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By City Clerk at 10:27 am, Jun 23, 2023

MEMORIAL BUILDING
150 Concord Street
Framingham, MA 01702

TRAFFIC COMMISSION

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DEP. CHIEF JAMES AHEARN | MARIO ALVAREZ | STEVE CROCI
NICOLAS HEBERT | LINCOLN LYNCH | LT. HARRY WAREHAM

AGENDA: June 27, 2023
ABLONDI ROOM/REMOTE
7:00 P.M.

When: Jun 27, 2023 07:00 PM Eastern Time (US and Canada)

Topic: Traffic Commission 6.27.23

Please click the link below to join the webinar:

<https://us02web.zoom.us/j/86795426099?pwd=cjkzbFhYZEhmNEZHSVZBZUs1RkltQT09>

Passcode: 721834

Or One tap mobile :

+13052241968,,86795426099# US

+13092053325,,86795426099# US

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Dial(for higher quality, dial a number based on your current location):

+1 305 224 1968 US

+1 309 205 3325 US

+1 312 626 6799 US (Chicago)

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+1 646 931 3860 US

+1 301 715 8592 US (Washington DC)

+1 360 209 5623 US

+1 386 347 5053 US

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+1 564 217 2000 US

+1 669 444 9171 US

+1 669 900 9128 US (San Jose)

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Webinar ID: 867 9542 6099



MEMORIAL BUILDING
150 Concord Street
Framingham, MA 01702

TRAFFIC COMMISSION

International numbers available: <https://us02web.zoom.us/j/kbnARzj4JY>

CALL TO ORDER
PUBLIC PARTICIPATION

PUBLIC HEARINGS / DISCUSSIONS

1. Edgell Road @ Central Street - Traffic Signal Permit
2. Salem End Road (Temple St to Badger Rd) – Speeding & Safety Concerns – Review Evaluation with Consultant
3. Concord Street @ Danforth Street – Safety Concerns
4. Brook Street – Proposed Crosswalk

APPROVAL OF MINUTES
May 23, 2023

REPORT OF SUBCOMMITTEE
REPORT OF COMMISSION MEMBERS
ADJOURNMENT



CITY OF FRAMINGHAM

DEPARTMENT OF PUBLIC WORKS | ADMINISTRATION

110 Western Avenue
Framingham, MA 01702

508-532-5600
dpwgeneral@framinghamma.gov
www.framinghamma.gov

MEMORANDUM

DATE: June 22, 2023

TO: Traffic Commission

FROM: William R. Sedewitz, P.E., Chief Engineer *WRS*

RE: Edgell Road at Central Street Intersection Improvements

The City of Framingham has been working with the Massachusetts Department of Transportation to advance improvement to the Edgell Road at Central Street intersection (see attached). The project scope is centered around improving vehicle operations and safety by relieving congestion issues on Central Street and addressing existing sight distance deficiencies. This includes geometric improvements to the intersection and installation of a new traffic signal at the intersection. The project will also improve pedestrian mobility and safety by providing an exclusive pedestrian phase as well as ADA/AAB compliant sidewalks along both sides of all roadways and crosswalks across all approaches.

The work includes pavement milling, pavement overlay, full depth pavement reconstruction, cement concrete sidewalks, cement concrete pedestrian curb ramps, drainage and utility modifications, earth excavation, granite curbing, highway guard as well as pavement markings, signage, landscaping, and other incidental work.

Federal and State funds will cover the majority of the construction costs through the Transportation Improvement Program (TIP). As a requirement of this program, the City's traffic regulations must be amended to be consistent with the attached Traffic Control Agreement. The intention is to discuss and vote on these changes at the June 27, 2023 Traffic Commission meeting.

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Maura Healey, Governor
Kimberley Driscoll, Lieutenant Governor
Gina Fiandaca, Secretary & CEO
Jonathan L. Gulliver, Highway Administrator



The Honorable Charlie Sisitsky
Office of the Mayor
City of Framingham City Hall
50 Concord Street
Framingham, MA 01702

April 20, 2023

Re: Traffic Control Agreement

Dear Mayor Sisitsky,

Enclosed with this letter is a Traffic Control Agreement for the Safety Improvement Project at Edgell and Central Street in Framingham. This agreement is required by the Federal Highway Administration in accordance with Title 23 USC, Sections 109(d) and 116. The purpose of this Agreement is to assure that the ways within and adjacent to the project will be operated and maintained by the municipality as planned. Failure on the part of any municipality to execute and fulfill the terms of the Agreement may cause disqualification from participation in future Safety Improvement Projects.

This Agreement has been discussed with the project design engineer and municipal representatives. The proper officials are required to sign the original Agreement and affix all attestations and seals.

It is requested that all pertinent traffic regulations be enacted. In the instance where existing municipal regulations are in conflict with the Agreement action must be taken to bring them into compliance with the Agreement.

Please submit to this office the signed original of the Agreement and the signed, dated and executed originals of the regulation establishing the "Specific Provisions Section" as detailed in the Traffic Control Agreement. If any of the "Specific Provisions Section" is in effect, please provide a copy of the regulation. Upon completion, please forward all required documents, e-signatures are acceptable, by email to: Joseph.J.Amato@dot.state.ma.us

If you have any questions regarding this matter you can contact Joseph Amato of the Highway Safety Division at (617) 680-4876.

Sincerely,

Neil E. Boudreau
Assistant Administrator for Safety and Traffic Engineering

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MASSACHUSETTS DEPARTMENT OF TRANSPORTATION

TRAFFIC ENGINEERING

TRAFFIC CONTROL AGREEMENT

AGREEMENT BETWEEN THE
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION AND THE
CITY OF FRAMINGHAM

FEDERAL AID PROJECT NO.

AGREEMENT NO. 608889

AGREEMENT, made this ____ day of _____, 2023 by and between the Massachusetts Department of Transportation, hereinafter called "MASSDOT," and the CITY of FRAMINGHAM, hereinafter called the "CITY," pursuant to the provisions of 23 U. S. C. §§ 109(d) & 116, and in accordance with the official standards of MASSDOT, which have been adopted in conformity with the provisions and recommendations of the Manual on Uniform Traffic Control Devices for Streets and Highways published by the Department of Transportation, Federal Highway Administration, hereinafter called "STANDARDS."

WHEREAS, MASSDOT and the CITY have agreed that Edgell Road and Central Street being in whole or in part a CITY way, has qualified to participate in the Federal Aid Program with the work being financed in part by the Federal Government; and

WHEREAS, the United States Government, through its Department of Transportation, Federal Highway Administration, requires that the project area upon completion will be operated and maintained in an adequate manner; and

WHEREAS, the CITY approves the proposed plans for the improvements and upon completion of the project will be the responsibility of the CITY.

NOW, THEREFORE, in consideration thereof, the CITY hereby agrees to conform to the following provisions:

General Provisions

- A. All information, regulatory or warning signs, all traffic control signals, flashing beacons, traffic islands or other traffic control devices and all pavement or other markings within the ways located in the project area shall be designed, located and operated in accordance with the STANDARDS of MASSDOT for such devices.
- B. The Police Department of the CITY shall be the enforcement agency for traffic regulations established in accordance with this AGREEMENT and the traffic devices installed in connection therewith.

- C. Signed, dated and attested copies of amendments to the CITY traffic ordinances necessary for the enforcement of any specific provisions will be forwarded forthwith by the CITY to MASSDOT.

SPECIFIC PROVISIONS

A. NO LEFT TURN

- Central Street westbound slip-lane to Edgell Road southbound

B. LEFT LANE MUST TURN LEFT

- Edgell Road southbound approach to Central Street

C. RIGHT LANE MUST TURN RIGHT

- Edgell Road northbound approach to Central Street

D. BIKE LANE

- Edgell Road northbound, from Warren Place to 200-feet north of Central Street
- Edgell Road southbound, from 300-feet north of Central Street to Warren Place
- Central Street eastbound, from Edgell Road to approx. 100-feet east of Edgell Road
- Central Street westbound from approx. 300-feet east of Edgell Road to Edgell Road

E. RIGHT TURN YIELD TO BIKES

- Edgell Road northbound approach to Central Street
- Central Street westbound approach to Edgell Road

F. DO NOT ENTER/ONE-WAY

- Edgell Road southbound to Central Street westbound slip-lane

G. YIELD ON FLASHING YELLOW LEFT ARROW

- Edgell Road southbound approach to Central Street

Access and Egress

Within the limits of the Project, neither additional driveways (residential or commercial) nor relocation or alteration of existing driveways shall be permitted unless they are in conformance with MASSDOT STANDARDS and receive prior written approval from MASSDOT.

Traffic Islands

Traffic islands or median islands and traffic devices thereon are not to be installed, altered or removed without the prior written approval of MASSDOT. Parking is prohibited on and adjacent to all traffic islands and median islands within the Project area.

Traffic Control Signals

- A. Traffic Control Signals shall be operated in strict accordance with the requirements of the applicable permit.
- B. Changes in the operation of the traffic control signals located in the Project area are not to be made without the prior written approval of MASSDOT.
- C. Traffic Control Signals, the operation of which is pertinent to the Project area covered by this AGREEMENT, will be installed to control traffic as shown on the plans for this Project. All power charges for the operation of the installation will be the responsibility of the CITY as well as charges for maintenance and control. The traffic control signals listed below will be under the ownership and control of the CITY.

Edgell Road at Central Street

Miscellaneous

Traffic Controls or regulations instituted whether by the MASSDOT or the CITY on ways or parts thereof within the Project are to remain in force and effect until proposed future changes have been approved in writing by MASSDOT.

MASSDOT will not approve any future proposed traffic control changes within the Project, which will in the opinion of MASSDOT, lessen to any degree the efficient utilization of the highway for traffic purposes.

Maintenance

The CITY, in accordance with the provisions of 23 U.S.C. §§ 109(d) & 116, will properly maintain the way and all traffic control devices and pavement markings under the control of the CITY within the project area. This obligation includes features of facilities and equipment that are required to be readily accessible to and usable by persons with disabilities. This requirement does not prohibit isolated or temporary interruptions in service or access due to maintenance or repairs.

Penalty

Continued and willful failure on the part of the CITY to fulfill its responsibility in the proper maintenance and operation and the enforcement of the traffic regulations of the completed project may disqualify the CITY from participation in future Federal Aid Projects in which the CITY has maintenance responsibility, as provided in Title 23 USC.

Such failure may result in the withholding or withdrawal of the unexpended balance of any funds assigned to the CITY, under the provisions of MASS. GEN. LAWS Ch. 90, § 34.

IN WITNESS WHEREOF, the Parties hereto have executed this AGREEMENT on the day and year first written.

CITY OF FRAMINGHAM

**MASSACHUSETTS DEPARTMENT OF
TRANSPORTATION**

MAYOR

HIGHWAY ADMINISTRATOR

LEGAL CERTIFICATION

This will certify that the CITY has complied with all applicable State Laws and its By-Laws and Ordinances as they apply to this AGREEMENT and that this AGREEMENT is a valid, binding Agreement with the CITY.

DATE

CITY SOLICITOR

CERTIFICATE OF SIGNATORY

This will certify that the above-named individuals are duly authorized and empowered to execute and deliver this Agreement on behalf of the CITY of FRAMINGHAM.

NAME

TITLE

DATE

ATTEST (SIGNATURE)

CITY CLERK

25% Design

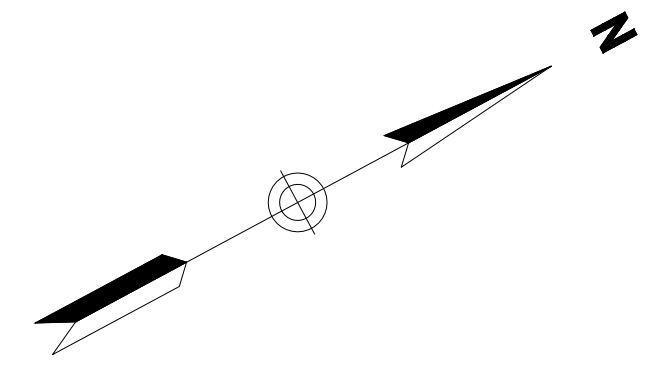


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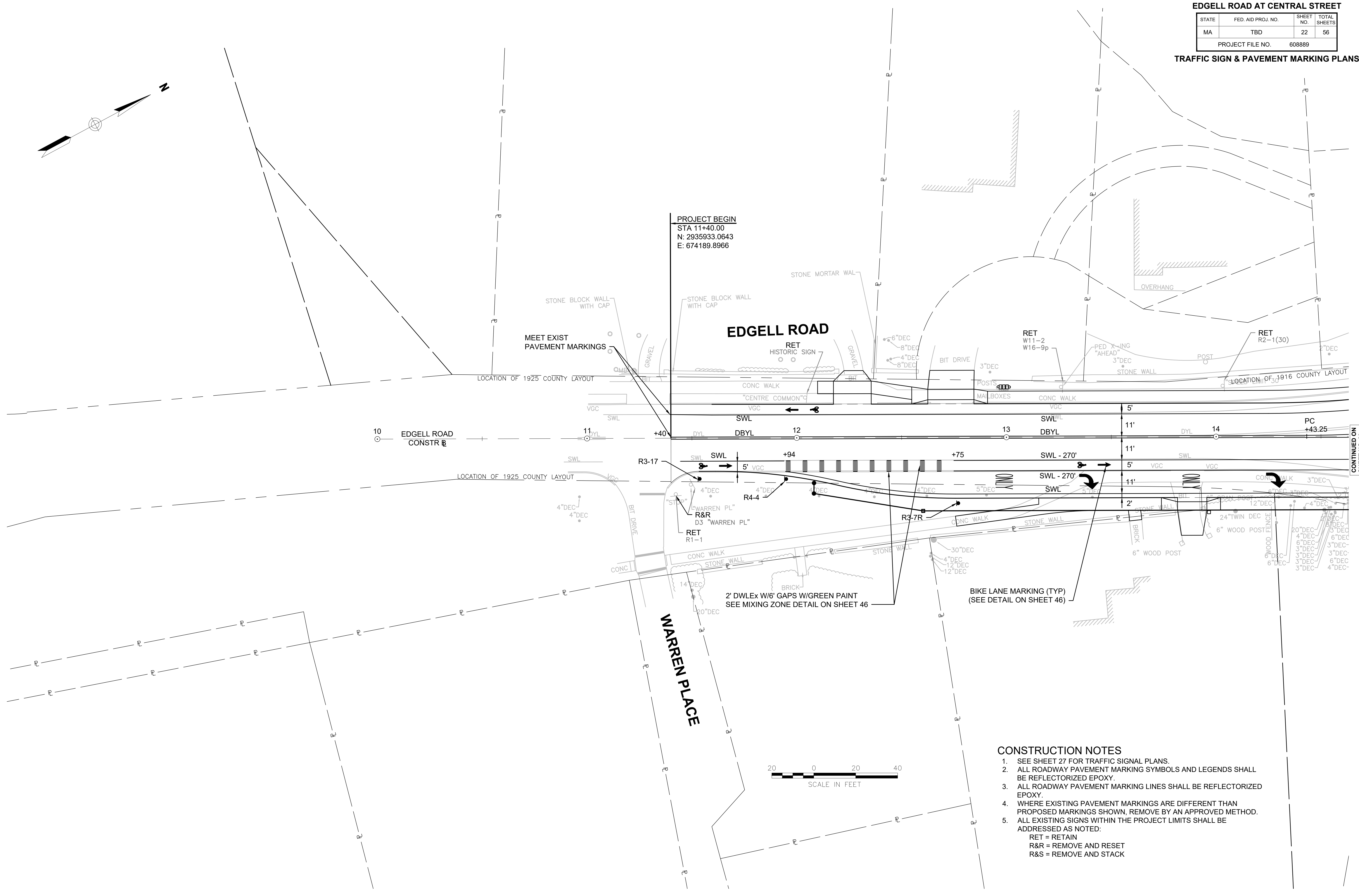
**FRAMINGHAM
EDGELL ROAD AT CENTRAL STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	TBD	22	56
PROJECT FILE NO.		608889	

TRAFFIC SIGN & PAVEMENT MARKING PLANS



PROJECT BEGIN
STA 11+40.00
N: 2935933.0643
E: 674189.8966



- CONSTRUCTION NOTES**
- SEE SHEET 27 FOR TRAFFIC SIGNAL PLANS.
 - ALL ROADWAY PAVEMENT MARKING SYMBOLS AND LEGENDS SHALL BE REFLECTORIZED EPOXY.
 - ALL ROADWAY PAVEMENT MARKING LINES SHALL BE REFLECTORIZED EPOXY.
 - WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
 - ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE ADDRESSED AS NOTED:
RET = RETAIN
R&R = REMOVE AND RESET
R&S = REMOVE AND STACK

CONTINUED ON
SHEET NO. 23

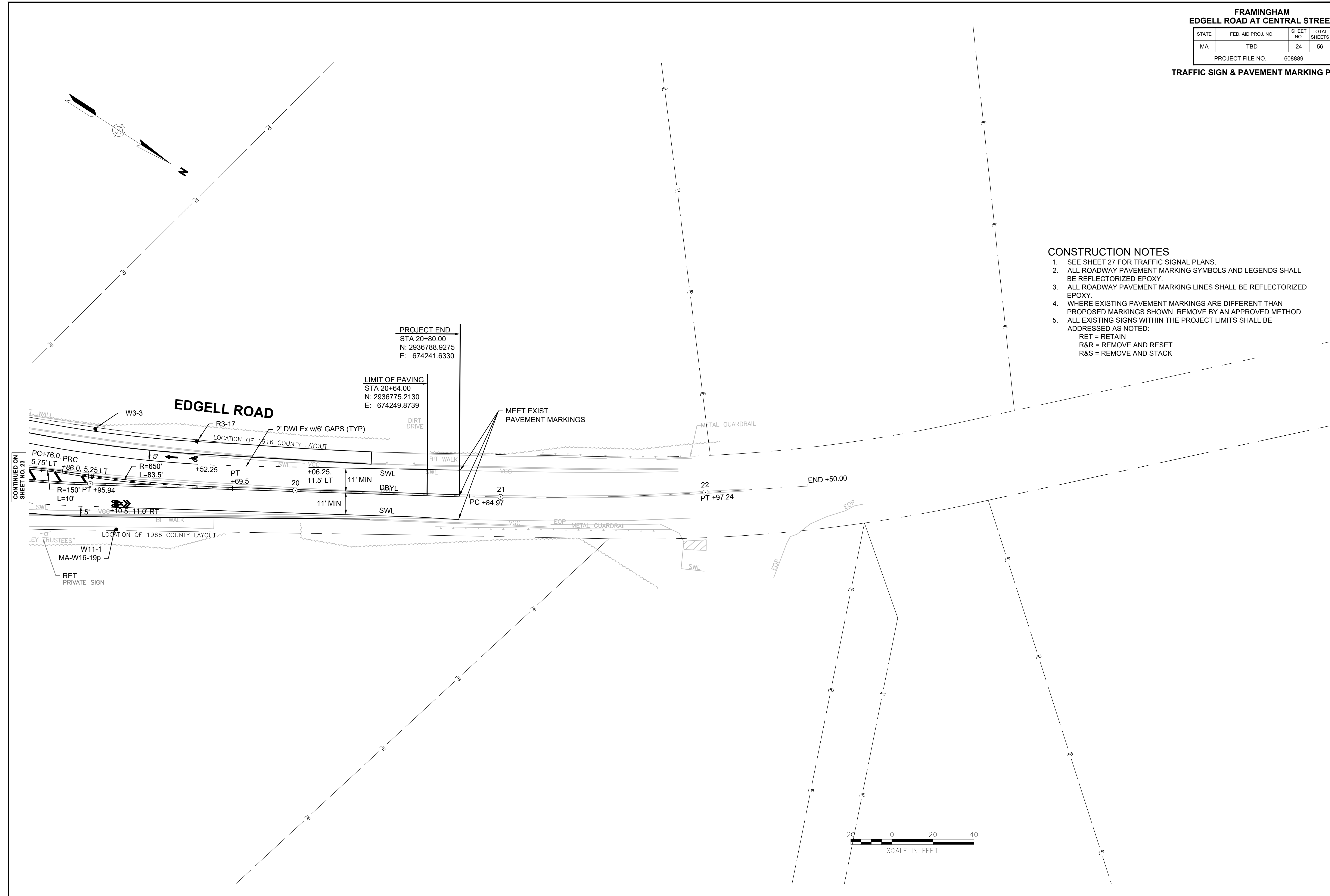
**FRAMINGHAM
EDGELL ROAD AT CENTRAL STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	TBD	24	56
PROJECT FILE NO.		608889	

TRAFFIC SIGN & PAVEMENT MARKING PLANS

CONSTRUCTION NOTES

- SEE SHEET 27 FOR TRAFFIC SIGNAL PLANS.
- ALL ROADWAY PAVEMENT MARKING SYMBOLS AND LEGENDS SHALL BE REFLECTORIZED EPOXY.
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PROJECT END
STA 20+80.00
N: 2936788.9275
E: 674241.6330

LIMIT OF PAVING
STA 20+64.00
N: 2936775.2130
E: 674249.8739

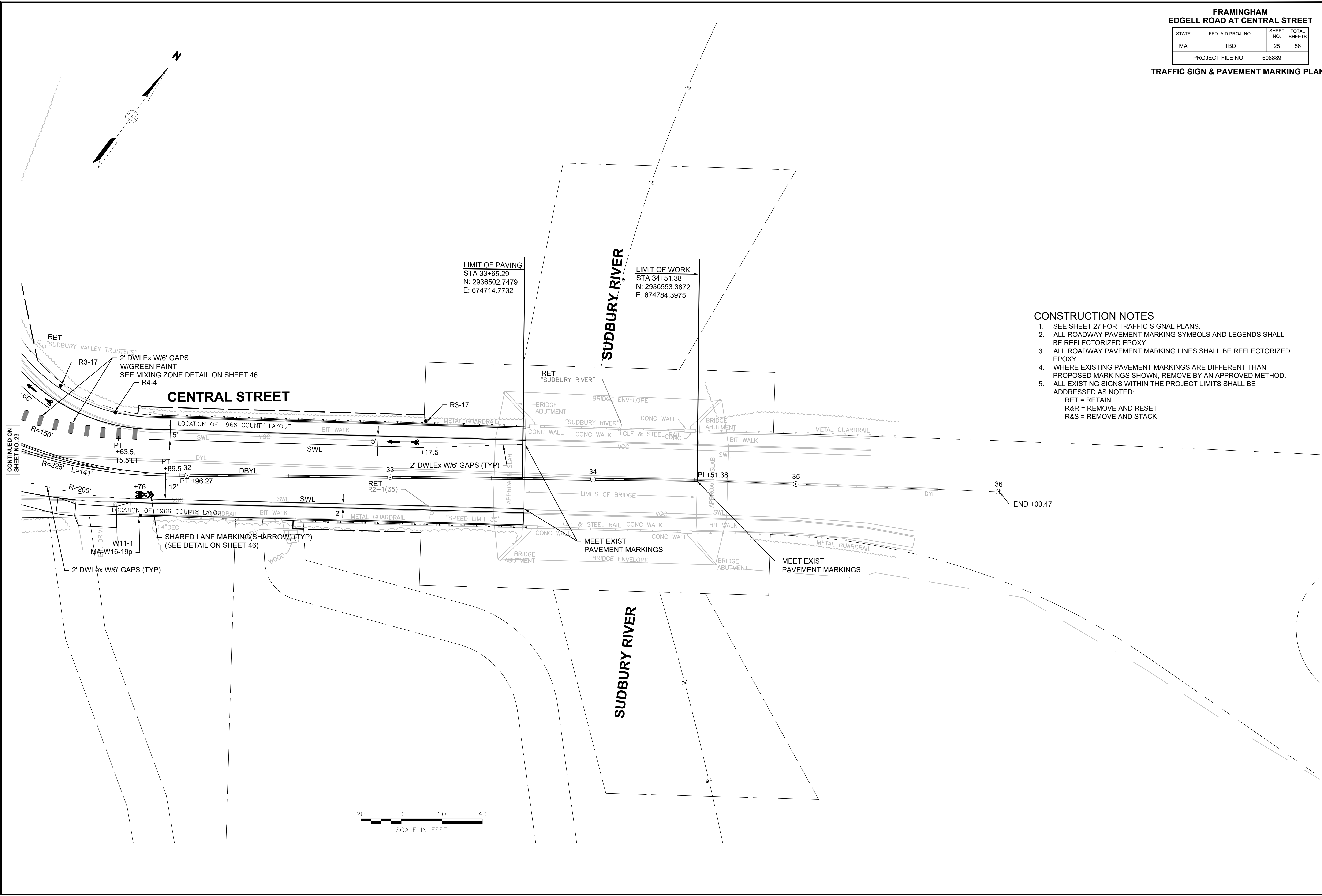
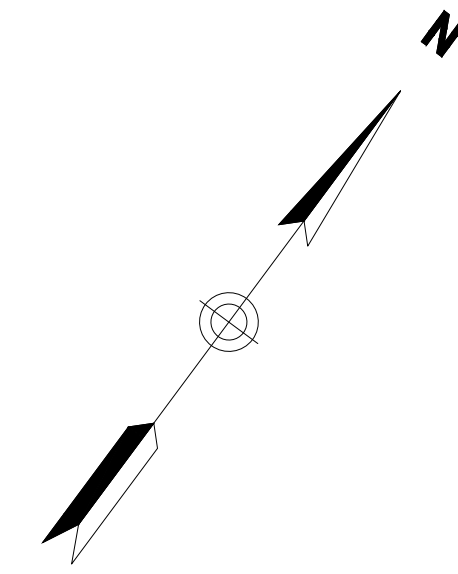
CONTINUED ON
SHEET NO. 23



**FRAMINGHAM
EDGELL ROAD AT CENTRAL STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	TBD	25	56
PROJECT FILE NO.		608889	

TRAFFIC SIGN & PAVEMENT MARKING PLANS



CONSTRUCTION NOTES

- SEE SHEET 27 FOR TRAFFIC SIGNAL PLANS.
- ALL ROADWAY PAVEMENT MARKING SYMBOLS AND LEGENDS SHALL BE REFLECTORIZED EPOXY.
- ALL ROADWAY PAVEMENT MARKING LINES SHALL BE REFLECTORIZED EPOXY.
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CONTINUED ON SHEET NO. 23

Framingham, MA
**Salem End Road
Evaluation**

June 2023

SPEED AND SAFETY ANALYSIS



BETA

315 Norwood Park South
2nd Floor
Norwood, Massachusetts 02062
781.255.1982
www.BETA-Inc.com

Framingham, MA

Salem End Road Evaluation

Framingham, MA

SPEED AND SAFETY ANALYSIS

Prepared by: BETA GROUP, INC.

Prepared for: City of Framingham, Massachusetts

June 2023

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- Appendix B: Traffic Volume Data
- Appendix C: Crash Data

1.0 INTRODUCTION

At the request of the City of Framingham, BETA Group, Inc. (BETA) has performed a safety evaluation and crash analysis along the Salem End Road corridor. The primary purpose of the evaluation was to assess travel speed data and review potential improvements, with a focus on the following:

- Review existing conditions along the corridor, including but not limited to travel speeds, traffic volumes, and crash history.
- Observe and monitor actual field conditions to review current operations.
- Identify potential improvements and countermeasures to address and mitigate travel speed and safety issues.

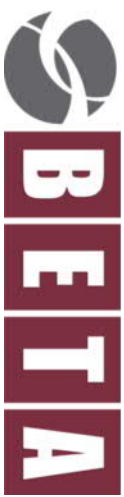
The project study area, shown in **Figure 1**, is the section of Salem End Road between Badger Road and Temple Street, which generally runs in an east-west direction.

2.0 EXISTING CONDITIONS

Salem End Road is a city-owned local roadway. The study area section is approximately 4,100 feet long and consists of one 11-foot travel lane in each direction, separated by a double yellow centerline. There are varying width 1-foot to 4-foot shoulders on both sides and parking is not allowed on either side of Salem End Road. There are no pedestrian or bicycle accommodations on either side of the roadway within the study area limits, with the exception of the safety walks on both sides of the bridge over the reservoir. However, as shown in **Figures 2 and 3**, both pedestrians and bicyclists were observed utilizing Salem End Road.

There are nine (9) intersections along the study area corridor, one of which is under traffic signal control and the other eight (8) have stop-sign control for the side street approaches. Each intersecting roadway is two lanes with one lane in each direction. Land-use surrounding the roadway is residential.

The posted speed limit on Salem End Road within the study area is 30 mph in both directions, with one sign installed for eastbound traffic just east of Badger Road and another sign for westbound traffic installed just west of Temple Street.



**Salem End Road
Accident Evaluation**
Framingham, Massachusetts



Limit of Accident
Evaluation

Legend:

Figure 1

Scale = 1" = 500'

Figure 2 – Bicyclists Observed Along Salem End Road



Figure 3 – Pedestrian Observed Along Salem End Road



2.1 TRAVEL SPEEDS

As part of the evaluation, speed data provided by the City was reviewed and analyzed. The data was collected at various locations along the corridor between 2021 and 2022. The summarized data is presented in **Table 1**.

Table 1 – Travel Speeds

Location	Year	Direction	Posted Speed	Average Speed	85% Speed	Direction	Posted Speed	Average Speed	85% Speed
Across from # 491 Salem End Road	2021	EB	30	36	40	WB	30	35	39
#449 Salem End Road	2022	EB	30	34	38	WB	30	35	38

Note: All speeds in miles per hour (mph)

The locations shown in the table, represent addresses on Salem End Road. As shown, the average speeds collected are 4 mph to 6 mph above the posted speed limit for the eastbound direction, and 5 mph above the speed limit in the westbound direction of travel. For the 85th percentile speed, which is defined as the speed at or below which 85 percent of all vehicles are observed to travel, both locations revealed rates above the posted speed limit of 30 mph. The 85th percentile speed is often used as a guide to establish the signed or regulatory speed limit, but the average speed can also be utilized depending on the characteristics of the roadway. At both locations, the 85th percentile speeds are 8 mph to 10 mph above the posted speed limit, which indicates that a significant proportion of the motorists traveling on Salem End Road are comfortable driving at a speed close to 40 mph. This also reveals that the roadway conditions in the study area, such as the alignment, profile, lane and shoulder widths, and roadside elements can accommodate the higher travel speeds.

2.2 TRAFFIC VOLUMES

To assess and understand traffic conditions within the study area, traffic volume data was collected on April 26, 2023, and April 27, 2023. The data collected consisted of Automatic Traffic Recorders (ATRs) to evaluate daily volumes on Salem End Road. The ATR was placed just to the west of the bridge that overpasses the reservoir.

A summary of the daily traffic volumes is shown in **Table 2**. Full traffic volume summaries are included in the Appendix.

Table 2 – Daily Traffic Volumes

Location	Weekday	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Heavy Vehicles
	ADT*	Volume	K Factor**	Dir. Dist.	Volume	K Factor**	Dir. Dist.	(%)
Salem End Road at Reservoir Bridge	11,817	1,069	9.0%	EB 73%	1,042	8.8%	WB 62%	2.5

* Average Daily Traffic, vehicles per day

** Percentage of the ADT that occurs during the peak hour

A review of the data shown in **Table 2** reveals an Average Daily Traffic (ADT) volume of 11,817 vehicles per day (vpd). There is a higher percentage of traffic traveling eastbound during the morning peak hour, and westbound during the evening peak hour. The K factor, which is the percentage of the ADT that occurs during the peak hour, was found to be slightly higher during the morning peak hour, which indicates that the morning peak hour volume is greater than that of the evening peak hour. An assessment of the daily and peak hour traffic volumes reveals that the traffic demand does not exceed the capacity of the roadway. Lane capacity for a two-lane roadway like Salem End Road is a function of road/shoulder width, geometry, surrounding land use and other factors. The expected capacity of Salem End Road is approximately 1,500 vehicles per hour.

In addition to reviewing the overall traffic volume along Salem End Road, heavy vehicle (trucks, buses) data was collected to determine the proportion of larger vehicles utilizing the roadway. As shown in **Table 2**, 2.5% of the overall daily traffic volume is heavy vehicles. This means that throughout a typical weekday, approximately 300 of the 11,817 vehicles are either a truck or bus. This is consistent with most secondary roadways that experience a traffic volume demand similar to Salem End Road, as a typical range of heavy vehicles is 2% to 3%. Field observations revealed that part of these heavy vehicles are school buses.

2.3 CRASH HISTORY

Crash reports for the study area were obtained from the Framingham Police Department for January 2017 through August 2022. The complete crash data, as well as collisions diagrams, are included in the Appendix. A review of the data revealed the following summary information:

- 52 reported crashes occurred along the entire study area
- 11 crashes did not take place at an intersection
- 63% were angle type collisions
- 16% resulted in an injury
- The intersection at Singletary Lane experienced the highest number of crashes with 19, or 37% of all crashes

Overall, travel speed does not appear to be a significant contributing factor to crashes experienced along the study area corridor. A critical indicator of crashes that are a result of excessive travel speeds is those that result in injuries. Only 16%, or 8 out of the 52 total crashes, resulted in an injury, which is not a significant proportion. Other than the Singletary Lane intersection, there is no district trend or pattern associated with the collisions that have occurred.

Framingham, MA

Since the Singletary Lane intersection had such a high number of collisions relative to the rest of the study area, a more detailed review of the crashes was performed, and revealed that 11 of the crashes were angle type, with 2 of those resulting in injuries.

Additionally, the crash rate for this location was calculated to determine how it compares to locations with similar traffic control and volume.

Intersection	Crash Rate*
Singletary Lane	0.80

* Number of crashes per Million Entering Vehicles (MEV)

The crash rate at the intersection is higher than both the statewide and District 3 averages for unsignalized intersections of 0.57 and 0.61 MEV, respectively. This illustrates that the intersection experiences about 35% more crashes than similar facilities throughout the region and state. Although the crash rate is higher than the statewide average for this intersection it is not identified as a Highway Safety Improvement Program (HSIP) cluster on the MassDOT High Crash Locations portal.

3.0 FINDINGS AND RECOMMENDATIONS

3.1 OBSERVATIONS

Observations were made along the Salem End Road to obtain additional information regarding current conditions and operations. There were two main takeaways from these observations:

- The stone wall on at the southwest corner of Salem End Road and Singletary Lane appears to be hindering sight distance to the left (west) for motorists turning onto Salem End Road from Singletary Lane.
- Although Salem End Road is surrounded exclusively by residential units and neighborhoods, its functionality is more like a collector or arterial road that connects regional traffic, as opposed to a local roadway, which primarily serves the residential traffic in the local area. Salem End Road appears to act as a cut-through to and from Route 9.

Figure 4 shows the view of a motorists stopped at the stop line on Singletary Lane looking to the west, or left, along Salem End Road. As shown, the sight distance is impacted by trees, as well as a stone wall that runs along the south side of the road and wraps around the corner. However, it is not clear how problematic this condition is, since motorists can safely pull closer to the intersection, without impacting the conflicting vehicles traveling eastbound on Salem End Road, to see around the wall and the trees.

Figure 4 – Sight Distance, Singletary Lane



A summary of additional observations along the Salem End Road corridor includes the following:

- Operating speeds in both directions are 5 to 10 mph higher than the posted speed limit.
- The intersection at Singletary Lane experiences 37% of all crashes within the corridor.
- Based on the crash data, speed does not appear to be a significant factor in most collisions.
- No distinct pattern or trend is evident for other crashes beyond Singletary Lane.
- The corridor lacks pedestrian and bicycle accommodations.

3.2 RECOMMENDED IMPROVEMENTS

Based on a review of the existing conditions along Salem End Road, as well as the relevant data, including crash records, traffic volumes, and travel speeds, potential improvement options have been developed. These options have been summarized below into different categories; Near Term, Median Term, or Long Term. For the purposes of this evaluation, Near Term is 6 months to 1 year; Median Term is 1 to 4 years; and Long Term is greater than 5 years.

NEAR TERM

- Speed Feedback Signs: Speed or driver feedback signs, as shown in **Figure 5**, use radar to detect the speed of approaching vehicles and then display the driver's speed on a sign. They are regarded as traffic calming devices designed to slow down speeding motorists by alerting them of their speed. Research and tests have shown that motorists traveling at excessive speeds slow down close to 80% of the time when warned by these signs, and overall compliance with the posted speed limit typically goes up 30% to 60%. Two (2) speed feedback signs would be proposed. The existing 30 mph signs discussed above that are located east of Badger Road and west of Temple Street are the ideal locations along the corridor for the speed feedback sign assemblies.

Figure 5 – Radar Speed/Driver Feedback Sign Assembly



(Source: Radar Speed Sign, radarsign.com)

- Temporary Speed Humps: Installing temporary, or removable speed humps at strategic locations along Salem End Road can be an effective way to test whether constructing permanent speed humps would be appropriate. As shown in **Figure 6**, speed humps are vertical deflection devices that have a height of 3 inches to 4 inches and a travel length of 12 feet to 14 feet. Speed humps are typically used on residential roads, or where the posted speed limit is 30 mph or lower. They are most effective when installed in a series, approximately 300-feet apart, and placed along tangent roadway sections between intersection. Some considerations of speed humps are that they may divert traffic to other streets, particularly to parallel routes, and they can increase response time of emergency vehicles, but their travel speeds would be consistent with the posted

speed limit. Another consideration is snowplow operations, so the use of temporary speed humps should be done during warmer conditions to test their effectiveness prior to implementing permanent humps. If implemented the recommended location of speed humps along Salem End Road would be the segment between Still Meadow Way and Singletary Lane, which is relatively flat and straight and has the densest development within the study area. The distance is approximately 1,200 feet, so three devices would be optimal for maintaining a lower travel speed throughout the entire segment length.

Figure 6 – Temporary Speed Hump



(Source: Temporary Speed Hump, trafficlogix.com)

MEDIUM TERM

A potential mid-range alternative is evaluating the Salem End Road and Singletary Lane intersection for the installation of an all-way or multi-way stop control. As outlined in the Manual on Uniform Traffic Control Devices (MUTCD), the implementation of multi-way stop control at an intersection should be based on certain criteria considered as part of an engineering study. One of those criteria is the occurrence of five or more reported crashes in a 12-month period that could be corrected by a multi-way stop installation. According to the crash information, there were 5 angle-type collisions at this intersection between January 2019 and February 2021, which is a 13-month period.

Although, this does not technically align with the MUTCD guidelines, the fact that this location has a high crash rate and close to 60% of the collisions that occurred during the 5-year analysis period were those that could be corrected by a multi-way stop, further consideration should be given to this alternative. Additional evaluation should include collecting turning movement count data at the intersection and performing a capacity analysis to determine the operational impacts of multi-way stop control, such as the expected delay and queuing along both roadways.

LONG TERM

A long-term option that can be considered involves reconstructing the roadway to include elements that are consistent with a typical residential roadway. This would primarily consist of providing provisions or accommodations for non-motorist users, such as sidewalks, bicycle lanes, shared use paths, and intermittent crossings. Although the current demand of pedestrians and bicyclists is low, likely due to the lack of accommodations, the installation of these facilities would provide a context that is more in line with what a motorist expects when traveling along a residential or local roadway with a low travel speed.

Implementation of this long-term option would involve evaluation of the bridge over the reservoir to accommodate wider sidewalks, environmental permitting and likely significant right of way impacts. An estimated construction cost has not been prepared but costs may be prohibitive.

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APPENDIX A – EXISTING CONDITIONS PLANS

3/28/2023 2:54 PM C:\101005\10172 - FRAMINGHAM, MA - IASA TRANSPORTATION\10172.21 SALEM END TRAFFIC CALMING\DRAWING FILES\SALEMENDROADACCIDENTEVALUATION.DWG (BETA STB BW STB)



NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
AP

DESIGNED BY:
AP

CHECKED BY:
DF

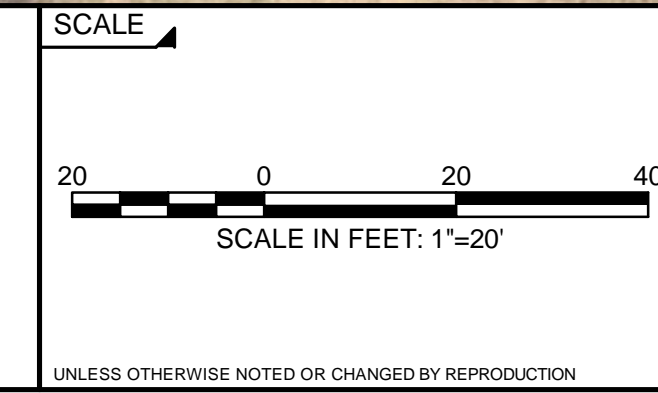
REGISTERED PROFESSIONAL

PREPARED BY

Not for Construction



SUBCONSULTANT



TITLE

Salem End Road Accident Evaluation
EXISTING CONDITIONS PLAN
Framingham, MA

BETA JOB NO. XXXX

ISSUE DATE: ##/##/####

SHEET NO. ----

3/28/2023 2:55 PM C:\101005\10172 - FRAMINGHAM, MA - IASA TRANSPORTATION\10172.21 SALEM END TRAFFIC CALMING\DRAWING FILES\SALEMENDROADACCIDENTEVALUATION.DWG (BETA STB BW.STB)



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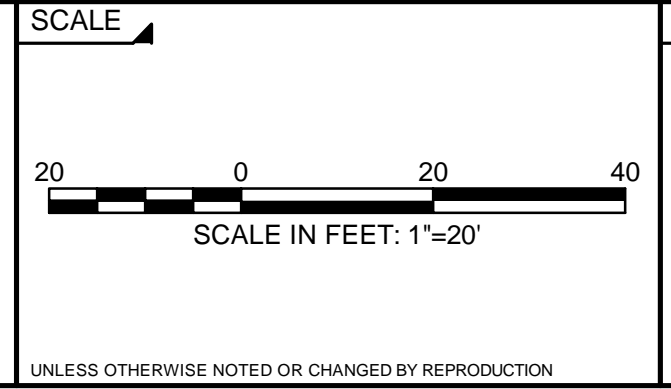
REGISTERED PROFESSIONAL

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TITLE

Salem End Road Accident Evaluation
EXISTING CONDITIONS PLAN
Framingham, MA

BETA JOB NO. XXXX

ISSUE DATE: ##/##/####

SHEET NO. ----

3/28/2023 2:55 PM C:\101005\10172 - FRAMINGHAM, MA - ISA TRANSPORTATION\10172.21 SALEM END TRAFFIC CALMING\DRAWING FILES\SALEMENDROADACCIDENTEVALUATION.DWG (BETA STB BW STB)



NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

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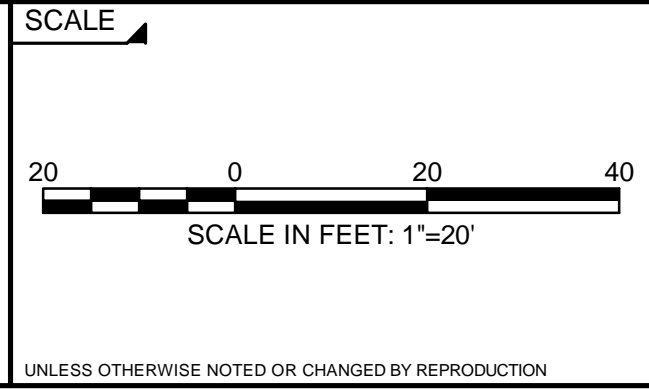
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REGISTERED PROFESSIONAL

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TITLE

Salem End Road Accident Evaluation
EXISTING CONDITIONS PLAN
Framingham, MA

BETA JOB NO. XXXX

ISSUE DATE: ##/##/####

SHEET NO. ----

3/28/2023 2:56 PM C:\101005\10172 - FRAMINGHAM, MA - WSA TRANSPORTATION\10172.21 SALEM END TRAFFIC CALMING\DRAWING FILES\SALEMENDROADACCIDENTEVALUATION.DWG (BETA STB BW STB)



NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
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DESIGNED BY:
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CHECKED BY:
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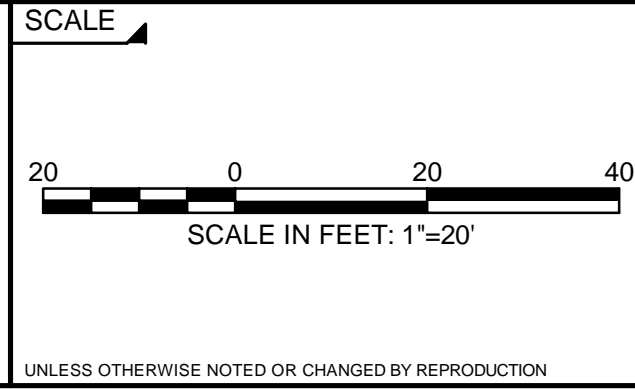
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TITLE

Salem End Road Accident Evaluation
EXISTING CONDITIONS PLAN
Framingham, MA

BETA JOB NO. XXXX

ISSUE DATE: ##/##/####

SHEET NO. ----

3/28/2023 2:56 PM C:\101005\10172 - FRAMINGHAM, MA - WSA TRANSPORTATION\10172.21 SALEM END TRAFFIC CALMING\DRAWING FILES\SALEMENDROADACCIDENTEVALUATION.DWG (BETA STB BW STB)



GATES STREET

SALEM END ROAD

SALEM END ROAD

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
AP

DESIGNED BY:
AP

CHECKED BY:
DF

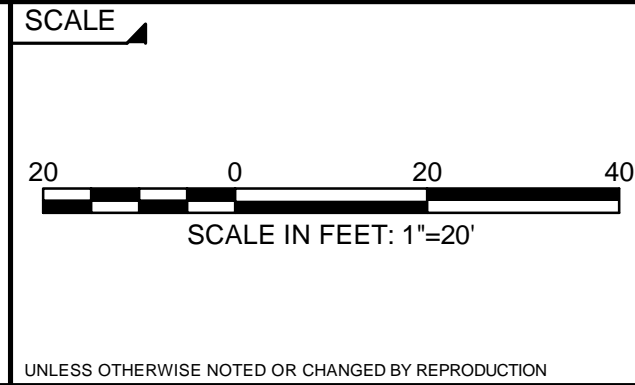
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TITLE

Salem End Road Accident Evaluation
EXISTING CONDITIONS PLAN
Framingham, MA

BETA JOB NO. XXXX

ISSUE DATE: ##/##/####

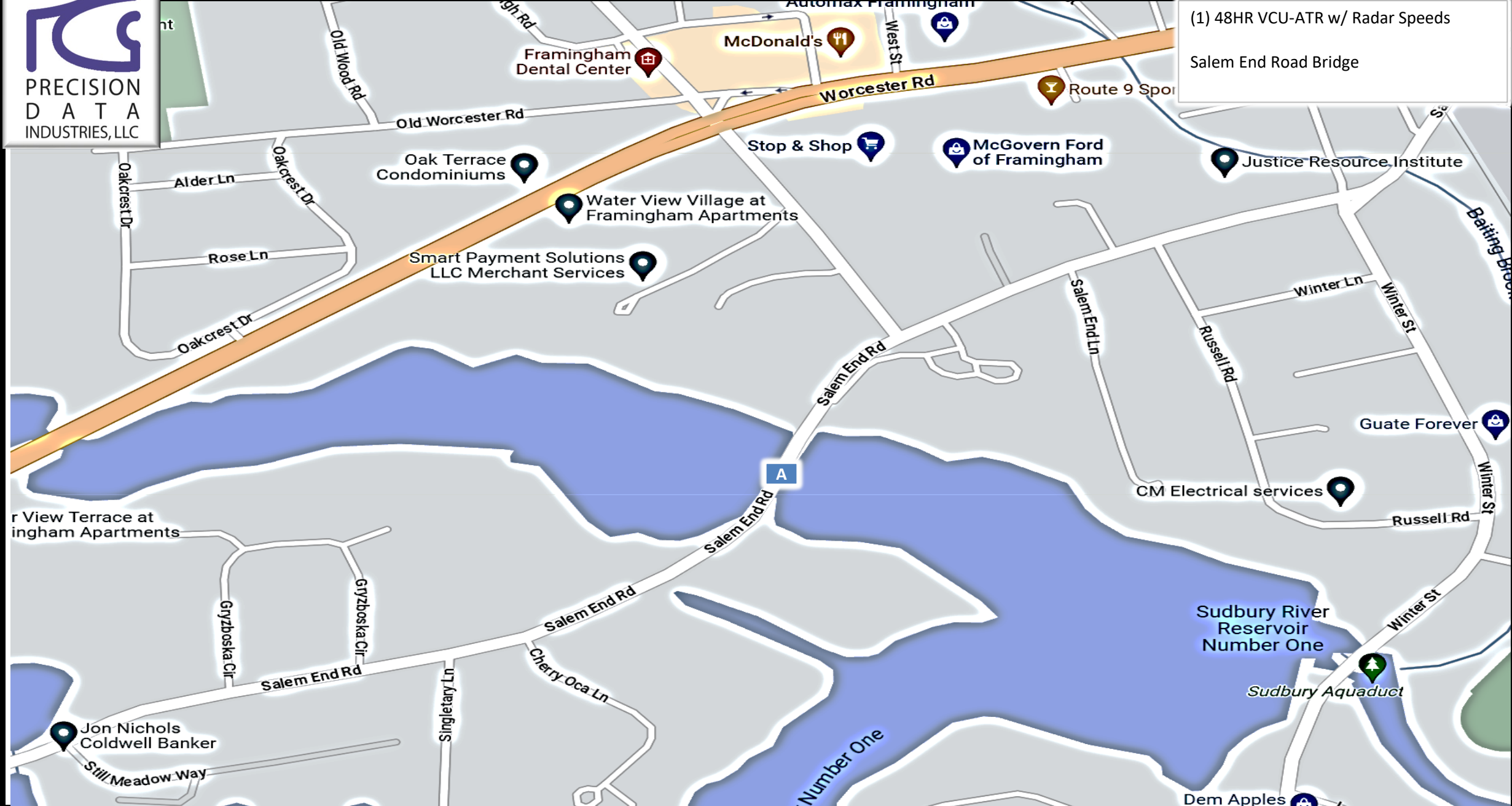
SHEET NO. ----

APPENDIX B – TRAFFIC VOLUME DATA



Location Map: 239298 Framingham, MA

Precision Data Industries, LLC 157 Washington Street, Suite 2, Hudson, MA 01749 ph: 508-875-0100 email: datarequests@pdillc.com



(1) 48HR VCU-ATR w/ Radar Speeds
Salem End Road Bridge

Client: BETA	Engineer: D. Flynn	Site Code:	Date: Wed 4/26 thru Thurs 4/27/2023	PDI Job # 239298	City, State: Framingham, MA
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Salem End Road
at Reservoir Bridge
City, State: Framingham, MA
Client: BETA/ D. Flynn
Site Code: TBA



PDI File #: 239298 ATR-A

Count Date: Wednesday, April 26, 2023
Direction: NB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	2	0	0	0	2
12:15 AM	0	0	3	0	0	0	3
12:30 AM	0	0	1	0	0	0	1
12:45 AM	0	0	2	0	0	0	2
1:00 AM	0	0	3	0	0	0	3
1:15 AM	0	0	1	0	0	0	1
1:30 AM	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0
2:00 AM	0	0	1	0	0	0	1
2:15 AM	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0
2:45 AM	0	0	1	0	0	0	1
3:00 AM	0	0	1	0	0	0	1
3:15 AM	0	0	2	0	0	0	2
3:30 AM	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0
4:00 AM	0	0	4	0	0	0	4
4:15 AM	0	0	1	0	0	0	1
4:30 AM	0	0	8	0	0	0	8
4:45 AM	0	0	6	0	0	0	6
5:00 AM	0	0	8	0	0	0	8
5:15 AM	0	0	7	0	0	0	7
5:30 AM	0	0	28	0	0	0	28
5:45 AM	1	0	33	0	1	0	35
6:00 AM	0	0	37	0	1	0	38
6:15 AM	0	0	88	0	0	0	88
6:30 AM	0	0	155	1	0	0	156
6:45 AM	0	1	193	1	4	0	199
7:00 AM	0	0	200	2	1	0	203
7:15 AM	0	0	186	2	5	0	193
7:30 AM	0	0	214	0	4	1	219
7:45 AM	0	0	200	1	4	0	205
8:00 AM	0	0	182	0	5	1	188
8:15 AM	0	1	180	0	2	0	183
8:30 AM	0	0	179	0	1	0	180
8:45 AM	1	0	156	2	1	0	160
9:00 AM	0	0	115	1	6	1	123
9:15 AM	0	0	98	0	1	1	100
9:30 AM	0	0	67	0	1	0	68
9:45 AM	0	0	75	0	3	0	78
10:00 AM	1	0	57	0	1	0	59
10:15 AM	0	0	78	0	2	0	80
10:30 AM	0	0	66	1	3	0	70
10:45 AM	0	0	57	0	0	0	57
11:00 AM	0	0	54	0	1	0	55
11:15 AM	0	0	72	1	1	1	75
11:30 AM	0	0	52	0	1	0	53
11:45 AM	0	0	74	0	0	0	74

AM Total	3	2	2947	12	49	5	3018
Percentage	0.10%	0.07%	97.65%	0.40%	1.62%	0.17%	
AM Peak	5:00 AM	6:00 AM	7:00 AM	6:30 AM	7:15 AM	7:15 AM	7:00 AM
Volume	1	1	800	6	18	2	820

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	75	0	1	0	76
12:15 PM	0	0	78	0	2	0	80
12:30 PM	0	1	62	0	3	2	68
12:45 PM	0	0	62	0	3	0	65
1:00 PM	0	0	52	1	0	0	53
1:15 PM	0	1	62	1	2	0	66
1:30 PM	0	0	75	0	0	0	75
1:45 PM	0	0	65	0	4	0	69
2:00 PM	0	0	69	1	3	0	73
2:15 PM	0	0	58	2	2	0	62
2:30 PM	0	0	51	0	2	0	53
2:45 PM	0	0	80	0	1	0	81
3:00 PM	0	0	80	1	2	0	83
3:15 PM	0	0	72	2	0	0	74
3:30 PM	0	0	84	2	2	0	88
3:45 PM	0	0	82	2	4	1	89
4:00 PM	0	0	72	0	4	0	76
4:15 PM	0	0	79	1	0	0	80
4:30 PM	0	0	88	1	2	0	91
4:45 PM	0	0	106	1	0	0	107
5:00 PM	0	0	107	2	0	0	109
5:15 PM	0	0	104	1	1	0	106
5:30 PM	0	0	90	0	0	0	90
5:45 PM	0	0	99	0	0	0	99
6:00 PM	0	0	98	1	1	0	100
6:15 PM	0	0	74	1	0	0	75
6:30 PM	1	0	80	0	1	0	82
6:45 PM	0	0	74	1	3	0	78
7:00 PM	0	0	83	0	0	1	84
7:15 PM	0	0	69	1	0	0	70
7:30 PM	0	0	57	0	0	0	57
7:45 PM	0	0	50	1	0	0	51
8:00 PM	0	0	31	0	1	0	32
8:15 PM	0	0	25	0	0	0	25
8:30 PM	0	0	38	0	1	0	39
8:45 PM	0	0	25	0	0	0	25
9:00 PM	0	0	26	0	0	0	26
9:15 PM	0	0	23	0	0	0	23
9:30 PM	0	0	23	0	0	0	23
9:45 PM	0	0	11	0	1	0	12
10:00 PM	0	0	18	0	0	0	18
10:15 PM	0	0	15	0	0	0	15
10:30 PM	0	0	14	0	1	0	15
10:45 PM	0	0	11	0	0	0	11
11:00 PM	0	0	0	0	1	0	1
11:15 PM	0	0	2	0	0	0	2
11:30 PM	0	0	3	0	0	0	3
11:45 PM	0	0	1	0	0	0	1

PM Total	1	2	2703	23	48	4	2781
Percentage	0.04%	0.07%	97.20%	0.83%	1.73%	0.14%	
PM Peak	5:45 PM	12:30 PM	4:45 PM	3:00 PM	1:45 PM	12:00 PM	4:30 PM
Volume	1	2	407	7	11	2	413
Day Total	4	4	5650	35	97	9	5799
Percentage	0.07%	0.07%	97.43%	0.60%	1.67%	0.16%	

Salem End Road
at Reservoir Bridge
City, State: Framingham, MA
Client: BETA/ D. Flynn
Site Code: TBA



PDI File #: 239298 ATR-A

Count Date: Thursday, April 27, 2023
Direction: NB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	1	0	0	0	1
12:15 AM	0	0	2	0	0	0	2
12:30 AM	0	0	1	0	0	0	1
12:45 AM	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0
1:30 AM	0	0	1	0	0	0	1
1:45 AM	0	0	0	0	0	0	0
2:00 AM	0	0	1	0	0	0	1
2:15 AM	0	0	2	0	0	0	2
2:30 AM	0	0	3	0	0	0	3
2:45 AM	0	0	1	0	0	0	1
3:00 AM	0	0	0	0	0	0	0
3:15 AM	0	0	1	0	0	0	1
3:30 AM	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0
4:00 AM	0	0	4	0	0	0	4
4:15 AM	0	0	2	0	0	0	2
4:30 AM	0	0	5	0	0	0	5
4:45 AM	0	0	13	0	0	0	13
5:00 AM	0	0	3	0	0	0	3
5:15 AM	0	0	6	0	0	0	6
5:30 AM	0	0	19	0	1	0	20
5:45 AM	0	0	40	0	1	0	41
6:00 AM	0	0	41	0	0	0	41
6:15 AM	0	0	95	0	0	0	95
6:30 AM	0	0	157	1	3	0	161
6:45 AM	0	0	206	3	0	0	209
7:00 AM	0	0	177	3	3	0	183
7:15 AM	0	0	156	1	4	0	161
7:30 AM	0	0	198	2	2	0	202
7:45 AM	0	0	215	1	0	1	217
8:00 AM	0	0	157	1	2	0	160
8:15 AM	0	0	184	1	2	1	188
8:30 AM	0	0	172	1	2	0	175
8:45 AM	0	1	165	0	7	1	174
9:00 AM	0	0	111	0	1	3	115
9:15 AM	0	0	99	0	5	0	104
9:30 AM	0	0	78	1	2	1	82
9:45 AM	1	0	73	0	2	2	78
10:00 AM	0	0	75	0	3	0	78
10:15 AM	0	0	78	0	2	0	80
10:30 AM	0	0	80	0	0	0	80
10:45 AM	0	0	71	0	3	0	74
11:00 AM	0	0	64	0	2	1	67
11:15 AM	0	0	72	0	4	0	76
11:30 AM	0	0	59	0	3	0	62
11:45 AM	0	0	70	1	2	0	73

AM Total	1	1	2958	16	56	10	3042
Percentage	0.03%	0.03%	97.24%	0.53%	1.84%	0.33%	
AM Peak	9:00 AM	8:00 AM	7:30 AM	6:45 AM	8:30 AM	9:00 AM	7:30 AM
Volume	1	1	754	9	15	6	767

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	77	1	1	0	79
12:15 PM	0	0	72	2	2	0	76
12:30 PM	0	0	78	0	0	0	78
12:45 PM	0	0	65	1	1	0	67
1:00 PM	0	0	61	1	0	0	62
1:15 PM	0	0	67	1	3	0	71
1:30 PM	0	0	53	0	3	0	56
1:45 PM	0	0	65	1	2	0	68
2:00 PM	0	0	64	1	1	0	66
2:15 PM	0	0	80	1	1	0	82
2:30 PM	0	0	78	1	0	0	79
2:45 PM	0	0	63	0	2	0	65
3:00 PM	0	0	60	0	0	0	60
3:15 PM	0	0	87	1	2	0	90
3:30 PM	0	0	86	0	2	0	88
3:45 PM	0	0	89	1	1	0	91
4:00 PM	0	0	79	0	2	0	81
4:15 PM	0	1	94	0	1	0	96
4:30 PM	0	0	77	2	1	0	80
4:45 PM	0	0	99	0	0	0	99
5:00 PM	0	0	95	0	3	0	98
5:15 PM	0	0	80	0	0	0	80
5:30 PM	0	0	113	0	0	0	113
5:45 PM	0	0	90	0	0	0	90
6:00 PM	0	0	97	0	1	0	98
6:15 PM	0	1	76	0	0	0	77
6:30 PM	0	0	86	0	0	0	86
6:45 PM	0	0	72	1	0	0	73
7:00 PM	0	0	58	0	0	0	58
7:15 PM	0	0	59	0	1	0	60
7:30 PM	0	0	50	0	0	0	50
7:45 PM	0	0	49	1	0	0	50
8:00 PM	0	0	47	0	0	0	47
8:15 PM	0	0	26	0	0	0	26
8:30 PM	0	0	25	0	0	0	25
8:45 PM	0	0	25	0	0	0	25
9:00 PM	0	0	28	0	0	0	28
9:15 PM	0	0	31	1	0	0	32
9:30 PM	0	0	20	0	0	0	20
9:45 PM	0	0	9	0	0	0	9
10:00 PM	0	0	14	0	0	0	14
10:15 PM	0	0	9	0	0	0	9
10:30 PM	0	0	14	0	0	0	14
10:45 PM	0	0	7	0	0	0	7
11:00 PM	0	0	4	0	1	0	5
11:15 PM	0	0	2	0	0	0	2
11:30 PM	0	0	4	0	0	0	4
11:45 PM	0	0	7	0	0	0	7

PM Total	0	2	2691	17	31	0	2741
Percentage	0.00%	0.07%	98.18%	0.62%	1.13%	0.00%	
PM Peak	12:00 PM	3:30 PM	4:45 PM	12:00 PM	1:15 PM	12:00 PM	4:45 PM
Volume	0	1	387	4	9	0	390
Day Total	1	3	5649	33	87	10	5783
Percentage	0.02%	0.05%	97.68%	0.57%	1.50%	0.17%	

Salem End Road
 at Reservoir Bridge
 City, State: Framingham, MA
 Client: BETA/ D. Flynn
 Site Code: TBA



PDI File #: 239298 ATR-A

Count Date: Wednesday, April 26, 2023
 Direction: SB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	8	0	0	0	8
12:15 AM	0	0	7	0	0	0	7
12:30 AM	0	0	8	0	0	0	8
12:45 AM	0	0	3	0	0	0	3
1:00 AM	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0
1:30 AM	0	0	4	0	0	0	4
1:45 AM	0	0	0	0	0	0	0
2:00 AM	0	0	2	0	0	0	2
2:15 AM	0	0	0	0	0	0	0
2:30 AM	0	0	1	0	0	0	1
2:45 AM	0	0	1	0	0	0	1
3:00 AM	0	0	1	0	0	0	1
3:15 AM	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0
4:00 AM	0	0	2	0	0	0	2
4:15 AM	0	0	1	0	0	0	1
4:30 AM	0	0	1	0	0	0	1
4:45 AM	0	0	1	0	0	0	1
5:00 AM	0	0	3	0	0	0	3
5:15 AM	0	0	6	0	0	0	6
5:30 AM	0	0	24	0	0	0	24
5:45 AM	0	0	17	0	0	0	17
6:00 AM	0	0	15	1	2	0	18
6:15 AM	0	0	48	0	0	0	48
6:30 AM	0	0	37	2	2	0	41
6:45 AM	0	0	39	2	0	0	41
7:00 AM	0	0	54	4	1	0	59
7:15 AM	0	0	54	4	0	0	58
7:30 AM	0	0	70	1	2	0	73
7:45 AM	0	0	71	0	0	0	71
8:00 AM	0	0	73	0	6	0	79
8:15 AM	0	0	77	3	2	0	82
8:30 AM	1	0	66	3	3	0	73
8:45 AM	0	0	71	2	1	1	75
9:00 AM	0	0	84	0	0	0	84
9:15 AM	0	0	69	0	0	1	70
9:30 AM	1	0	51	0	2	0	54
9:45 AM	0	0	61	0	4	0	65
10:00 AM	0	0	53	0	2	0	55
10:15 AM	0	0	46	1	2	0	49
10:30 AM	0	0	69	0	1	0	70
10:45 AM	0	0	53	0	1	0	54
11:00 AM	0	0	58	0	1	0	59
11:15 AM	0	0	68	0	1	0	69
11:30 AM	0	0	79	0	1	0	80
11:45 AM	0	0	78	0	1	0	79

AM Total	2	0	1534	23	35	2	1596
Percentage	0.13%	0.00%	96.12%	1.44%	2.19%	0.13%	
AM Peak	7:45 AM	12:00 AM	8:15 AM	6:30 AM	8:00 AM	8:30 AM	8:15 AM
Volume	1	0	298	12	12	2	314

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	69	2	2	0	73
12:15 PM	0	0	71	0	2	0	73
12:30 PM	0	0	77	1	3	0	81
12:45 PM	0	0	70	0	1	0	71
1:00 PM	0	0	70	0	3	0	73
1:15 PM	0	0	93	0	2	0	95
1:30 PM	0	0	76	0	0	0	76
1:45 PM	0	2	103	0	4	2	111
2:00 PM	0	0	104	3	0	0	107
2:15 PM	0	0	106	2	1	0	109
2:30 PM	0	1	117	3	1	0	122
2:45 PM	0	0	114	2	1	1	118
3:00 PM	0	1	127	1	1	0	130
3:15 PM	1	0	126	0	1	0	128
3:30 PM	0	0	120	0	1	0	121
3:45 PM	0	1	134	3	1	0	139
4:00 PM	0	0	140	3	2	1	146
4:15 PM	0	0	157	4	1	0	162
4:30 PM	0	0	149	1	2	1	153
4:45 PM	0	0	147	1	1	0	149
5:00 PM	0	0	151	1	1	0	153
5:15 PM	0	0	171	0	0	0	171
5:30 PM	0	0	148	0	2	0	150
5:45 PM	0	0	157	0	0	0	157
6:00 PM	0	0	156	0	1	0	157
6:15 PM	0	0	142	0	1	0	143
6:30 PM	0	0	121	0	2	0	123
6:45 PM	0	0	120	0	0	0	120
7:00 PM	0	0	131	0	0	0	131
7:15 PM	0	0	104	0	1	0	105
7:30 PM	0	0	104	1	1	0	106
7:45 PM	0	0	94	0	0	0	94
8:00 PM	0	0	73	0	0	0	73
8:15 PM	0	0	52	0	1	1	54
8:30 PM	0	0	50	0	0	0	50
8:45 PM	0	0	46	0	0	0	46
9:00 PM	0	0	75	0	0	0	75
9:15 PM	0	0	43	0	0	0	43
9:30 PM	0	0	38	0	1	0	39
9:45 PM	0	0	35	0	1	0	36
10:00 PM	0	0	20	0	0	0	20
10:15 PM	0	0	20	0	0	0	20
10:30 PM	0	0	21	0	0	0	21
10:45 PM	0	0	15	0	0	0	15
11:00 PM	0	0	17	0	0	0	17
11:15 PM	0	0	14	0	0	0	14
11:30 PM	1	0	15	0	0	0	16
11:45 PM	0	0	11	0	0	0	11

PM Total	2	5	4314	28	42	6	4397
Percentage	0.05%	0.11%	98.11%	0.64%	0.96%	0.14%	
PM Peak	2:30 PM	1:45 PM	5:15 PM	3:45 PM	12:15 PM	1:00 PM	5:15 PM
Volume	1	3	632	11	9	2	635
Day Total	4	5	5848	51	77	8	5993
Percentage	0.07%	0.08%	97.58%	0.85%	1.28%	0.13%	

Salem End Road
at Reservoir Bridge
City, State: Framingham, MA
Client: BETA/ D. Flynn
Site Code: TBA



PDI File #: 239298 ATR-A

Count Date: Thursday, April 27, 2023
Direction: SB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	7	0	0	0	7
12:15 AM	0	0	7	0	0	0	7
12:30 AM	0	0	1	0	0	0	1
12:45 AM	0	0	7	0	0	0	7
1:00 AM	0	0	3	0	0	0	3
1:15 AM	0	0	2	0	0	0	2
1:30 AM	0	0	3	0	0	0	3
1:45 AM	0	0	0	0	0	0	0
2:00 AM	0	0	1	0	0	0	1
2:15 AM	0	0	3	0	0	0	3
2:30 AM	0	0	0	0	0	0	0
2:45 AM	0	0	3	0	0	0	3
3:00 AM	0	0	3	0	0	0	3
3:15 AM	0	0	2	0	0	0	2
3:30 AM	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0
4:00 AM	0	0	1	0	1	0	2
4:15 AM	0	0	3	0	0	0	3
4:30 AM	0	0	3	0	0	0	3
4:45 AM	0	0	3	0	0	0	3
5:00 AM	0	0	6	0	0	0	6
5:15 AM	0	0	9	0	0	0	9
5:30 AM	0	0	8	0	0	0	8
5:45 AM	0	0	18	0	0	0	18
6:00 AM	0	0	24	1	1	0	26
6:15 AM	0	0	39	1	0	0	40
6:30 AM	0	0	31	4	0	0	35
6:45 AM	0	0	43	2	1	0	46
7:00 AM	0	0	42	4	0	0	46
7:15 AM	0	0	54	4	3	0	61
7:30 AM	0	0	57	1	2	1	61
7:45 AM	0	0	58	0	3	0	61
8:00 AM	0	0	67	1	1	0	69
8:15 AM	0	0	72	3	4	0	79
8:30 AM	0	0	53	2	1	0	56
8:45 AM	0	0	66	0	1	1	68
9:00 AM	0	0	73	0	3	0	76
9:15 AM	0	0	56	0	2	0	58
9:30 AM	0	0	55	1	3	0	59
9:45 AM	0	0	65	0	1	0	66
10:00 AM	0	0	47	0	5	0	52
10:15 AM	0	0	77	0	2	0	79
10:30 AM	0	0	68	0	1	0	69
10:45 AM	0	0	73	0	2	0	75
11:00 AM	0	0	65	0	2	0	67
11:15 AM	0	0	70	0	4	0	74
11:30 AM	0	0	80	1	3	1	85
11:45 AM	0	0	81	1	2	0	84

AM Total	0	0	1509	26	48	3	1586
Percentage	0.00%	0.00%	95.15%	1.64%	3.03%	0.19%	
AM Peak	12:00 AM	12:00 AM	11:00 AM	6:30 AM	9:15 AM	6:45 AM	11:00 AM
Volume	0	0	296	14	11	1	310

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	82	2	1	0	85
12:15 PM	0	0	100	1	1	0	102
12:30 PM	0	0	64	0	2	0	66
12:45 PM	0	0	92	1	2	1	96
1:00 PM	0	0	86	0	1	0	87
1:15 PM	0	0	61	3	4	0	68
1:30 PM	0	0	80	3	1	0	84
1:45 PM	1	0	92	2	1	0	96
2:00 PM	0	0	84	1	3	0	88
2:15 PM	0	0	114	2	0	0	116
2:30 PM	0	0	113	4	1	0	118
2:45 PM	0	0	111	1	1	0	113
3:00 PM	0	0	128	0	1	0	129
3:15 PM	0	2	125	0	3	0	130
3:30 PM	0	0	151	0	1	0	152
3:45 PM	0	0	148	1	2	0	151
4:00 PM	0	1	132	0	2	0	135
4:15 PM	0	0	150	0	0	1	151
4:30 PM	0	0	159	0	0	0	159
4:45 PM	0	0	148	1	5	0	154
5:00 PM	0	0	172	0	0	0	172
5:15 PM	0	0	173	1	1	0	175
5:30 PM	0	0	156	0	2	0	158
5:45 PM	0	0	143	1	0	0	144
6:00 PM	0	0	124	2	2	0	128
6:15 PM	0	0	146	1	2	0	149
6:30 PM	0	0	117	1	1	0	119
6:45 PM	0	0	122	0	0	0	122
7:00 PM	0	1	98	0	0	0	99
7:15 PM	0	0	80	0	0	0	80
7:30 PM	0	1	102	1	0	0	104
7:45 PM	0	0	97	0	0	0	97
8:00 PM	0	0	80	0	0	0	80
8:15 PM	0	0	84	0	0	0	84
8:30 PM	0	0	74	0	0	0	74
8:45 PM	0	0	74	0	0	0	74
9:00 PM	0	1	54	0	0	0	55
9:15 PM	0	0	42	0	1	0	43
9:30 PM	0	0	45	0	0	0	45
9:45 PM	0	0	37	0	0	0	37
10:00 PM	0	0	35	0	0	0	35
10:15 PM	0	0	18	0	0	0	18
10:30 PM	0	0	18	0	0	0	18
10:45 PM	0	0	17	0	0	0	17
11:00 PM	0	0	23	0	0	0	23
11:15 PM	0	0	18	0	0	0	18
11:30 PM	0	0	14	0	0	0	14
11:45 PM	0	0	10	0	0	0	10

PM Total	1	6	4393	29	41	2	4472
Percentage	0.02%	0.13%	98.23%	0.65%	0.92%	0.04%	
PM Peak	1:00 PM	3:15 PM	4:30 PM	1:15 PM	12:30 PM	12:00 PM	4:30 PM
Volume	1	3	652	9	9	1	660
Day Total	1	6	5902	55	89	5	6058
Percentage	0.02%	0.10%	97.42%	0.91%	1.47%	0.08%	

Salem End Road
 at Reservoir Bridge
 City, State: Framingham, MA
 Client: BETA/ D. Flynn
 Site Code: TBA



PDI File # 239298 ATR-A

Direction: NB

Weekly Report

Day Date	Wednesday 04/26/23		Thursday 04/27/23												Week Ave			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		
12:00	2	76	1	79	0	0	0	0	0	0	0	0	0	0	2	78		
12:15	3	80	2	76	0	0	0	0	0	0	0	0	0	0	3	78		
12:30	1	68	1	78	0	0	0	0	0	0	0	0	0	0	1	73		
12:45	2	65	0	67	0	0	0	0	0	0	0	0	0	0	1	66		
1:00	3	53	0	62	0	0	0	0	0	0	0	0	0	0	2	58		
1:15	1	66	0	71	0	0	0	0	0	0	0	0	0	0	1	69		
1:30	0	75	1	56	0	0	0	0	0	0	0	0	0	0	1	66		
1:45	0	69	0	68	0	0	0	0	0	0	0	0	0	0	0	69		
2:00	1	73	1	66	0	0	0	0	0	0	0	0	0	0	1	70		
2:15	0	62	2	82	0	0	0	0	0	0	0	0	0	0	1	72		
2:30	0	53	3	79	0	0	0	0	0	0	0	0	0	0	2	66		
2:45	1	81	1	65	0	0	0	0	0	0	0	0	0	0	1	73		
3:00	1	83	0	60	0	0	0	0	0	0	0	0	0	0	1	72		
3:15	2	74	1	90	0	0	0	0	0	0	0	0	0	0	2	82		
3:30	0	88	0	88	0	0	0	0	0	0	0	0	0	0	0	88		
3:45	0	89	0	91	0	0	0	0	0	0	0	0	0	0	0	90		
4:00	4	76	4	81	0	0	0	0	0	0	0	0	0	0	4	79		
4:15	1	80	2	96	0	0	0	0	0	0	0	0	0	0	2	88		
4:30	8	91	5	80	0	0	0	0	0	0	0	0	0	0	7	86		
4:45	6	107	13	99	0	0	0	0	0	0	0	0	0	0	10	103		
5:00	8	109	3	98	0	0	0	0	0	0	0	0	0	0	6	104		
5:15	7	106	6	80	0	0	0	0	0	0	0	0	0	0	7	93		
5:30	28	90	20	113	0	0	0	0	0	0	0	0	0	0	24	102		
5:45	35	99	41	90	0	0	0	0	0	0	0	0	0	0	38	95		
6:00	38	100	41	98	0	0	0	0	0	0	0	0	0	0	40	99		
6:15	88	75	95	77	0	0	0	0	0	0	0	0	0	0	92	76		
6:30	156	82	161	86	0	0	0	0	0	0	0	0	0	0	159	84		
6:45	199	78	209	73	0	0	0	0	0	0	0	0	0	0	204	76		
7:00	203	84	183	58	0	0	0	0	0	0	0	0	0	0	193	71		
7:15	193	70	161	60	0	0	0	0	0	0	0	0	0	0	177	65		
7:30	219	57	202	50	0	0	0	0	0	0	0	0	0	0	211	54		
7:45	205	51	217	50	0	0	0	0	0	0	0	0	0	0	211	51		
8:00	188	32	160	47	0	0	0	0	0	0	0	0	0	0	174	40		
8:15	183	25	188	26	0	0	0	0	0	0	0	0	0	0	186	26		
8:30	180	39	175	25	0	0	0	0	0	0	0	0	0	0	178	32		
8:45	160	25	174	25	0	0	0	0	0	0	0	0	0	0	167	25		
9:00	123	26	115	28	0	0	0	0	0	0	0	0	0	0	119	27		
9:15	100	23	104	32	0	0	0	0	0	0	0	0	0	0	102	28		
9:30	68	23	82	20	0	0	0	0	0	0	0	0	0	0	75	22		
9:45	78	12	78	9	0	0	0	0	0	0	0	0	0	0	78	11		
10:00	59	18	78	14	0	0	0	0	0	0	0	0	0	0	69	16		
10:15	80	15	80	9	0	0	0	0	0	0	0	0	0	0	80	12		
10:30	70	15	80	14	0	0	0	0	0	0	0	0	0	0	75	15		
10:45	57	11	74	7	0	0	0	0	0	0	0	0	0	0	66	9		
11:00	55	1	67	5	0	0	0	0	0	0	0	0	0	0	61	3		
11:15	75	2	76	2	0	0	0	0	0	0	0	0	0	0	76	2		
11:30	53	3	62	4	0	0	0	0	0	0	0	0	0	0	58	4		
11:45	74	1	73	7	0	0	0	0	0	0	0	0	0	0	74	4		
Total	3018	2781	3042	2741	0	0	0	0	0	0	0	0	0	0	3030	2761		
Day Total	5799		5783		0		0		0		0		0		5791			
Peak HR	7:00 AM	4:30 PM	7:30 AM	4:45 PM													7:00 AM	4:45 PM
Volume	820	413	767	390													792	401

Salem End Road
 at Reservoir Bridge
 City, State: Framingham, MA
 Client: BETA/ D. Flynn
 Site Code: TBA



PDI File # 239298 ATR-A

Direction: SB

Weekly Report

Day Date	Wednesday 04/26/23		Thursday 04/27/23												Week Ave			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		
12:00	8	73	7	85	0	0	0	0	0	0	0	0	0	0	8	79		
12:15	7	73	7	102	0	0	0	0	0	0	0	0	0	0	7	88		
12:30	8	81	1	66	0	0	0	0	0	0	0	0	0	0	5	74		
12:45	3	71	7	96	0	0	0	0	0	0	0	0	0	0	5	84		
1:00	0	73	3	87	0	0	0	0	0	0	0	0	0	0	2	80		
1:15	0	95	2	68	0	0	0	0	0	0	0	0	0	0	1	82		
1:30	4	76	3	84	0	0	0	0	0	0	0	0	0	0	4	80		
1:45	0	111	0	96	0	0	0	0	0	0	0	0	0	0	0	104		
2:00	2	107	1	88	0	0	0	0	0	0	0	0	0	0	2	98		
2:15	0	109	3	116	0	0	0	0	0	0	0	0	0	0	2	113		
2:30	1	122	0	118	0	0	0	0	0	0	0	0	0	0	1	120		
2:45	1	118	3	113	0	0	0	0	0	0	0	0	0	0	2	116		
3:00	1	130	3	129	0	0	0	0	0	0	0	0	0	0	2	130		
3:15	0	128	2	130	0	0	0	0	0	0	0	0	0	0	1	129		
3:30	0	121	0	152	0	0	0	0	0	0	0	0	0	0	0	137		
3:45	0	139	0	151	0	0	0	0	0	0	0	0	0	0	0	145		
4:00	2	146	2	135	0	0	0	0	0	0	0	0	0	0	2	141		
4:15	1	162	3	151	0	0	0	0	0	0	0	0	0	0	2	157		
4:30	1	153	3	159	0	0	0	0	0	0	0	0	0	0	2	156		
4:45	1	149	3	154	0	0	0	0	0	0	0	0	0	0	2	152		
5:00	3	153	6	172	0	0	0	0	0	0	0	0	0	0	5	163		
5:15	6	171	9	175	0	0	0	0	0	0	0	0	0	0	8	173		
5:30	24	150	8	158	0	0	0	0	0	0	0	0	0	0	16	154		
5:45	17	157	18	144	0	0	0	0	0	0	0	0	0	0	18	151		
6:00	18	157	26	128	0	0	0	0	0	0	0	0	0	0	22	143		
6:15	48	143	40	149	0	0	0	0	0	0	0	0	0	0	44	146		
6:30	41	123	35	119	0	0	0	0	0	0	0	0	0	0	38	121		
6:45	41	120	46	122	0	0	0	0	0	0	0	0	0	0	44	121		
7:00	59	131	46	99	0	0	0	0	0	0	0	0	0	0	53	115		
7:15	58	105	61	80	0	0	0	0	0	0	0	0	0	0	60	93		
7:30	73	106	61	104	0	0	0	0	0	0	0	0	0	0	67	105		
7:45	71	94	61	97	0	0	0	0	0	0	0	0	0	0	66	96		
8:00	79	73	69	80	0	0	0	0	0	0	0	0	0	0	74	77		
8:15	82	54	79	84	0	0	0	0	0	0	0	0	0	0	81	69		
8:30	73	50	56	74	0	0	0	0	0	0	0	0	0	0	65	62		
8:45	75	46	68	74	0	0	0	0	0	0	0	0	0	0	72	60		
9:00	84	75	76	55	0	0	0	0	0	0	0	0	0	0	80	65		
9:15	70	43	58	43	0	0	0	0	0	0	0	0	0	0	64	43		
9:30	54	39	59	45	0	0	0	0	0	0	0	0	0	0	57	42		
9:45	65	36	66	37	0	0	0	0	0	0	0	0	0	0	66	37		
10:00	55	20	52	35	0	0	0	0	0	0	0	0	0	0	54	28		
10:15	49	20	79	18	0	0	0	0	0	0	0	0	0	0	64	19		
10:30	70	21	69	18	0	0	0	0	0	0	0	0	0	0	70	20		
10:45	54	15	75	17	0	0	0	0	0	0	0	0	0	0	65	16		
11:00	59	17	67	23	0	0	0	0	0	0	0	0	0	0	63	20		
11:15	69	14	74	18	0	0	0	0	0	0	0	0	0	0	72	16		
11:30	80	16	85	14	0	0	0	0	0	0	0	0	0	0	83	15		
11:45	79	11	84	10	0	0	0	0	0	0	0	0	0	0	82	11		
Total	1596	4397	1586	4472	0	0	0	0	0	0	0	0	0	0	1591	4435		
Day Total	5993		6058		0		0		0		0		0		6026			
Peak HR	8:15 AM	5:15 PM	11:00 AM	4:30 PM													11:00 AM	4:30 PM
Volume	314	635	310	660													299	643

Salem End Road
 at Reservoir Bridge
 City, State: Framingham, MA
 Client: BETA/ D. Flynn
 Site Code: TBA



PDI File #: 239298 ATR-A (Speed)

Count Date
 Wednesday, April 26, 2023

Speed (60-minute)

NB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	1	1	6	1	0	0	0	0	0	0	9	38.0	35.8
1:00 AM	0	0	0	2	4	0	0	0	0	0	0	0	0	6	34.0	30.8
2:00 AM	0	0	0	0	2	0	1	2	0	0	0	0	0	5	45.8	39.6
3:00 AM	0	0	0	2	1	3	0	1	0	0	0	0	0	7	38.8	35.1
4:00 AM	0	0	0	2	16	8	4	1	2	0	0	0	0	33	40.4	35.6
5:00 AM	0	0	0	2	28	50	17	4	1	0	0	0	0	102	41.0	36.9
6:00 AM	0	1	6	17	218	206	42	2	0	0	0	0	0	492	38.0	34.6
7:00 AM	41	43	38	54	222	161	24	1	0	0	0	0	0	584	37.0	30.1
8:00 AM	71	62	52	50	124	77	11	1	0	0	0	0	0	448	35.0	26.1
9:00 AM	0	1	2	23	126	179	46	1	0	0	0	0	0	378	39.0	35.1
10:00 AM	0	0	1	3	97	166	34	1	0	0	0	0	0	302	39.0	35.8
11:00 AM	2	0	1	16	98	146	28	1	0	0	0	0	0	292	39.0	35.2
12:00 PM	2	0	0	6	110	149	38	5	0	0	0	0	0	310	39.0	35.5
1:00 PM	0	0	0	5	100	152	36	1	1	0	0	0	0	295	39.0	35.6
2:00 PM	0	0	0	2	114	135	39	3	0	0	0	0	0	293	39.0	35.7
3:00 PM	0	0	1	11	132	162	32	2	0	0	0	0	0	340	38.0	35.2
4:00 PM	0	1	3	16	141	160	32	4	0	0	0	0	0	357	38.0	34.9
5:00 PM	0	0	1	10	154	208	25	3	0	0	0	0	0	401	38.0	35.2
6:00 PM	0	0	0	8	104	181	46	4	0	0	0	0	0	343	39.0	36.0
7:00 PM	0	0	3	14	126	119	23	4	0	0	0	0	0	289	38.0	34.8
8:00 PM	0	1	3	18	74	36	4	0	0	0	0	0	0	136	36.8	32.6
9:00 PM	0	0	1	10	33	37	9	0	0	0	0	0	0	90	38.0	34.3
10:00 PM	0	0	0	10	22	26	17	1	0	0	0	0	0	76	41.0	35.4
11:00 PM	1	0	0	4	8	6	3	0	0	0	0	0	0	22	38.9	32.3
Total	117	109	112	286	2055	2373	512	42	4	0	0	0	0	5610	38.0	33.9
Percent	2.09%	1.94%	2.00%	5.10%	36.63%	42.30%	9.13%	0.75%	0.07%	0.00%	0.00%	0.00%	0.00%			

AM Peak	8:00 AM	8:00 AM	8:00 AM	7:00 AM	7:00 AM	6:00 AM	9:00 AM	5:00 AM	4:00 AM						7:00 AM
Volume	71	62	52	54	222	206	46	4	2	0	0	0	0	584	
PM Peak	12:00 PM	4:00 PM	4:00 PM	8:00 PM	5:00 PM	5:00 PM	6:00 PM	12:00 PM	1:00 PM						5:00 PM
Volume	2	1	3	18	154	208	46	5	1	0	0	0	0	401	

15th Percentile:	31.0 MPH	Average Speed:	33.9 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	2341
85th Percentile:	38.0 MPH	Number in Pace:	4509	Percent of Vehicles > 35 MPH:	41.7%
95th Percentile:	41.0 MPH	Percent in Pace:	80.4%		

Salem End Road
 at Reservoir Bridge
 City, State: Framingham, MA
 Client: BETA/ D. Flynn
 Site Code: TBA



PDI File #: 239298 ATR-A (Speed)

Count Date
 Wednesday, April 26, 2023

Speed (60-minute)

SB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	1	1	3	15	15	2	1	0	0	0	0	38	43.0	38.8
1:00 AM	0	0	0	0	2	1	2	0	0	0	0	0	0	5	41.6	36.8
2:00 AM	1	0	0	1	0	2	1	0	0	0	0	0	0	5	39.4	31.0
3:00 AM	0	0	0	0	0	1	2	0	0	0	0	0	0	3	43.7	42.0
4:00 AM	0	0	0	0	0	4	4	2	1	0	0	0	0	11	47.0	42.1
5:00 AM	0	0	0	0	8	31	17	4	1	0	0	0	0	61	43.0	38.8
6:00 AM	1	1	0	4	44	60	28	9	0	1	0	0	0	148	42.0	36.6
7:00 AM	1	1	0	3	53	84	24	0	1	0	0	0	0	167	39.1	35.8
8:00 AM	0	0	0	19	59	82	15	4	0	0	0	0	0	179	39.0	34.9
9:00 AM	1	0	0	2	72	132	62	7	1	0	0	0	0	277	41.0	36.9
10:00 AM	0	0	0	2	55	121	68	3	2	0	0	0	0	251	41.0	37.4
11:00 AM	2	2	2	5	59	156	82	12	1	0	0	0	0	321	41.0	37.1
12:00 PM	0	1	1	7	84	155	55	3	0	0	0	0	0	306	40.0	36.2
1:00 PM	0	0	0	14	91	182	76	14	0	0	0	0	0	377	41.0	36.7
2:00 PM	0	0	1	14	115	241	75	11	0	0	0	0	0	457	40.0	36.5
3:00 PM	2	2	1	12	134	252	82	5	2	0	0	0	0	492	40.0	36.2
4:00 PM	2	0	0	12	154	297	90	7	1	1	0	0	0	564	40.0	36.3
5:00 PM	1	2	2	13	137	297	103	8	0	0	0	0	0	563	40.0	36.3
6:00 PM	1	0	0	10	121	262	105	10	2	0	0	0	0	511	40.0	36.8
7:00 PM	3	0	0	23	147	201	55	4	0	0	0	1	0	434	39.0	35.3
8:00 PM	1	0	1	12	112	147	34	4	0	0	0	0	0	311	39.0	35.2
9:00 PM	0	0	0	5	56	101	40	10	3	1	0	0	0	216	42.0	37.2
10:00 PM	0	0	0	4	33	50	20	7	1	0	0	0	0	115	40.0	36.8
11:00 PM	0	0	0	1	17	40	18	2	0	0	0	0	0	78	41.0	37.1
Total	16	9	9	164	1556	2914	1073	128	17	3	0	1	0	5890	40.0	36.4
Percent	0.27%	0.15%	0.15%	2.78%	26.42%	49.47%	18.22%	2.17%	0.29%	0.05%	0.00%	0.02%	0.00%			

AM Peak	11:00 AM	11:00 AM	11:00 AM	8:00 AM	9:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	6:00 AM				11:00 AM
Volume	2	2	2	19	72	156	82	12	2	1	0	0	0	321
PM Peak	7:00 PM	3:00 PM	5:00 PM	7:00 PM	4:00 PM	4:00 PM	6:00 PM	1:00 PM	9:00 PM	4:00 PM		7:00 PM		4:00 PM
Volume	3	2	2	23	154	297	105	14	3	1	0	1	0	564

15th Percentile:	33.0 MPH	Average Speed:	36.4 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	36.0 MPH	10 MPH Pace:	32 to 41 MPH	Number of Vehicles > 35 MPH:	3487
85th Percentile:	40.0 MPH	Number in Pace:	4812	Percent of Vehicles > 35 MPH:	59.2%
95th Percentile:	43.0 MPH	Percent in Pace:	81.7%		

Salem End Road
at Reservoir Bridge
City, State: Framingham, MA
Client: BETA/ D. Flynn
Site Code: TBA



PDI File #: 239298 ATR-A (Speed)

Count Date
Wednesday, April 26, 2023

Speed (60-minute)

Combined NB and SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	1	2	4	21	16	2	1	0	0	0	0	47	42.1	38.2
1:00 AM	0	0	0	2	6	1	2	0	0	0	0	0	0	11	37.5	33.5
2:00 AM	1	0	0	1	2	2	2	2	0	0	0	0	0	10	43.3	35.3
3:00 AM	0	0	0	2	1	4	2	1	0	0	0	0	0	10	43.7	37.2
4:00 AM	0	0	0	2	16	12	8	3	3	0	0	0	0	44	43.0	37.2
5:00 AM	0	0	0	2	36	81	34	8	2	0	0	0	0	163	41.0	37.6
6:00 AM	1	2	6	21	262	266	70	11	0	1	0	0	0	640	39.0	35.1
7:00 AM	42	44	38	57	275	245	48	1	1	0	0	0	0	751	38.0	31.4
8:00 AM	71	62	52	69	183	159	26	5	0	0	0	0	0	627	37.0	28.6
9:00 AM	1	1	2	25	198	311	108	8	1	0	0	0	0	655	40.0	35.8
10:00 AM	0	0	1	5	152	287	102	4	2	0	0	0	0	553	40.0	36.5
11:00 AM	4	2	3	21	157	302	110	13	1	0	0	0	0	613	40.0	36.2
12:00 PM	2	1	1	13	194	304	93	8	0	0	0	0	0	616	40.0	35.8
1:00 PM	0	0	0	19	191	334	112	15	1	0	0	0	0	672	40.0	36.2
2:00 PM	0	0	1	16	229	376	114	14	0	0	0	0	0	750	40.0	36.2
3:00 PM	2	2	2	23	266	414	114	7	2	0	0	0	0	832	39.0	35.8
4:00 PM	2	1	3	28	295	457	122	11	1	1	0	0	0	921	39.0	35.7
5:00 PM	1	2	3	23	291	505	128	11	0	0	0	0	0	964	39.0	35.8
6:00 PM	1	0	0	18	225	443	151	14	2	0	0	0	0	854	40.0	36.5
7:00 PM	3	0	3	37	273	320	78	8	0	0	0	1	0	723	39.0	35.1
8:00 PM	1	1	4	30	186	183	38	4	0	0	0	0	0	447	38.0	34.4
9:00 PM	0	0	1	15	89	138	49	10	3	1	0	0	0	306	41.0	36.4
10:00 PM	0	0	0	14	55	76	37	8	1	0	0	0	0	191	41.0	36.2
11:00 PM	1	0	0	5	25	46	21	2	0	0	0	0	0	100	41.0	36.1
Total	133	118	121	450	3611	5287	1585	170	21	3	0	1	0	11500	40.0	35.2
Percent	1.16%	1.03%	1.05%	3.91%	31.40%	45.97%	13.78%	1.48%	0.18%	0.03%	0.00%	0.01%	0.00%			

AM Peak	8:00 AM	8:00 AM	8:00 AM	8:00 AM	7:00 AM	9:00 AM	11:00 AM	11:00 AM	4:00 AM	6:00 AM				7:00 AM
Volume	71	62	52	69	275	311	110	13	3	1	0	0	0	751
PM Peak	7:00 PM	3:00 PM	8:00 PM	7:00 PM	4:00 PM	5:00 PM	6:00 PM	1:00 PM	9:00 PM	4:00 PM		7:00 PM		5:00 PM
Volume	3	2	4	37	295	505	151	15	3	1	0	1	0	964

15th Percentile:	32.0 MPH	Average Speed:	35.2 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	36.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	5828
85th Percentile:	40.0 MPH	Number in Pace:	9266	Percent of Vehicles > 35 MPH:	50.7%
95th Percentile:	42.0 MPH	Percent in Pace:	80.6%		

Salem End Road
 at Reservoir Bridge
 City, State: Framingham, MA
 Client: BETA/ D. Flynn
 Site Code: TBA



PDI File #: 239298 ATR-A (Speed)

Count Date
 Thursday, April 27, 2023

Speed (60-minute)

NB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	5	0	0	0	0	0	0	0	0	5	34.0	33.4
1:00 AM	0	0	0	1	0	2	0	0	0	0	0	0	0	3	37.1	33.7
2:00 AM	0	0	0	0	2	2	1	1	0	1	0	0	0	7	49.0	41.1
3:00 AM	0	0	0	2	2	4	0	1	0	0	0	0	0	9	37.8	35.1
4:00 AM	0	0	0	0	11	11	3	3	1	0	0	0	0	29	42.8	36.8
5:00 AM	0	0	0	2	22	41	21	5	0	0	0	0	0	91	40.0	37.1
6:00 AM	0	2	8	31	181	205	52	6	0	0	0	0	0	485	39.0	34.7
7:00 AM	45	54	59	67	196	122	15	5	0	0	0	0	0	563	36.0	28.8
8:00 AM	6	32	32	58	237	195	17	0	0	0	0	0	0	577	37.0	31.9
9:00 AM	0	1	1	23	162	151	43	3	0	0	0	0	0	384	39.0	34.9
10:00 AM	0	0	0	11	120	158	49	0	0	0	0	0	0	338	39.0	35.7
11:00 AM	0	0	1	6	117	142	45	6	0	0	0	0	0	317	40.0	35.8
12:00 PM	0	0	0	9	123	155	48	3	1	0	0	0	0	339	40.0	35.7
1:00 PM	0	1	0	9	105	130	24	2	0	0	0	0	0	271	38.0	35.2
2:00 PM	0	0	0	11	104	169	42	7	0	0	0	0	0	333	39.0	36.1
3:00 PM	0	0	1	11	118	182	34	5	1	0	0	0	0	352	39.0	35.7
4:00 PM	3	0	3	20	147	157	26	2	0	0	0	0	0	358	38.0	34.4
5:00 PM	2	2	3	19	128	153	34	0	0	0	0	0	0	341	38.0	34.7
6:00 PM	0	0	0	5	113	184	53	4	0	0	0	0	0	359	40.0	36.2
7:00 PM	0	0	1	6	90	114	29	2	0	0	0	0	0	242	39.0	35.4
8:00 PM	0	0	0	19	90	58	6	0	0	0	0	0	0	173	37.0	33.5
9:00 PM	0	0	0	9	47	41	9	1	1	0	0	0	0	108	39.0	34.7
10:00 PM	0	0	1	6	28	17	5	1	0	0	0	0	0	58	38.0	33.8
11:00 PM	0	0	0	0	10	6	6	0	0	1	0	0	0	23	41.0	36.5
Total	56	92	110	325	2158	2399	562	57	4	2	0	0	0	5765	39.0	34.3
Percent	0.97%	1.60%	1.91%	5.64%	37.43%	41.61%	9.75%	0.99%	0.07%	0.03%	0.00%	0.00%	0.00%			

AM Peak	7:00 AM	7:00 AM	7:00 AM	7:00 AM	8:00 AM	6:00 AM	6:00 AM	6:00 AM	4:00 AM	2:00 AM				8:00 AM		
Volume	45	54	59	67	237	205	52	6	1	1	0	0	0	577		
PM Peak	4:00 PM	5:00 PM	4:00 PM	4:00 PM	4:00 PM	6:00 PM	6:00 PM	2:00 PM	12:00 PM	11:00 PM				6:00 PM		
Volume	3	2	3	20	147	184	53	7	1	1	0	0	0	359		

15th Percentile:	31.0 MPH	Average Speed:	34.3 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	2443
85th Percentile:	39.0 MPH	Number in Pace:	4611	Percent of Vehicles > 35 MPH:	42.4%
95th Percentile:	41.0 MPH	Percent in Pace:	80.0%		

Salem End Road
 at Reservoir Bridge
 City, State: Framingham, MA
 Client: BETA/ D. Flynn
 Site Code: TBA



PDI File #: 239298 ATR-A (Speed)

Count Date
 Thursday, April 27, 2023

Speed (60-minute)

SB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	7	16	3	4	3	0	0	0	0	33	46.0	38.6
1:00 AM	0	0	0	0	0	4	8	4	2	1	0	0	0	19	48.6	43.2
2:00 AM	0	0	0	0	3	4	1	1	0	0	0	0	0	9	41.4	36.9
3:00 AM	0	0	0	0	1	2	3	0	0	0	0	0	0	6	41.0	38.0
4:00 AM	0	0	0	1	1	4	4	1	0	0	0	0	0	11	42.0	38.5
5:00 AM	0	0	0	0	7	24	17	3	0	0	1	2	0	54	44.0	39.9
6:00 AM	1	1	0	2	31	75	30	2	0	0	0	0	0	142	40.0	36.6
7:00 AM	0	1	2	10	47	64	23	1	0	0	0	0	0	148	40.0	35.3
8:00 AM	2	1	1	7	68	100	38	1	1	1	0	0	0	220	40.0	35.7
9:00 AM	0	0	1	12	69	121	57	11	0	0	0	0	0	271	41.0	36.7
10:00 AM	1	0	1	13	83	142	43	8	0	0	0	0	0	291	40.0	36.0
11:00 AM	2	0	2	9	83	176	65	4	0	0	0	0	0	341	40.0	36.3
12:00 PM	1	0	0	4	94	201	62	5	0	0	0	0	0	367	40.0	36.5
1:00 PM	0	0	0	12	96	197	54	6	3	0	0	1	0	369	40.0	36.5
2:00 PM	0	0	0	14	131	245	64	7	2	1	0	0	0	464	40.0	36.3
3:00 PM	0	0	3	15	143	285	73	8	0	1	0	0	0	528	40.0	36.1
4:00 PM	2	0	1	21	153	240	76	6	1	1	0	0	0	501	40.0	35.8
5:00 PM	2	0	4	9	161	277	53	4	3	0	0	0	0	513	39.0	35.7
6:00 PM	2	1	1	11	133	232	71	10	0	1	0	0	0	462	40.0	36.1
7:00 PM	0	0	0	13	133	175	39	8	1	0	0	0	0	369	39.0	35.7
8:00 PM	0	0	1	9	119	152	33	6	0	2	0	0	0	322	39.0	35.7
9:00 PM	2	0	3	13	58	115	39	3	2	1	0	0	0	236	40.0	35.9
10:00 PM	0	0	0	1	19	45	27	7	1	2	0	0	0	102	43.0	38.3
11:00 PM	0	0	0	0	19	37	26	5	0	0	0	0	0	87	42.0	37.8
Total	15	4	20	176	1659	2933	909	115	19	11	1	3	0	5865	40.0	36.2
Percent	0.26%	0.07%	0.34%	3.00%	28.29%	50.01%	15.50%	1.96%	0.32%	0.19%	0.02%	0.05%	0.00%			

AM Peak	8:00 AM	6:00 AM	7:00 AM	10:00 AM	10:00 AM	11:00 AM	11:00 AM	9:00 AM	12:00 AM	1:00 AM	5:00 AM	5:00 AM		11:00 AM
Volume	2	1	2	13	83	176	65	11	3	1	1	2	0	341
PM Peak	4:00 PM	6:00 PM	5:00 PM	4:00 PM	5:00 PM	3:00 PM	4:00 PM	6:00 PM	1:00 PM	8:00 PM		1:00 PM		3:00 PM
Volume	2	1	4	21	161	285	76	10	3	2	0	1	0	528

15th Percentile:	32.0 MPH	Average Speed:	36.2 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	36.0 MPH	10 MPH Pace:	32 to 41 MPH	Number of Vehicles > 35 MPH:	3340
85th Percentile:	40.0 MPH	Number in Pace:	4816	Percent of Vehicles > 35 MPH:	56.9%
95th Percentile:	43.0 MPH	Percent in Pace:	82.1%		

Salem End Road
 at Reservoir Bridge
 City, State: Framingham, MA
 Client: BETA/ D. Flynn
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PDI File #: 239298 ATR-A (Speed)

Count Date
 Thursday, April 27, 2023

Speed (60-minute)

Combined NB and SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	12	16	3	4	3	0	0	0	0	38	45.5	37.9
1:00 AM	0	0	0	1	0	6	8	4	2	1	0	0	0	22	47.7	41.9
2:00 AM	0	0	0	0	5	6	2	2	0	1	0	0	0	16	44.3	38.8
3:00 AM	0	0	0	2	3	6	3	1	0	0	0	0	0	15	40.9	36.3
4:00 AM	0	0	0	1	12	15	7	4	1	0	0	0	0	40	43.0	37.3
5:00 AM	0	0	0	2	29	65	38	8	0	0	1	2	0	145	41.0	38.1
6:00 AM	1	3	8	33	212	280	82	8	0	0	0	0	0	627	39.0	35.1
7:00 AM	45	55	61	77	243	186	38	6	0	0	0	0	0	711	37.0	30.1
8:00 AM	8	33	33	65	305	295	55	1	1	1	0	0	0	797	38.0	32.9
9:00 AM	0	1	2	35	231	272	100	14	0	0	0	0	0	655	40.0	35.6
10:00 AM	1	0	1	24	203	300	92	8	0	0	0	0	0	629	40.0	35.8
11:00 AM	2	0	3	15	200	318	110	10	0	0	0	0	0	658	40.0	36.0
12:00 PM	1	0	0	13	217	356	110	8	1	0	0	0	0	706	40.0	36.1
1:00 PM	0	1	0	21	201	327	78	8	3	0	0	1	0	640	39.0	35.9
2:00 PM	0	0	0	25	235	414	106	14	2	1	0	0	0	797	40.0	36.2
3:00 PM	0	0	4	26	261	467	107	13	1	1	0	0	0	880	39.0	35.9
4:00 PM	5	0	4	41	300	397	102	8	1	1	0	0	0	859	39.0	35.2
5:00 PM	4	2	7	28	289	430	87	4	3	0	0	0	0	854	39.0	35.3
6:00 PM	2	1	1	16	246	416	124	14	0	1	0	0	0	821	40.0	36.1
7:00 PM	0	0	1	19	223	289	68	10	1	0	0	0	0	611	39.0	35.6
8:00 PM	0	0	1	28	209	210	39	6	0	2	0	0	0	495	38.0	34.9
9:00 PM	2	0	3	22	105	156	48	4	3	1	0	0	0	344	40.0	35.5
10:00 PM	0	0	1	7	47	62	32	8	1	2	0	0	0	160	41.2	36.7
11:00 PM	0	0	0	0	29	43	32	5	0	1	0	0	0	110	42.0	37.6
Total	71	96	130	501	3817	5332	1471	172	23	13	1	3	0	11630	39.0	35.3
Percent	0.61%	0.83%	1.12%	4.31%	32.82%	45.85%	12.65%	1.48%	0.20%	0.11%	0.01%	0.03%	0.00%			

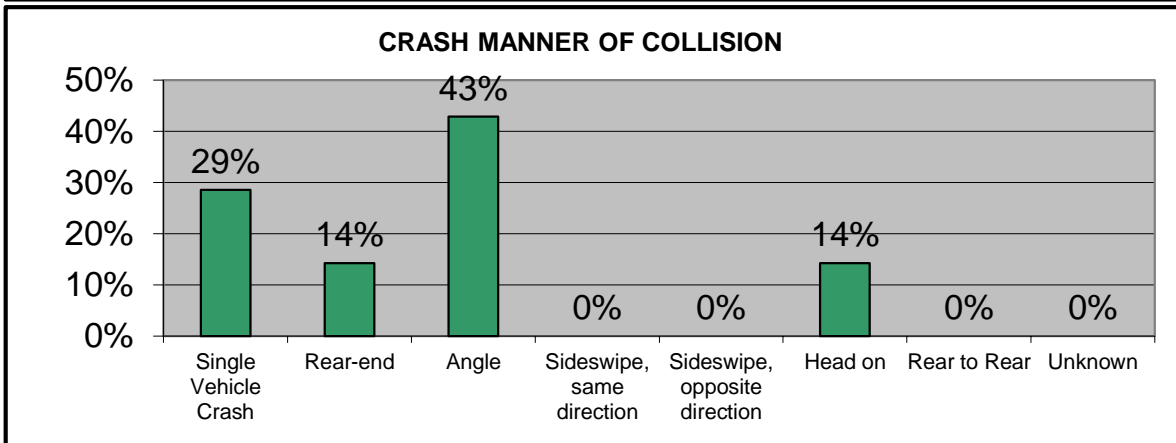
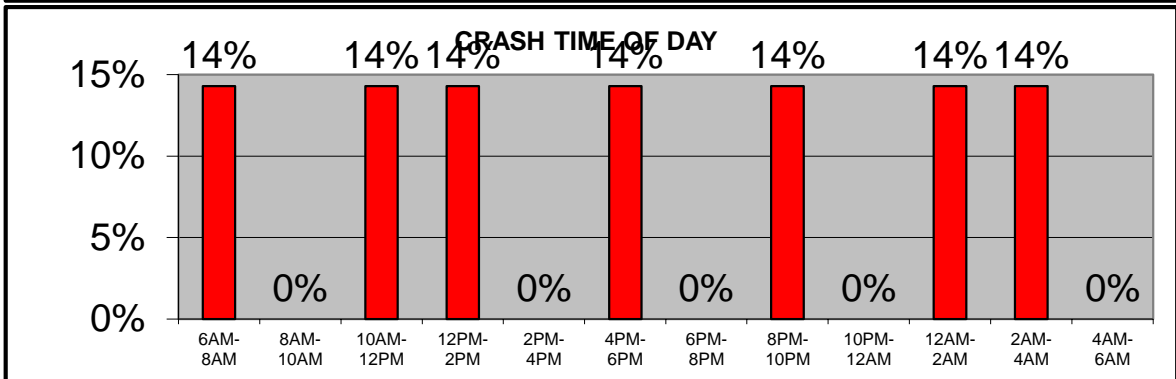
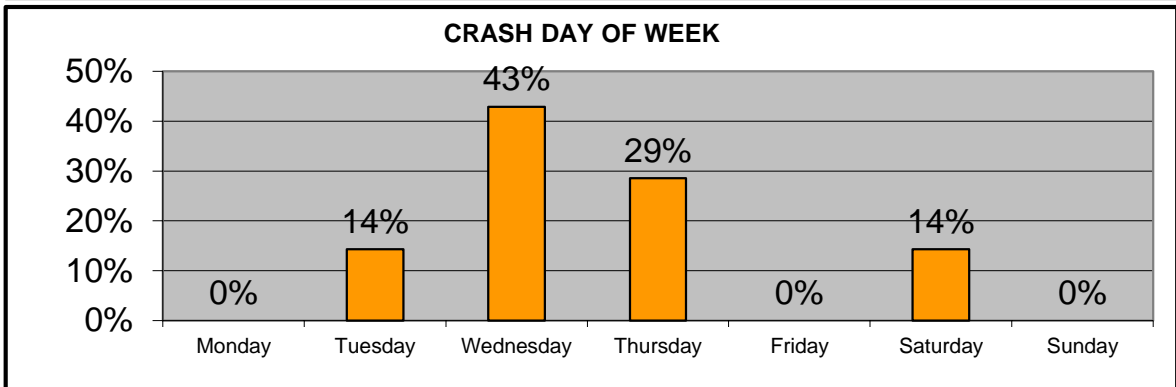
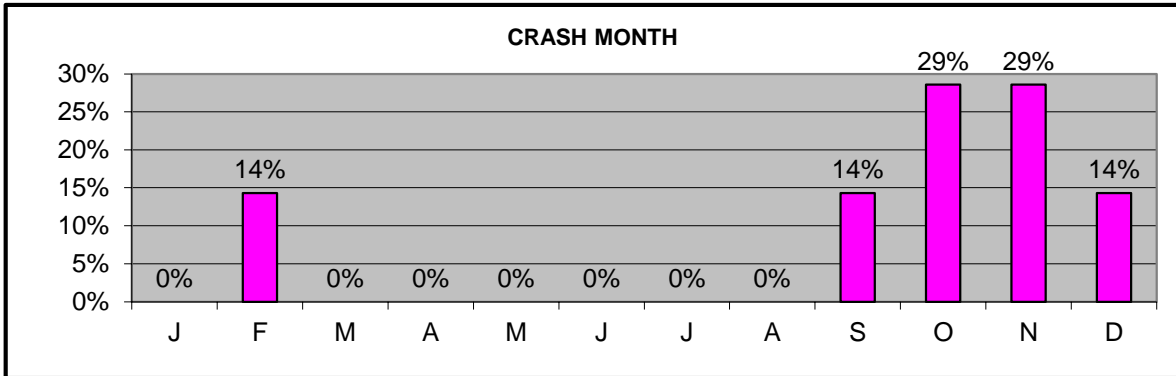
AM Peak	7:00 AM	7:00 AM	7:00 AM	7:00 AM	8:00 AM	11:00 AM	11:00 AM	9:00 AM	12:00 AM	1:00 AM	5:00 AM	5:00 AM		8:00 AM
Volume	45	55	61	77	305	318	110	14	3	1	1	2	0	797

PM Peak	4:00 PM	5:00 PM	5:00 PM	4:00 PM	4:00 PM	3:00 PM	6:00 PM	2:00 PM	1:00 PM	8:00 PM		1:00 PM		3:00 PM
Volume	5	2	7	41	300	467	124	14	3	2	0	1	0	880

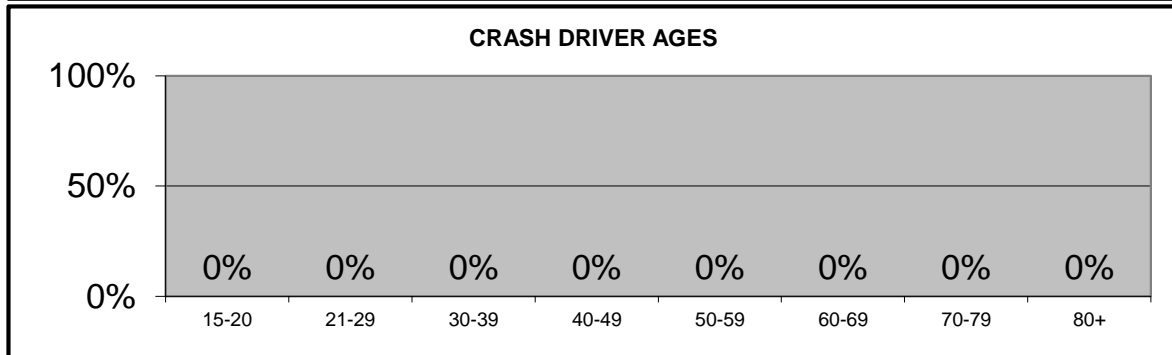
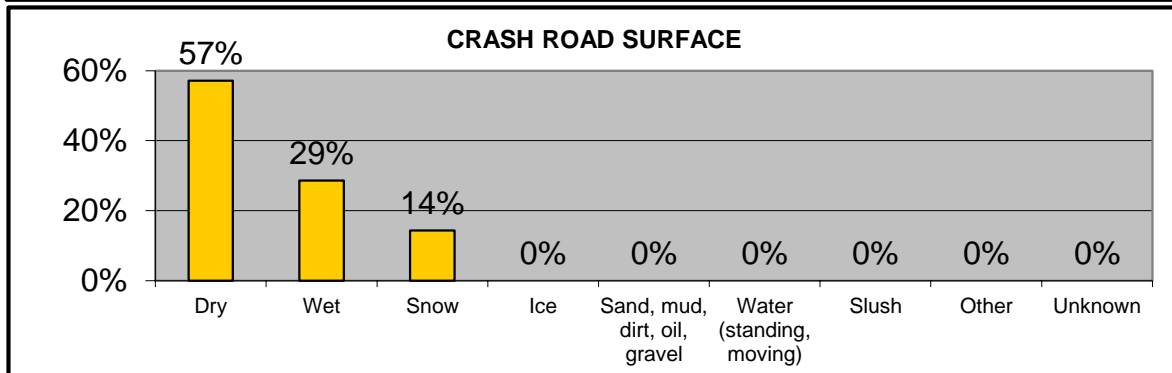
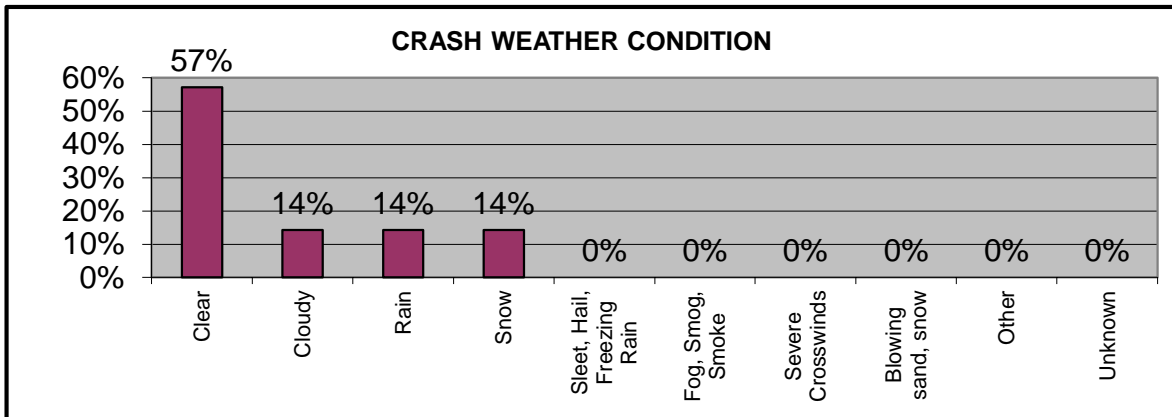
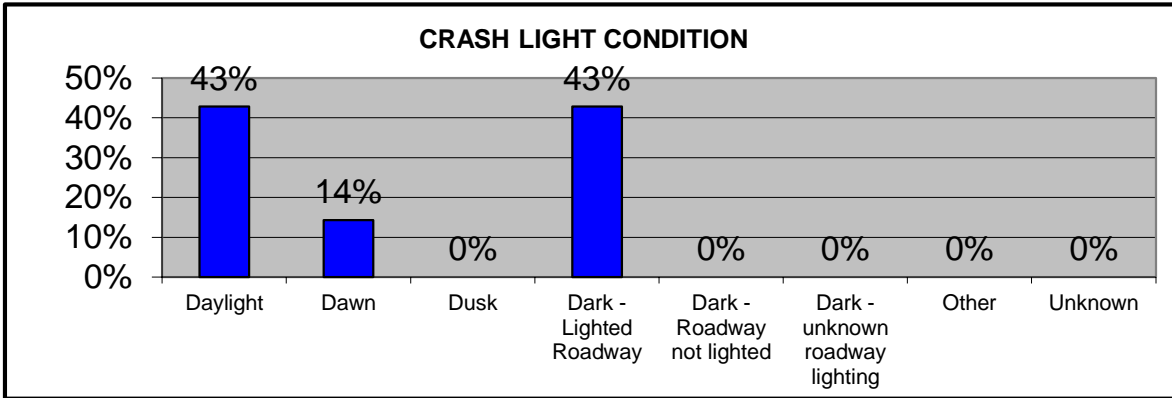
15th Percentile:	32.0 MPH	Average Speed:	35.3 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	5783
85th Percentile:	39.0 MPH	Number in Pace:	9420	Percent of Vehicles > 35 MPH:	49.7%
95th Percentile:	42.0 MPH	Percent in Pace:	81.0%		

APPENDIX C – CRASH DATA

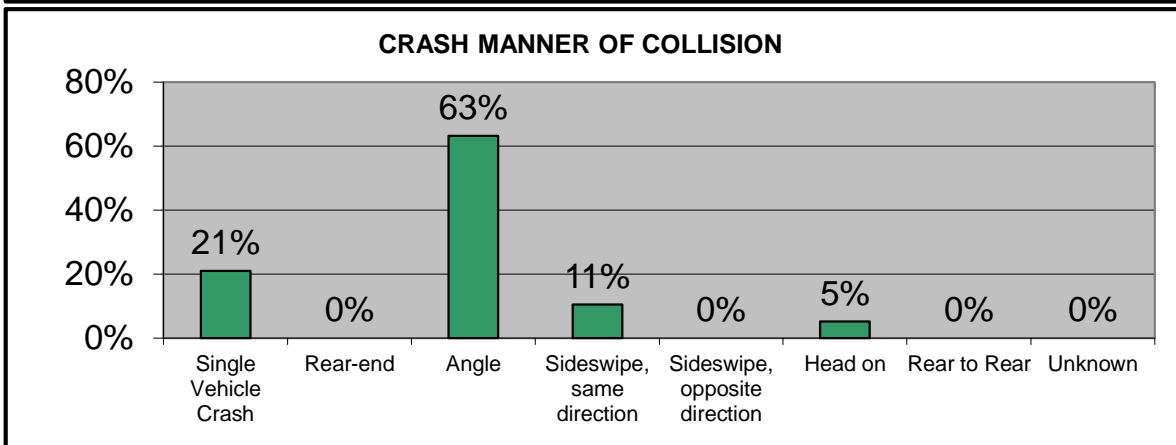
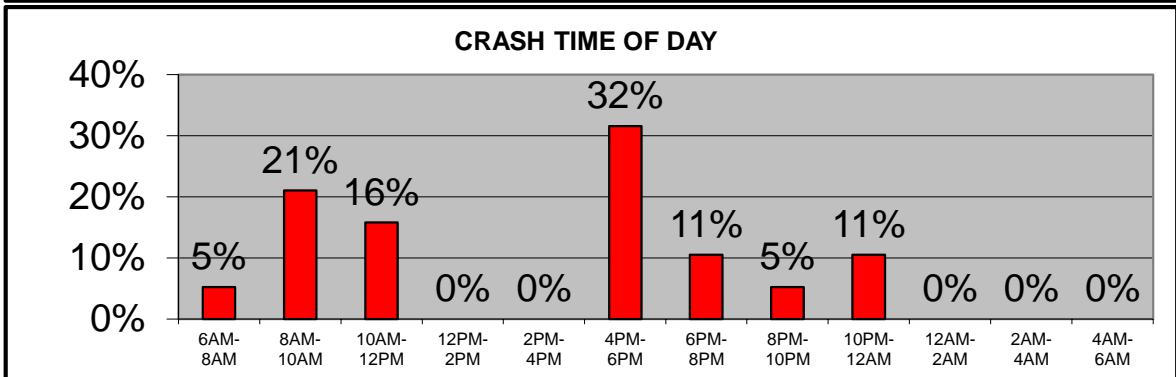
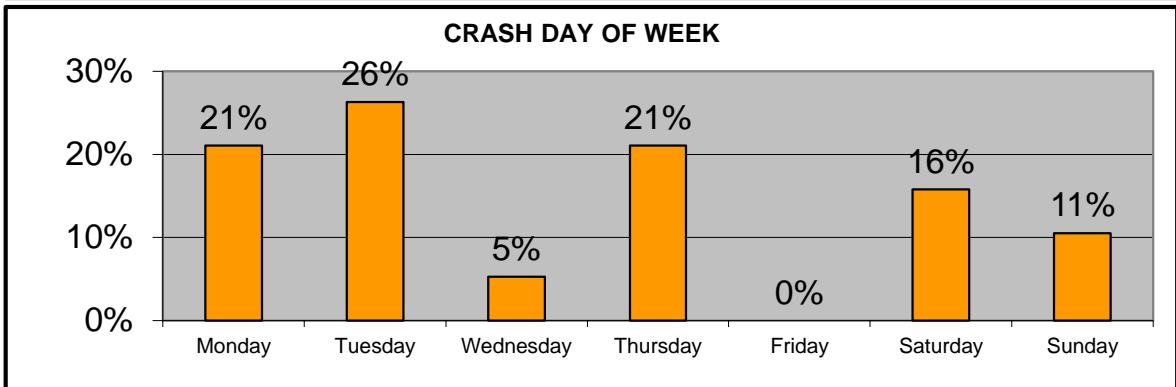
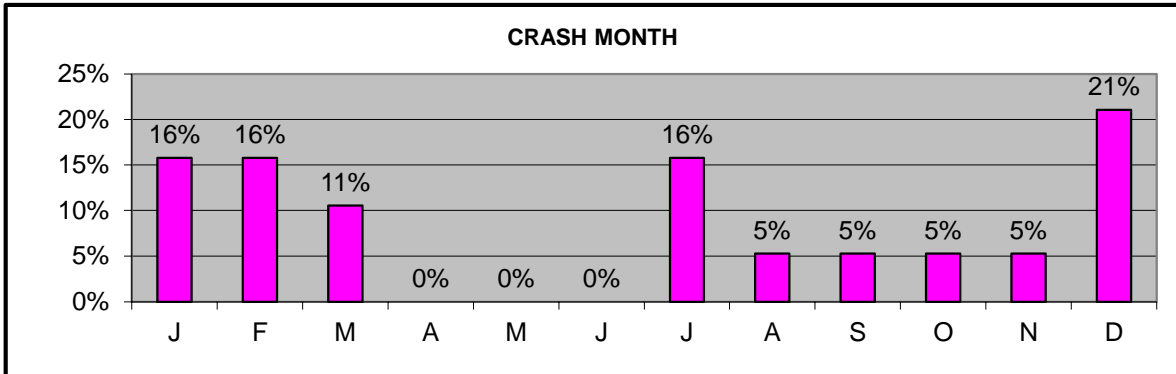
Crash Data Summary Tables and Charts
 Temple St at Salem End Rd - Framingham MA



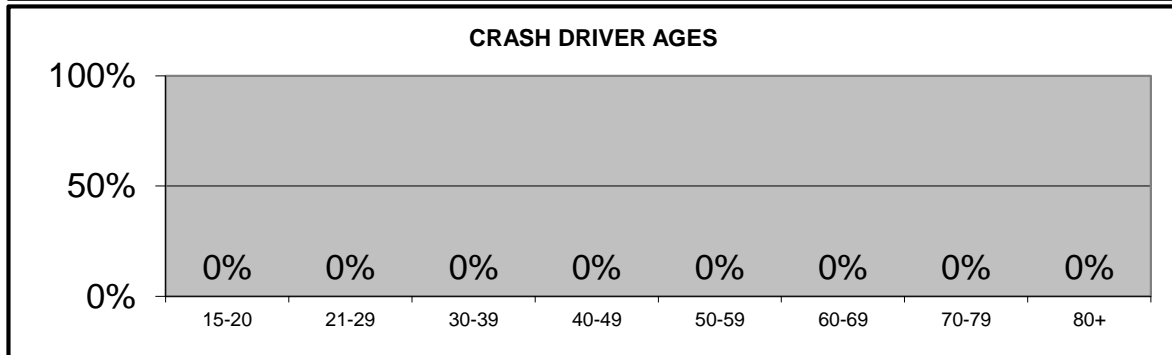
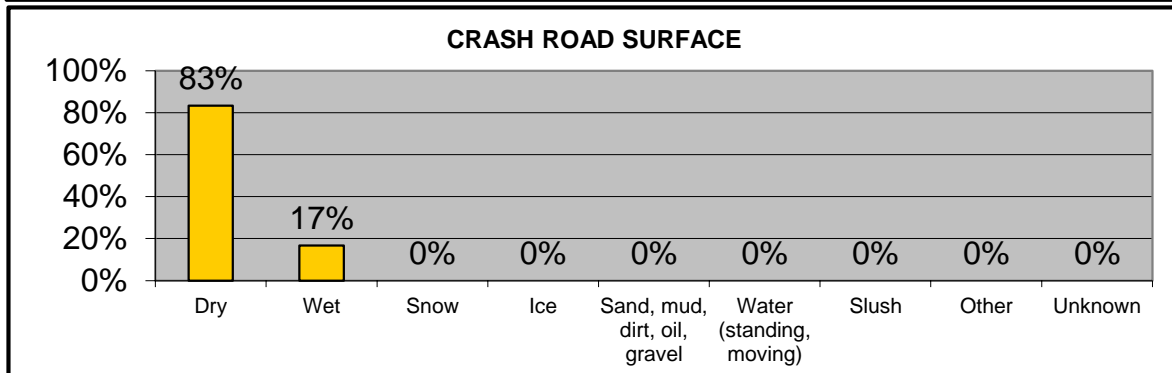
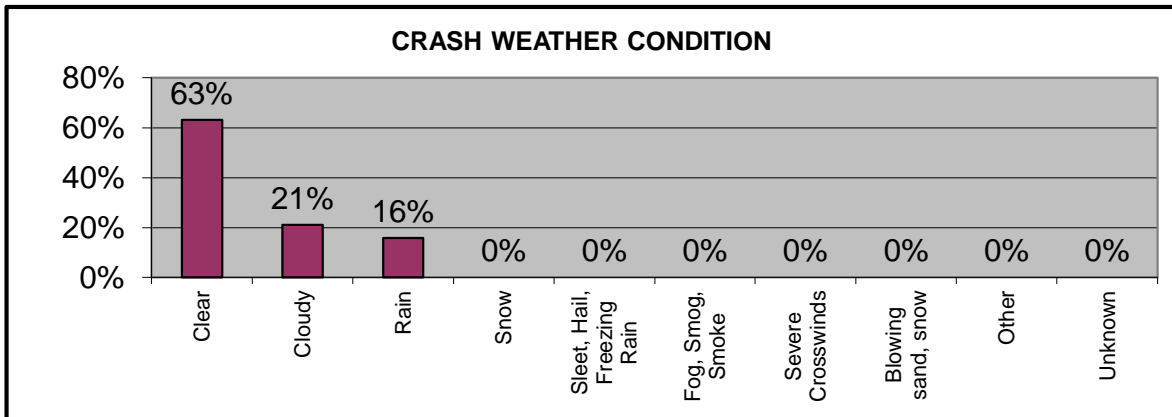
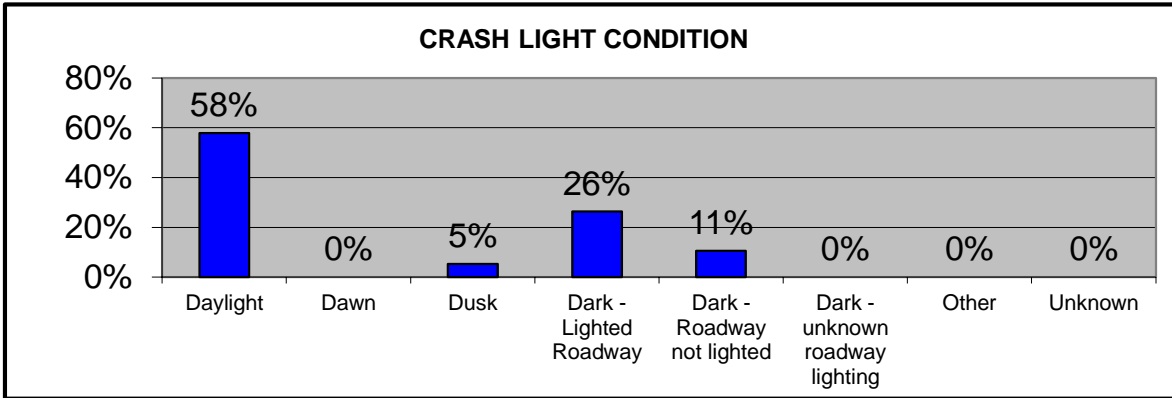
Crash Data Summary Tables and Charts
 Temple St at Salem End Rd - Framingham MA



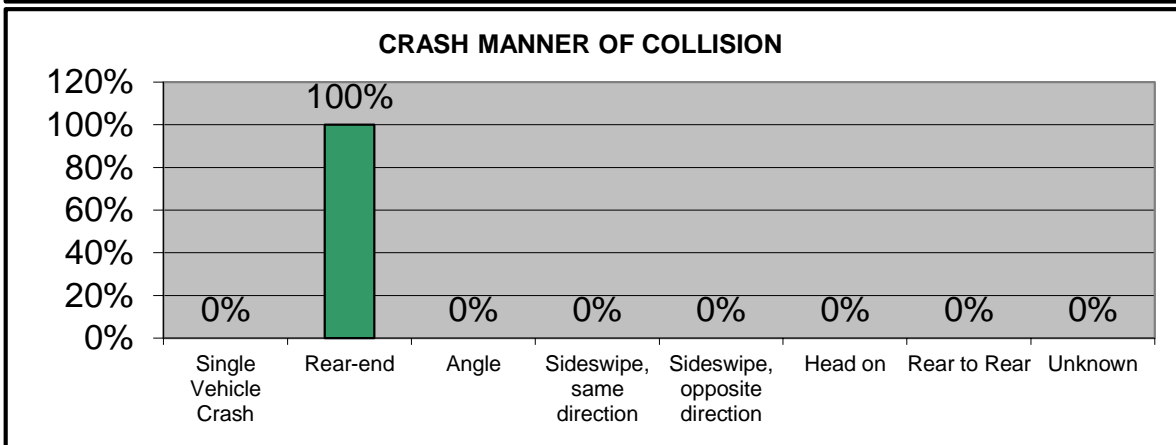
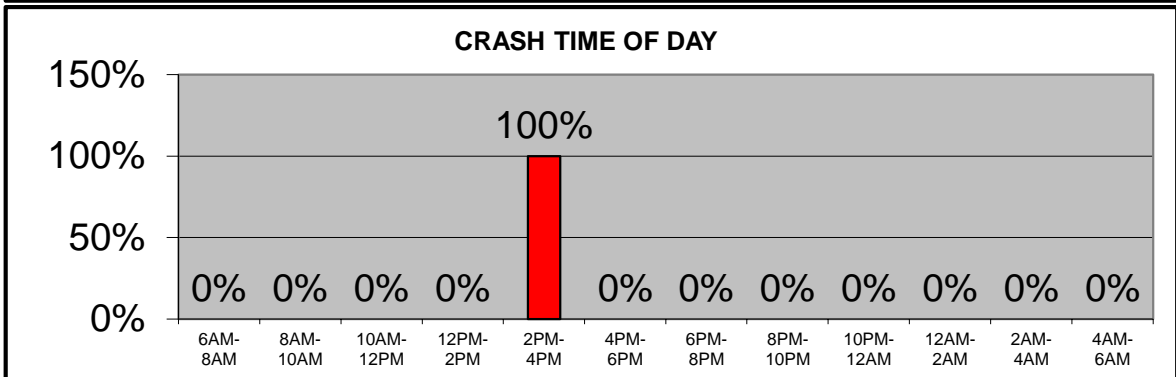
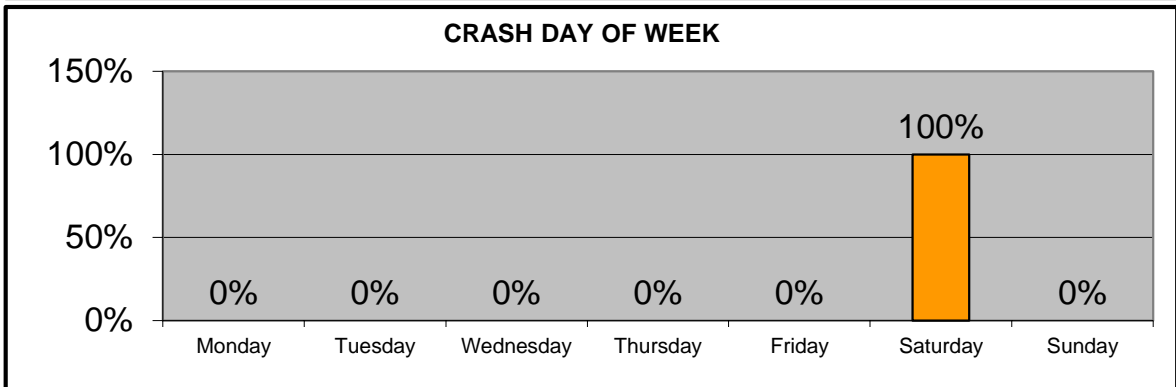
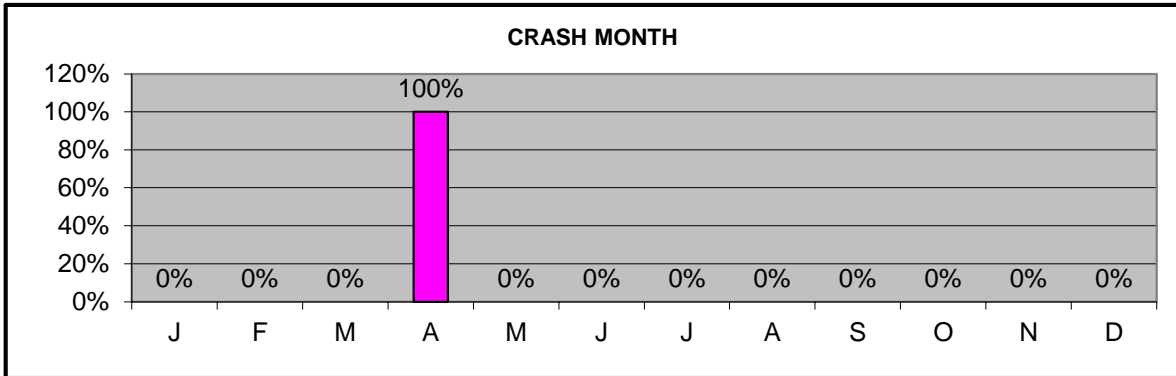
Crash Data Summary Tables and Charts
Singletary Ln at Salem End Rd - Framingham MA



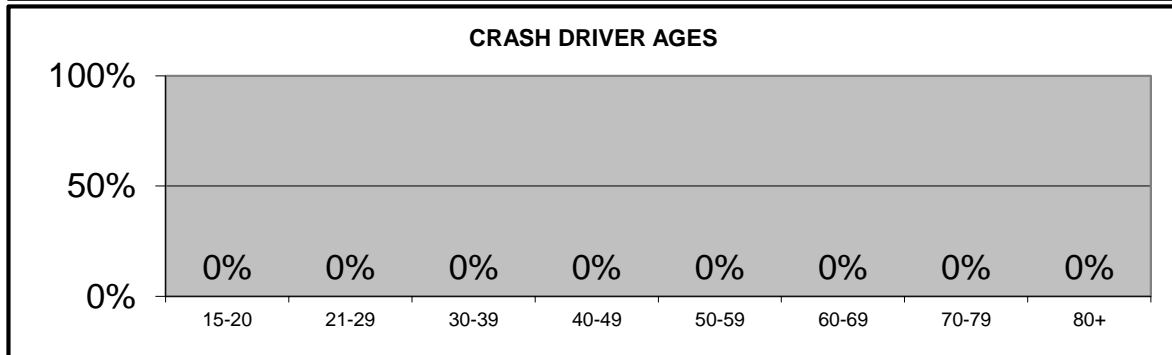
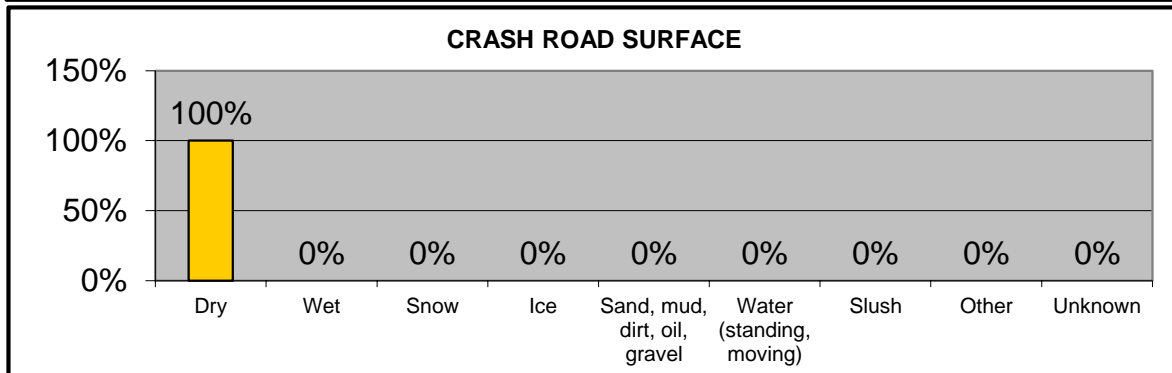
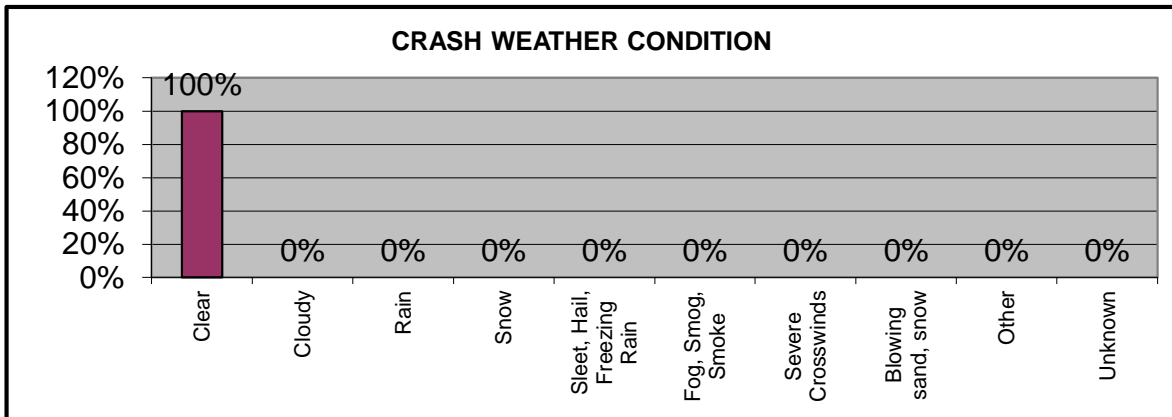
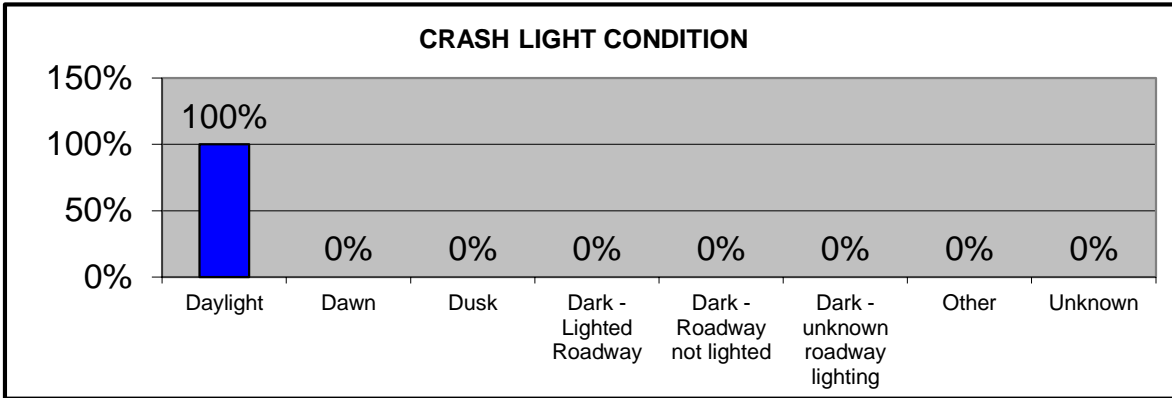
Crash Data Summary Tables and Charts
 Singletary Ln at Salem End Rd - Framingham MA



Crash Data Summary Tables and Charts
Gryzboska Cir at Salem End Rd - Framingham MA



Crash Data Summary Tables and Charts
Gryzboska Cir at Salem End Rd - Framingham MA

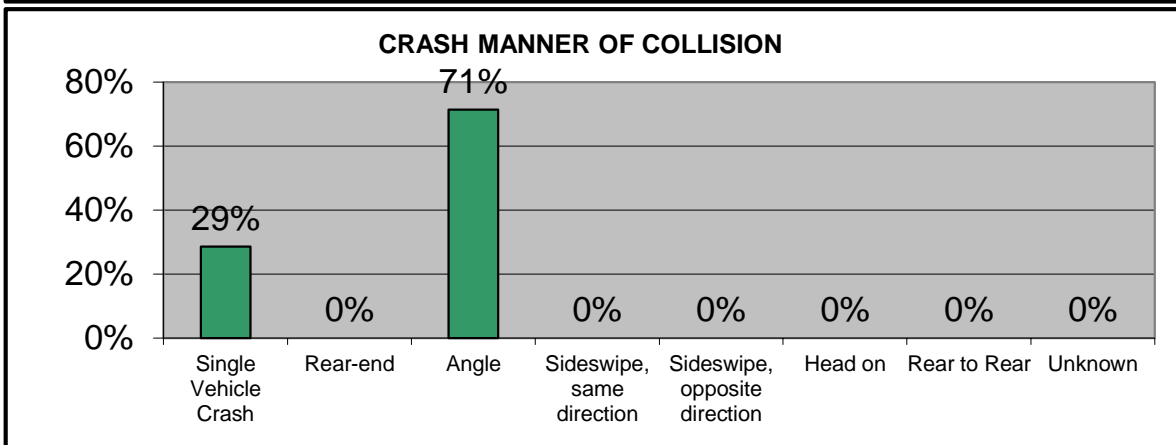
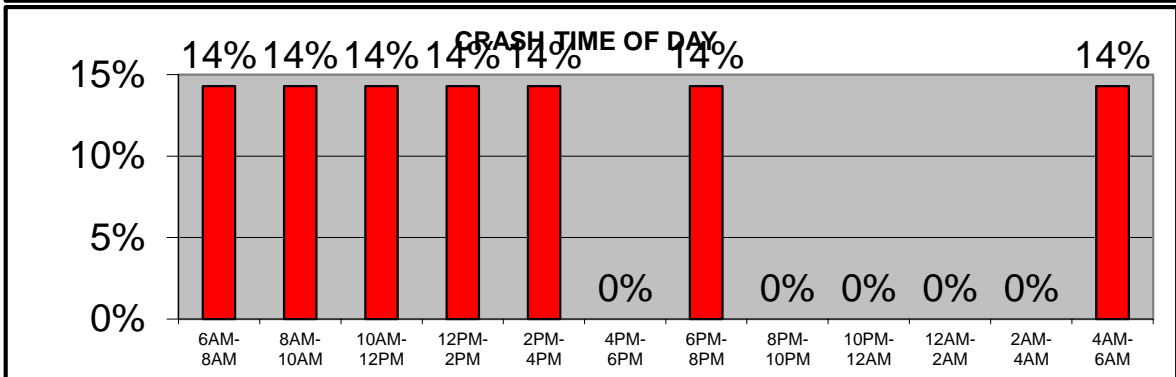
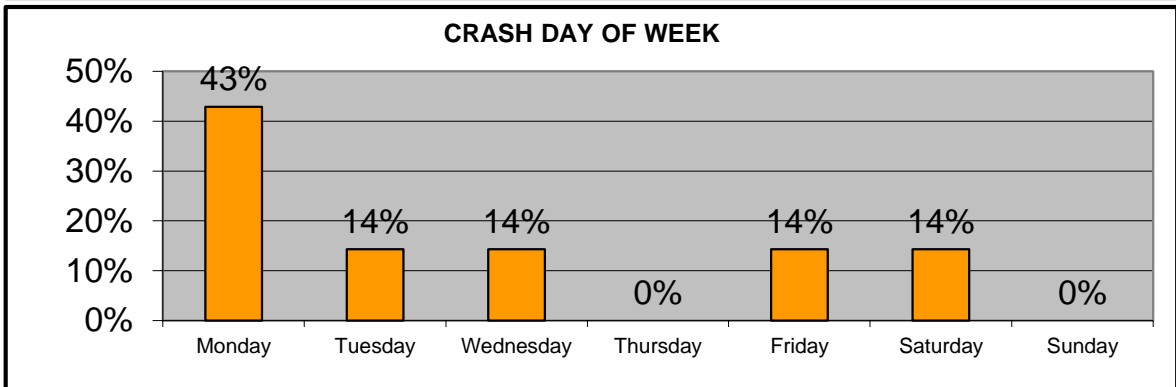
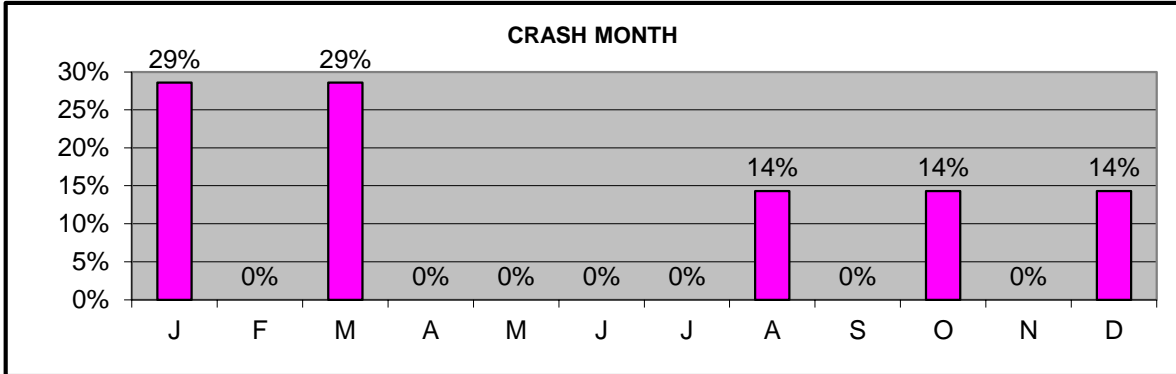


Crash Data Summary Table

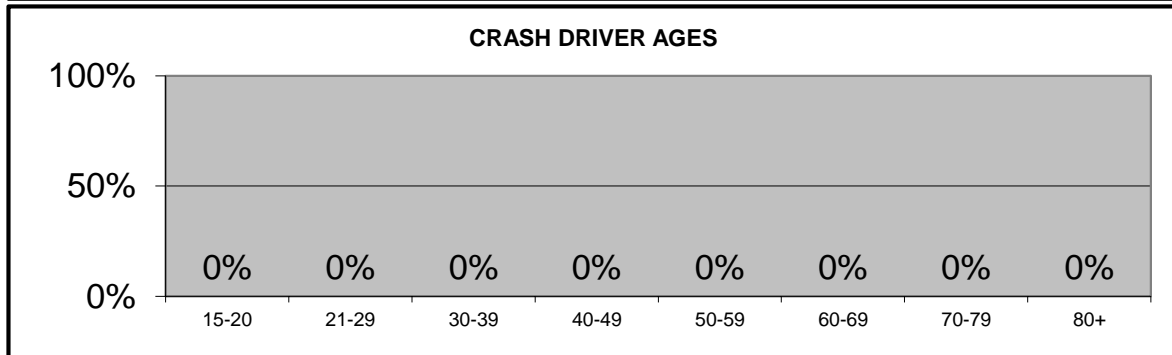
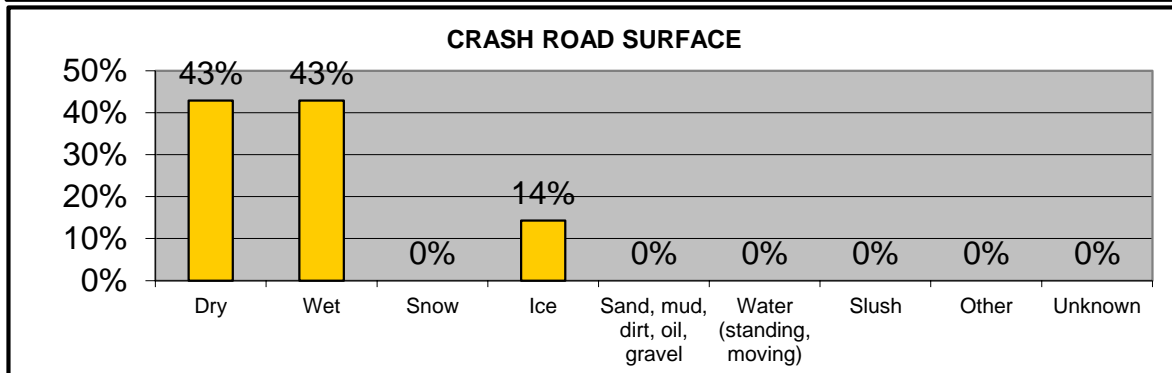
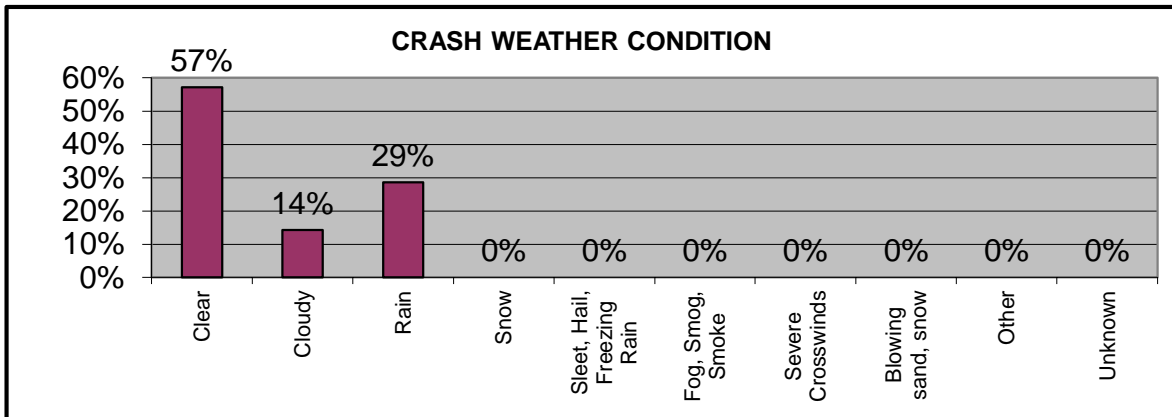
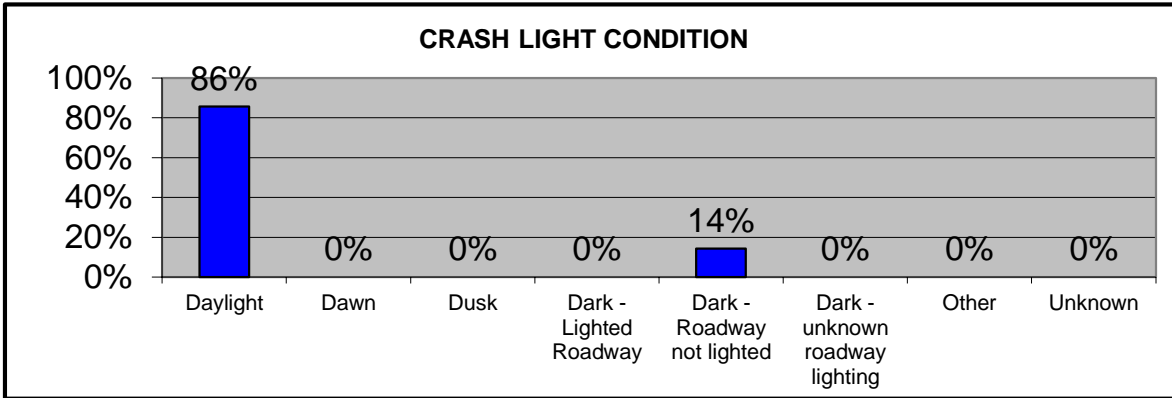
Badger Rd at Salem End Rd - Framingham MA
Dates Jan 17 - Dec 22

Crash Diagram Ref #	Case number	Month #	Crash Date <i>mm/dd</i>	Day #	Crash Day	Time #	Time of Day <i>hh:mm</i>	Manner of Collision Box 11		Light Condition Box 1		Weather Condition Box 2, 3		Road Surface Box 6		Driver Contributing Code Box 25				Ages				Injury Status Box 32		Comments			
								#	Type	#	Type	#	Type	#	Type	#	Type	#	Type	#	Type	#	Type	#	Type		#	Type	#
28	4361894	3	3/24/17	5	Friday	11	11:20	3	Angle	1	Daylight	2	Cloudy	2	Wet	0											5	PDO	V1: Travelling straight ahead / V2: Entering traffic lane V1;(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) V1: E / V2: N
29	4486842	1	1/15/18	1	Monday	18	18:46	1	Single Vehicle Crash	5	Dark - roadway not lighted	1	Clear	4	Ice	0											5	PDO	V1: Travelling straight ahead V1;(Collision with other fixed object (wall, building, tunnel, etc.)) V1: S
30	4643197	12	12/12/18	3	Wednesday	14	14:41	3	Angle	1	Daylight	1	Clear	1	Dry	0											5	PDO	V1: Travelling straight ahead / V2: Turning left V1;(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) V1: E / V2: N
31	4772321	10	10/28/19	1	Monday	9	9:07	3	Angle	1	Daylight	3	Rain	2	Wet	0											3	Non-Incapacitating	V1: Turning left / V2: Travelling straight ahead V1;(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) V1: N / V2: E
32	4811178	1	1/18/20	6	Saturday	6	6:54	3	Angle	1	Daylight	3	Rain	2	Wet	0											5	PDO	V1: Turning left / V2: Travelling straight ahead V1;(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) V1: W / V2: E
33	4879211	8	8/3/20	1	Monday	5	5:40	1	Single Vehicle Crash	1	Daylight	1	Clear	1	Dry	0											5	PDO	V1: Travelling straight ahead V1;(Collision with other fixed object (wall, building, tunnel, etc.)) V1: N
34	4945264	3	3/9/21	2	Tuesday	12	12:32	3	Angle	1	Daylight	1	Clear	1	Dry	0											4	Possible Injury	V1: Entering traffic lane / V2: Travelling straight ahead V1;(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) V1: Not Reported / V2: Not Reported

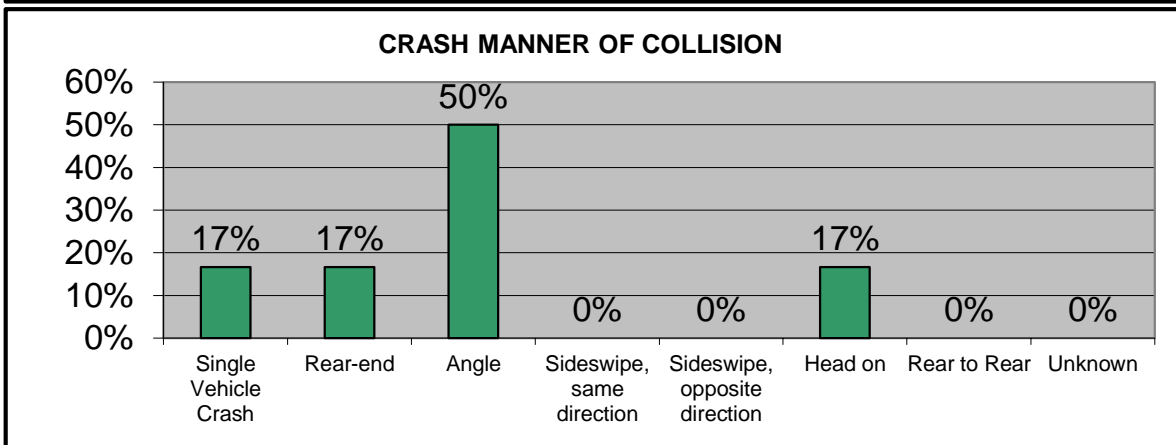
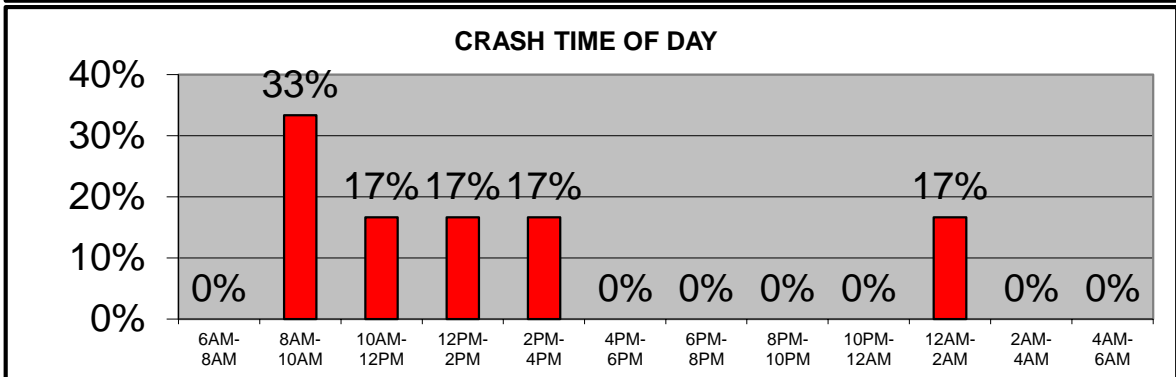
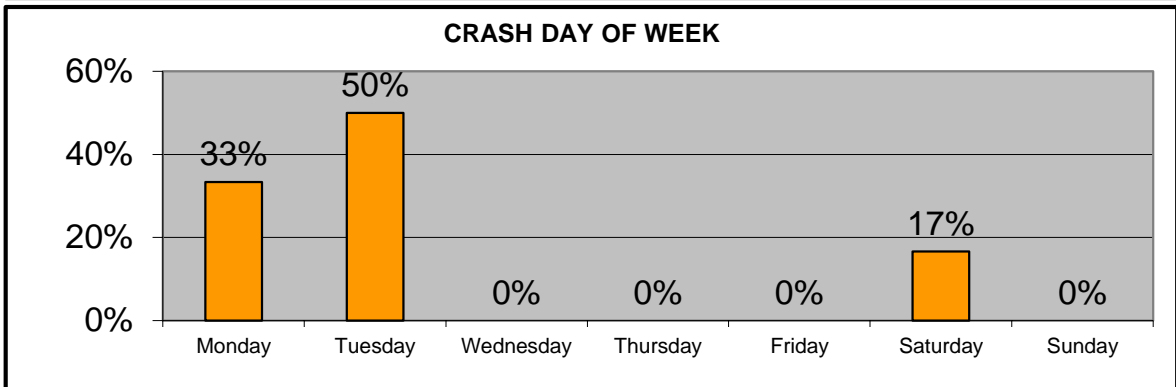
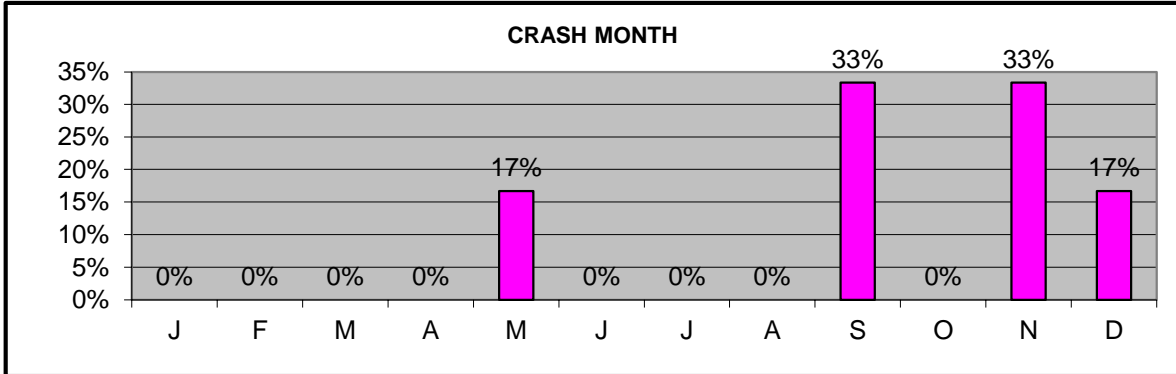
Crash Data Summary Tables and Charts
Badger Rd at Salem End Rd - Framingham MA



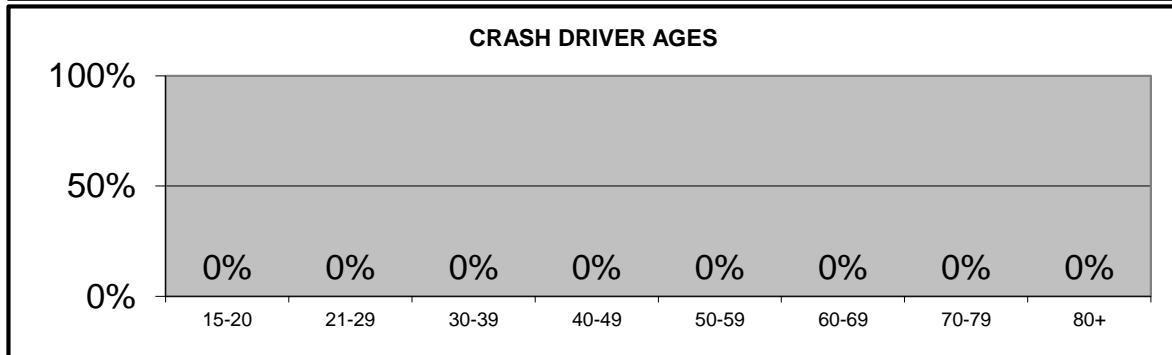
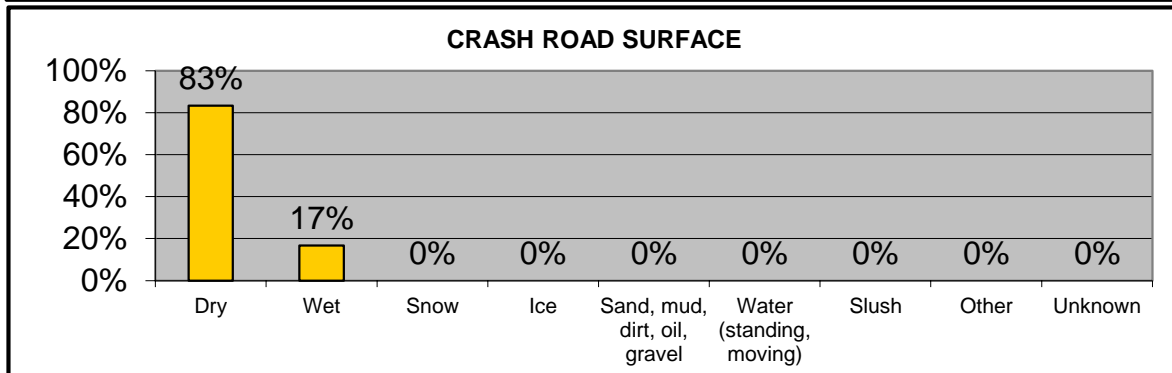
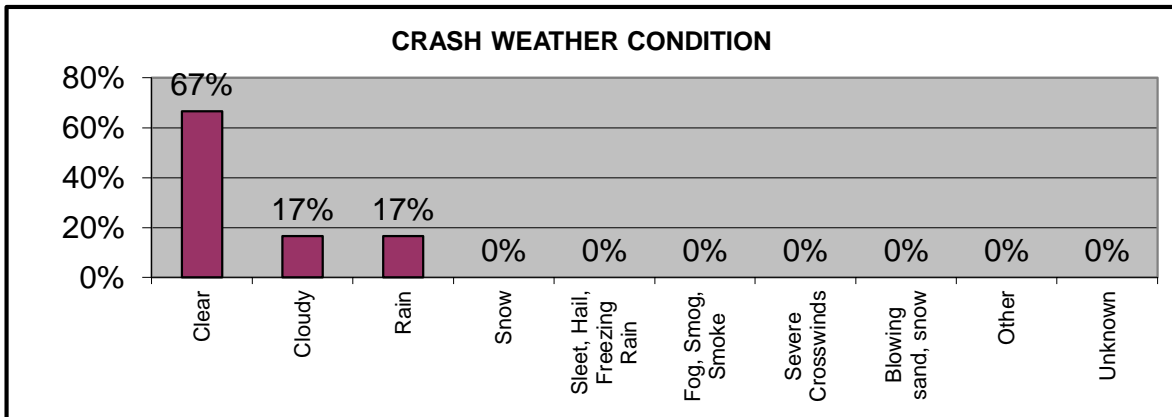
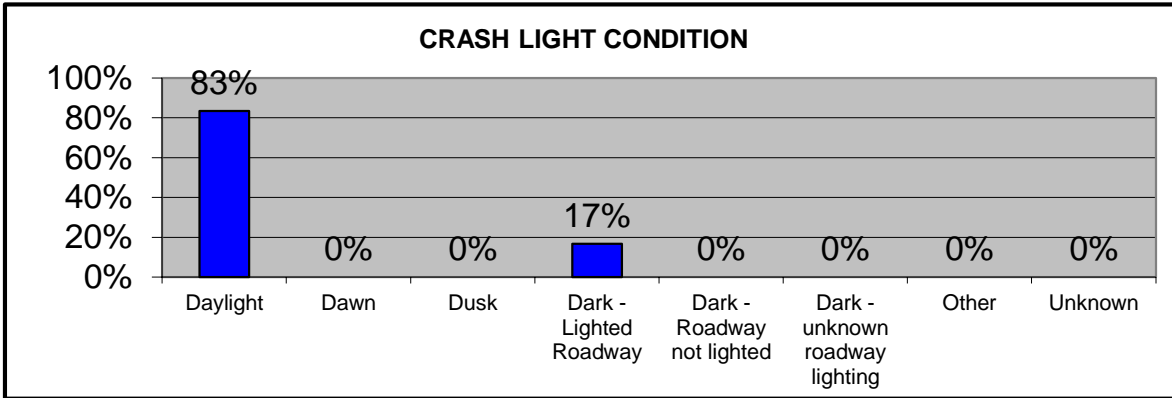
Crash Data Summary Tables and Charts
Badger Rd at Salem End Rd - Framingham MA



Crash Data Summary Tables and Charts
Gates St at Salem End Rd - Framingham MA



Crash Data Summary Tables and Charts
Gates St at Salem End Rd - Framingham MA

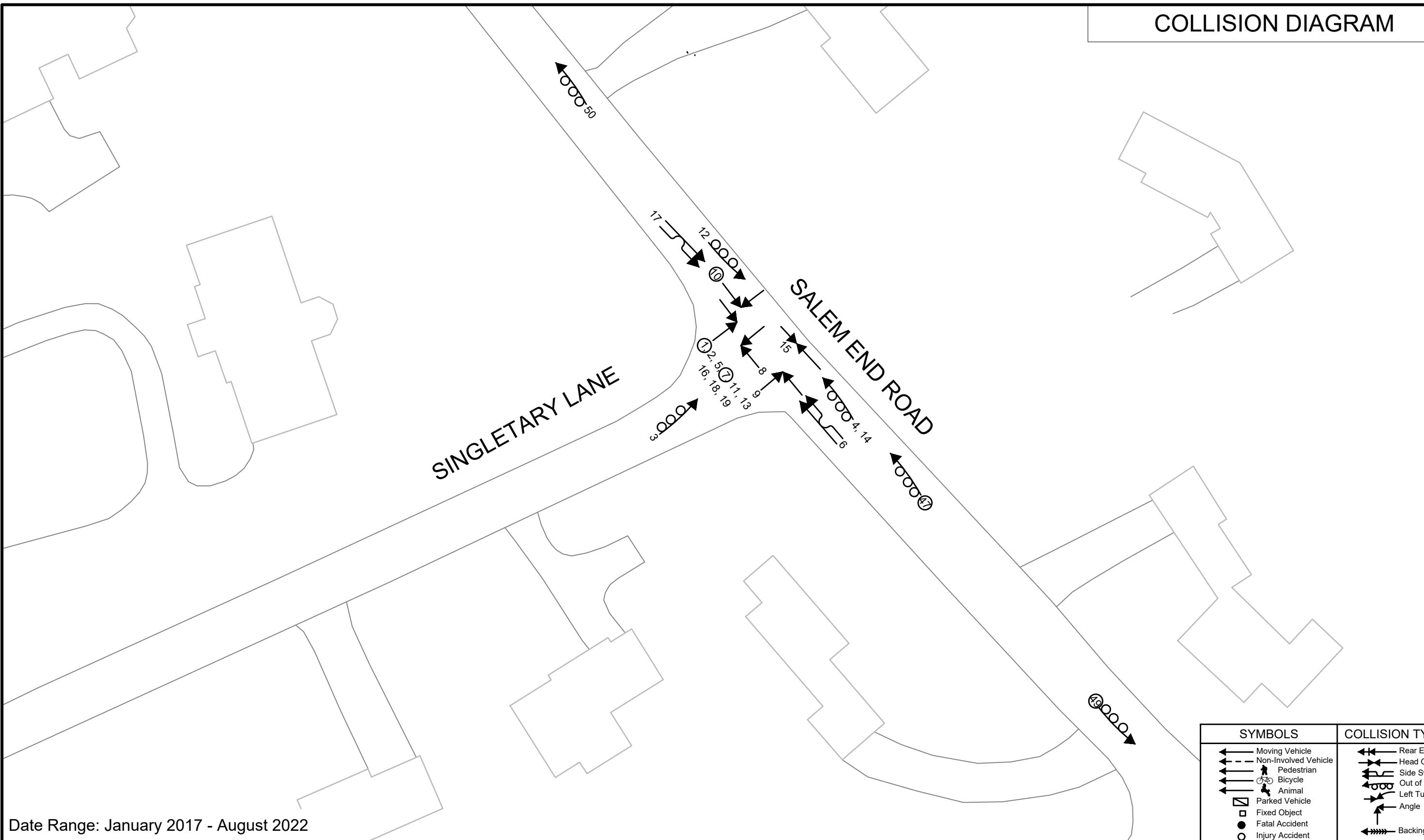


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COLLISION DIAGRAM

SINGLETARY LANE

SALEM END ROAD



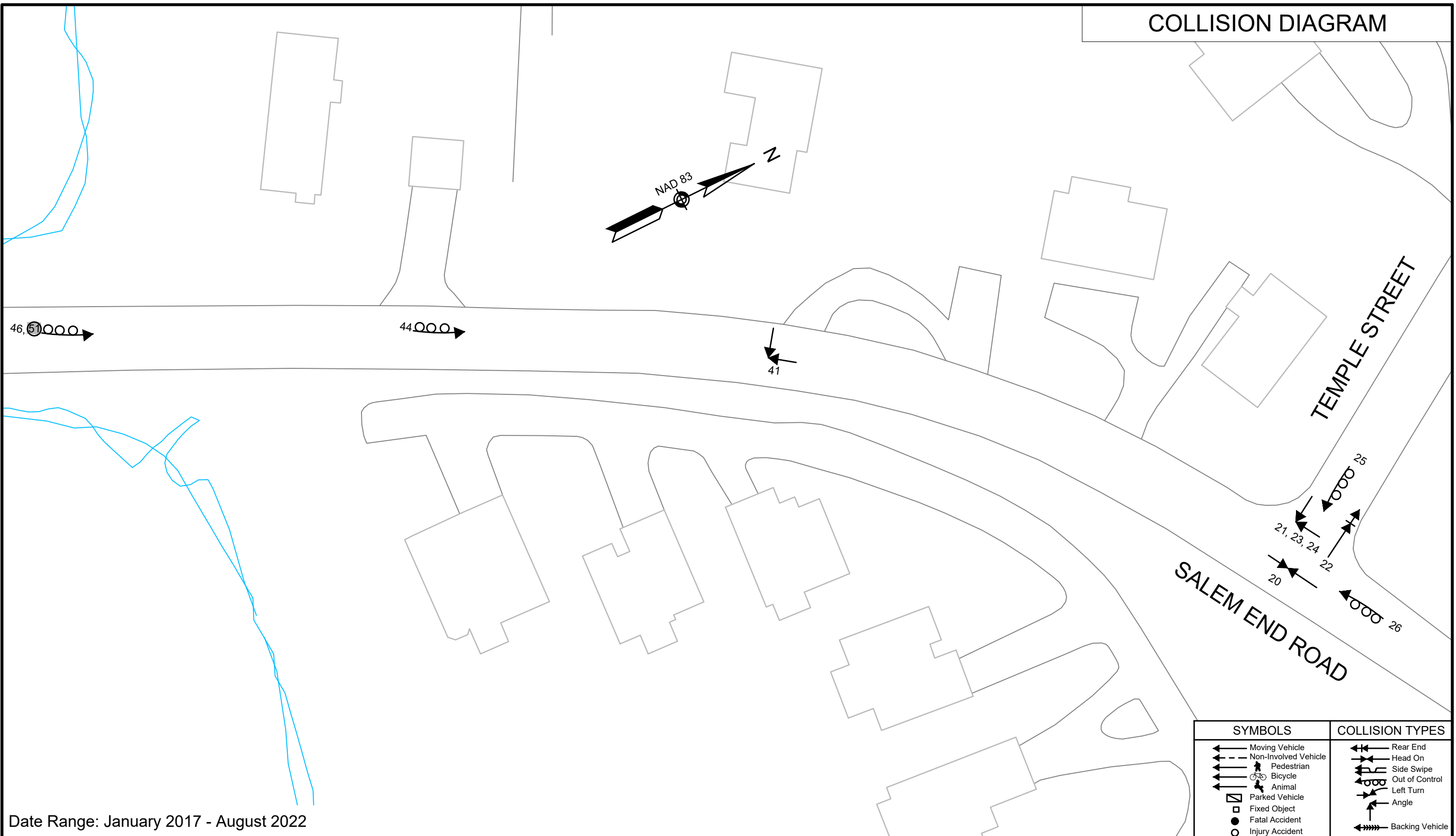
Date Range: January 2017 - August 2022

SYMBOLS	COLLISION TYPES
→ Moving Vehicle	↔ Rear End
- - - Non-Involved Vehicle	↔ Head On
⤴ Pedestrian	↔ Side Swipe
⚙ Bicycle	↔ Out of Control
🐾 Animal	↔ Left Turn
☐ Parked Vehicle	↔ Angle
▣ Fixed Object	↔ Backing Vehicle
● Fatal Accident	
○ Injury Accident	



**SALEM END RD
ACCIDENT EVALUATION**
FRAMINGHAM, MA

COLLISION DIAGRAM



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Date Range: January 2017 - August 2022

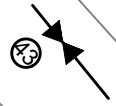
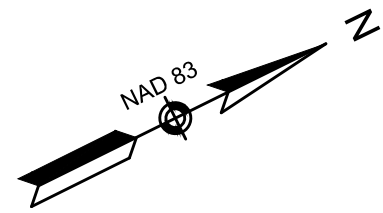


**SALEM END RD
ACCIDENT EVALUATION
FRAMINGHAM, MA**

SYMBOLS	COLLISION TYPES
→ Moving Vehicle	↔ Rear End
- - - Non-Involved Vehicle	↔ Head On
⤴ Pedestrian	↔ Side Swipe
🚲 Bicycle	↔ Out of Control
🐾 Animal	↔ Left Turn
☐ Parked Vehicle	↔ Angle
◻ Fixed Object	↔ Backing Vehicle
● Fatal Accident	
○ Injury Accident	

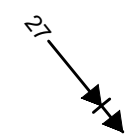
**APPENDIX C
COLLISION MAP
Page 2 of 5**

COLLISION DIAGRAM



GRYZBOSKA CIRCLE

SALEM END ROAD



SYMBOLS	COLLISION TYPES
Moving Vehicle	Rear End
Non-Involved Vehicle	Head On
Pedestrian	Side Swipe
Bicycle	Out of Control
Animal	Left Turn
Parked Vehicle	Angle
Fixed Object	Backing Vehicle
Fatal Accident	
Injury Accident	

Date Range: January 2017 - August 2022

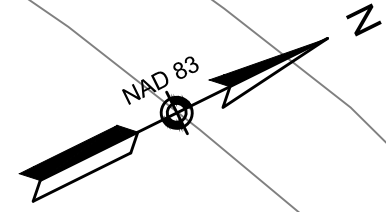


**SALEM END RD
ACCIDENT EVALUATION**
FRAMINGHAM, MA

APPENDIX C
COLLISION MAP
Page 3 of 5

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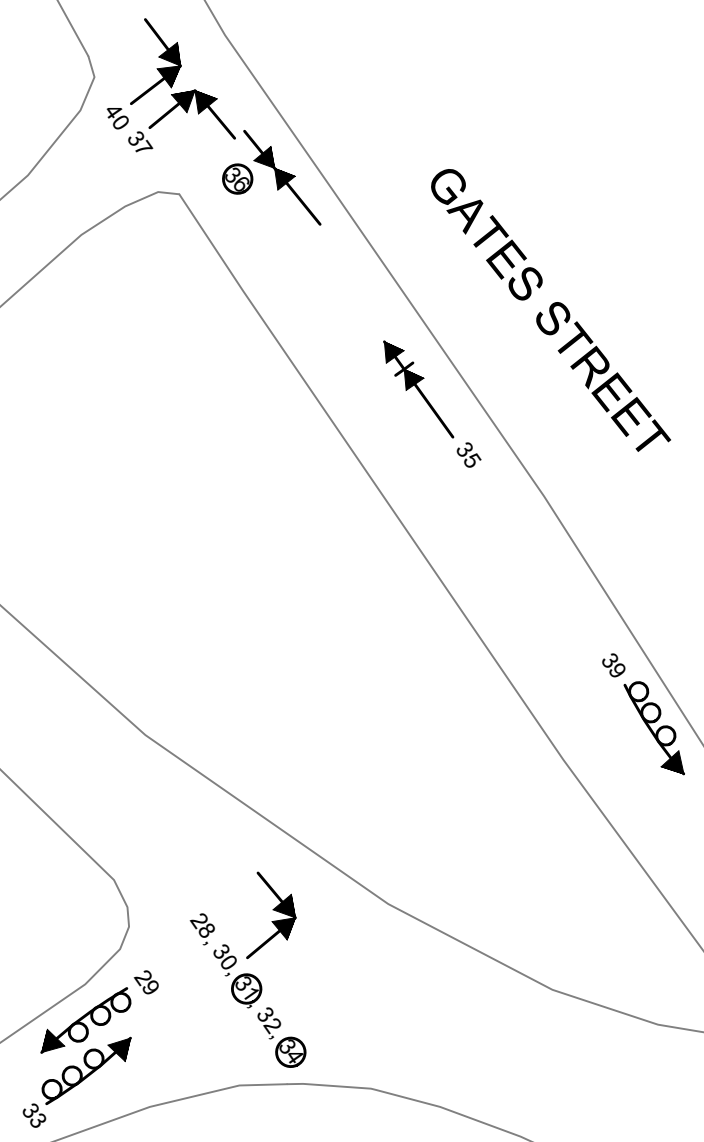
COLLISION DIAGRAM



BADGER ROAD

GATES STREET

SALEM END ROAD



Date Range: January 2017 - August 2022

SYMBOLS	COLLISION TYPES
Moving Vehicle	Rear End
Non-Involved Vehicle	Head On
Pedestrian	Side Swipe
Bicycle	Out of Control
Animal	Left Turn
Parked Vehicle	Angle
Fixed Object	Backing Vehicle
Fatal Accident	
Injury Accident	



**SALEM END RD
ACCIDENT EVALUATION**
FRAMINGHAM, MA

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COLLISION DIAGRAM

CHERRY OCA LANE

SALEM END ROAD

←○○○○ 45

←○○○○ 42

48,000 →

Date Range: January 2017 - August 2022

SYMBOLS	COLLISION TYPES
← Moving Vehicle	←← Rear End
- - - Non-Involved Vehicle	← Head On
↑ Pedestrian	← Side Swipe
⚙ Bicycle	← Out of Control
🐾 Animal	← Left Turn
☐ Parked Vehicle	↙ Angle
◻ Fixed Object	← Backing Vehicle
● Fatal Accident	
○ Injury Accident	

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**SALEM END RD
ACCIDENT EVALUATION**
FRAMINGHAM, MA

APPENDIX C
COLLISION MAP
Page 5 of 5

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : Apr-23

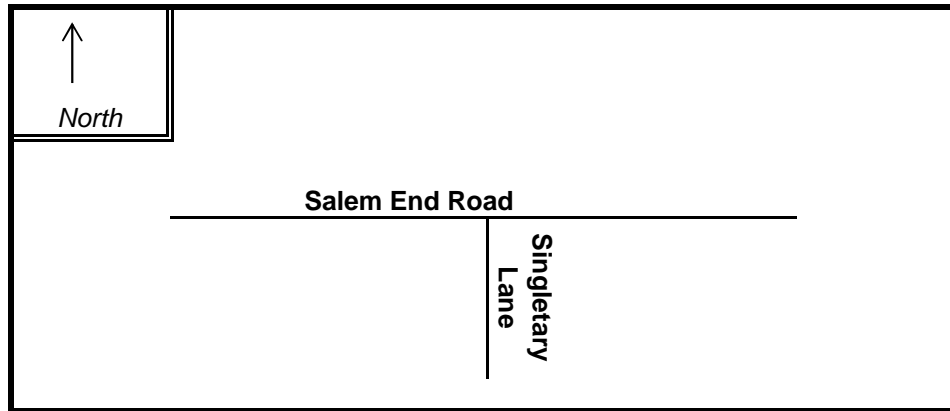
DISTRICT : 3 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Salem End Road

MINOR STREET(S) : Singletery Ln

**INTERSECTION
 DIAGRAM**
 (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	11,817					11,817

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

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

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

Comments : _____

Project Title & Date: 10172: Framingham - Salem End Rd 11-Jun-23

CONCORD STREET at DANFORTH STREET



CITY OF FRAMINGHAM
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRANSPORTATION DIVISION
GEOGRAPHIC INFORMATION SYSTEMS MAP

CREATED BY: WILLIAM R. SEDEWITZ

PREPARED FOR: TRAFFIC COMMISSION

ERIC V. JOHNSON, CITY ENGINEER

ROBERT A. LEWIS, DIRECTOR

DATE: JUNE 20, 2023

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Concord Street near Danforth Street Traffic Summary

Street	Cross Street	Year	Collected By	Date(s)	Direction	ADT	Posted Speed	Average Speed	85% Speed	Direction	ADT	Posted Speed	Average Speed	85% Speed
Concord Street	south of Fuller Street	2021	PDI	2/11/2021	SB	7978	(25)	29	34	NB	8354	(25)	28	33
Concord Street	#1589	2021	DPW	11/9-11/2021	SB	8845	(25)	26	31	NB	10885	(25)	25	31
Danforth Street	#11	2020	PDI	6/16/2020	EB	1054	(25)	21	25	WB	19	n/a	19	22
Danforth Street	East of Danforth Court	2023	DPW	5/9-11/2023	EB	2000	(25)	25	31	WB	17	n/a	10	13
Mechanic Street	#5	2023	DPW	6/13-15/2023	EB	227	(25)	16	22	WB	108	(25)	14	20
School Street	#109	2020	DPW	11/10-12/2020	EB	1112	30	26	32	WB	2115	30	29	32

Notes:

1. If the posted speed is in parenthesis then it is subject to the city-wide thickly settled limit.
2. PDI (Precision Data Industries, LLC.)
3. ADT is Average Daily Traffic (vehicles per day).

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Concord Street at Danforth Street

Thursday, January 12, 2023

Time	Concord St NB right onto Danforth St EB	Concord St SB Left onto Danforth St EB	Danforth St WB right onto Concord St NB	Danforth St WB left onto Concord St SB
12:00-1:00 am				
1:00-2:00				
2:00-3:00				
3:00-4:00				
4:00-5:00				
5:00-6:00				
6:00-7:00	6	124	1	
7:00-8:00	12	213	1	
8:00-9:00	6	132		1
9:00-10:00	15	108	1	
10:00-11:00	12	65	3	
11:00-12:00	15	43	2	1
12:00-1:00 pm	9	65	2	
1:00-2:00	13	52	2	
2:00-3:00	29	71		
3:00-4:00	16	88		
4:00-5:00	14	71	2	1
5:00-6:00	12	74	1	
6:00-7:00				
7:00-8:00				
8:00-9:00				
9:00-10:00				
10:00-11:00				
11:00-12:00				
Total	159	1106	15	3

Concord Street at Danforth Street

Tuesday, January 17, 2023

Time	Concord St NB right onto Danforth St EB	Concord St SB Left onto Danforth St EB	Danforth St WB right onto Concord St NB	Danforth St WB left onto Concord St SB
12:00-1:00 am				
1:00-2:00				
2:00-3:00				
3:00-4:00				
4:00-5:00				
5:00-6:00				
6:00-7:00	8	143	2	
7:00-8:00	15	267	2	2
8:00-9:00	5	171		1
9:00-10:00	15	120	3	1
10:00-11:00	11	69		
11:00-12:00	20	80		1
12:00-1:00 pm	7	72	3	
1:00-2:00	10	66	1	2
2:00-3:00	18	72	3	1
3:00-4:00	18	87	2	
4:00-5:00	14	73	2	
5:00-6:00	11	90	2	
6:00-7:00				
7:00-8:00				
8:00-9:00				
9:00-10:00				
10:00-11:00				
11:00-12:00				
Total	152	1310	20	8

Danforth Street Crash Data

Location	2017	2018	2019	2020	2021	2022	Total
@ Concord St			3	2	3	5	13
@ Cottage St	1					1	2
@ Meadow St			1		1		2
@ Fenwood St		1					1
@ Hialeah Ln	1					1	2
@ Old Connecticut Path				1	1	2	4
Midblock			1			1	2
Total	2	1	5	3	5	10	26

Notes:

1. MassDOT crash data
2. Midblock accidents 2019 - #277
3. Midblock accidents 2022 - #239

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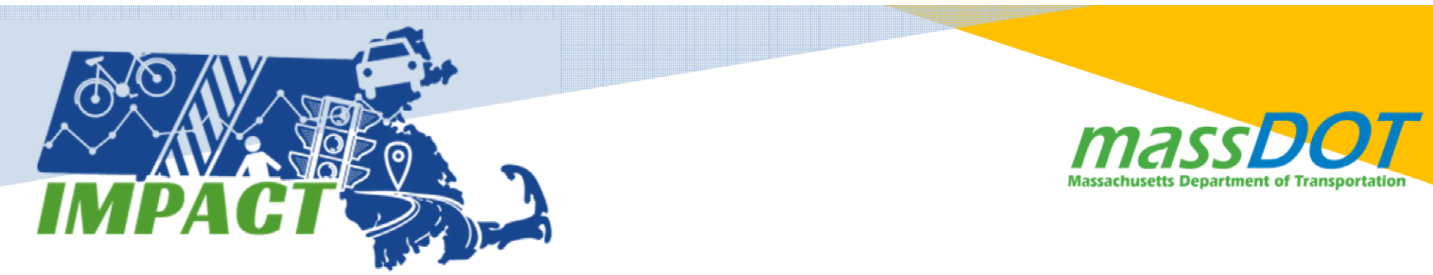
MassDOT Crash Report for FRAMINGHAM 2017 - 2022, report created: 1/5/2023 created: 1/5/2023

RMV Crash Number	Crash Date	Crash Time	Crash Severity	Maximum Injury Severity Reported	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance From Nearest Roadway Intersection
4659483	23-Jan-2019	3:05 PM	Property damage only (none injured)	No injury	2	0	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: E / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility))	Dry	Daylight	Cloudy	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST
4722935	12-Jun-2019	5:34 PM	Property damage only (none injured)	No injury	2	0	0	Single vehicle crash	V1: Turning left / V2: Travelling straight ahead	V1: Not Reported / V2: Not Reported	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Passenger car)		Daylight	Cloudy/Cloudy	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST
4793695	16-Dec-2019	8:18 AM	Non-fatal injury	Non-fatal injury - Possible	2	1	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: E / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility))	Dry	Daylight	Clear	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST
4845432	21-May-2020	3:42 PM	Property damage only (none injured)	No injury	2	0	0	Angle	V1: Travelling straight ahead / V2: Turning left	V1: E / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Dry	Daylight	Clear	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST
4884360	21-Sep-2020	7:28 PM	Non-fatal injury	Non-fatal injury - Non-incapacitating	3	1	0	Rear-end	V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic / V3: Travelling straight ahead	V1: N / V2: N / V3: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) / V3:(Collision with motor vehicle in traffic)	V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Passenger car) / V3:(Light truck(van, mini-van, pickup, sport utility))	Dry	Dark - lighted roadway	Clear	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST
4937203	26-Feb-2021	8:26 AM	Property damage only (none injured)	No injury	2	0	0	Angle	V1: Travelling straight ahead / V2: Entering traffic lane	V1: N / V2: E	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility))	Dry	Daylight	Clear	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST



MassDOT Crash Report for FRAMINGHAM 2017 - 2022, report created: 1/5/2023 created: 1/5/2023

5043083	02-Nov-2021	5:38 PM	Non-fatal injury	Non-fatal injury - Possible	2	1	0	Angle	V1: Travelling straight ahead / V2: Turning left	V1: N / V2: E	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Dry	Daylight	Clear		CONCORD STREET / DANFORTH STREET
5046899	08-Dec-2021	5:09 PM	Property damage only (none injured)	No injury	2	0	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: S / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Dry	Dusk	Clear	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST
5168119	30-Sep-2022	2:15 PM	Property damage only (none injured)	No Apparent Injury (O)	2	0	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: E / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Dry	Daylight	Cloudy	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST
5169777	08-Oct-2022	1:41 PM	Non-fatal injury	Possible Injury (C)	2	0	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: Not Reported / V2: Not Reported	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Dry	Daylight	Clear/Clear	CONCORD STREET / DANFORTH STREET	CONCORD STREET / DANFORTH STREET
5173788	03-Nov-2022	10:02 AM	Property damage only (none injured)	No Apparent Injury (O)	2	0	0	Sideswipe, same direction	V2: Parked / V1: Turning left	V2: S / V1: S	V2:(Collision with motor vehicle in traffic) / V1:(Collision with parked motor vehicle)	V2:(Passenger car) / V1:(Light truck(van, mini-van, pickup, sport utility))	Dry	Daylight	Clear	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST
5195834	17-Dec-2022	3:34 PM	Property damage only (none injured)	No Apparent Injury (O)	2	0	0	Angle	V1: Travelling straight ahead / V2: Turning left	V1: N / V2: S	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Passenger car)	Dry	Daylight	Clear/Clear	CONCORD STREET / DANFORTH STREET	CONCORD STREET / DANFORTH STREET
5195168	19-Dec-2022	8:23 AM	Property damage only (none injured)	No Apparent Injury (O)	2	0	0	Head-on	V1: Turning left / V2: Travelling straight ahead	V1: E / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Dry	Daylight	Clear/Clear	CONCORD ST / DANFORTH ST	CONCORD ST / DANFORTH ST



MassDOT Crash Report for FRAMINGHAM 2017 - 2022, report created: 1/5/2023

created: 1/5/2023

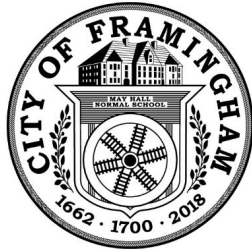
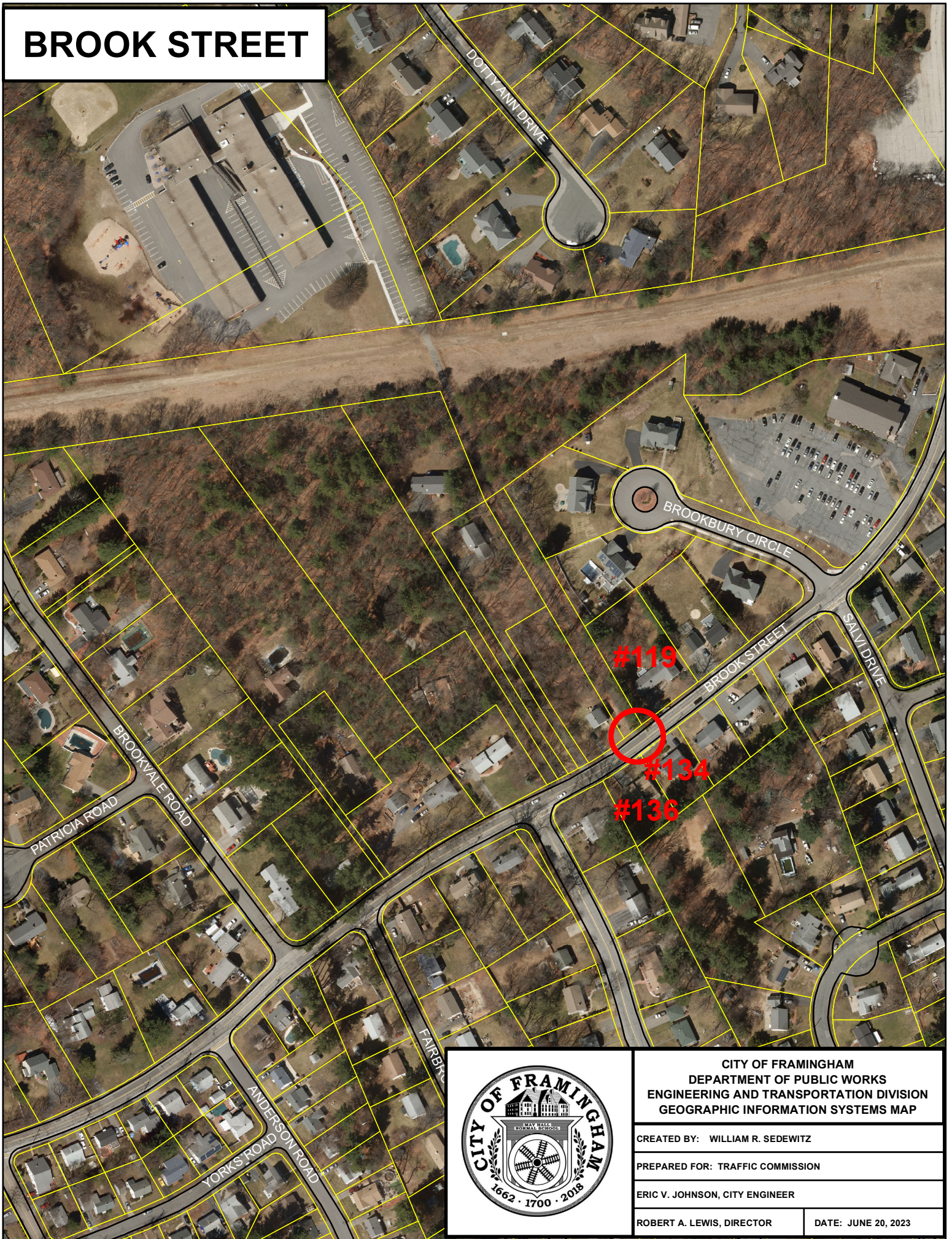
MassDOT makes no representation as to the accuracy, adequacy, reliability, availability or completeness of the crash records or the data collected from them and is not responsible for any errors or omissions in such records or data. Under no circumstance will MassDOT have any liability for any loss or damage incurred by any party as a result of the use of the crash records or the data collected from them. Furthermore, the data contained in the web-based crash report tool are not an official record of what transpired in a particular crash or for a particular crash type. If a user is interested in an official copy of a crash report, contact the Registry (<http://www.mass.gov/rmv/>).

The City of Boston Police Department may be contacted directly for official copies of crash reports and for crash data pertaining to the City of Boston. In addition, any crash records or data provided for the years 2021 and later are subject to change at any time and are not to be considered up-to-date or complete. As such, open years' of crash data are for informational purposes only and should not be used for analysis.

The data posted on this website, including crash records and other reports, are collected for the purpose of identifying, evaluating or planning the

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BROOK STREET



CITY OF FRAMINGHAM
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRANSPORTATION DIVISION
GEOGRAPHIC INFORMATION SYSTEMS MAP

CREATED BY: WILLIAM R. SEDEWITZ

PREPARED FOR: TRAFFIC COMMISSION

ERIC V. JOHNSON, CITY ENGINEER

ROBERT A. LEWIS, DIRECTOR

DATE: JUNE 20, 2023

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Brook Street at Walking Path Traffic Summary

Street	Cross Street	Year	Collected By	Date(s)	Direction	ADT	Posted Speed	Average Speed	85% Speed	Direction	ADT	Posted Speed	Average Speed	85% Speed
Brook Street	#136 (Walking Path)	2023	DPW	5/30-6/1/2023	EB	2668	30	29	36	WB	2457	30	28	35

Notes:

1. If the posted speed is in parenthesis then it is subject to the city-wide thickly settled limit.
2. PDI (Precision Data Industries, LLC.)
3. ADT is Average Daily Traffic (vehicles per day).

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Brook Street at Walking Path Pedestrian Crossings

Tuesday, June 6, 2023

Time	Pedestrians
12:00-1:00 am	
1:00-2:00	
2:00-3:00	
3:00-4:00	
4:00-5:00	
5:00-6:00	0
6:00-7:00	0
7:00-8:00	1
8:00-9:00	12
9:00-10:00	5
10:00-11:00	0
11:00-12:00	0
12:00-1:00 pm	0
1:00-2:00	0
2:00-3:00	0
3:00-4:00	17
4:00-5:00	0
5:00-6:00	0
6:00-7:00	5
7:00-8:00	
8:00-9:00	
9:00-10:00	
10:00-11:00	
11:00-12:00	
Total	40

Wednesday, June 7, 2023

Time	Pedestrians
12:00-1:00 am	
1:00-2:00	
2:00-3:00	
3:00-4:00	
4:00-5:00	
5:00-6:00	0
6:00-7:00	0
7:00-8:00	0
8:00-9:00	7
9:00-10:00	2
10:00-11:00	0
11:00-12:00	0
12:00-1:00 pm	0
1:00-2:00	0
2:00-3:00	1
3:00-4:00	9
4:00-5:00	1
5:00-6:00	0
6:00-7:00	1
7:00-8:00	
8:00-9:00	
9:00-10:00	
10:00-11:00	
11:00-12:00	
Total	21

Thursday, June 8, 2023

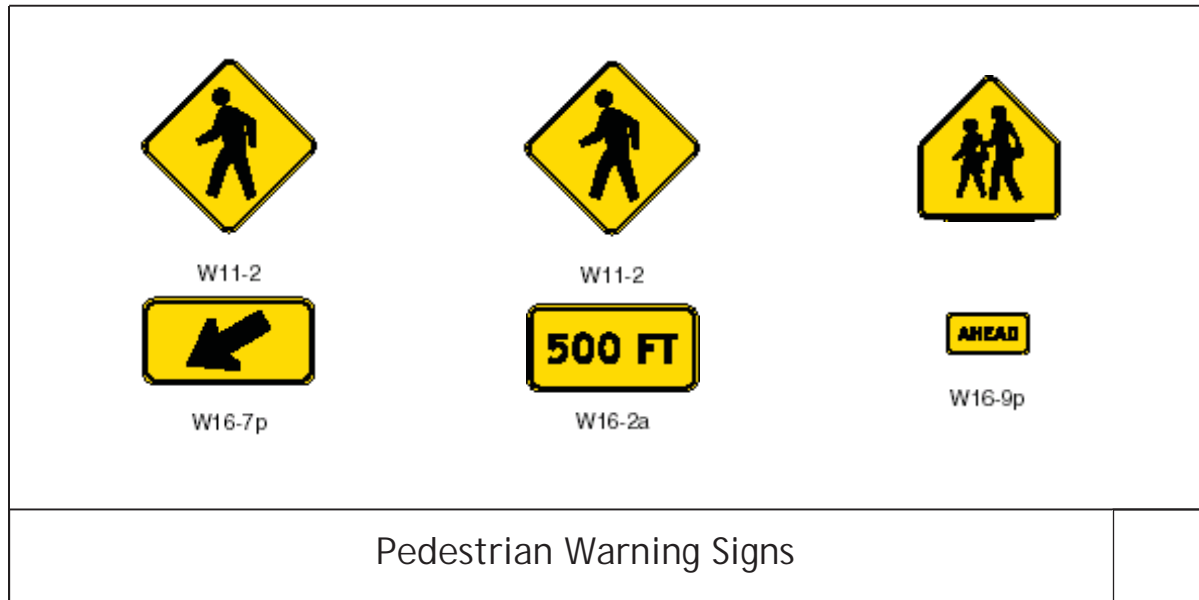
Time	Pedestrians
12:00-1:00 am	
1:00-2:00	
2:00-3:00	
3:00-4:00	
4:00-5:00	
5:00-6:00	0
6:00-7:00	1
7:00-8:00	1
8:00-9:00	9
9:00-10:00	3
10:00-11:00	0
11:00-12:00	0
12:00-1:00 pm	0
1:00-2:00	0
2:00-3:00	0
3:00-4:00	8
4:00-5:00	1
5:00-6:00	0
6:00-7:00	3
7:00-8:00	
8:00-9:00	
9:00-10:00	
10:00-11:00	
11:00-12:00	
Total	26

Notes:

1. 6/6 3:00-4:00: Count includes 3 bikes
2. 6/8 8:00-9:00: Count includes 3 bikes
3. 6/8 3:00-4:00: Count includes 2 bikes

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At locations along an established route to school, a school crossing sign (S1-1) may be used instead of the pedestrian warning sign (W11-2).



4.0 MARKED CROSSWALKS AT MID-BLOCK LOCATIONS

4.1 SCHOOL CROSSINGS

Crosswalks should be marked at locations on established routes to a school (if the school has established a school route plan) where there exists a conflict between vehicles and school children, or where students would not otherwise know the proper place to cross the street. The following guidance applies only to locations adjacent to schools.

4.1.1 Criteria for Installation

All of the following criteria should be met before installing a crosswalk at a mid-block location on an established school route:

- a. The speed limit is 40 mph or less; and,
- b. A sidewalk or adequate shoulder for use by pedestrians (as determined by traffic volumes, adjacent land uses and other site specific considerations) exists on both sides of the roadway approach; and,
- c. There is not another crosswalk across the same roadway within 300 ft of the proposed location; and,
- d. Adequate stopping sight distance (equal to or exceeding that for the posted speed) is available in both directions. Because a driver must be able to see either the crosswalk or the pedestrian warning sign, the sight distance should be measured from the driver’s perspective to the outer edges of the travel lane so that an approaching driver can see a pedestrian at any point on the crosswalk. The adequacy of stopping sight distances shall

be determined in accordance with the guidance contained in the AASHTO “Green Book” – A Policy on Geometric Design of Highways and Streets (2011) or current edition.

Crosswalks should not be marked on 2-lane roadways with ADT greater than 9,000 vehicles per day, or 4-lane roadways with ADT greater than 12,000 vehicles per day, unless other special treatments - such as raised median refuges, curb extensions, overhead lighting, pedestrian-activated signals or warning lights – are provided, and an engineering study concludes that pedestrian safety will be ensured by the special treatments.

While there is no minimum pedestrian volume for a school crossing, it is recommended, but not required that a trained crossing guard be present whenever there is a crossing activity by students across major roadways.

When a crosswalk is proposed in conjunction with a new development, change in land use, or new pedestrian facilities, an engineering study may be used to predict whether or not the above criteria will be met once the development or facility has been constructed and is fully occupied.

4.1.2 Crosswalk Pattern

All new crosswalks marked in the City shall be of either of the styles previously mentioned, and installed in conformance with the following guidelines. Existing crosswalks of the Block or Diagonal design may be repainted in their existing pattern until such time as (re)construction of the street on which they lie requires removal of the existing crosswalk and it can be replaced with the preferred Decorative Ladder or Standard Ladder design. Either pattern can shall be used on uncontrolled intersection approaches as long as the visibility of the crossing location is maximized.

4.1.3 Crosswalk Marking Width and Color

When the approach to the un-signalized intersection is a residential or local street, the width of the standard crosswalk shall be 8 feet on center. When the approach to the un-signalized intersection is a collector or arterial streets, the width of the crosswalk shall be 10 feet on center. In accordance with the MUTCD, all transverse lines, regardless of their marking material, shall be solid white in color and have a width of 12 inches.

When a ladder-type crosswalk is installed, the longitudinal lines or bars shall be solid yellow in color, have a width of 12 inches, and be spaced 2 feet apart on center. When the decorative ladder-type crosswalk is installed, the longitudinal lines or bars shall be solid white in color, have a width of 24 inches, and be spaced 4 feet apart on center. The marking location of the longitudinal lines should avoid the wheel paths whenever possible.

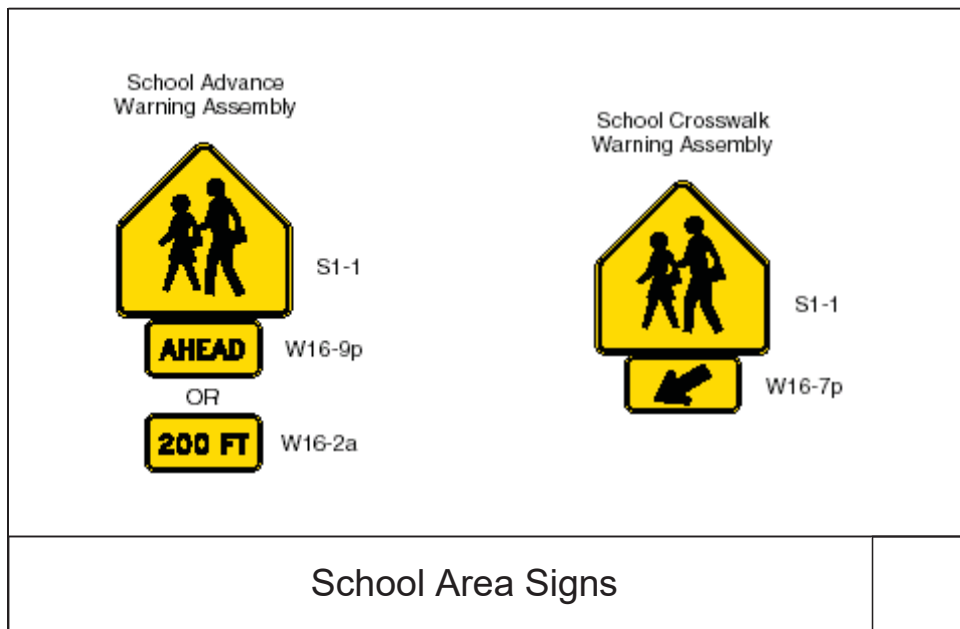
4.1.4 No Parking Zone

In accordance with the MUTCD, 2009 Edition, parking spaces shall not be marked within 20 feet of the marked crosswalk, as measured by the gap between the parking space and the closest

crosswalk marking. If a bulb-out is present, the gap may be reduced to 10 feet. Parents should be discouraged from using the area adjacent to the crosswalk for pick-ups and drop-offs.

4.1.5 School Crossing Signs

A School Crossing Warning Assembly (SCWA) consisting of a School Crossing Sign (S1-1) with a diagonal downward arrow plaque (W16-7p) shall be installed at each end of the crosswalk location. The signs shall be placed in advance of the crosswalk adjacent to the travel lane and facing the driver. The SCWA shall not be used at marked crosswalks other than those adjacent to schools or on established school routes. The SCWA shall not be installed on intersection approaches controlled by a traffic signal or stop sign.



A School Advance Warning Assembly consisting of a School Crossing Sign (S1-1) and a supplemental plaque with the legend “AHEAD” (W16-9p) or “XXX FEET” (W16-2a) shall be installed at a distance of at least 100 feet but not exceeding 650 feet in advance of the crosswalk, in either direction.

4.2 NON-SCHOOL CROSSINGS

Crosswalk lines should not be used indiscriminately at locations away from traffic signals or stop signs. Crosswalks may be marked at mid-block locations only if an engineering study determines it is safe to do so, and their presence is necessary to concentrate pedestrian crossing activity at a specific location and position pedestrians to be more visible by motorists. Crosswalks should not be marked on 2-lane roadways with ADT greater than 9,000 vehicles per day, or 4-lane roadways with ADT greater than 12,000 vehicles per day, unless other special treatments - such as raised median refuges, curb extensions, overhead lighting, pedestrian-activated signals or warning lights – are provided, and an engineering study concludes that pedestrian safety will be ensured by the special treatments.

4.2.1 Criteria for Installation

All of the following criteria should be met before installing a crosswalk at an uncontrolled, mid-block location:

- a. The 85th percentile speed of traffic at the marked crosswalk location must be less than 40 mph; and,
- b. The pedestrian volume at the location of the crosswalk must be more than 30 pedestrians per hour (pph) during the peak pedestrian hour (lesser volumes may be considered if a large percentage of the pedestrian population consists of young, elderly, or disabled pedestrians); **or** 15 pph for each of 4 hours; and,
- c. The ADT (average daily traffic) for the roadway (both directions combined) must exceed 3,000 vehicles per day; **or** the number of unimpeded vehicle time gaps that equal or exceed the pedestrian crossing times in an average 5-minute period during the peak vehicle hour must be greater than 4³;
- d. A sidewalk or adequate shoulder for use by pedestrians, or a distinct pedestrian destination such as a recreation field, must exist on both sides of the roadway approach; and,
- e. Another crosswalk across the same roadway cannot exist within 300 ft of the proposed location⁴; and,
- f. The proposed crosswalk location must have adequate street lighting near the crosswalk already in existence or scheduled for installation; and,
- g. Adequate stopping sight distance (equal to or exceeding that for the posted speed) is available in both directions. Because a driver must be able to see either the crosswalk or the pedestrian warning sign, the sight distance should be measured from the driver's perspective to the outer edges of the travel lane so that an approaching driver can see a pedestrian at any point on the crosswalk. The adequacy of stopping sight distances shall be determined in accordance with the guidance contained in the AASHTO "Green Book" – A Policy on Geometric Design of Highways and Streets (2011) or current edition.

When a crosswalk is proposed in conjunction with a new development, change in land use, or new pedestrian facilities, an engineering study may be used to predict whether or not the above criteria will be met once the development or facility has been constructed and is fully occupied.

³ *The pedestrian crossing time is calculated by dividing the curb-to-curb street width by 4 feet per second, and the average number of gaps per five-minute period is equal to the total usable gap time in seconds divided by pedestrian crossing time multiplied by 12.*

⁴ *Mid-block crosswalks should be located, as much as possible, mid-way between stop or signal-controlled intersections except where there are special trip generation/destinations directly across from each other and all other criteria are met. Special pedestrian trip generators include schools, senior citizen facilities, and community facilities such as parks and libraries.*

4.2.2 Crosswalk Pattern

All new crosswalks marked in the City shall be of either of the styles previously mentioned, and installed in conformance with the following guidelines. Existing crosswalks of the Block or Diagonal design may be repainted in their existing pattern until such time as (re)construction of the street on which they lie requires removal of the existing crosswalk and it can be replaced with the preferred Decorative Ladder or Standard Ladder design. Either pattern can shall be used on uncontrolled intersection approaches as long as the visibility of the crossing location is maximized.

4.2.3 Crosswalk Marking Width and Color

When the approach to the un-signalized intersection is a residential or local street, the width of the standard crosswalk shall be 8 feet on center. When the approach to the un-signalized intersection is a collector or arterial streets, the width of the crosswalk shall be 10 feet on center. In accordance with the MUTCD, all transverse lines, regardless of their marking material, shall be solid white in color and have a width of 12 inches.

When a ladder-type crosswalk is installed, the longitudinal lines or bars shall be solid yellow in color, have a width of 12 inches, and be spaced 2 feet apart on center. When the decorative ladder-type crosswalk is installed, the longitudinal lines or bars shall be solid white in color, have a width of 24 inches, and be spaced 4 feet apart on center. The marking location of the longitudinal lines should avoid the wheel paths whenever possible.

4.2.4 No Parking Zone

In accordance with the MUTCD, 2009 Edition, parking spaces shall not be marked within 20 feet of the marked crosswalk, as measured by the gap between the parking space and the closest crosswalk marking. If a bulb-out is present, the gap may be reduced to 10 feet.

4.2.5 Pedestrian Warning Signs

Pedestrian in crosswalk signs (W11A-2 with downward arrow plaque W16-7p) shall be installed at each end of the crosswalk location. The signs shall be placed in advance of the crosswalk adjacent to the travel lane and facing the driver.

Advance pedestrian warning signs (W11-2) shall be installed at a distance of at least 100 feet but not exceeding 650 feet in advance of the crosswalk, in either direction. Advance pedestrian warning signs may be accompanied by supplemental plaques with the legend "AHEAD" (W16-9p) or "XXX FEET" (W16-2a).

5.0 PEDESTRIAN HYBRID BEACONS

Pedestrian Hybrid Beacons otherwise known as a HAWK (High-Intensity Activated crosswalk beacon) signal is a special type of hybrid beacon used to warn and control traffic at an un-signalized location to assist pedestrians in crossing a street or highway at a marked crosswalk.

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FRAMINGHAM TRAFFIC COMMISSION WORK SESSION MINUTES
TUESDAY MAY 23, 2023 @ 7:00 P.M.
MEETING CONDUCTED IN BLUMER ROOM
REMOTE PARTICIPATION AVAILABLE VIA ZOOM

Meeting was called to order at 7:01 P.M.

ROLL CALL: Attendees: Chairman Brinsley Fuller, Vice Chairman William Sedewitz, Police Department Designee Lt. Harry Wareham, School Designee Lincoln Lynch, as well as Citizen Members Steve Croci and Mario Alvarez. Absent was Fire Department Designee Deputy Chief James Ahearn. Citizen Member Nicholas Hebert joined later in the meeting.

Public Participation was opened up. District 5 Councilor Noval Alexander of John J Brady Drive spoke regarding erratic driving and speeding on the Arsenal Road and Normandy Road Area. No one else from wished to speak on any non-agenda items.

The first discussion item for the evening was the Proposed Stop Sign on Gilbert Street @ Nipmuc Road. This was being revisited from the April 2023 Traffic Commission Meeting. Framingham's Director of Planning and Development Sarkis Sarkisian had a site meeting with five Traffic Commissioners and strongly feels that a stop sign is warranted in this area. Citizen Member Croci spoke to a Nipmuc Road resident at the time of the visit who also concurs that this is a dangerous area. He is still hesitant about the possibility of putting a stop sign here as it does not meet the criteria. Mitchell Matorin called in via Zoom. He said that one night a Pick Up Truck nearly crashed through his house and caused property damage. Mr. Matorin and his wife see numerous near accidents on a daily basis. He has brought these concerns to Mr. Sarkisian and urges the Commission to view this request favorably.

Citizen Member Alvarez spoke on how he is surprised that there are not more accidents here. While he understands that this stop sign may not meet the necessary criteria, he is in support of one. Vice Chairman Sedewitz mentioned that this case is open for judgment but that the Traffic Commission wants to be consistent and data driven. Citizen Member Hebert drove down this area and believes a stop sign is warranted and he is in support of one. Lt. Wareham and Mr. Lynch both stated that it would be hard for him to support a stop sign here as it does not meet the criteria. Citizen Member Croci mentioned that even if a stop sign were installed it would not guarantee future accidents being prevented.

Director Sarkisian once again pitched for additional stop signs here, citing the amount of traffic using the beach. Citizen Members Alvarez and Hebert both mentioned that they joined the Traffic Commission to assist the public. While Mr. Hebert is a Data Analyst as his occupation, he thinks that in this case precedent and data should not be the only controlling factors in making this decision. Mr. Matorin's wife, Mary Anne, also works in data and does not see the information collected in 2020, during the pandemic, as being representative of 2023.

Vice Chairman Sedewitz mentioned that this area is being reviewed in a study currently. He should have an update on this at the June Traffic Commission Meeting. The motion for a stop sign failed but it may be readdressed in the future. Citizen Alvarez wanted it noted that most of

the “no’s” came from City Employees. Lincoln Lynch took exception to this comment, saying he is also on the Commission to help people and that he takes his responsibility of seeing children transported back and forth from school very seriously. He stressed the need to follow data criteria. Chairman Fuller stressed to Mr. Alvarez that the voting is over and the motion was denied.

The next item was a Proposed Crosswalk on Brook Street. There are elevated speeds here. Vice Chairman Sedewitz said that more data collection has been initiated to see if a crosswalk is in order. Chairman Fuller asked if anyone from Zoom wished to speak and no one replied.

Parking and Safety Concerns on Danforth Street at the request of residents were discussed next. Steve Wiseman of Saxonville was present at the last Traffic Commission Meeting and approached the podium this evening. Mr. Wiseman sees the Odd/Even ban as being disruptive in this area. He would like to see cars parked on the North Side of the street year-round. Currently he sees cars parked on both sides of the street year-round. One resident replied to Vice Chairman Sedewitz after he contacted Abutters on these concerns. This resident spoke about the possibility of resident only parking, as vehicles will be parked for long periods of time here. The Vice Chairman is alarmed by motorists driving the wrong way on Danforth.

A resident named Mr. Lawson went into details on the difficulties of parking and driving in this area. He is against the Odd/Even Ban being eliminated on Danforth. Mr. Wiseman and Mr. Lawson both agreed that this area is not safe due to parking conditions. They both state that employees of the Mill as well as renters will be taking up parking spaces for very long time periods. Mr. Wiseman would like to see more clarity for signage with the Odd/Even Ban. He cites the Odd/Even Policy as being difficult for people trying to find parking spaces. He would like to see more Parking Enforcement in this area. Lt. Wareham said he will be sure to send Parking Enforcement to this area. Vice Chairman does not see the benefit of the possibility of always having parking on the South Side as opposed to the North. He mentioned that trash pick up occurs on the South Side and parking on that side would hinder trash operations.

No motion was made to override the Odd/Even Ban on Danforth Street in favor of year-round parking on the North Side. More Parking Enforcement would be sufficient for Mr. Wiseman and Mr. Lawson. Mr. Wiseman does hope that a comprehensive look will be made on Danforth and Mechanic Streets going forward. He was pleased with the resolution of this agenda item.

The final discussion item for the evening was Safety Concerns at the Arsenal Road and Normandy Road Area. Councilor Alexander of District 5 spoke again via Zoom with several residents. He thanked the Commission for compiling data and highly suggests that something be done about the “scourge” of the area. He mentioned the large number of young children as well as elderly and ADA residents here. He cited Watertown’s use of speed humps as being a possible preventative measure when it comes to speeding motorists and erratic drivers. No one in the Blumer Room wished to speak on this issue. A resident of Guadalcanal Road mentioned the large numbers of speeding motorists on his Road as well as Arsenal Road. These volumes are his concern, especially with school buses transporting children here. Another resident named Penny called the area a “speed demon” and is concerned for the lives of said children. She constantly hears brakes screeching and wants more signage installed. Her concerns are safety

and speed driven. Another resident spoke on how she frequently walks and is now wary to do so. She has had bicyclists brush up against her. Another walking resident echoed her concerns. There is a crosswalk on Normandy leading to Rose Kennedy Lane which is ignored by motorists according to this resident. Other residents spoke on these issues and mentioned how they don't want to see anyone killed.

Vice Chairman Sedewitz does see potential traffic calming measures on Arsenal Road as being a possibility. Slowing cars down here would be beneficial. He does not see people reacting to the safety measures on Normandy, such as the Rectangular Rapid-Flashing Beacon (RRFB). Mr. Sedewitz believes that more data can be collected. Mr. Lynch reiterated that there a large number of pedestrians here and would be in favor of Traffic Calming Measures. There was a motion from Citizen Member Alvarez to engage a consultant to help assess those Measures in this neighborhood beginning on July 1 at the start of Fiscal Year 2024. This was voted on unanimously. Councilor Alexander thanked the Commission for hearing his neighborhood's concerns. Chairman Fuller said that this issue will be placed on a future Traffic Commission agenda.

Minutes for the April 25 2023 Traffic Commission Meeting were unanimously approved.

During Report of the Traffic Rules and Regulations Subcommittee, Vice Chairman Sedewitz says he is eager to bring forth their work and findings soon.

Lastly, there was a Report of Commission Members. Hopefully Salem End Road issues will be an agenda item for the next meeting.

Meeting was adjourned at 8:43 P.M.