:00	13:00	15:00	14:00		16:00	15:00					14:00
Vol.	4	90	25	5	6	2		2	1					126
Grand Total	37	2731	659	69	130	14	0	8	2	0	0	0	0	3650
Percent	1.0%	74.8%	18.1%	1.9%	3.6%	0.4%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BCL1

WB, EB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/31/17	0	10	2	0	0	0	0	0	0	0	0	0	0	12
01:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
02:00	0	0	0	0	0	1	0	0	0	0	0	0	0	1
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:00	0	17	1	0	0	0	0	0	0	0	0	0	0	18
05:00	3	45	9	2	1	1	0	1	0	0	0	0	0	62
06:00	4	117	36	9	5	0	0	1	0	0	0	0	0	172
07:00	14	261	62	11	8	1	0	1	0	0	0	0	0	358
08:00	10	199	42	5	8	2	0	1	0	0	0	0	0	267
09:00	6	122	32	6	8	1	0	0	1	0	0	0	0	176
10:00	5	121	32	1	14	0	0	1	0	0	0	0	0	174
11:00	4	119	29	2	8	2	0	1	0	0	0	0	0	165
12 PM	6	125	22	3	10	1	0	0	0	0	0	0	0	167
13:00	6	127	30	1	7	0	0	0	0	0	0	0	0	171
14:00	3	210	50	6	8	1	0	0	0	0	0	0	0	278
15:00	5	173	56	9	10	1	0	0	1	0	0	0	0	255
16:00	5	172	44	2	6	1	1	1	0	0	0	0	0	232
17:00	4	215	39	0	11	2	0	0	0	0	0	0	0	271
18:00	8	175	40	0	9	1	0	0	0	0	0	0	0	233
19:00	3	146	38	1	5	0	0	0	0	0	0	0	0	193
20:00	3	122	27	0	3	0	0	0	0	0	0	0	0	155
21:00	4	53	6	0	1	0	0	0	0	0	0	0	0	64
22:00	1	26	6	0	0	0	0	0	0	0	0	0	0	33
23:00	2	25	1	0	2	0	0	0	0	0	0	0	0	30
Day Total	96	2586	606	58	124	15	1	7	2	0	0	0	0	3495
Percent	2.7%	74.0%	17.3%	1.7%	3.5%	0.4%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00	10:00	08:00		05:00	09:00					07:00
Vol.	14	261	62	11	14	2		1	1					358
PM Peak	18:00	17:00	15:00	15:00	17:00	17:00	16:00	16:00	15:00					14:00
Vol.	8	215	56	9	11	2	1	1	1					278

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BCL1

WB, EB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/01/17	0	11	1	0	0	0	0	0	0	0	0	0	0	12
01:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
04:00	0	12	2	0	0	0	0	0	0	0	0	0	0	14
05:00	2	49	11	2	2	2	0	0	0	0	0	0	0	68
06:00	4	103	33	9	5	1	0	0	0	0	0	0	0	155
07:00	11	224	63	10	7	2	1	0	0	0	0	0	0	318
08:00	7	222	40	2	12	0	0	2	1	0	0	0	0	286
09:00	4	132	39	2	11	1	0	0	0	0	0	0	0	189
10:00	5	132	24	3	5	0	0	2	1	0	0	0	0	172
11:00	3	135	32	2	9	5	0	0	1	0	0	0	0	187
12 PM	4	140	36	2	7	2	0	0	0	0	0	0	0	191
13:00	8	139	39	5	8	3	0	0	0	0	0	0	0	202
14:00	7	189	59	8	4	5	0	0	0	0	0	0	0	272
15:00	10	179	48	7	8	1	0	0	1	0	0	0	0	254
16:00	6	179	34	1	3	1	0	3	0	0	0	0	0	227
17:00	6	198	50	0	8	0	0	0	0	0	0	0	0	262
18:00	5	181	36	0	8	0	0	0	0	0	0	0	0	230
19:00	9	136	19	0	2	0	0	2	0	0	0	0	0	168
20:00	6	145	22	0	4	1	0	0	0	0	0	0	0	178
21:00	1	72	7	0	2	0	0	0	0	0	0	0	0	82
22:00	0	27	11	0	0	0	0	0	0	0	0	0	0	38
23:00	0	16	1	0	3	0	0	0	0	0	0	0	0	20
Day Total	98	2632	607	53	108	24	1	9	4	0	0	0	0	3536
Percent	2.8%	74.4%	17.2%	1.5%	3.1%	0.7%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00	08:00	11:00	07:00	08:00	08:00					07:00
Vol.	11	224	63	10	12	5	1	2	1					318
PM Peak	15:00	17:00	14:00	14:00	13:00	14:00		16:00	15:00					14:00
Vol.	10	198	59	8	8	5		3	1					272
Grand Total	194	5218	1213	111	232	39	2	16	6	0	0	0	0	7031
Percent	2.8%	74.2%	17.3%	1.6%	3.3%	0.6%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BSP1

WB

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	999	Total
05/31/17	0	0	2	1	6	0	0	0	0	0	0	0	0	0	0	9
01:00	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	5
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	1	3	1	0	0	0	0	0	0	0	0	0	5
05:00	3	6	6	5	8	1	0	0	0	0	0	0	0	0	0	29
06:00	6	8	8	5	16	3	0	0	0	0	0	0	0	0	0	46
07:00	17	21	33	13	26	4	0	0	0	0	0	0	0	0	0	114
08:00	14	21	16	16	20	6	0	0	0	0	0	0	0	0	0	93
09:00	13	6	5	12	25	7	0	0	0	0	0	0	0	0	0	68
10:00	4	9	10	19	28	7	0	0	0	0	0	0	0	0	0	77
11:00	4	5	8	27	28	11	1	0	0	0	0	0	0	0	0	84
12 PM	7	13	6	10	34	10	0	0	0	0	0	0	0	0	0	80
13:00	5	7	18	17	41	9	1	0	0	0	0	0	0	0	0	98
14:00	11	17	33	23	50	14	1	0	0	0	0	0	0	0	0	149
15:00	11	19	23	25	52	12	0	0	0	0	0	0	0	0	0	142
16:00	6	5	24	27	55	19	0	0	0	0	0	0	0	0	0	136
17:00	5	4	14	30	85	17	1	0	0	0	0	0	0	0	0	156
18:00	10	11	18	32	54	14	0	0	0	0	0	0	0	0	0	139
19:00	2	8	14	31	35	10	1	0	0	0	0	0	0	0	0	101
20:00	6	7	7	27	29	3	0	0	0	0	0	0	0	0	0	79
21:00	2	2	5	11	20	5	1	0	0	0	0	0	0	0	0	46
22:00	1	1	0	6	12	3	0	0	0	0	0	0	0	0	0	23
23:00	0	2	0	5	9	5	0	0	0	0	0	0	0	0	0	21
Total	127	172	250	346	639	162	6	0	1702							

Daily

- 15th Percentile : 18 MPH
- 50th Percentile : 29 MPH
- 85th Percentile : 34 MPH
- 95th Percentile : 37 MPH

Mean Speed(Average) : 28 MPH

10 MPH Pace Speed : 26-35 MPH

- Number in Pace : 985
- Percent in Pace : 57.9%
- Number of Vehicles > 30 MPH : 807
- Percent of Vehicles > 30 MPH : 47.4%

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BSP1

WB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
06/01/17	1	0	1	1	4	0	0	0	0	0	0	0	0	0	7
01:00	0	1	0	1	3	0	0	0	0	0	0	0	0	0	5
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
04:00	0	1	0	2	1	0	0	0	0	0	0	0	0	0	4
05:00	4	4	5	4	7	0	0	0	0	0	0	0	0	0	24
06:00	7	5	10	5	11	3	1	0	0	0	0	0	0	0	42
07:00	11	17	17	13	29	7	0	0	0	0	0	0	0	0	94
08:00	17	7	11	17	39	5	1	0	0	0	0	0	0	0	97
09:00	9	6	6	11	32	11	0	0	0	0	0	0	0	0	75
10:00	3	7	11	16	20	10	1	0	0	0	0	0	0	0	68
11:00	6	12	14	20	33	13	0	0	0	0	0	0	0	0	98
12 PM	6	6	13	25	40	10	1	0	0	0	0	0	0	0	101
13:00	6	8	16	23	33	10	0	0	0	0	0	0	0	0	96
14:00	17	18	26	30	39	16	1	0	0	0	0	0	0	0	147
15:00	11	12	32	27	47	16	1	0	0	0	0	0	0	0	146
16:00	4	7	18	21	52	13	3	0	0	0	0	0	0	0	118
17:00	7	12	18	31	64	29	1	0	0	0	0	0	0	0	162
18:00	8	13	26	28	58	17	3	0	0	0	0	0	0	0	153
19:00	5	9	22	28	36	5	0	0	0	0	0	0	0	0	105
20:00	1	9	13	22	30	6	0	0	0	0	0	0	0	0	81
21:00	0	6	5	7	15	11	1	0	0	0	0	0	0	0	45
22:00	0	0	2	3	13	1	0	0	0	0	0	0	0	0	19
23:00	0	0	0	2	9	4	0	0	0	0	0	0	0	0	15
Total	123	161	266	337	615	188	14	0	1704						

Daily

- 15th Percentile : 19 MPH
- 50th Percentile : 29 MPH
- 85th Percentile : 34 MPH
- 95th Percentile : 38 MPH

Mean Speed(Average) : 28 MPH

10 MPH Pace Speed : 26-35 MPH

Number in Pace : 952

Percent in Pace : 55.9%

Number of Vehicles > 30 MPH : 817

Percent of Vehicles > 30 MPH : 47.9%

Grand Total	250	333	516	683	1254	350	20	0	3406						
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Overall

- 15th Percentile : 18 MPH
- 50th Percentile : 29 MPH
- 85th Percentile : 34 MPH
- 95th Percentile : 37 MPH

Mean Speed(Average) : 28 MPH

10 MPH Pace Speed : 26-35 MPH

Number in Pace : 1937

Percent in Pace : 56.9%

Number of Vehicles > 30 MPH : 1624

Percent of Vehicles > 30 MPH : 47.7%

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BSP1

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			
05/31/17	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	0	0	1	1	0	0	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	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	1	5	7	0	0	0	0	0	0	0	0	0	0	13
05:00	4	1	3	5	16	4	2	0	0	0	0	0	0	0	0	35
06:00	4	14	16	22	50	20	1	0	0	0	0	0	0	0	0	127
07:00	4	8	41	37	104	51	2	0	0	0	0	0	0	0	0	247
08:00	7	7	19	27	78	39	2	0	0	0	0	0	0	0	0	179
09:00	5	7	12	17	51	18	0	0	0	0	0	0	0	0	0	110
10:00	3	7	10	14	52	12	0	0	0	0	0	0	0	0	0	98
11:00	2	7	5	14	40	12	1	0	0	0	0	0	0	0	0	81
12 PM	0	3	13	14	35	22	0	0	0	0	0	0	0	0	0	87
13:00	0	5	20	11	23	13	1	0	0	0	0	0	0	0	0	73
14:00	3	11	28	26	39	22	2	0	0	0	0	0	0	0	0	131
15:00	3	13	16	21	42	17	2	0	0	0	0	0	0	0	0	114
16:00	2	7	14	16	43	14	0	0	0	0	0	0	0	0	0	96
17:00	4	1	11	28	53	19	2	0	0	0	0	0	0	0	0	118
18:00	8	4	13	18	43	9	1	0	0	0	0	0	0	0	0	96
19:00	1	6	16	24	32	12	1	0	0	0	0	0	0	0	0	92
20:00	5	5	19	13	24	9	0	1	0	0	0	0	0	0	0	76
21:00	0	1	1	8	7	1	0	0	0	0	0	0	0	0	0	18
22:00	0	1	1	2	4	2	0	0	0	0	0	0	0	0	0	10
23:00	0	1	0	1	5	2	0	0	0	0	0	0	0	0	0	9
Total	55	109	260	326	749	298	17	1	0	1815						

Daily

- 15th Percentile : 22 MPH
- 50th Percentile : 31 MPH
- 85th Percentile : 35 MPH
- 95th Percentile : 38 MPH

- Mean Speed(Average) : 30 MPH
- 10 MPH Pace Speed : 26-35 MPH
- Number in Pace : 1075
- Percent in Pace : 59.2%
- Number of Vehicles > 30 MPH : 1065
- Percent of Vehicles > 30 MPH : 58.7%

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BSP1

EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
06/01/17	0	0	2	1	1	1	0	0	0	0	0	0	0	0	5
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
04:00	1	1	1	0	5	2	0	0	0	0	0	0	0	0	10
05:00	4	2	4	2	15	16	1	0	0	0	0	0	0	0	44
06:00	1	12	14	10	56	20	1	0	0	0	0	0	0	0	114
07:00	3	9	44	32	88	45	4	0	0	0	0	0	0	0	225
08:00	12	4	18	30	83	41	3	0	0	0	0	0	0	0	191
09:00	3	4	21	15	56	18	0	0	0	0	0	0	0	0	117
10:00	7	5	15	11	46	19	1	0	0	0	0	0	0	0	104
11:00	4	7	9	16	31	24	1	0	0	0	0	0	0	0	92
12 PM	4	9	11	22	28	16	1	0	0	0	0	0	0	0	91
13:00	5	7	21	13	43	16	2	0	0	0	0	0	0	0	107
14:00	3	12	19	19	54	18	1	0	0	0	0	0	0	0	126
15:00	4	9	17	24	40	17	1	0	0	0	0	0	0	0	112
16:00	2	4	18	23	43	20	0	0	0	0	0	0	0	0	110
17:00	1	6	13	18	43	19	0	0	0	0	0	0	0	0	100
18:00	5	6	15	13	31	6	1	0	0	0	0	0	0	0	77
19:00	2	4	17	12	19	8	2	0	0	0	0	0	0	0	64
20:00	6	6	20	27	34	4	0	0	0	0	0	0	0	0	97
21:00	1	2	8	7	16	2	1	0	0	0	0	0	0	0	37
22:00	0	1	3	3	10	1	1	0	0	0	0	0	0	0	19
23:00	1	1	0	0	3	0	0	0	0	0	0	0	0	0	5
Total	69	111	290	300	747	313	21	0	1851						

Daily

- 15th Percentile : 21 MPH
- 50th Percentile : 31 MPH
- 85th Percentile : 35 MPH
- 95th Percentile : 38 MPH

Mean Speed(Average) : 30 MPH

10 MPH Pace Speed : 31-40 MPH

- Number in Pace : 1060
- Percent in Pace : 57.3%
- Number of Vehicles > 30 MPH : 1081
- Percent of Vehicles > 30 MPH : 58.4%

Grand Total	124	220	550	626	1496	611	38	1	0	0	0	0	0	0	3666
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Overall

- 15th Percentile : 21 MPH
- 50th Percentile : 31 MPH
- 85th Percentile : 35 MPH
- 95th Percentile : 38 MPH

Mean Speed(Average) : 30 MPH

10 MPH Pace Speed : 26-35 MPH

- Number in Pace : 2122
- Percent in Pace : 57.9%
- Number of Vehicles > 30 MPH : 2146
- Percent of Vehicles > 30 MPH : 58.5%

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BSP1

WB, EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
05/31/17	0	0	3	3	6	0	0	0	0	0	0	0	0	0	12
01:00	0	0	0	3	4	0	0	0	0	0	0	0	0	0	7
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
04:00	0	0	1	6	10	1	0	0	0	0	0	0	0	0	18
05:00	7	7	9	10	24	5	2	0	0	0	0	0	0	0	64
06:00	10	22	24	27	66	23	1	0	0	0	0	0	0	0	173
07:00	21	29	74	50	130	55	2	0	0	0	0	0	0	0	361
08:00	21	28	35	43	98	45	2	0	0	0	0	0	0	0	272
09:00	18	13	17	29	76	25	0	0	0	0	0	0	0	0	178
10:00	7	16	20	33	80	19	0	0	0	0	0	0	0	0	175
11:00	6	12	13	41	68	23	2	0	0	0	0	0	0	0	165
12 PM	7	16	19	24	69	32	0	0	0	0	0	0	0	0	167
13:00	5	12	38	28	64	22	2	0	0	0	0	0	0	0	171
14:00	14	28	61	49	89	36	3	0	0	0	0	0	0	0	280
15:00	14	32	39	46	94	29	2	0	0	0	0	0	0	0	256
16:00	8	12	38	43	98	33	0	0	0	0	0	0	0	0	232
17:00	9	5	25	58	138	36	3	0	0	0	0	0	0	0	274
18:00	18	15	31	50	97	23	1	0	0	0	0	0	0	0	235
19:00	3	14	30	55	67	22	2	0	0	0	0	0	0	0	193
20:00	11	12	26	40	53	12	0	1	0	0	0	0	0	0	155
21:00	2	3	6	19	27	6	1	0	0	0	0	0	0	0	64
22:00	1	2	1	8	16	5	0	0	0	0	0	0	0	0	33
23:00	0	3	0	6	14	7	0	0	0	0	0	0	0	0	30
Total	182	281	510	672	1388	460	23	1	0	0	0	0	0	0	3517

Daily

- 15th Percentile : 20 MPH
- 50th Percentile : 30 MPH
- 85th Percentile : 34 MPH
- 95th Percentile : 38 MPH

Mean Speed(Average) : 29 MPH

- 10 MPH Pace Speed : 26-35 MPH
- Number in Pace : 2060
- Percent in Pace : 58.6%
- Number of Vehicles > 30 MPH : 1872
- Percent of Vehicles > 30 MPH : 53.2%

Accurate Counts

978-664-2565

Location : Forge Village Road
 Location : East of Abbot Street
 City/State: Westford, MA

1768BSP1

WB, EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
06/01/17	1	0	3	2	5	1	0	0	0	0	0	0	0	0	12
01:00	0	1	0	2	3	0	0	0	0	0	0	0	0	0	6
02:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
03:00	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3
04:00	1	2	1	2	6	2	0	0	0	0	0	0	0	0	14
05:00	8	6	9	6	22	16	1	0	0	0	0	0	0	0	68
06:00	8	17	24	15	67	23	2	0	0	0	0	0	0	0	156
07:00	14	26	61	45	117	52	4	0	0	0	0	0	0	0	319
08:00	29	11	29	47	122	46	4	0	0	0	0	0	0	0	288
09:00	12	10	27	26	88	29	0	0	0	0	0	0	0	0	192
10:00	10	12	26	27	66	29	2	0	0	0	0	0	0	0	172
11:00	10	19	23	36	64	37	1	0	0	0	0	0	0	0	190
12 PM	10	15	24	47	68	26	2	0	0	0	0	0	0	0	192
13:00	11	15	37	36	76	26	2	0	0	0	0	0	0	0	203
14:00	20	30	45	49	93	34	2	0	0	0	0	0	0	0	273
15:00	15	21	49	51	87	33	2	0	0	0	0	0	0	0	258
16:00	6	11	36	44	95	33	3	0	0	0	0	0	0	0	228
17:00	8	18	31	49	107	48	1	0	0	0	0	0	0	0	262
18:00	13	19	41	41	89	23	4	0	0	0	0	0	0	0	230
19:00	7	13	39	40	55	13	2	0	0	0	0	0	0	0	169
20:00	7	15	33	49	64	10	0	0	0	0	0	0	0	0	178
21:00	1	8	13	14	31	13	2	0	0	0	0	0	0	0	82
22:00	0	1	5	6	23	2	1	0	0	0	0	0	0	0	38
23:00	1	1	0	2	12	4	0	0	0	0	0	0	0	0	20
Total	192	272	556	637	1362	501	35	0	3555						

Daily

- 15th Percentile : 20 MPH
- 50th Percentile : 30 MPH
- 85th Percentile : 35 MPH
- 95th Percentile : 38 MPH

Mean Speed(Average) : 29 MPH

10 MPH Pace Speed : 26-35 MPH

Number in Pace : 1999

Percent in Pace : 56.2%

Number of Vehicles > 30 MPH : 1898

Percent of Vehicles > 30 MPH : 53.4%

Grand Total	374	553	1066	1309	2750	961	58	1	0	0	0	0	0	0	7072
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Overall

- 15th Percentile : 20 MPH
- 50th Percentile : 30 MPH
- 85th Percentile : 34 MPH
- 95th Percentile : 38 MPH

Mean Speed(Average) : 29 MPH

10 MPH Pace Speed : 26-35 MPH

Number in Pace : 4059

Percent in Pace : 57.4%

Number of Vehicles > 30 MPH : 3770

Percent of Vehicles > 30 MPH : 53.3%

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BVL2

Start Time	5/31/2017 Wed	SB		Hour Totals		NB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		1	16			1	17				
12:15		0	18			1	26				
12:30		1	23			2	19				
12:45		0	9	2	66	0	24	4	86	6	152
01:00		1	13			0	15				
01:15		0	22			0	15				
01:30		0	25			0	23				
01:45		0	25	1	85	1	35	1	88	2	173
02:00		0	41			0	43				
02:15		0	24			0	29				
02:30		1	39			0	29				
02:45		0	29	1	133	1	28	1	129	2	262
03:00		1	23			0	40				
03:15		0	15			0	29				
03:30		0	25			0	46				
03:45		0	29	1	92	0	73	0	188	1	280
04:00		1	41			0	54				
04:15		2	41			0	43				
04:30		3	26			1	45				
04:45		1	19	7	127	0	59	1	201	8	328
05:00		3	22			1	63				
05:15		5	23			12	81				
05:30		9	27			6	75				
05:45		11	27	28	99	7	76	26	295	54	394
06:00		27	20			8	63				
06:15		23	18			7	63				
06:30		50	14			14	37				
06:45		37	21	137	73	18	54	47	217	184	290
07:00		75	33			50	53				
07:15		105	32			85	34				
07:30		113	10			24	22				
07:45		52	12	345	87	22	18	181	127	526	214
08:00		49	19			29	17				
08:15		77	14			22	16				
08:30		49	23			24	20				
08:45		47	12	222	68	18	11	93	64	315	132
09:00		30	7			28	10				
09:15		32	6			13	3				
09:30		27	9			13	6				
09:45		27	2	116	24	11	4	65	23	181	47
10:00		14	9			13	3				
10:15		16	4			13	6				
10:30		14	3			15	2				
10:45		24	0	68	16	19	4	60	15	128	31
11:00		18	2			19	4				
11:15		20	1			17	4				
11:30		13	0			11	2				
11:45		13	3	64	6	13	1	60	11	124	17
Total		992	876			539	1444			1531	2320
Percent		53.1%	46.9%			27.2%	72.8%			39.8%	60.2%

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BVL2

Start Time	6/1/2017 Thu	SB		Hour Totals		NB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	21			2	20				
12:15		2	17			2	16				
12:30		2	17			1	22				
12:45		0	21	4	76	0	28	5	86	9	162
01:00		1	20			0	22				
01:15		0	16			0	23				
01:30		0	25			1	20				
01:45		0	20	1	81	0	32	1	97	2	178
02:00		1	50			1	36				
02:15		1	28			0	43				
02:30		0	30			1	31				
02:45		0	28	2	136	0	30	2	140	4	276
03:00		0	25			0	36				
03:15		1	22			0	44				
03:30		0	35			1	46				
03:45		0	36	1	118	0	42	1	168	2	286
04:00		0	26			0	44				
04:15		2	17			1	51				
04:30		3	26			2	48				
04:45		2	28	7	97	0	59	3	202	10	299
05:00		1	45			1	79				
05:15		4	28			3	61				
05:30		8	32			3	89				
05:45		18	40	31	145	10	108	17	337	48	482
06:00		23	38			3	100				
06:15		27	29			11	88				
06:30		37	25			17	74				
06:45		36	23	123	115	10	44	41	306	164	421
07:00		72	16			40	32				
07:15		103	56			80	44				
07:30		99	18			34	30				
07:45		53	17	327	107	18	35	172	141	499	248
08:00		52	30			37	38				
08:15		66	36			28	20				
08:30		51	27			28	18				
08:45		41	32	210	125	19	12	112	88	322	213
09:00		41	12			15	12				
09:15		29	10			19	14				
09:30		27	7			20	6				
09:45		26	7	123	36	21	7	75	39	198	75
10:00		13	4			12	8				
10:15		18	3			12	4				
10:30		26	5			13	10				
10:45		19	3	76	15	21	4	58	26	134	41
11:00		10	5			20	3				
11:15		28	1			22	3				
11:30		18	2			21	3				
11:45		18	1	74	9	27	2	90	11	164	20
Total		979	1060			577	1641			1556	2701
Percent		48.0%	52.0%			26.0%	74.0%			36.6%	63.4%
Grand Total		1971	1936			1116	3085			3087	5021
Percent		50.4%	49.6%			26.6%	73.4%			38.1%	61.9%

ADT ADT 4,054 AADT 4,054

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BVL2

Start Time	5/29/2017		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	*	*	*	*	2	4	4	5	*	*	*	*	*	*	3	4
01:00	*	*	*	*	1	1	1	1	*	*	*	*	*	*	1	1
02:00	*	*	*	*	1	1	2	2	*	*	*	*	*	*	2	2
03:00	*	*	*	*	1	0	1	1	*	*	*	*	*	*	1	0
04:00	*	*	*	*	7	1	7	3	*	*	*	*	*	*	7	2
05:00	*	*	*	*	28	26	31	17	*	*	*	*	*	*	30	22
06:00	*	*	*	*	137	47	123	41	*	*	*	*	*	*	130	44
07:00	*	*	*	*	345	181	327	172	*	*	*	*	*	*	336	176
08:00	*	*	*	*	222	93	210	112	*	*	*	*	*	*	216	102
09:00	*	*	*	*	116	65	123	75	*	*	*	*	*	*	120	70
10:00	*	*	*	*	68	60	76	58	*	*	*	*	*	*	72	59
11:00	*	*	*	*	64	60	74	90	*	*	*	*	*	*	69	75
12:00 PM	*	*	*	*	66	86	76	86	*	*	*	*	*	*	71	86
01:00	*	*	*	*	85	88	81	97	*	*	*	*	*	*	83	92
02:00	*	*	*	*	133	129	136	140	*	*	*	*	*	*	134	134
03:00	*	*	*	*	92	188	118	168	*	*	*	*	*	*	105	178
04:00	*	*	*	*	127	201	97	202	*	*	*	*	*	*	112	202
05:00	*	*	*	*	99	295	145	337	*	*	*	*	*	*	122	316
06:00	*	*	*	*	73	217	115	306	*	*	*	*	*	*	94	262
07:00	*	*	*	*	87	127	107	141	*	*	*	*	*	*	97	134
08:00	*	*	*	*	68	64	125	88	*	*	*	*	*	*	96	76
09:00	*	*	*	*	24	23	36	39	*	*	*	*	*	*	30	31
10:00	*	*	*	*	16	15	15	26	*	*	*	*	*	*	16	20
11:00	*	*	*	*	6	11	9	11	*	*	*	*	*	*	8	11
Lane	0	0	0	0	1868	1983	2039	2218	0	0	0	0	0	0	1955	2099
Day	0		0		3851		4257		0		0		0		4054	
AM Peak	-	-	-	-	07:00	07:00	07:00	07:00	-	-	-	-	-	-	07:00	07:00
Vol.	-	-	-	-	345	181	327	172	-	-	-	-	-	-	336	176
PM Peak	-	-	-	-	14:00	17:00	17:00	17:00	-	-	-	-	-	-	14:00	17:00
Vol.	-	-	-	-	133	295	145	337	-	-	-	-	-	-	134	316

Comb. Total	0	0	3851	4257	0	0	0	4054
ADT	ADT 4,054	AADT 4,054						

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BCL2

SB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/31/17	0	0	1	0	1	0	0	0	0	0	0	0	0	2
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	4	2	0	1	0	0	0	0	0	0	0	0	7
05:00	0	21	4	0	3	0	0	0	0	0	0	0	0	28
06:00	2	91	23	12	8	0	0	1	0	0	0	0	0	137
07:00	3	260	58	5	15	0	1	0	2	0	0	0	0	344
08:00	1	161	47	4	6	0	1	0	1	0	0	0	0	221
09:00	0	88	20	1	3	1	3	0	0	0	0	0	0	116
10:00	0	46	14	1	4	1	1	0	1	0	0	0	0	68
11:00	0	37	15	3	6	1	1	0	1	0	0	0	0	64
12 PM	2	43	13	3	2	0	1	1	1	0	0	0	0	66
13:00	1	58	17	2	6	0	0	0	1	0	0	0	0	85
14:00	1	86	28	9	6	2	0	0	0	0	0	0	0	132
15:00	1	65	20	2	4	0	0	0	0	0	0	0	0	92
16:00	0	90	31	1	4	0	0	1	0	0	0	0	0	127
17:00	1	72	19	1	4	0	0	1	0	0	0	0	0	98
18:00	0	56	15	0	2	0	0	0	0	0	0	0	0	73
19:00	0	67	18	0	2	0	0	0	0	0	0	0	0	87
20:00	1	49	16	0	2	0	0	0	0	0	0	0	0	68
21:00	0	18	4	0	1	0	0	1	0	0	0	0	0	24
22:00	0	14	2	0	0	0	0	0	0	0	0	0	0	16
23:00	0	4	0	0	2	0	0	0	0	0	0	0	0	6
Day Total	13	1332	367	44	83	5	8	5	7	0	0	0	0	1864
Percent	0.7%	71.5%	19.7%	2.4%	4.5%	0.3%	0.4%	0.3%	0.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	06:00	07:00	09:00	09:00	06:00	07:00					07:00
Vol.	3	260	58	12	15	1	3	1	2					344
PM Peak	12:00	16:00	16:00	14:00	13:00	14:00	12:00	12:00	12:00					14:00
Vol.	2	90	31	9	6	2	1	1	1					132

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BCL2

SB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/01/17	0	2	2	0	0	0	0	0	0	0	0	0	0	4
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:00	0	4	2	0	1	0	0	0	0	0	0	0	0	7
05:00	0	26	2	1	2	0	0	0	0	0	0	0	0	31
06:00	0	83	23	10	7	0	0	0	0	0	0	0	0	123
07:00	1	243	66	6	8	0	0	0	2	0	0	0	0	326
08:00	3	155	40	1	8	1	0	1	1	0	0	0	0	210
09:00	0	99	17	0	5	0	0	1	1	0	0	0	0	123
10:00	1	45	18	0	6	1	1	2	2	0	0	0	0	76
11:00	2	39	19	3	5	1	1	1	1	1	0	0	0	73
12 PM	0	49	19	4	2	0	1	0	0	0	0	0	0	75
13:00	0	51	13	4	10	0	1	0	0	0	0	0	0	79
14:00	0	92	24	9	6	0	1	1	2	0	0	0	0	135
15:00	2	78	24	2	10	0	1	0	1	0	0	0	0	118
16:00	2	67	22	1	4	1	0	0	0	0	0	0	0	97
17:00	0	106	28	0	10	0	0	0	0	0	0	0	0	144
18:00	2	88	20	1	3	0	0	0	0	0	0	0	0	114
19:00	0	89	17	0	1	0	0	0	0	0	0	0	0	107
20:00	1	96	26	0	2	0	0	0	0	0	0	0	0	125
21:00	1	28	6	0	1	0	0	0	0	0	0	0	0	36
22:00	0	12	3	0	0	0	0	0	0	0	0	0	0	15
23:00	0	6	1	0	2	0	0	0	0	0	0	0	0	9
Day Total	15	1460	394	42	93	4	6	6	10	1	0	0	0	2031
Percent	0.7%	71.9%	19.4%	2.1%	4.6%	0.2%	0.3%	0.3%	0.5%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	07:00	06:00	07:00	08:00	10:00	10:00	07:00	11:00				07:00
Vol.	3	243	66	10	8	1	1	2	2	1				326
PM Peak	15:00	17:00	17:00	14:00	13:00	16:00	12:00	14:00	14:00					17:00
Vol.	2	106	28	9	10	1	1	1	2					144
Grand Total	28	2792	761	86	176	9	14	11	17	1	0	0	0	3895
Percent	0.7%	71.7%	19.5%	2.2%	4.5%	0.2%	0.4%	0.3%	0.4%	0.0%	0.0%	0.0%	0.0%	

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BCL2

NB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/31/17	0	4	0	0	0	0	0	0	0	0	0	0	0	4
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00	0	21	5	0	0	0	0	0	0	0	0	0	0	26
06:00	0	35	8	1	1	1	0	0	1	0	0	0	0	47
07:00	0	147	15	9	7	1	0	0	0	0	0	0	0	179
08:00	1	75	10	4	1	1	0	0	1	0	0	0	0	93
09:00	0	37	9	7	9	2	0	0	1	0	0	0	0	65
10:00	1	42	9	0	6	2	0	0	0	0	0	0	0	60
11:00	0	47	9	0	2	0	0	1	1	0	0	0	0	60
12 PM	1	65	10	3	2	1	0	3	1	0	0	0	0	86
13:00	1	64	12	1	6	3	0	0	1	0	0	0	0	88
14:00	0	106	16	1	4	0	0	2	0	0	0	0	0	129
15:00	0	134	30	11	11	2	0	0	0	0	0	0	0	188
16:00	2	171	27	0	1	0	0	0	0	0	0	0	0	201
17:00	3	258	28	1	3	1	0	0	0	0	0	0	0	294
18:00	0	197	17	0	3	0	0	0	0	0	0	0	0	217
19:00	1	113	12	0	1	0	0	0	0	0	0	0	0	127
20:00	0	57	7	0	0	0	0	0	0	0	0	0	0	64
21:00	0	20	3	0	0	0	0	0	0	0	0	0	0	23
22:00	0	15	0	0	0	0	0	0	0	0	0	0	0	15
23:00	0	10	0	0	1	0	0	0	0	0	0	0	0	11
Day Total	10	1621	227	38	58	14	0	6	6	0	0	0	0	1980
Percent	0.5%	81.9%	11.5%	1.9%	2.9%	0.7%	0.0%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	07:00	07:00	09:00	09:00		11:00	06:00					07:00
Vol.	1	147	15	9	9	2		1	1					179
PM Peak	17:00	17:00	15:00	15:00	15:00	13:00		12:00	12:00					17:00
Vol.	3	258	30	11	11	3		3	1					294

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BCL2

NB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/01/17	0	5	0	0	0	0	0	0	0	0	0	0	0	5
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
05:00	0	10	7	0	0	0	0	0	0	0	0	0	0	17
06:00	0	30	9	0	1	0	0	0	1	0	0	0	0	41
07:00	1	135	20	6	9	0	0	0	1	0	0	0	0	172
08:00	1	84	11	6	6	0	0	2	2	0	0	0	0	112
09:00	0	52	12	4	4	1	0	1	1	0	0	0	0	75
10:00	1	38	12	0	5	1	0	0	1	0	0	0	0	58
11:00	4	56	20	2	3	2	0	0	3	0	0	0	0	90
12 PM	0	62	15	2	2	1	0	2	2	0	0	0	0	86
13:00	1	73	18	0	3	0	0	0	2	0	0	0	0	97
14:00	2	105	21	3	7	1	0	0	1	0	0	0	0	140
15:00	4	124	18	9	11	2	0	0	0	0	0	0	0	168
16:00	1	168	25	2	5	0	0	0	1	0	0	0	0	202
17:00	4	292	36	2	2	0	0	1	0	0	0	0	0	337
18:00	2	262	32	3	6	0	0	1	0	0	0	0	0	306
19:00	4	122	13	0	1	0	0	0	0	0	0	0	0	140
20:00	0	82	4	0	1	1	0	0	0	0	0	0	0	88
21:00	0	36	3	0	0	0	0	0	0	0	0	0	0	39
22:00	0	20	6	0	0	0	0	0	0	0	0	0	0	26
23:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
Day Total	25	1772	284	39	66	9	0	7	15	0	0	0	0	2217
Percent	1.1%	79.9%	12.8%	1.8%	3.0%	0.4%	0.0%	0.3%	0.7%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	07:00	07:00	07:00	07:00	11:00		08:00	11:00					07:00
Vol.	4	135	20	6	9	2		2	3					172
PM Peak	15:00	17:00	17:00	15:00	15:00	15:00		12:00	12:00					17:00
Vol.	4	292	36	9	11	2		2	2					337
Grand Total	35	3393	511	77	124	23	0	13	21	0	0	0	0	4197
Percent	0.8%	80.8%	12.2%	1.8%	3.0%	0.5%	0.0%	0.3%	0.5%	0.0%	0.0%	0.0%	0.0%	

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BCL2

SB, NB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/31/17	0	4	1	0	1	0	0	0	0	0	0	0	0	6
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	5	2	0	1	0	0	0	0	0	0	0	0	8
05:00	0	42	9	0	3	0	0	0	0	0	0	0	0	54
06:00	2	126	31	13	9	1	0	1	1	0	0	0	0	184
07:00	3	407	73	14	22	1	1	0	2	0	0	0	0	523
08:00	2	236	57	8	7	1	1	0	2	0	0	0	0	314
09:00	0	125	29	8	12	3	3	0	1	0	0	0	0	181
10:00	1	88	23	1	10	3	1	0	1	0	0	0	0	128
11:00	0	84	24	3	8	1	1	1	2	0	0	0	0	124
12 PM	3	108	23	6	4	1	1	4	2	0	0	0	0	152
13:00	2	122	29	3	12	3	0	0	2	0	0	0	0	173
14:00	1	192	44	10	10	2	0	2	0	0	0	0	0	261
15:00	1	199	50	13	15	2	0	0	0	0	0	0	0	280
16:00	2	261	58	1	5	0	0	1	0	0	0	0	0	328
17:00	4	330	47	2	7	1	0	1	0	0	0	0	0	392
18:00	0	253	32	0	5	0	0	0	0	0	0	0	0	290
19:00	1	180	30	0	3	0	0	0	0	0	0	0	0	214
20:00	1	106	23	0	2	0	0	0	0	0	0	0	0	132
21:00	0	38	7	0	1	0	0	1	0	0	0	0	0	47
22:00	0	29	2	0	0	0	0	0	0	0	0	0	0	31
23:00	0	14	0	0	3	0	0	0	0	0	0	0	0	17
Day Total	23	2953	594	82	141	19	8	11	13	0	0	0	0	3844
Percent	0.6%	76.8%	15.5%	2.1%	3.7%	0.5%	0.2%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00	07:00	09:00	09:00	06:00	07:00					07:00
Vol.	3	407	73	14	22	3	3	1	2					523
PM Peak	17:00	17:00	16:00	15:00	15:00	13:00	12:00	12:00	12:00					17:00
Vol.	4	330	58	13	15	3	1	4	2					392

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BCL2

SB, NB

Start Time	MtrCyc	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/01/17	0	7	2	0	0	0	0	0	0	0	0	0	0	9
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
03:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
04:00	0	6	3	0	1	0	0	0	0	0	0	0	0	10
05:00	0	36	9	1	2	0	0	0	0	0	0	0	0	48
06:00	0	113	32	10	8	0	0	0	1	0	0	0	0	164
07:00	2	378	86	12	17	0	0	0	3	0	0	0	0	498
08:00	4	239	51	7	14	1	0	3	3	0	0	0	0	322
09:00	0	151	29	4	9	1	0	2	2	0	0	0	0	198
10:00	2	83	30	0	11	2	1	2	3	0	0	0	0	134
11:00	6	95	39	5	8	3	1	1	4	1	0	0	0	163
12 PM	0	111	34	6	4	1	1	2	2	0	0	0	0	161
13:00	1	124	31	4	13	0	1	0	2	0	0	0	0	176
14:00	2	197	45	12	13	1	1	1	3	0	0	0	0	275
15:00	6	202	42	11	21	2	1	0	1	0	0	0	0	286
16:00	3	235	47	3	9	1	0	0	1	0	0	0	0	299
17:00	4	398	64	2	12	0	0	1	0	0	0	0	0	481
18:00	4	350	52	4	9	0	0	1	0	0	0	0	0	420
19:00	4	211	30	0	2	0	0	0	0	0	0	0	0	247
20:00	1	178	30	0	3	1	0	0	0	0	0	0	0	213
21:00	1	64	9	0	1	0	0	0	0	0	0	0	0	75
22:00	0	32	9	0	0	0	0	0	0	0	0	0	0	41
23:00	0	16	2	0	2	0	0	0	0	0	0	0	0	20
Day Total	40	3232	678	81	159	13	6	13	25	1	0	0	0	4248
Percent	0.9%	76.1%	16.0%	1.9%	3.7%	0.3%	0.1%	0.3%	0.6%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	07:00	07:00	07:00	07:00	11:00	10:00	08:00	11:00	11:00				07:00
Vol.	6	378	86	12	17	3	1	3	4	1				498
PM Peak	15:00	17:00	17:00	14:00	15:00	15:00	12:00	12:00	14:00					17:00
Vol.	6	398	64	12	21	2	1	2	3					481
Grand Total	63	6185	1272	163	300	32	14	24	38	1	0	0	0	8092
Percent	0.8%	76.4%	15.7%	2.0%	3.7%	0.4%	0.2%	0.3%	0.5%	0.0%	0.0%	0.0%	0.0%	

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BSP2

SB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
05/31/17	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
01:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	0	4	2	1	0	0	0	0	0	0	7
05:00	0	0	0	2	12	11	3	0	0	0	0	0	0	0	28
06:00	3	0	3	11	31	63	26	0	0	0	0	0	0	0	137
07:00	17	2	18	77	118	86	25	2	0	0	0	0	0	0	345
08:00	3	4	11	22	56	91	34	1	0	0	0	0	0	0	222
09:00	0	0	1	7	30	52	23	3	0	0	0	0	0	0	116
10:00	1	0	1	7	14	24	14	7	0	0	0	0	0	0	68
11:00	0	0	0	5	18	23	14	3	0	1	0	0	0	0	64
12 PM	0	0	3	7	16	27	10	3	0	0	0	0	0	0	66
13:00	2	0	0	12	21	31	13	5	1	0	0	0	0	0	85
14:00	4	0	2	5	44	47	29	2	0	0	0	0	0	0	133
15:00	2	0	0	10	28	35	15	2	0	0	0	0	0	0	92
16:00	3	0	0	1	38	66	16	3	0	0	0	0	0	0	127
17:00	5	0	0	3	21	40	23	6	0	1	0	0	0	0	99
18:00	1	0	0	4	18	34	13	3	0	0	0	0	0	0	73
19:00	2	0	0	4	24	38	16	2	1	0	0	0	0	0	87
20:00	1	1	2	7	25	23	8	1	0	0	0	0	0	0	68
21:00	0	0	0	1	8	12	3	0	0	0	0	0	0	0	24
22:00	0	0	0	4	7	3	1	1	0	0	0	0	0	0	16
23:00	0	0	0	0	1	4	1	0	0	0	0	0	0	0	6
Total	44	7	41	189	531	717	290	45	2	2	0	0	0	0	1868

Daily

- 15th Percentile : 29 MPH
- 50th Percentile : 35 MPH
- 85th Percentile : 41 MPH
- 95th Percentile : 44 MPH

Mean Speed(Average) : 36 MPH

10 MPH Pace Speed : 31-40 MPH

Number in Pace : 1248

Percent in Pace : 66.8%

Number of Vehicles > 35 MPH : 1056

Percent of Vehicles > 35 MPH : 56.5%

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BSP2

SB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
06/01/17	0	0	0	1	1	1	1	0	0	0	0	0	0	0	4
01:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	3	2	2	0	0	0	0	0	0	0	7
05:00	0	0	1	1	10	11	6	1	1	0	0	0	0	0	31
06:00	0	0	3	11	25	56	26	2	0	0	0	0	0	0	123
07:00	8	3	10	58	110	103	31	4	0	0	0	0	0	0	327
08:00	14	4	7	14	55	89	26	1	0	0	0	0	0	0	210
09:00	2	0	0	7	41	52	20	1	0	0	0	0	0	0	123
10:00	1	1	3	5	21	24	17	3	1	0	0	0	0	0	76
11:00	7	0	3	10	20	22	10	2	0	0	0	0	0	0	74
12 PM	19	0	0	5	19	19	11	3	0	0	0	0	0	0	76
13:00	36	0	0	4	17	16	8	0	0	0	0	0	0	0	81
14:00	11	2	3	8	38	51	19	4	0	0	0	0	0	0	136
15:00	11	2	0	7	32	50	11	5	0	0	0	0	0	0	118
16:00	1	0	4	2	25	51	14	0	0	0	0	0	0	0	97
17:00	10	0	0	8	38	60	26	3	0	0	0	0	0	0	145
18:00	5	0	1	3	18	62	25	0	1	0	0	0	0	0	115
19:00	2	0	0	3	40	48	12	2	0	0	0	0	0	0	107
20:00	3	0	0	9	45	44	19	5	0	0	0	0	0	0	125
21:00	0	0	1	2	16	13	4	0	0	0	0	0	0	0	36
22:00	0	0	0	3	3	4	4	1	0	0	0	0	0	0	15
23:00	0	0	0	1	4	3	0	1	0	0	0	0	0	0	9
Total	130	12	36	162	584	782	292	38	3	0	0	0	0	0	2039

Daily

- 15th Percentile : 28 MPH
- 50th Percentile : 35 MPH
- 85th Percentile : 40 MPH
- 95th Percentile : 43 MPH

Mean Speed(Average) : 34 MPH

10 MPH Pace Speed : 31-40 MPH

Number in Pace : 1366

Percent in Pace : 67.0%

Number of Vehicles > 35 MPH : 1115

Percent of Vehicles > 35 MPH : 54.7%

Grand Total	174	19	77	351	1115	1499	582	83	5	2	0	0	0	0	3907
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Overall

- 15th Percentile : 29 MPH
- 50th Percentile : 35 MPH
- 85th Percentile : 40 MPH
- 95th Percentile : 44 MPH

Mean Speed(Average) : 35 MPH

10 MPH Pace Speed : 31-40 MPH

Number in Pace : 2614

Percent in Pace : 66.9%

Number of Vehicles > 35 MPH : 2171

Percent of Vehicles > 35 MPH : 55.6%

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BSP2

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
05/31/17	0	0	0	1	0	3	0	0	0	0	0	0	0	0	4
01:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
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	0	1	0	0	0	0	0	0	0	0	1
05:00	0	0	0	6	8	10	2	0	0	0	0	0	0	0	26
06:00	0	0	0	6	23	15	3	0	0	0	0	0	0	0	47
07:00	8	0	0	19	70	66	17	1	0	0	0	0	0	0	181
08:00	3	0	0	8	41	34	7	0	0	0	0	0	0	0	93
09:00	0	0	0	10	29	23	3	0	0	0	0	0	0	0	65
10:00	2	0	0	7	18	30	3	0	0	0	0	0	0	0	60
11:00	0	0	0	4	24	25	7	0	0	0	0	0	0	0	60
12 PM	1	1	2	13	34	29	5	1	0	0	0	0	0	0	86
13:00	0	0	2	6	46	31	3	0	0	0	0	0	0	0	88
14:00	2	0	0	11	58	50	8	0	0	0	0	0	0	0	129
15:00	1	0	1	21	79	67	16	3	0	0	0	0	0	0	188
16:00	3	2	2	4	58	99	32	1	0	0	0	0	0	0	201
17:00	3	6	5	13	69	153	40	4	2	0	0	0	0	0	295
18:00	2	0	0	12	92	85	25	1	0	0	0	0	0	0	217
19:00	1	1	2	4	43	71	5	0	0	0	0	0	0	0	127
20:00	1	1	1	6	38	16	1	0	0	0	0	0	0	0	64
21:00	0	0	0	4	13	6	0	0	0	0	0	0	0	0	23
22:00	0	0	0	1	8	5	0	1	0	0	0	0	0	0	15
23:00	0	0	0	1	5	3	2	0	0	0	0	0	0	0	11
Total	27	11	15	157	758	822	179	12	2	0	0	0	0	0	1983

Daily

- 15th Percentile : 30 MPH
- 50th Percentile : 35 MPH
- 85th Percentile : 39 MPH
- 95th Percentile : 42 MPH

Mean Speed(Average) : 35 MPH

- 10 MPH Pace Speed : 31-40 MPH
- Number in Pace : 1580
- Percent in Pace : 79.7%
- Number of Vehicles > 35 MPH : 1015
- Percent of Vehicles > 35 MPH : 51.2%

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BSP2

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
06/01/17	0	0	1	0	0	4	0	0	0	0	0	0	0	0	5
01:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	2	0	1	0	0	0	0	0	0	0	0	3
05:00	0	0	0	2	7	7	1	0	0	0	0	0	0	0	17
06:00	0	0	1	6	16	16	1	1	0	0	0	0	0	0	41
07:00	7	0	0	9	74	64	17	1	0	0	0	0	0	0	172
08:00	6	0	0	11	40	47	6	2	0	0	0	0	0	0	112
09:00	2	0	0	10	33	28	2	0	0	0	0	0	0	0	75
10:00	3	0	1	8	19	24	3	0	0	0	0	0	0	0	58
11:00	2	0	5	12	39	25	6	0	1	0	0	0	0	0	90
12 PM	4	0	0	9	29	35	7	2	0	0	0	0	0	0	86
13:00	4	0	0	11	34	38	9	1	0	0	0	0	0	0	97
14:00	2	1	2	15	46	61	12	1	0	0	0	0	0	0	140
15:00	2	0	2	10	51	86	13	3	1	0	0	0	0	0	168
16:00	3	0	0	6	65	99	27	1	0	1	0	0	0	0	202
17:00	8	0	2	7	96	166	55	2	1	0	0	0	0	0	337
18:00	2	0	0	11	94	159	37	2	1	0	0	0	0	0	306
19:00	4	0	2	12	50	64	8	1	0	0	0	0	0	0	141
20:00	1	0	1	6	44	32	4	0	0	0	0	0	0	0	88
21:00	0	0	1	3	20	13	2	0	0	0	0	0	0	0	39
22:00	0	0	1	0	14	9	2	0	0	0	0	0	0	0	26
23:00	0	0	0	2	4	3	2	0	0	0	0	0	0	0	11
Total	50	1	19	153	778	981	214	17	4	1	0	0	0	0	2218

Daily

15th Percentile : 30 MPH
 50th Percentile : 35 MPH
 85th Percentile : 39 MPH
 95th Percentile : 42 MPH

Mean Speed(Average) : 35 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 1759
 Percent in Pace : 79.3%
 Number of Vehicles > 35 MPH : 1217
 Percent of Vehicles > 35 MPH : 54.9%

Grand Total	77	12	34	310	1536	1803	393	29	6	1	0	0	0	0	4201
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Overall

15th Percentile : 30 MPH
 50th Percentile : 35 MPH
 85th Percentile : 39 MPH
 95th Percentile : 42 MPH

Mean Speed(Average) : 35 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 3339
 Percent in Pace : 79.5%
 Number of Vehicles > 35 MPH : 2232
 Percent of Vehicles > 35 MPH : 53.1%

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BSP2

SB, NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
05/31/17	0	0	0	1	1	4	0	0	0	0	0	0	0	0	6
01:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
03:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	0	5	2	1	0	0	0	0	0	0	8
05:00	0	0	0	8	20	21	5	0	0	0	0	0	0	0	54
06:00	3	0	3	17	54	78	29	0	0	0	0	0	0	0	184
07:00	25	2	18	96	188	152	42	3	0	0	0	0	0	0	526
08:00	6	4	11	30	97	125	41	1	0	0	0	0	0	0	315
09:00	0	0	1	17	59	75	26	3	0	0	0	0	0	0	181
10:00	3	0	1	14	32	54	17	7	0	0	0	0	0	0	128
11:00	0	0	0	9	42	48	21	3	0	1	0	0	0	0	124
12 PM	1	1	5	20	50	56	15	4	0	0	0	0	0	0	152
13:00	2	0	2	18	67	62	16	5	1	0	0	0	0	0	173
14:00	6	0	2	16	102	97	37	2	0	0	0	0	0	0	262
15:00	3	0	1	31	107	102	31	5	0	0	0	0	0	0	280
16:00	6	2	2	5	96	165	48	4	0	0	0	0	0	0	328
17:00	8	6	5	16	90	193	63	10	2	1	0	0	0	0	394
18:00	3	0	0	16	110	119	38	4	0	0	0	0	0	0	290
19:00	3	1	2	8	67	109	21	2	1	0	0	0	0	0	214
20:00	2	2	3	13	63	39	9	1	0	0	0	0	0	0	132
21:00	0	0	0	5	21	18	3	0	0	0	0	0	0	0	47
22:00	0	0	0	5	15	8	1	2	0	0	0	0	0	0	31
23:00	0	0	0	1	6	7	3	0	0	0	0	0	0	0	17
Total	71	18	56	346	1289	1539	469	57	4	2	0	0	0	0	3851

Daily

15th Percentile : 30 MPH
 50th Percentile : 35 MPH
 85th Percentile : 39 MPH
 95th Percentile : 43 MPH

Mean Speed(Average) : 35 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 2828
 Percent in Pace : 73.4%
 Number of Vehicles > 35 MPH : 2071
 Percent of Vehicles > 35 MPH : 53.8%

Accurate Counts

978-664-2565

Location : Town Farm Road
 Location : North of Forge Village Road
 City/State: Westford, MA

1768BSP2

SB, NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
06/01/17	0	0	1	1	1	5	1	0	0	0	0	0	0	0	9
01:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	1	2	1	0	0	0	0	0	0	0	0	4
03:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
04:00	0	0	0	2	3	3	2	0	0	0	0	0	0	0	10
05:00	0	0	1	3	17	18	7	1	1	0	0	0	0	0	48
06:00	0	0	4	17	41	72	27	3	0	0	0	0	0	0	164
07:00	15	3	10	67	184	167	48	5	0	0	0	0	0	0	499
08:00	20	4	7	25	95	136	32	3	0	0	0	0	0	0	322
09:00	4	0	0	17	74	80	22	1	0	0	0	0	0	0	198
10:00	4	1	4	13	40	48	20	3	1	0	0	0	0	0	134
11:00	9	0	8	22	59	47	16	2	1	0	0	0	0	0	164
12 PM	23	0	0	14	48	54	18	5	0	0	0	0	0	0	162
13:00	40	0	0	15	51	54	17	1	0	0	0	0	0	0	178
14:00	13	3	5	23	84	112	31	5	0	0	0	0	0	0	276
15:00	13	2	2	17	83	136	24	8	1	0	0	0	0	0	286
16:00	4	0	4	8	90	150	41	1	0	1	0	0	0	0	299
17:00	18	0	2	15	134	226	81	5	1	0	0	0	0	0	482
18:00	7	0	1	14	112	221	62	2	2	0	0	0	0	0	421
19:00	6	0	2	15	90	112	20	3	0	0	0	0	0	0	248
20:00	4	0	1	15	89	76	23	5	0	0	0	0	0	0	213
21:00	0	0	2	5	36	26	6	0	0	0	0	0	0	0	75
22:00	0	0	1	3	17	13	6	1	0	0	0	0	0	0	41
23:00	0	0	0	3	8	6	2	1	0	0	0	0	0	0	20
Total	180	13	55	315	1362	1763	506	55	7	1	0	0	0	0	4257

Daily

15th Percentile : 30 MPH
 50th Percentile : 35 MPH
 85th Percentile : 39 MPH
 95th Percentile : 43 MPH

Mean Speed(Average) : 35 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 3125
 Percent in Pace : 73.4%
 Number of Vehicles > 35 MPH : 2332
 Percent of Vehicles > 35 MPH : 54.8%

Grand Total	251	31	111	661	2651	3302	975	112	11	3	0	0	0	0	8108
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Overall

15th Percentile : 30 MPH
 50th Percentile : 35 MPH
 85th Percentile : 39 MPH
 95th Percentile : 43 MPH

Mean Speed(Average) : 35 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 5953
 Percent in Pace : 73.4%
 Number of Vehicles > 35 MPH : 4403
 Percent of Vehicles > 35 MPH : 54.3%

Appendix E. Detailed Crash Data

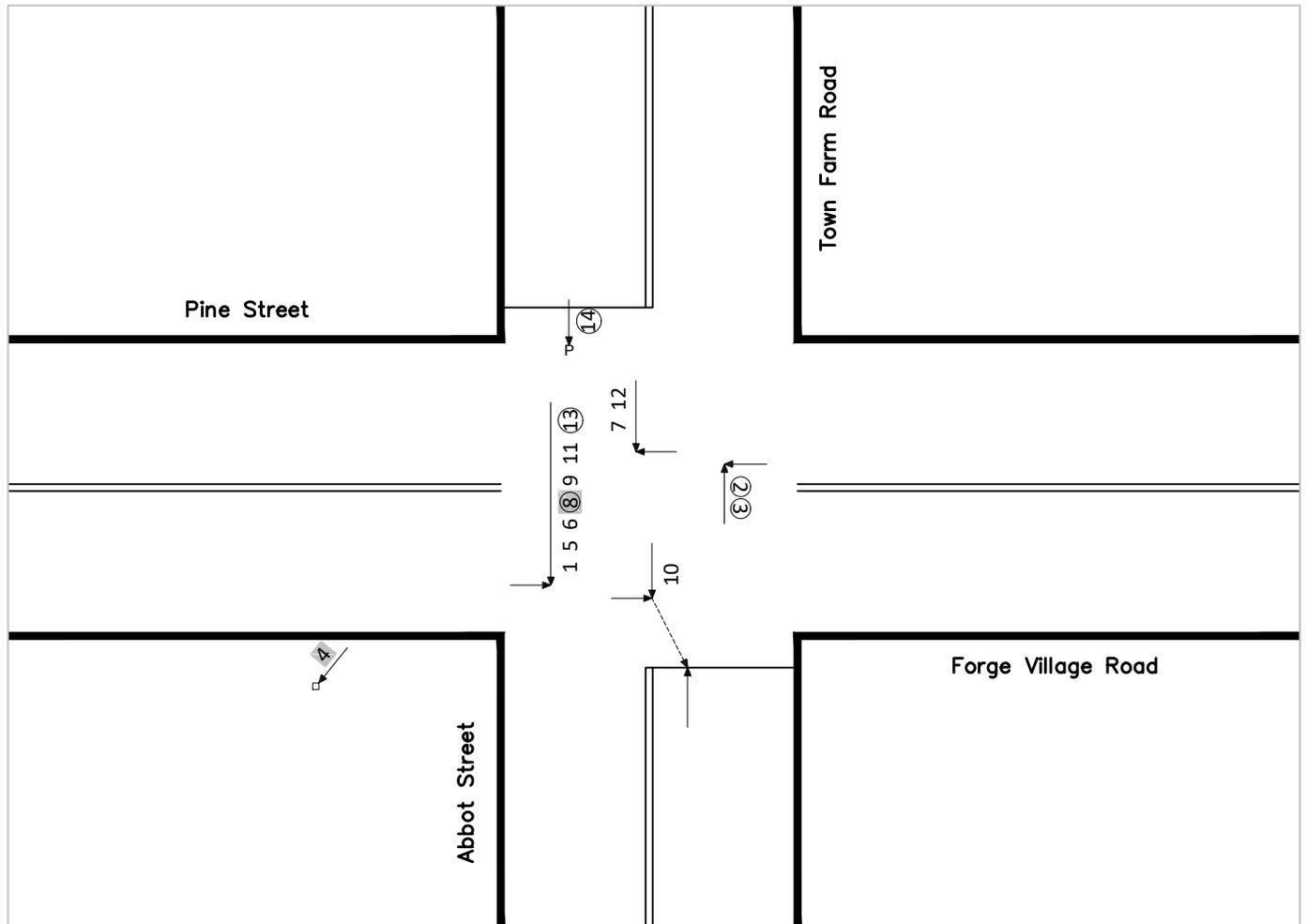


Not to Scale

Westford Road Safety Audits - Various Locations - Westford, Massachusetts

Road Safety Audit

LOCATION: Town Farm Road / Forge Village Road / Abbot Street / Pine Street
 CITY/STATE: Westford, Massachusetts
 TIME PERIOD: January 2012 - December 2016
 PREPARED BY: TEC, Inc. / Eindra (Elena) Aung, E.I.T.
 SOURCE: MassDOT / Town of Westford Police Department



LEGEND						SHOW FOR COLLISION		
→	VEHICLE PATH	↔	HEAD-ON COLLISION	□	FIXED OBJECT	1. Approximate location of collision, 2. Direction of collision, 3. Type of collision and vehicles involved, 4. Time, Day, Date 5. Any other pertinent factors mentioned on the report. NOTE: Shaded number indicates crash occurred under "nighttime" conditions.		
←←	BACKING VEHICLE	↘	ANGLED COLLISION	⊠	MOVEABLE OBJECT			
↔↔	SIDESWIPE COLLISION	→□	FIXED OBJECT COLLISION	▨	PARKED VEHICLE			
→P	PEDESTRIAN COLLISION	→○	OVERTURNED VEHICLE	○	PERSONAL INJURY			
→C	CYCLIST COLLISION	↘↘	OUT-OF-CONTROL VEHICLE	○	FATALITY			
→→	REAR-END COLLISION			○	ANIMAL			
SUMMARY OF CRASHES ON DIAGRAM [no fatal collisions]								
	REAR-END	SIDESWIPE	HEAD-ON	ANGLED	SINGLE VEH	PED/BIKE	OTHER / UNK	TOTAL
PROPERTY DAMAGE ONLY	0	0	0	8	1	0	0	9
NON-FATAL INJURY	0	0	0	4	0	1	0	5
UNKNOWN / NOT REPORTED	0	0	0	0	0	0	0	0
TOTAL	0	0	0	12	1	1	0	14

Figure RSA-1

Collision Diagram
January 2012 - December 2016
Collision Data



TEC, Inc.
 65 Glenn Street | 169 Ocean Blvd, Unit 101
 Lawrence, MA 01843 | Hampton, NH 03842
 (978) 794.1792 | (603) 601.8154
 www.TheEngineeringCorp.com

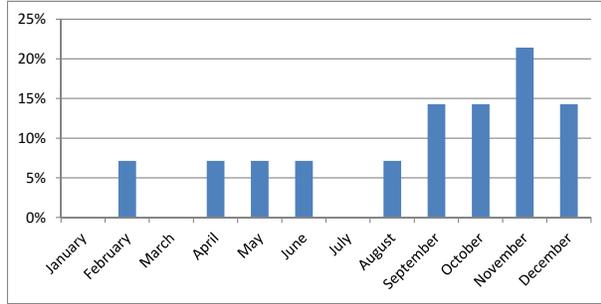
Crash Data Summary Tables
 Town Farm Road / Forge Village Road / Abbot Street / Pine Street - Westford, Massachusetts
 01/01/2012 - 12/31/2016

Collision Diagram	Crash Date	Crash Time	Day of Week	Ambient Light	Weather Condition	Road Surface	Crash Severity	Manner of Collision	Driver Contributing Codes	Detailed Narrative (from Crash Report)
1	11/26/2012	3:03 PM	Monday	Daylight	Clear	Dry	Property Damage Only	Angled	Glare	MV1: travelling EB on Pine St; MV2: travelling SB on Town Farm Rd. MV1 struck MV2 when MV2 entered the intersection.
2	10/30/2013	10:53 AM	Wednesday	Daylight	Cloudy	Wet	Non-fatal Injury	Angled	Failure to Yield Right-of-Way	MV1: travelling WB on Forge Village Rd; MV2: travelling NB on Abbot St. MV1 struck MV2 when MV2 proceeded through the intersection.
3	11/22/2013	7:44 PM	Friday	Dark - Lighted	Rain	Wet	Non-fatal Injury	Angled	Disregarded Traffic Controls	MV1: travelling NB on Abbot St; MV2: travelling WB on Forge Village Rd. MV2 struck MV1 when MV1 failed to stop at the STOP-sign
4	11/2/2014	1:17 AM	Sunday	Dark - Lighted	Cloudy	Wet	Property Damage Only	Single Vehicle	Erratic / Aggressive / Reckless Driving	MV1: traveling WB on Forge Village Rd. Due to alcohol, the operator of MV1 fell asleep while driving. MV1 went off the road to the left on Pine St, and struck the bushes and trees.
5	12/7/2014	10:23 AM	Sunday	Daylight	Clear	Dry	Property Damage Only	Angled	Inattention / Distracted	MV1: travelling EB on Pine St; MV2: travelling SB on Town Farm Rd. MV2 was distracted with the GPS and did not see the STOP-sign. MV1 struck MV2 when MV2 entered the intersection.
6	12/12/2014	7:33 AM	Friday	Daylight	Clear	Dry	Property Damage Only	Angled	Inattention / Distracted	MV1: travelling EB on Pine St; MV2: travelling SB on Town Farm Rd. MV1 struck MV2 when MV2 entered the intersection.
7	5/15/2015	2:53 PM	Friday	Daylight	Clear	Dry	Property Damage Only	Angled	Disregarded Traffic Controls	MV1: travelling SB on Town Farm Rd; MV2: travelling WB on Forge Village Rd. MV2 struck MV1 when MV1 went through the STOP-sign into the intersection.
8	6/13/2015	9:09 PM	Saturday	Dark - Lighted	Clear	Dry	Non-fatal Injury	Angled	Disregarded Traffic Controls	MV1: travelling EB on Pine St; MV2: travelling SB on Town Farm Rd. MV2 struck MV1 when MV2 failed to stop at the STOP-sign.
9	9/27/2015	12:03 PM	Sunday	Daylight	Clear	Dry	Property Damage Only	Angled	Inattention / Distracted	MV1: travelling EB on Pine St; MV2: travelling SB on Town Farm Rd. MV1 struck MV2 when MV2 entered the intersection.
10	10/2/2015	2:03 PM	Friday	Daylight	Clear	Dry	Property Damage Only	Angled	Failure to Yield Right-of-Way	MV1: travelling EB on Pine St; MV2: travelling SB on Town Farm Rd; MV3: stopped at the STOP-sign on Abbot St NB lane. MV2 struck MV1 when MV2 entered the intersection. The impact pushed MV1 into MV3.
11	2/9/2016	7:35 AM	Tuesday	Daylight	Cloudy	Wet	Property Damage Only	Angled	Inattention / Distracted	MV1: travelling EB on Pine St; MV2: travelling SB on Town Farm Rd. MV1 struck MV2 when MV2 entered the intersection.
12	4/8/2016	10:14 AM	Friday	Daylight	Cloudy	Wet	Property Damage Only	Angled	Disregarded Traffic Controls	MV1: travelling WB on Forge Village Rd; MV2: travelling SB on Town Farm Rd. MV1 struck MV2 when MV2 proceeded through the intersection without stopping at the STOP-sign.
13	8/4/2016	9:07 AM	Thursday	Daylight	Clear	Dry	Non-fatal Injury	Angled	Inattention / Distracted	MV1: travelling EB on Pine St; MV2: travelling SB on Town Farm Rd. MV1 struck MV2 when MV2 entered the intersection.
14	9/20/2016	5:55 AM	Tuesday	Dawn	Cloudy	Dry	Non-fatal Injury	Pedestrian	Not Reported	MV1: travelling SB on Town Farm Rd. MV1 struck a pedestrian who was running WB towards Pine St.

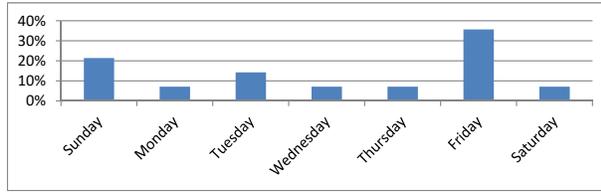
Crash Data Summary Tables
 Town Farm Road / Forge Village Road / Abbot Street / Pine Street - Westford, Massachusetts
 01/01/2012 - 12/31/2016

Town Farm Road / Forge Village Road / Abbot Street / Pine Street 14

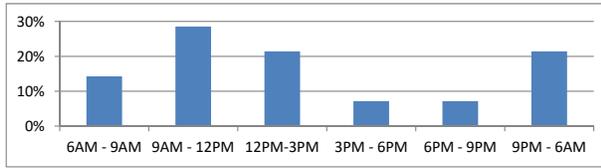
Month	#	%
January	0	0%
February	1	7%
March	0	0%
April	1	7%
May	1	7%
June	1	7%
July	0	0%
August	1	7%
September	2	14%
October	2	14%
November	3	21%
December	2	14%



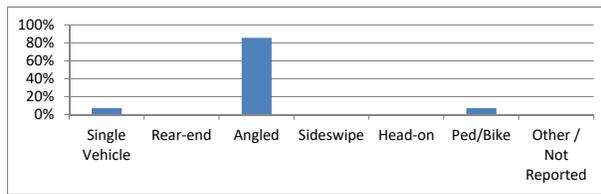
Day of Week	#	%
Sunday	3	21%
Monday	1	7%
Tuesday	2	14%
Wednesday	1	7%
Thursday	1	7%
Friday	5	36%
Saturday	1	7%



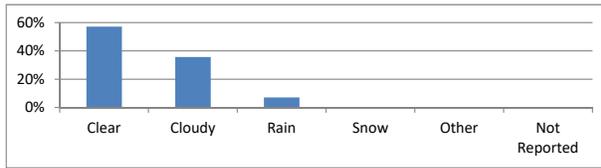
Time of Day	#	%
6AM - 9AM	2	14%
9AM - 12PM	4	29%
12PM-3PM	3	21%
3PM - 6PM	1	7%
6PM - 9PM	1	7%
9PM - 6AM	3	21%



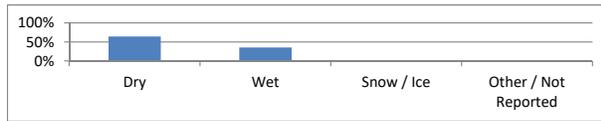
Manner of Collision	#	%
Single Vehicle	1	7%
Rear-end	0	0%
Angled	12	86%
Sideswipe	0	0%
Head-on	0	0%
Ped/Bike	1	7%
Other / Not Reported	0	0%



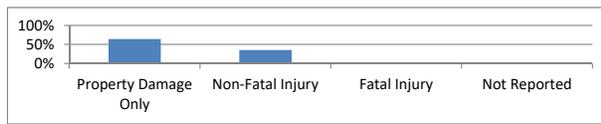
Weather Conditions	#	%
Clear	8	57%
Cloudy	5	36%
Rain	1	7%
Snow	0	0%
Other	0	0%
Not Reported	0	0%



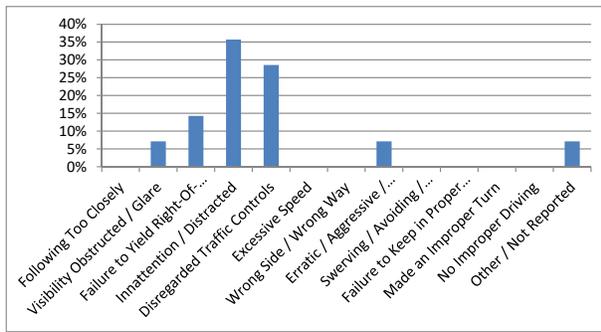
Road Surface	#	%
Dry	9	64%
Wet	5	36%
Snow / Ice	0	0%
Other / Not Reported	0	0%



Crash Severity	#	%
Property Damage Only	9	64%
Non-Fatal Injury	5	36%
Fatal Injury	0	0%
Not Reported	0	0%



Main Contributing Factor from Narrative	#	%
Following Too Closely	0	0%
Visibility Obstructed / Glare	1	7%
Failure to Yield Right-Of-Way	2	14%
Innattention / Distracted	5	36%
Disregarded Traffic Controls	4	29%
Excessive Speed	0	0%
Wrong Side / Wrong Way	0	0%
Erratic / Aggressive / Reckless Driving	1	7%
Swerving / Avoiding / Over-Steering / Over-Correcting	0	0%
Failure to Keep in Proper Lane	0	0%
Made an Improper Turn	0	0%
No Improper Driving	0	0%
Other / Not Reported	1	7%



Appendix F. Road Safety Audit References

Road Safety Audit References

Massachusetts Traffic Safety Toolbox, Massachusetts Highway Department,
www.mhd.state.ma.us/safetytoolbox.

Road Safety Audits, A Synthesis of Highway Practice. NCHRP Synthesis 336. Transportation Research Board, National Cooperative Highway Research Program, 2004.

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Road Safety Audits. ITE Technical Council Committee 4S-7. Institute of Transportation Engineers, February 1995.

Safety Evaluation of Flashing Beacons at STOP-Controlled Intersections. U.S. Department of Transportation, Federal Highway Administration. April 2008.
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