

# ROAD SAFETY AUDIT

Route 139 (Hanover Street) at  
Main Street, Center Street, and Silver Street  
Town of Hanover  
December 8, 2023

Prepared For:  
MassDOT



Prepared By:  
Tighe & Bond, Inc.

**Tighe & Bond**

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## Background

The Federal Highway Administration defines a Road Safety Audit (RSA) as the formal safety examination of an existing or future road or intersection by an independent, multidisciplinary team. The purpose of an RSA is to identify potential safety issues and possible opportunities for safety improvements considering all roadway users. A Road Safety Audit was scheduled for Route 139 (Hanover Street) at Main Street, Center Street, and Silver Street in Hanover's Town Center because MassDOT and the Old Colony Planning Council (OCPC) Metropolitan Planning Organization (MPO) have initiated a project to make geometric and access management improvements to Route 139 (Hanover Street) through Hanover's Town Center, including intersections with Center Street and Main Street, and adjacent intersections of Main Street with Silver Street and Center Street (MassDOT File No. 612769). Preliminary screening of the project area using MassDOT's IMPACT Crash Data Portal revealed that Route 139 is a high crash corridor, and that Main Street is a primary risk for speeding within the project area. The RSA is intended to identify potential short- and long-term safety improvements that can be made at each intersection and along the corridor, which can then be implemented through general maintenance for short-term low-cost improvements or incorporated into the future project to the greatest extent practicable.

## Project Data

A Road Safety Audit for Route 139 (Hanover Street) at Main Street, Center Street, and Silver Street was held on Monday, September 25, 2023, at the Hanover DPW headquarters at the former Sylvester School in Hanover, MA. As indicated in Table 1, the audit team consisted of representatives from State, Regional, and Local agencies and included a cross-section of engineering, planning, legislative, advocacy, and emergency response expertise. The agenda for the RSA meeting is provided in Appendix A of this report, and contact information for participating audit team members is included in Appendix B.

**Table 1: Participating Audit Team Members**

<b>Audit Team Member</b>	<b>Agency/Affiliation</b>
Kevin Fitzgerald	MassDOT Traffic Safety
Michelle Deng	MassDOT Traffic Safety
Anthony Krzykowski	MassDOT Traffic Safety - Intern
Zahra Marhoon	MassDOT Traffic Safety - Intern
David Sawin	Route 139 Action Committee
Rob Stevens	Route 139 Action Committee
Bill McNulty	OCPC
Victor Diniak	Hanover DPW
Kurt Kelley	Hanover DPW
Joe Colangelo	Town of Hanover
Rep. Dave DeCoste	State Representative
Jason Cavallaro	Hanover Fire
Timothy Kane	Hanover Police
Derek Richards	Hanover Police
Mike Nolan	MassDOT
Jason Walters	MassDOT D5 Projects
Mojitaba Moharrer	MassDOT D5 Traffic Safety Engineer
Shawn Morris	MassDOT D5 Traffic
Samuel Hawkins	MassDOT D5 Traffic
Ethan Costa	MassDOT D5 Traffic
Viola Ryerson	Route 139 Action Committee
Johanna Dougherty	Route 139 Action Committee
Greg Lucas	Tighe & Bond
Justin Curewitz	Tighe & Bond
Madeline Blair	Tighe & Bond

Background material including crash history, as well as the Safety Prompt List, were provided to audit team members prior to the RSA. These materials were reviewed during the RSA meeting, then audit participants were asked to discuss safety issues along Route 139 and Main Street and within the town center area. Audit participants then conducted a site visit as a group, at which time they offered observations on safety issues and concerns. Finally, audit participants were asked to consider improvements, considering both short- and long-term improvements for each issue.

## Project Location and Description

The project area, shown in Figure 1, encompasses Hanover's Town Center and includes five intersections which generally form a triangle within the Town Center. Route 139 (Hanover Street) is a primary east-west corridor through the Town of Hanover connecting to Rockland to the west and to Route 53 and Pembroke to the east. Route 139 is under MassDOT jurisdiction throughout Hanover and is functionally classified as an Urban Minor Arterial.

Main Street intersects Route 139 from the north and continues to the northwest away from the Town Center towards an intersection with Route 123 within Hanover. Main Street is under Town jurisdiction and is functionally classified as an Urban Minor Arterial. Center Street has two offset legs forming two distinct intersections with Route 139 spaced approximately 160 feet apart. Center Street intersects Route 139 from the south under Town jurisdiction and is classified as an Urban Collector serving connection to residential areas and the Town of Hanson. The northern leg of Center Street is a short segment between Route 139 and Main Street, running between Briggs Field and the First Congregational Church. This segment is under Town jurisdiction and is classified as a local road. Silver Street intersects Main Street approximately 100 feet north of Route 139 and extends north to an intersection with Old Washington Street, which has a signalized intersection with Route 53. Silver Street is functionally classified as an Urban Collector and is under Town jurisdiction.

Land use in the Town Center is primarily institutional and governmental. Hanover Town Hall and the John Curtis Free Library are located on the south side of Route 139 within the Town Center. The First Congregational Church is located within the triangle formed by Route 139, Main Street, and Center Street. A town monument is located at the eastern edge of this parcel adjacent to Main Street. Hanover Fire Department is located west of Town Hall with a driveway intersecting Center Street. The former Sylvester School building currently houses Hanover DPW and is located on the north side of Route 139 east of Main Street. The Center Elementary School is located on Silver Street and has driveways connecting to both Silver Street and to Route 139 east of Main Street. Hanover Cemetery borders both Main Street and Silver Street north of the Town Center. Briggs Field provides a ball field and public park to the west of the north leg of Center Street. Briggs Stable is a horse farm providing riding lessons, shows, and a tack shop located to the west of Briggs Field on the north side of Route 139.

Descriptions are provided herein for the intersections included in the project and discussed in the RSA.

### **Route 139 (Hanover Street) at Center Street (west leg)**

Route 139 and the western leg of Center Street form a 3-legged, T-type intersection with Center Street approaching from the south under STOP sign control. Center Street intersects at an approximate 45-degree angle, with a slight curve at Route 139 to form a more perpendicular intersection. Center Street provides a single approach and departure lane, and Route 139 provides a single lane of travel in each direction with a wide shoulder. There is a passing zone on Route 139 immediately west of Center Street.

The driveway to the Town Hall parking lot is located immediately adjacent to the intersection, with a landscaped area between the parking lot and Route 139. The driveway opening for the Hanover Fire

Sep 27, 2023 4:11pm Plotted By: MB/jair  
Tighe & Bond, Inc. \\tighebond.com\data\Projects\M\5049 MADOT\012 HWY Hanover Rt 139 Corridor\Drawings\Figures\Study Location Figure.dwg



ROUTE 139 CORRIDOR - HANOVER CENTER  
HANOVER, MA

LOCATION MAP



1" = 200'

FIGURE 1

**Tighe&Bond**

Department is centered approximately 180 feet from the stop line for Center Street at Route 139; a “DO NOT BLOCK DRIVEWAY” sign and crosshatch pavement markings are provided on Center Street northbound for the fire station driveway.

Brick sidewalks are present along both sides of Route 139 through the Town Center. No sidewalks are provided on Center Street. A crosswalk is provided across the Center Street approach to Route 139.



**Image 1: Route 139 at Center Street (looking east)**

### **Route 139 (Hanover Street) at Center Street (east leg)**

Route 139 and the eastern leg of Center Street form a 4-legged intersection with Center Street approaching from the north under STOP sign control, opposed by the western end of the U-shaped Town Hall driveway under assumed stop control. The separate intersections for the two legs of Center Street are approximately 160 feet apart. Center Street provides a single approach and departure lane, and Route 139 provides a single lane of travel in each direction with a wide shoulder.

Briggs Field is located immediately to the west of the east leg of Center Street, and head-in perpendicular parking is provided on the west side of Center Street adjacent to Briggs Field. No sidewalks are provided on Center Street, but brick sidewalks continue on both sides of Route 139 with a crosswalk across Center Street. The western end of the U-shaped driveway for the 1<sup>st</sup> Congregational Church intersects Route 139 adjacent to the intersection.

### **Route 139 (Hanover Street) at Main Street**

Route 139 and Main Street form a 3-legged, T-type intersection with Main Street under STOP sign control. Main Street is median divided at its intersection with Route 139, with wide approach and departure lanes. The approach lane on Main Street is wide enough for left and right turning vehicles to stack side by side; faded arrow markings are provided conveying separate left and right turn lanes, although lane striping is not provided. Route 139 provides a single lane of travel in each direction at its intersection with Main Street with wide shoulders, which are at times used by eastbound through drivers when vehicles are queued to make a left turn to Main Street.



**Image 2: Route 139 at Main Street (looking west)**

Brick sidewalks are provided on both sides of Route 139 through its intersection with Main Street. Brick sidewalk extends a short distance along Main Street before transitioning to an asphalt walk continuing

north along the east side of Main Street to its intersection with Silver Street. A crosswalk is provided across the Main Street leg and across the eastern leg of Route 139 at Main Street.

### **Main Street at Silver Street**

Main Street and Silver Street form a 3-legged intersection with Silver Street under STOP sign control approximately 100 feet north of the intersection of Main Street and Route 139. Both roadways provide a single lane in each direction at the intersection.

A continuous sidewalk is provided along the east side of Main Street and Silver Street through the intersection. Short sections of sidewalk are provided on the northwest corner and on the south side of Main Street, supporting ramps serving crosswalks across the western leg of Main Street and the Silver Street leg. A dual crosswalk is provided across the western leg of Main Street, providing connection to the rear door of the 1<sup>st</sup> Congregational Church and to a more recently constructed ramp slightly east of the church door. Crosswalks at this intersection serve connection between the church and its primary parking area and parish hall, which are located on the northeast corner of the intersection.

### **Main Street at Center Street**

Main Street and Center Street meet to the west of the 1<sup>st</sup> Congregational Church parcel at a Y-style intersection, with two separate two-way links serving the connection between the two streets. The two links to Center Street are under assumed STOP control at Main Street, although a sign is only provided for the western link serving vehicles to and from Main Street to the northwest. A small triangular landscaped island separates the two Center Street links.

No pedestrian accommodations are provided at the intersection. Head-in perpendicular parking along Briggs field continues along the western side of Center Street through this intersection, with the northern limit of parking abutting Main Street.



**Image 3: Center Street at Main Street  
(looking north)**

### **Crash Data**

Crash data provided by the Hanover Police Department show 29 crashes in the project area from 2018 through 2022. The project area extends to the east along Hanover Street up to and including the intersection of Route 139 with the Center Elementary School driveway. A crash data summary and a collision diagram are included in the Appendix. The most prevalent crash type were angle crashes, comprising 55% of all crashes (16 crashes). Angle crashes were most prevalent at the intersection of Route 139 and Main Street, where six crashes involved a vehicle turning left from Main Street and a westbound through vehicle, and the intersection of Main Street and Silver Street, where four crashes involved a vehicle departing Silver Street, two colliding with an eastbound vehicle and two colliding with

a westbound vehicle. One angle crash involved a vehicle departing Center Street (west) and an eastbound through vehicle, and two crashes occurred at the eastern Town Hall driveway involving eastbound through vehicles. One of these crashes describes a “courtesy crash” where a vehicle stopped to let the 2<sup>nd</sup> vehicle pull out from the Town Hall driveway, but a trailing vehicle attempted to use the shoulder to pass and struck the exiting vehicle. Two angle crashes occurred at the Center Street (east) intersection, including one in which a vehicle exiting Center Street struck a bicyclist turning onto Center Street.

Rear-end crashes are the second most common type, with 8 crashes, or 28% of total crashes, within the study period. Of note are four eastbound rear-end crashes approaching Main Street. One of these crashes describes a driver distracted by an electronic device.

Also of note are single vehicle crashes involving vehicles running through a stop sign, one on Silver Street at Main Street and one on Center Street (west) at Route 139. The Center Street crash described poor visibility conditions.

Speed regulation information was provided for Route 139, Main Street, Center Street, and Silver Street. Special Speed Regulation #254-B establishes a 40 mph speed limit for Route 139 through the Town Center. Special Speed Regulation #590 establishes a 30 mph speed limit for Main Street through its intersections with Center Street and Silver Street. Special Speed Regulation #870 establishes a 40 mph speed limit for Silver Street, beginning northbound at a point 1000 feet from Main Street, but also establishes a 30 mph speed limit for approximately 600 feet southbound approaching Main Street. Finally, Special Speed Regulation #5019 establishes a 30 mph speed limit for Center Street (west) departing and approaching Route 139 to/from the southwest.

## Audit Observations and Potential Safety Enhancements

Following a brief introduction to the RSA process and a summary of existing geometry and crash information, the audit participants were asked to discuss safety issues along Route 139, Main Street, Center Street, and Silver Street in Hanover's Town Center. Audit participants then conducted a site visit as a group, at which time they offered observations on safety issues and concerns. Finally, audit participants were asked to consider improvements, considering both short- and long-term improvements for each issue. Some safety issues may require further study and engineering judgment to determine the feasibility of implementing applicable enhancements. A summary of safety considerations and the potential enhancements identified during the RSA is as follows:

### Safety Issue #1: Speeding

#### Observations:

Speed was noted as a primary concern along Route 139 and Main Street within the Town Center. Audit participants, including Town officials and members of the Town's Route 139 Action Committee, noted that Route 139 has a 45 mph speed limit on either end of the approximate 1 mile segment established with a 40 mph limit through the Town Center, and that vehicles frequently travel at 45 mph or higher through these segments. The roadway has no discernible change in character through the Town Center, which leads to vehicles carrying a 45 mph speed from the 45 mph zone through the 40 mph zone. The Town noted that they had requested review of speed zoning from MassDOT District 5 and were denied, with the upcoming reconstruction project cited as a reason to delay a review of speed zoning.

While speed was not specifically cited as a contributing factor in crashes within the study area, it can contribute to rear-end crashes, as colliding vehicles are going too fast and cannot stop in time for a vehicle stopped in front of them.

In addition to general concerns on speed, the geometry of the intersection of Main Street at Route 139 was cited as a safety concern; specifically, the radius for vehicles turning from Route 139 westbound to Main Street is wide and allows vehicles to carry speed through the turn. This can be a contributing factor in two crashes involving Main Street northbound vehicles at Silver Street, as drivers departing from Silver Street may not expect vehicles turning from Route 139 to be traveling at a higher rate of speed.

#### Enhancements:

- Use project design to reduce travel speeds along Route 139. While no specific project design elements have been defined at this point, discussion at the scoping meeting involved the concept of target design speed. Instead of designing the roadway to accommodate the present 40 mph regulatory speed limit, a reduced speed can be used as a target design speed to encourage speed reduction through the Town Center on Route 139.

- Consider a median along Route 139 through the Town Center. A median should be considered as part of overall design effort. The presence of a median can reduce vehicle speeds by reducing perceived pavement width and subsequently reducing the speed at which drivers feel comfortable operating their vehicle. The design of a median must consider the need for turn lanes and bicycle accommodation along Route 139.
- Reduce the radius of the corner from Route 139 westbound to Main Street. This enhancement could be considered as a short-term improvement in advance of the project, which will revisit all geometry as a long-term improvement. Required truck, school bus, and fire truck turning radii must be considered in conjunction with curb line modifications.
- Introduce gateway features to provide a visual cue of the limits of the Town Center area. Gateway features could include signage, curb extensions, or changes in pavement surface and/or texture, which could address driver speeds by providing a visual change in character of the roadway. Short-term gateway features were discussed during the field visit and could include flags, banners, or signs mounted on utility poles, which would require coordination with the respective utility company.

## Safety Issue #2: Land Use and Access Management

### Observations:

The importance of the governmental, institutional, and recreational uses in the Town Center were discussed by the audit team. Modifications to access were considered both when discussing existing safety issues and when discussing potential countermeasures.

Hanover Town Hall and the John Curtis Free Library are served by a shared driveway between the two buildings that also provides connection to the u-shaped driveway at the front of Town Hall. This shared driveway provides access to the primary library parking area behind the building and allows circulation behind Town Hall to access parking areas and connect to the primary Town Hall parking lot to the west of the building with connection to Center Street. It was noted that drivers use this driveway to cut through behind Town Hall between Center Street and Route 139. Two angle crashes involved vehicles exiting the Town Hall driveway to turn right on Route 139 eastbound; one involved a vehicle passing in the shoulder.

The driveway to the primary Town Hall parking lot is located very close to the stop line for the west leg of Center Street at Route 139. This creates conflicts between Center Street northbound traffic and vehicles entering and exiting the Town Hall driveway and can result in queued northbound traffic blocking the driveway during peak periods. No crashes were reported involving vehicles entering the Town Hall driveway at this location.

As previously noted, the Hanover Fire Department has a driveway intersecting Center Street south of the Town Hall Driveway. “Do Not Block Driveway” signage and pavement markings are provided for northbound Center Street traffic at the fire station driveway. An audit team member noted that while drivers generally respect these traffic control measures, the geometry of Center Street at Route 139 and adjacent landscaping can cause visibility issues for fire trucks turning from Center Street onto Route 139.

Overall, access and connectivity between the streets within the Town Center was discussed by the audit team. The closely spaced intersections and desire lines between connections can exacerbate other issues affecting safety for all users. Specific discussion points included varied maneuvers on Main Street between Silver Street and the east leg of Center Street, and “competition” between vehicles exiting the east leg of Center Street and Main Street for available gaps and opportunities to turn onto Route 139. Angle crashes at both Center Street and Main Street may be the result of drivers taking chances on unacceptable gaps due to limited opportunities to exit Center Street and Main Street during congested periods.

While not part of the project study area, audit participants noted that vehicles park in the shoulder of Route 139 during church services at St. Mary of the Sacred Heart, located near the intersection of Route 139 and Spring Street east of the Town Center. Parking is prohibited in the shoulder on State-owned roadways.

Finally, the ongoing redevelopment of the former Hanover Mall site was cited to have a potential impact on travel patterns within Hanover. Hanover Crossing has been redeveloped on the former mall site and includes 297 residential apartments and an open-air retail center including grocery, restaurants, entertainment, and both general and specialty retailers.

#### **Enhancements:**

- Consider closing and/or limiting connection between Town Hall and Library driveways. The balance between access, connectivity, and limiting cut-through traffic can be considered by the Town. Closing the driveway at Route 139 would require all vehicles accessing either site to enter via Center Street, while disconnecting the two parking areas would eliminate vehicular connection between the two buildings without using Center Street and Route 139.
- Evaluate connections and desire lines as part of project improvements. Utilizing available data to review origin and destination patterns between Route 139, Center Street, Main Street, and Silver Street can inform project improvements for potential changes in access and connectivity between streets.
- Evaluate turning paths and existing median island on Main Street at Route 139. In addition to the recommendation above to evaluate the corner radius to reduce turning speeds, the median island should be reviewed to determine whether it impedes larger vehicle movements, as suggested by tire tracks observed in the median on the day of the audit.
- Consider restricting turn movements from Main Street to the east leg of Center Street. This enhancement was specifically focused on traffic from Main Street bound for Route 139, forcing vehicles to continue along Main Street to its intersection with Route 139 instead of using Center Street. This enhancement would essentially restrict the east leg of Center Street to one way northbound.
- Consider restricting turn movements from both the east leg of Center Street and Main Street to reduce conflicting traffic between these two links. This recommendation would restrict the east

leg of Center Street to right turn only to Route 139 westbound, and the Main Street leg to left turn only to Route 139 eastbound.

- Consider closure or changes to circulation of the Main Street link between Silver Street and the east leg of Center Street. Depending on the orientation chosen, this would direct all vehicles to Route 139 to make turning maneuvers. Evaluation of potential changes to circulation must consider travel patterns and turning maneuvers for trucks, school buses, and fire trucks.
- Reconfigure the intersection of Main Street and the east leg of Center Street to eliminate the Y-shaped configuration. This enhancement would align Center Street in a single, perpendicular approach alignment.
- Consider realignment of the west leg of Center Street to a more perpendicular alignment, increasing separation between the Center Street legs. This enhancement would allow potential reconfiguration of the Town Hall parking lot driveway to increase the offset between the driveway and Route 139 and could improve visibility for fire trucks and other vehicles exiting from Center Street. It was noted that the Town owns the landscaped parcel immediately west of Center Street which could accommodate this realignment.
- Enforce no parking in the shoulder on Route 139 near St. Mary's. The Town may wish to work with the parish to encourage good parking habits in conjunction with enforcement.
- Evaluate the impact of Hanover Mall redevelopment on potential improvements. The potential for continued development at Hanover Crossing and its town-wide impact should be considered in traffic projections and in evaluation of potential roadway reconfiguration.

### Safety Issue #3: Pedestrian Accommodation

#### Observations:

As previously noted, brick sidewalks are provided along Route 139 through Hanover's Town Center. Brick sidewalks are generally in fair condition, with some weeds growing between bricks and between transitions between brick and concrete or asphalt driveway aprons. Where ramps are provided, detectable warning panels are typically not present, which is not compliant under current ADA standards.

Audit participants noted that pedestrian signage either at or in advance of crosswalks is not consistently provided. Town DPW staff confirmed that they have procured RRFBs which will be installed at the mid-block crossing across Route 139 between Town Hall and the First Congregational Church. It was also noted that existing crosswalk striping is faded, and that crosswalks lack ladder or continental style transverse markings at crosswalks.

In conjunction with comments on speeding and turning radius from Route 139 westbound to Main Street, the length of the crosswalk across the Main Street leg at Route 139 was discussed. The crosswalk is 125 feet long, which lengthens a pedestrian's exposure to potential conflicts with turning vehicles during a crossing maneuver. While no crashes involved pedestrians, one rear-end crash occurred at the crosswalk

near the Sylvester School driveway when a driver stopped for a pedestrian and was struck by a trailing vehicle.

Finally, the V-shaped crosswalks across Main Street at Silver Street were discussed as a potential safety issue. While both crosswalks may be utilized by pedestrians, the presence of dual crosswalks presents potential confusion for drivers as to where conflicts with pedestrians may be encountered.



#### **Enhancements:**

- Reconstruct ramps at all intersections within the study area for ADA compliance, including detectable warning panels.
- Install Town-procured RRFB for the crosswalk across Route 139 in front of Town Hall. This enhancement will increase visibility of and safety for pedestrians crossing Route 139.
- Update crosswalk signage through the Town Center. All uncontrolled crosswalks (i.e. crosswalks that do not cross a stop-controlled approach) should have W11-2 Pedestrian Crossing warning signage installed at each crosswalk in both directions with a downward-facing arrow plaque.
- Update crosswalk markings throughout the Town Center. Ladder-style markings are recommended to increase visibility and awareness to approaching drivers of crosswalks and of the potential for pedestrians.
- Extend the median island on Main Street at Route 139 to provide pedestrian refuge. Truck, school bus, and fire truck turning radii must be considered, as well as the impact on snow removal operations.
- Provide truck turning aprons for larger radius corners to reduce apparent usable width without restricting large vehicle turning movements. This can be considered in conjunction with the recommendation to extend the median to provide pedestrian refuge.
- Consolidate the dual crosswalk on Main Street at Silver Street to a single, perpendicular crossing. Recent sidewalk and ramp upgrades have eliminated the need for the diagonal crossing, as a short sidewalk segment on the south side of Main Street provides connection to the back door of the church building.

- Consider a raised crosswalk across Main Street at Silver Street. In conjunction with consideration of the current dual crossing, a raised crosswalk should be evaluated at the single perpendicular crossing. This would both raise awareness of the presence of the crosswalk and introduce a potential traffic calming element for Main Street.
- Consider curb extensions to shorten crosswalk crossing distance for pedestrians. Curb extensions can be considered where mid-block crossings are present today, and will be considered as part of the proposed design in conjunction with other potential cross-sectional needs such as bicycle accommodation and turning lanes.
- Review existing lighting and provide pedestrian level lighting. Lighting improvements can improve visibility for and of pedestrians within the Town Center.
- Consider pedestrian desire lines in the proposed design. In addition to specific recommendations for consolidation of crosswalks, the overall design should consider the addition or relocation of existing crosswalks as appropriate to meet pedestrian desire lines within the Town Center.

## Safety Issue #4: Bicycle Accommodation

### Observations:

The lack of bicycle accommodation along Route 139, Main Street, Silver Street, and Center Street was identified as a safety issue by the audit team. One injury crash occurred at the east leg of Center Street between a vehicle turning right and a cyclist turning onto Center Street.

While no on-road facilities or connection to immediately adjacent trails or off-road facilities are present in the project area, Town personnel did note the recently constructed Hanover Branch Rail Trail in West Hanover, which connects the Rockland Rail Trail with West Hanover running essentially parallel to Route 139.

### Enhancements:

- Incorporate bicycle accommodations meeting current MassDOT standards and guidelines into the design project to the greatest extent practical. Improvements in bicycle accommodation along Route 139 can spur future improvements to provide continuous accommodation for bicycles along the corridor through Hanover.

## Safety Issue #5: Signage and Pavement Markings

### Observations:

A number of concerns were raised by the audit team related to existing traffic control devices.

A passing zone is present immediately west of Center Street on Route 139. The passing zone provides a single dashed lane, indicating that passing is allowed in both directions, Audit participants were

concerned that the presence of a passing zone at the gateway to the Town Center promotes speeding and the potential for unsafe maneuvers near the Town Center and the intersection at Center Street. MassDOT District 5 personnel noted that passing zones are being evaluated on a regional level and that passing zones would be eliminated in areas where the regulatory posted speed limit is below 45 mph. Route 139 through the Town Center carries a 40 mph regulatory limit, which increases to 45 mph west of Circuit Street, approximately 2/3 mile west of the Center Street intersection.

Audit participants also noted that there is only one STOP sign provided where the east leg of Center Street intersects Main Street, although two distinct two-way links are provided which are both assumed to be under stop control. A missing street name sign was also identified on the west leg of Center Street at Main Street. DPW personnel noted that this sign is frequently knocked down.



**Image 5: Missing stop sign for Center Street at Main Street (looking north)**

#### **Enhancements:**

- Eliminate the passing zone along Route 139 west of Center Street. Based on feedback from MassDOT, this zone would be eliminated as a result of their review since the regulatory speed limit of the roadway is below 45 mph. Town personnel supported the review of passing zones along Route 139 throughout Hanover.
- Provide a STOP sign for the eastern two-way roadway segment intersecting Main Street at Center Street.
- Replace street name sign for the west leg of Center Street. The proposed sign can be located in the grassy median between the Route 139 sidewalk and the Town Hall parking area.

## Safety Issue #6: Schools

### Observations:

The presence of both current and former schools within and adjacent to the Town Center were noted by audit participants. School zone speed limit signage is presently provided on Route 139 in both directions east of Main Street; however, audit participants noted that the sign placement is likely to support the former Sylvester School and not the current Center Elementary School. This is most apparent westbound, where the flashing school speed limit sign is located beyond the Center School driveway and immediately in advance of the former Sylvester School driveway.

Audit participants also discussed the potential to pursue funding through the Safe Routes to School program. The federally funded program works to increase safe walking, biking, and rolling among public elementary, middle, and high school students. A review of current program participants reveals that Hanover has not taken advantage of the program benefits. The potential to provide safety education within the schools was also discussed by the audit team.



**Image 6: Westbound school zone sign seen looking west from Center Elementary School driveway**

### Enhancements:

- Review school zone signage, and update as appropriate. The existing school zone signage should be reviewed for concurrence and conformance with the latest version of the Massachusetts Amendments to the Manual on Uniform Traffic Control Devices. This document defines school zone regulations within the Commonwealth.
- Sign up for the Safe Routes to School (SRTS) Program, and take advantage of partnerships for education, encouragement, engagement, evaluation, equity, and engineering. Engineering improvements can include school-related infrastructure through the Signs and Line Program and the SRTS Infrastructure Program.
- Provide safety education within schools. Safety education can be geared towards pedestrian and bicycle safety at the elementary and middle school level, and aimed at motorist safety and awareness of vulnerable road users at the high school level.

## Safety Issue #7: Visibility

### Observations:

In addition to prior comments related to visibility and conflicts between vehicles as it relates to roadway configuration and access management, specific issues related to visibility for drivers were discussed.

As previously noted, the geometry of Center Street at Route 139 and adjacent landscaping can cause visibility issues for fire trucks turning from Center Street onto Route 139. During the field visit, visibility concerns were also noted between turning vehicles on Main Street at Route 139. The width of the approach allows vehicles to stack side-by-side, but the vehicles essentially block each other from clear visibility of approaching vehicles.

Furthermore, safety concerns related to vehicles passing in the shoulder were noted. In this instance, the stopped or turning vehicle creates a visibility obstruction of the vehicle passing in the shoulder, which contributed to the crash history of the intersection. Two crashes specifically cited vehicles passing in the shoulder.

### Enhancements:

- Trim landscaping on the southwest corner of Center Street at Route 139. This can improve sightlines for exiting vehicles including fire trucks. As previously noted, this parcel is owned by the Town.
- Consider narrowing the Main Street approach at Route 139. Narrowing would eliminate the potential for vehicles to stack side by side and block each other's visibility but could increase blocking of the intersection of Main Street and Silver Street.
- Evaluate turning lanes on Route 139 as part of project improvements. The presence of turning lanes would eliminate the occurrence of through vehicles using the shoulder to pass turning vehicles.

## Summary of Road Safety Audit

Following review of available materials and a discussion of existing safety issues, audit participants were asked to consider improvements. Audit participants were encouraged to consider both short- and long-term improvements for each issue. Each improvement considered has been categorized as short-term, mid-term, or long-term based on the definitions shown in Table 2. Additionally, a cost category has been assigned to each improvement based on the parameters set forth in Table 2.

**Table 2: Estimated Time Frame and Costs Breakdown**

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

Table 3 summarizes potential recommendations discussed by the audit team. The recommendations are categorized based on the potential safety payoff, as well as by time frame and cost. The safety payoff is a qualitative judgment of the effectiveness of the potential safety improvements.

Table 3: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Roadway Jurisdiction
Speeding	Use project design to reduce travel speeds along Route 139. A target design speed can be used to encourage speed reduction. While no specific project design elements have been defined at this point, discussion at the scoping meeting involved the concept of target design speed. Instead of designing the roadway to accommodate the present 40 mph regulatory speed limit, a reduced speed can be used as a target design speed to encourage speed reduction through the Town Center on Route 139.	High	Long-term	High (with other project improvements)	MassDOT
Speeding	Consider a median along Route 139 through the Town Center. A median should be considered as part of overall design effort. The presence of a median can reduce vehicle speeds by reducing perceived pavement width and subsequently reducing the speed at which drivers feel comfortable operating their vehicle. The design of a median must consider the need for turn lanes and bicycle accommodation along Route 139.	Medium	Long-term	High	MassDOT
Speeding, Pedestrian Accommodation	Reduce the radius of the corner from Route 139 westbound to Main Street. This enhancement could be considered as a short-term improvement in advance of the project, which will revisit all geometry as a long-term improvement. Required truck, school bus, and fire truck turning radii must be considered in conjunction with curb line modifications.	Medium	Mid-term	Medium	MassDOT/ Town
Speeding	Introduce gateway features to provide a visual cue to the limits of the Town Center area. Gateway features could include signage, curb extensions, or changes in pavement surface and/or texture, which could address driver speeds by providing a visual change in character of the roadway.	Medium	Mid-term	High	MassDOT/ Town
Speeding	Introduce short-term gateway features such as flags, banners, or signs mounted on utility poles, which would require coordination with the respective utility company.	Medium	Short-term	Low	MassDOT/ Town

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Roadway Jurisdiction
Land Use and Access Management	Consider closing and/or limiting connection between Town Hall and Library driveways. The balance between access, connectivity, and limiting cut-through traffic can be considered by the Town. Closing the driveway at Route 139 would require all vehicles accessing either site to enter via Center Street, while disconnecting the two parking areas would eliminate vehicular connection between the two buildings without using Center Street and Route 139.	Low	Short-term	Low	Town
Land Use and Access Management	Evaluate connections and desire lines as part of project improvements. Utilizing available data to review origin and destination patterns between Route 139, Center Street, Main Street, and Silver Street can inform project improvements for potential changes in access and connectivity between streets.	Medium	Long-term	Medium	MassDOT
Land Use and Access Management	Evaluate turning paths and existing median on Main Street at Route 139. In addition to the recommendation above to evaluate the corner radius to reduce turning speeds, the median island should be reviewed to determine whether it impedes larger vehicle movements, as suggested by tire tracks observed in the median on the day of the audit.	Medium	Short-term	Low	MassDOT/ Town
Land Use and Access Management	Consider restricting turn movements from Main Street to the east leg of Center Street. This enhancement was specifically focused on traffic from Main Street bound for Route 139, forcing vehicles to continue along Main Street to its intersection with Route 139 instead of using Center Street. This enhancement would essentially restrict the east leg of Center Street to one way northbound.	Medium	Short-term	Low	MassDOT/ Town
Land Use and Access Management	Consider restricting turn movements from both the east leg of Center Street and Main Street to reduce conflicting traffic between these two links. This recommendation would restrict the east leg of Center Street to right turn only to Route 139 westbound, and the Main Street leg to left turn only to Route 139 eastbound.	Medium	Short-term	Low	MassDOT/ Town

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Roadway Jurisdiction
Land Use and Access Management	Consider closure or changes to circulation of the Main Street link between Silver Street and the east leg of Center Street. Depending on the orientation chosen, this would direct all vehicles to Route 139 to make turning maneuvers. Evaluation of potential changes to circulation must consider travel patterns and turning maneuvers for trucks, school buses, and fire trucks.	Medium	Mid-term	High (with other project improvements)	Town
Land Use and Access Management	Reconfigure the intersection of Main Street and the east leg of Center Street to eliminate the Y-shaped configuration. This enhancement would align Center Street in a single, perpendicular approach alignment.	Low	Mid-term	High	Town
Land Use and Access Management, Visibility	Consider realignment of the west leg of Center Street to a more perpendicular alignment, increasing separation between the Center Street legs. This enhancement would allow potential reconfiguration of the Town Hall parking lot driveway to increase the offset between the driveway and Route 139 and could improve visibility for fire trucks and other vehicles exiting from Center Street. It was noted that the Town owns the landscaped parcel immediately west of Center Street which could accommodate this realignment.	Medium	Long-term	High	MassDOT/ Town
Land Use and Access Management	Enforce no parking in the shoulder on Route 139 near St. Mary's. The Town may wish to work with the parish to encourage good parking habits in conjunction with enforcement.	Low	Short-term	None (reduced enforcement elsewhere)	Town
Land Use and Access Management	Evaluate the impact of Hanover Mall redevelopment on potential improvements. The potential for continued development at Hanover Crossing and its town-wide impact should be considered in traffic projections and in evaluation of potential roadway reconfiguration.	Low	Mid-term	Medium	MassDOT/ Town
Pedestrian Accommodation	Reconstruct ramps at all intersections within the study area for ADA compliance, including detectable warning panels.	Medium	Mid-term	High	MassDOT/ Town

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Roadway Jurisdiction
Pedestrian Accommodation	Install Town-procured RRFB for the crosswalk across Route 139 in front of Town Hall. This enhancement will increase visibility of and safety for pedestrians crossing Route 139.	Medium	Short-term	Low	MassDOT/ Town
Pedestrian Accommodation	Update crosswalk signage through the Town Center. All uncontrolled crosswalks (i.e. crosswalks that do not cross a stop-controlled approach) should have W11-2 Pedestrian Crossing warning signage installed at each crosswalk in both directions with a downward-facing arrow plaque.	Medium	Short-term	Low	MassDOT/ Town
Pedestrian Accommodation	Update crosswalk markings throughout the Town Center. Ladder-style markings are recommended to increase visibility and awareness to approaching drivers of crosswalks and of the potential for pedestrians.	Medium	Short-term	Low	MassDOT/ Town
Pedestrian Accommodation	Extend the median island on Main Street at Route 139 to provide pedestrian refuge. Truck, school bus, and fire truck turning radii must be considered, as well as the impact on snow removal operations.	Medium	Mid-term	Medium	MassDOT/ Town
Pedestrian Accommodation	Provide truck turning aprons for larger radius corners to reduce apparent usable width without restricting large vehicle movements. This can be considered in conjunction with the recommendation to extend the median to provide pedestrian refuge.	Medium	Mid-term	High	MassDOT/ Town
Pedestrian Accommodation	Consolidate the dual crosswalk on Main Street at Silver Street to a single, perpendicular crossing. Recent sidewalk and ramp upgrades have eliminated the need for the diagonal crossing, as a short sidewalk segment on the south side of Main Street provides connection to the back door of the church building.	Medium	Short-term	Low	Town
Pedestrian Accommodation, Speeding	Consider a raised crosswalk across Main Street at Silver Street. In conjunction with consideration of the current dual crossing, a raised crosswalk should be evaluated at the single perpendicular crossing. This would both raise awareness of the presence of the crosswalk and introduce a potential traffic calming element for Main Street.	Medium	Mid-term	High	Town

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Roadway Jurisdiction
Pedestrian Accommodation	Consider curb extensions to shorten crosswalk crossing distance for pedestrians. Curb extensions can be considered where mid-block crossings are present today, and will be considered as part of the proposed design in conjunction with other potential cross-sectional needs such as bicycle accommodation and turning lanes.	Medium	Long-term	High	MassDOT/ Town
Pedestrian Accommodation	Review existing lighting and provide pedestrian level lighting. Lighting improvements can improve visibility for and of pedestrians within the Town Center.	Medium	Long-term	High	MassDOT/ Town
Pedestrian Accommodation	Consider pedestrian desire lines in the proposed design. In addition to specific recommendations for consolidation of crosswalks, the overall design should consider the addition or relocation of existing crosswalks as appropriate to meet pedestrian desire lines within the Town Center.	Medium	Mid-term	High (with other project improvements)	MassDOT/ Town
Bicycle Accommodation	Incorporate bicycle accommodation meeting current MassDOT standards and guidelines into the design project to the greatest extent practical. Improvements in bicycle accommodation along Route 139 can spur future improvements to provide continuous accommodation for bicycles along the corridor through Hanover.	Medium	Long-term	High	MassDOT
Signage and Pavement Markings, Speeding	Eliminate the passing zone along Route 139 west of Center Street. Based on feedback from MassDOT, this zone would be eliminated as a result of their review since the regulatory speed limit of the roadway is below 45 mph. Town personnel supported the review of passing zones along Route 139 throughout Hanover.	Medium	Short-term	Low	MassDOT
Signage and Pavement Markings	Provide a STOP sign for the eastern two-way roadway segment intersecting Main Street at Center Street.	Low	Short-term	Low	Town
Signage and Pavement Markings	Replace street name sign for the west leg of Center Street. The proposed sign can be located in the grassy buffer between the Route 139 sidewalk and the Town Hall parking area.	Low	Short-term	Low	Town

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Roadway Jurisdiction
Schools	Review school zone signage, and update as appropriate. The existing school zone signage should be reviewed for concurrence and conformance with the latest version of the Massachusetts Amendments to the Manual on Uniform Traffic Control Devices. This document defines school zone regulations within the Commonwealth.	Medium	Short-term	Medium	MassDOT/ Town
Schools	Sign up for the Safe Routes to School (SRTS) Program, and take advantage of partnerships for education, encouragement, engagement, evaluation, equity, and engineering. Engineering improvements can include school-related infrastructure through the Signs and Line Program and the SRTS Infrastructure Program.	Medium	Short-term	Low	Town
Schools	Provide safety education within schools. Safety education can be geared towards pedestrian and bicycle safety at the elementary and middle school level, and aimed at motorist safety and awareness of vulnerable road users at the high school level.	Medium	Short-term	Low	Town
Visibility	Trim landscaping on the southwest corner of Center Street at Route 139. This can improve sightlines for exiting vehicles including fire trucks. As previously noted, this parcel is owned by the Town.	Medium	Short-term	Low	Town
Visibility	Consider narrowing the Main Street approach at Route 139. Narrowing would eliminate the potential for vehicles to stack side by side and block each other's visibility but could increase blocking of the intersection of Main Street and Silver Street.	Medium	Mid-term	High	MassDOT/ Town
Visibility	Evaluate turning lanes on Route 139 as part of project improvements. The presence of turning lanes would eliminate the occurrence of through vehicles using the shoulder to pass turning vehicles.	Medium	Long-term	High	MassDOT

## Appendix A. RSA Meeting Agenda

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# **Agenda**

## **Road Safety Audit**

**Hanover, MA**

**Route 139 at Main Street,**

**Center Street and Silver Street**

**Meeting Location: Sylvester School/DPW**

**1<sup>st</sup> Floor Training Room**

**495 Hanover Street, Hanover MA**

**Monday, September 25<sup>th</sup>, 2023**

**1:00 PM – 3:00 PM**

<b>Type of meeting:</b>	<b>High Crash Corridor – Road Safety Audit</b>
<b>Attendees:</b>	<b>Invited Participants to Comprise a Multidisciplinary Team</b>
<b>Please bring:</b>	<b>Thoughts and Enthusiasm!!</b>

<b>1:00 PM</b>	<b>Welcome and Introductions</b>
<b>1:15 PM</b>	<b>Discussion of Safety Issues</b> <ul style="list-style-type: none"><li>• Crash history, Speed Regulations– provided in advance</li><li>• Existing Geometries and Conditions</li></ul>
<b>2:00 PM</b>	<b>Site Visit</b> <ul style="list-style-type: none"><li>• Walk to the intersections of Route 139 with Center Street and Main Street</li><li>• As a group, identify areas for improvement</li></ul>
<b>2:30 PM</b>	<b>Discussion of Potential Improvements</b> <ul style="list-style-type: none"><li>• Discuss observations and finalize safety issue areas</li><li>• Discuss potential improvements and finalize recommendations</li></ul>
<b>3:00 PM</b>	<b>Adjourn for the Day – but the RSA has not ended</b>

### **Instructions for Participants:**

- Before attending the RSA on September 25<sup>th</sup>, participants are encouraged to drive/walk through the intersection and complete/consider elements on the RSA Prompt List with a focus on safety.
- All participants will be actively involved in the process throughout. Participants are encouraged to come with thoughts and ideas, but are reminded that the synergy that develops and respect for others' opinions are key elements to the success of the overall RSA process.
- After the RSA meeting, participants will be asked to comment and respond to the document materials to assure it is reflective of the RSA completed by the multidisciplinary team.

## Appendix B. RSA Audit Team Contact List

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## Participating Audit Team Members

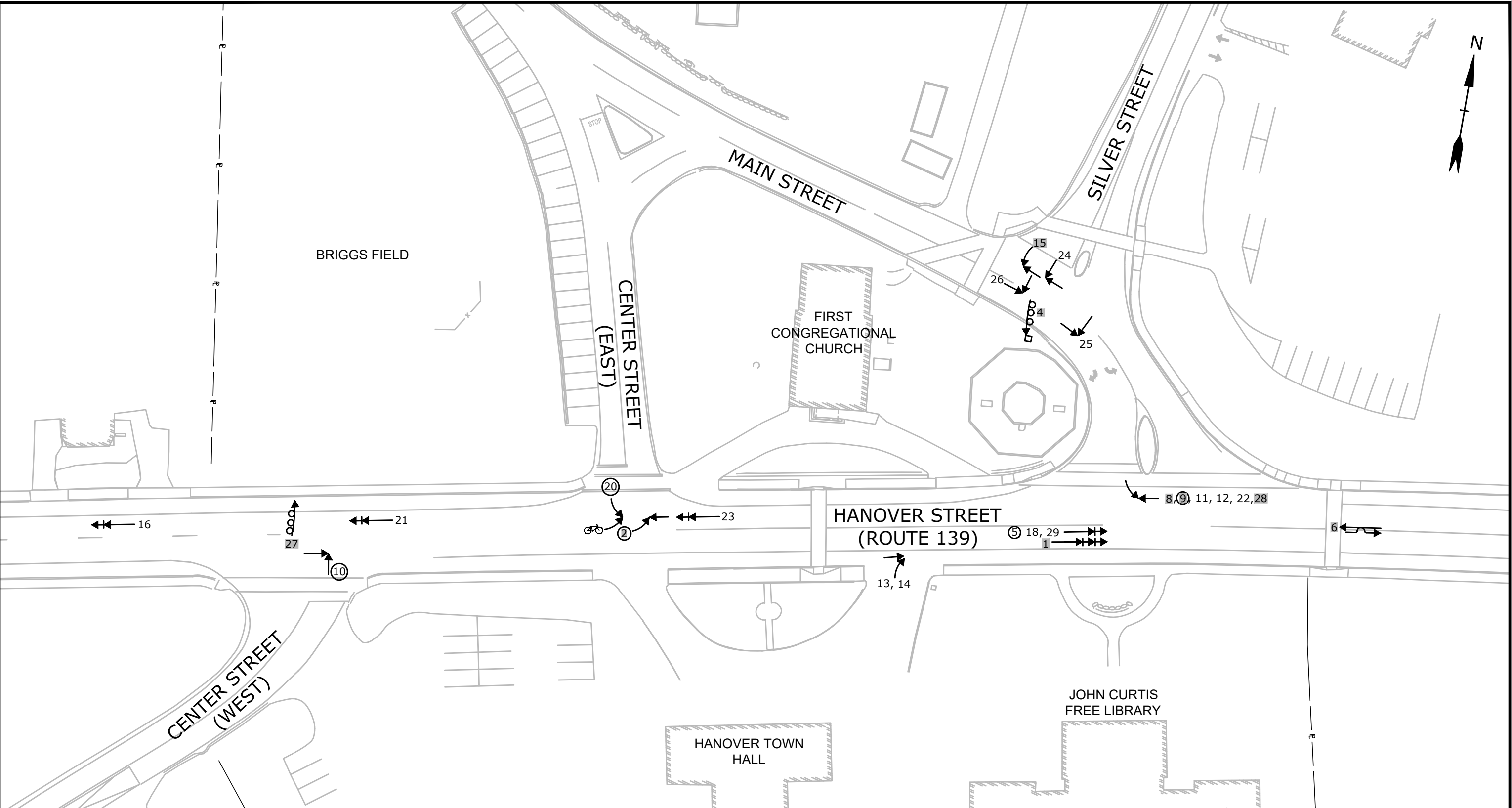
Date: September 25, 2023

Location: Hanover – Route 139 at Main Street, Center Street, and Silver Street

Audit Team Member	Agency/Affiliation	Email Address	Phone Number
Greg Lucas	Tighe & Bond	GLucas@tighebond.com	781-375-2554
Justin Curewitz	Tighe & Bond	JCurewitz@tighebond.com	
Madeline Blair	Tighe & Bond	MBlair@tighebond.com	
David Sawin	Route 139 Action Comm	Davidesawin@gmail.com	781-635-0797
Bill McNulty	OCPC	wmcnulty@ocpcrpa.org	
Mike Nolan	MassDOT	Michael.c.nolan@dot.state.ma.us	
Jason Walters	MassDOT D5 Projects	Jason.walters@dot.state.ma.us	508-245-0895
Zahra Marhoon	MassDOT Safety	Zarha.a.marhoon@dot.state.ma.us	978-409-9310
Kevin Fitzgerald	MassDOT Traffic Safety	Kevin.t.fitzgerald@dot.state.ma.us	
Michelle Deng	MassDOT Traffic Safety	Michelle.deng@dot.state.ma.us	857-303-1230
Anthony Krzykowski	MassDOT Traffic Safety	Anthony.j.krzykowski@dot.state.ma.us	413-896-4477
Rob Stevens	Route 139 Action Comm	plannerrobs@gmail.com	617-799-4932
Victor Diniak	Director – Hanover DPW	vdiniak@hanoverdpw.org	781-826-3189
Joe Colangelo	Town of Hanover	Joseph.colangelo@hanover-ma.gov	339-214-5303
Rep. Dave DeCoste	State Representative	dfdecoste@gmail.com	617-519-7403
Jason Cavallaro	Hanover Fire	Jason.cavallaro@hanover-ma.gov	617-759-7550
Timothy Kane	Hanover Police	Timothy.kane@hanover-ma.gov	781-826-3811
Derek Richards	Hanover Police	Derek.richards@hanover-ma.gov	781-826-3231
Kurt Kelley	Hanover DPW	kkelley@hanoverdpw.org	781-826-3189
Mojitaba Moharrer	MassDOT D5	mojtaba.m.moharrer@dot.state.ma.us	
Shawn Morris	MassDOT D5 Traffic	Shawn.j.morris@dot.state.ma.us	
Samuel Hawkins	MassDOT D5 Traffic	Samuel.g.hawkins@dot.state.ma.us	
Ethan Costa	MassDOT D5 Traffic	Ethan.r.costa@dot.state.ma.us	
Viola Ryerson	Route 139 Action Comm	ryeassoc@aol.com	
Johanna Dougherty	Route 139 Action Comm	Jsd182@gmail.com	

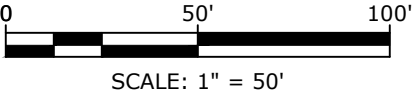
## Appendix C. Detailed Crash Data

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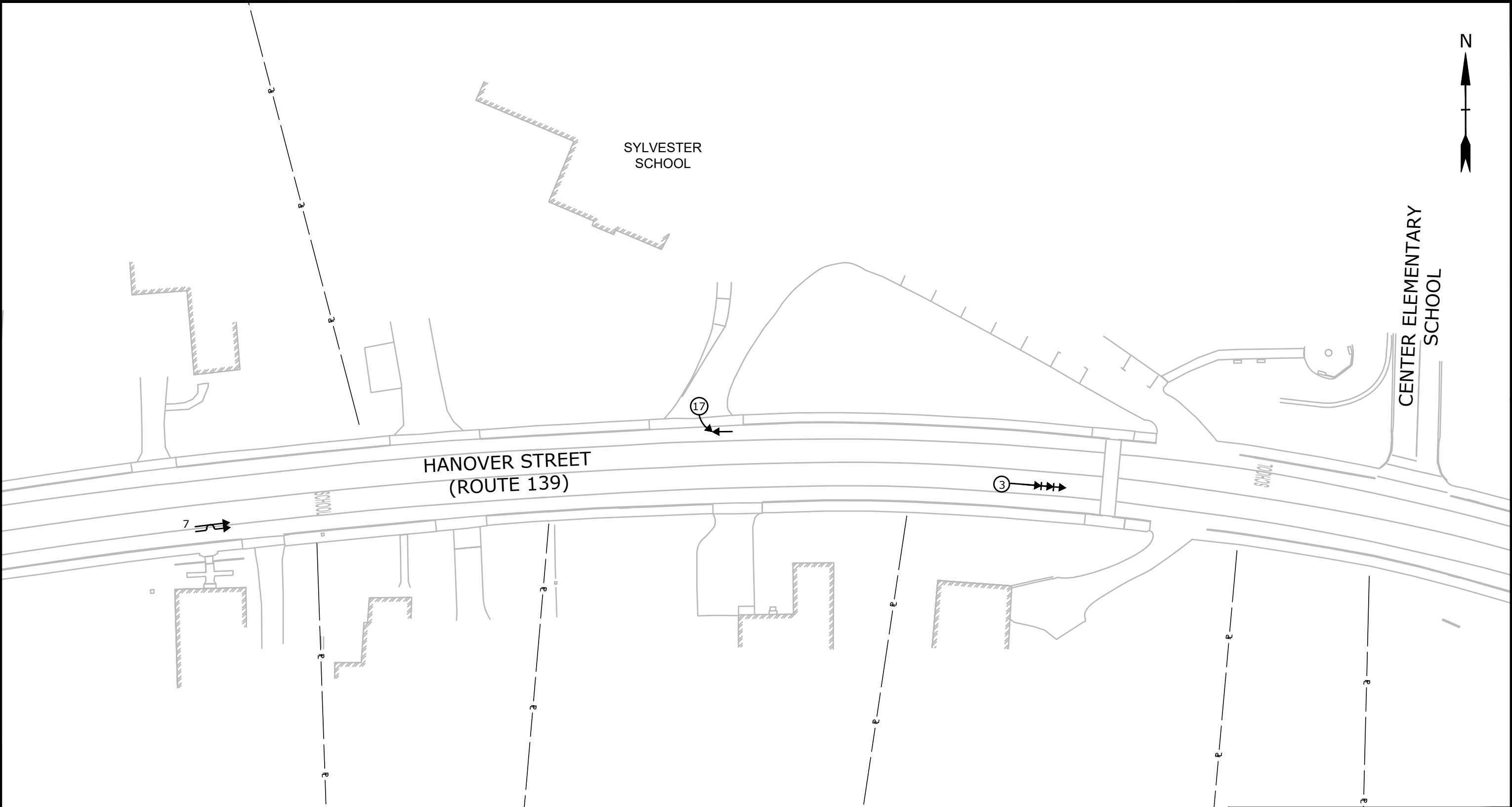


- NOTES:**
- 1. CRASH 19 WAS NOT ABLE TO BE MAPPED.
  - 2. INTERSECTIONS INCLUDED IN FIGURE 1:
    - HANOVER STREET (ROUTE 139) AT CENTER STREET (WEST)
    - HANOVER STREET (ROUTE 139) AT CENTER STREET (EAST)
    - HANOVER STREET (ROUTE 139) AT MAIN STREET
    - MAIN STREET AT CENTER STREET
    - MAIN STREET AT SILVER STREET
  - 3. DATE RANGE: JANUARY 1, 2018 TO DECEMBER 31, 2022

















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

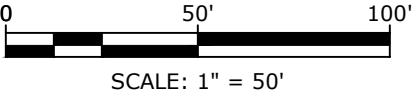


HANOVER TOWN CENTER HANOVER, MA	
COLLISION DIAGRAM	
DATE: 06/15/2023	
SCALE: 1" = 50'	
FIGURE: 1	



- NOTES:**
- 1. CRASH 19 WAS NOT ABLE TO BE MAPPED.
  - 2. INTERSECTIONS INCLUDED IN FIGURE 2:
    - HANOVER STREET (ROUTE 139) AT CENTER ELEMENTARY SCHOOL
  - 3. DATE RANGE: JANUARY 1, 2018 TO DECEMBER 31, 2022

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



HANOVER TOWN CENTER  
HANOVER, MA

COLLISION DIAGRAM

DATE: 06/15/2023  
SCALE: 1" = 50'  
FIGURE: 2

**Tighe&Bond**

# Crash Data Summary Table

Hanover Town Center - Hanover, MA  
January 1, 2018 - December 31, 2022

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	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 39	Comments
	m/d/y		hh:mm	Type	Type	Type	Type	Type	D1	D2	D3	Type	
1	1/3/18	Wednesday	5:33 PM	Rear-end	Dusk	Clear	Dry	Followed too closely	79	37	26	PDO	Vehicle 1 and 2 were stopped in traffic in front of 534 Hanover Street. Vehicle 3 was traveling eastbound on Hanover Street and struck Vehicle 2 from behind, resulting in Vehicle 2 striking Vehicle 1.
2	1/25/18	Thursday	5:57 AM	Angle	Dark - lighted roadway	Clear	Dry	Failed to yield right of way	25	66		Non-Incapacitating	Vehicle 2 attempted to make a left hand turn onto Center Street northbound and struck Vehicle 1 who was traveling westbound on Hanover Street. Driver of Vehicle 2 was transported to the hospital.
3	4/22/18	Sunday	11:56 AM	Rear-end	Daylight	Clear	Dry	Other improper action	20	32	59	Possible Injury	Vehicle 3 stopped for a pedestrian in crosswalk around 471 Hanover Street. Vehicle 1 failed to stop and hit Vehicle 2 from the rear who then hit Vehicle 3 from the rear. Driver of Vehicle 1 was transported to the hospital. All Vehicles were traveling eastbound on Hanover Street.
4	7/24/18	Tuesday	12:25 AM	Single Vehicle Crash	Dark - lighted roadway	Clear	Dry	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	24			PDO	Vehicle 1 (traveling eastbound) went through the stop sign on Silver Street and struck the curb on Main Street before driving onto the lawn and hitting the granite wall.
5	9/4/18	Tuesday	4:15 PM	Rear-end	Daylight	Clear	Dry	Inattention	59	16		Non-Incapacitating	Vehicle 1 (traveling eastbound) was stopped in traffic on Hanover Street and was struck in the rear by Vehicle 2 who was distracted by an electronic device. The driver of Vehicle 2 was transported to the hospital.
6	10/23/18	Tuesday	8:10 PM	Sideswipe, opposite direction	Dark - lighted roadway	Rain	Wet	Unknown	Unknown	59	64	PDO	Vehicle 1 made a left hand turn from Main Street onto Hanover Street. Vehicle 1 crossed the centerline and struck Vehicle 2 who was traveling the opposite direction. When crossing back over the centerline, Vehicle 1 struck Vehicle 3 in the rear who was traveling eastbound. Vehicle 1 fled the scene.
7	11/1/18	Thursday	3:11 PM	Sideswipe, same direction	Daylight	Cloudy	Dry	Failure to keep in proper lane or running off road	62	65		PDO	Vehicle 2 was stopped traveling EB to allow a school bus to exit from Main Street. Vehicle 1 passed Vehicle 2 in shoulder, attempting to pass turning school bus and struck bus on the right front side.
8	12/8/18	Saturday	5:27 PM	Angle	Dark - lighted roadway	Clear	Dry	Failed to yield right of way	26	45		PDO	Vehicle 1 was making a left from Main Street to Hanover Street and struck Vehicle 2 who was traveling WB on Hanover Street. Vehicle 1 failed to yield to the right of way.
9	12/11/18	Tuesday	4:24 PM	Angle	Dusk	Clear	Dry	Failed to yield right of way	19	18		Non-Incapacitating	Vehicle 1 was making a left from Main Street to Hanover Street and struck Vehicle 2 who was traveling WB on Hanover Street. Driver of Vehicle 1 was transported to the hospital.
10	4/15/19	Monday	6:08 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	59	18		Suspected Minor Injury	Vehicle 1 was traveling EB on Hanover Street. Vehicle 2 was attempting to turn onto Hanover Street from Center Street (West) when they struck Vehicle 2. Drivers of both vehicles were transported to the hospital.
11	6/27/19	Thursday	10:11 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	74	57		No Apparent Injury	Vehicle 1 was stopped at the Main Street and Hanover Street intersection. When attempting to make a left turn, Vehicle 2 (traveling westbound on Hanover Street) struck Vehicle 1 as it was overextended into the intersection.
12	9/12/19	Thursday	5:44 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	65	84		No Apparent Injury	Vehicle 1 was making a left turn from Main Street to Hanover Street and struck Vehicle 2 who was traveling WB on Hanover Street.
13	11/4/19	Monday	8:50 AM	Angle	Daylight	Clear	Dry	Other improper action	29	28		No Apparent Injury	A vehicle had stopped to allow Vehicle 1 to pull out of the driveway of 550 Hanover Street. Vehicle 2 (traveling eastbound) was passing the stopped vehicles in the right shoulder when they struck Vehicle 1.
14	11/8/19	Friday	7:57 AM	Angle	Daylight	Clear	Dry	Unknown	47	34		No Apparent Injury	Vehicle 1 was making a right turn from the driveway of 550 Hanover Street when they struck Vehicle 2 traveling EB on Hanover Street.
15	11/23/19	Saturday	7:06 PM	Angle	Dark - lighted roadway	Clear	Dry	Disregarded traffic signs, signals, road markings	34	22		No Apparent Injury	Vehicle 2 failed to stop at the stop sign on Silver Street before making a left turn onto Main Street and struck Vehicle 1 who was traveling NB on Main Street.
16	11/25/19	Monday	8:19 AM	Rear-end	Daylight	Clear	Dry	Followed too closely	24	18		No Apparent Injury	Vehicle 1 stopped in response to an unknown vehicle in front of them who stopped to let two dogs cross the road. Vehicle 2 failed to stop and collided into the rear of Vehicle 1. Both vehicles were traveling west on Hanover Street near 577/579 Hanover Street.
17	11/25/19	Monday	3:17 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	25	66		Suspected Minor Injury	Vehicle 2, a school bus, was attempting to take a left turn onto Hanover Street and pulled in front of Vehicle 1 (traveling westbound) who then struck the bus. One child was transported to the hospital.
18	3/2/20	Monday	11:50 AM	Rear-end	Daylight	Cloudy	Dry	Inattention	73	18		No Apparent Injury	Vehicle 1 was stopped to make a left turn onto Main Street. They were struck in the rear by Vehicle 2 traveling EB on Hanover Street.
19	5/3/21	Monday	2:47 PM	Angle	Daylight	Clear	Dry	No Improper Driving	49			No Apparent Injury	No crash description available.
20	7/17/21	Saturday	10:48 AM	Single Vehicle Crash	Daylight	Rain	Dry	Failed to yield right of way	74	50		Suspected Minor Injury	Vehicle 1 was making a left from Center Street to westbound on Hanover Street when they struck a cyclist that was turning left onto Center Street northbound. Cyclist was transported to the hospital.
21	8/3/21	Tuesday	2:48 PM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	20	20		No Apparent Injury	Both vehicles were traveling westbound on Hanover Street. Vehicle 2 stopped in response to the vehicle in front. Vehicle 1 failed to stop in time and hit Vehicle 2 from the rear. The point of impact was just prior to reaching the intersection of Hanover and Center Street.
22	9/4/21	Saturday	3:52 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	82	35		No Apparent Injury	Vehicle 2 was traveling westbound on Hanover Street and struck Vehicle 1 who was making a left onto Hanover Street from Main Street. Vehicle 1 failed to yield to the right of way.

## Crash Data Summary Table

Hanover Town Center - Hanover, MA

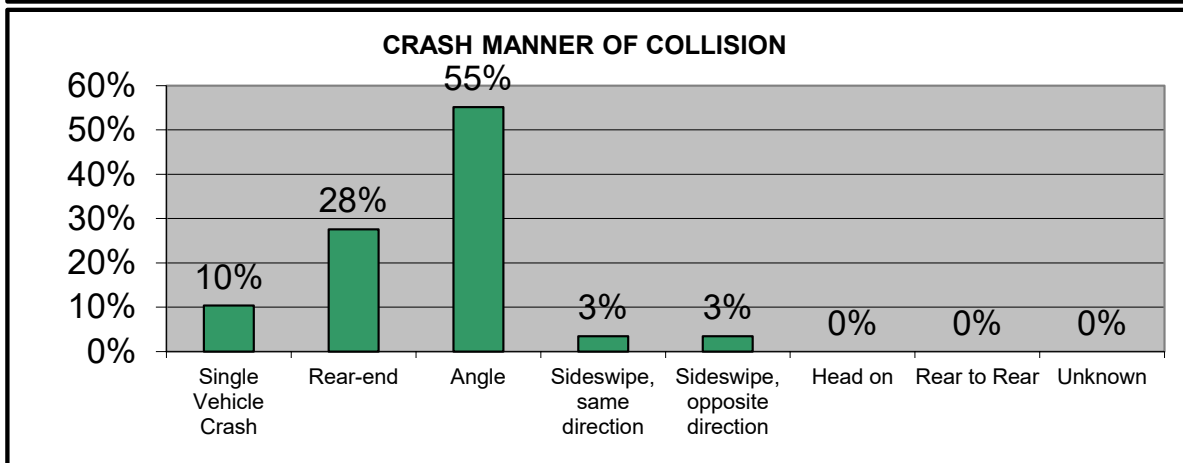
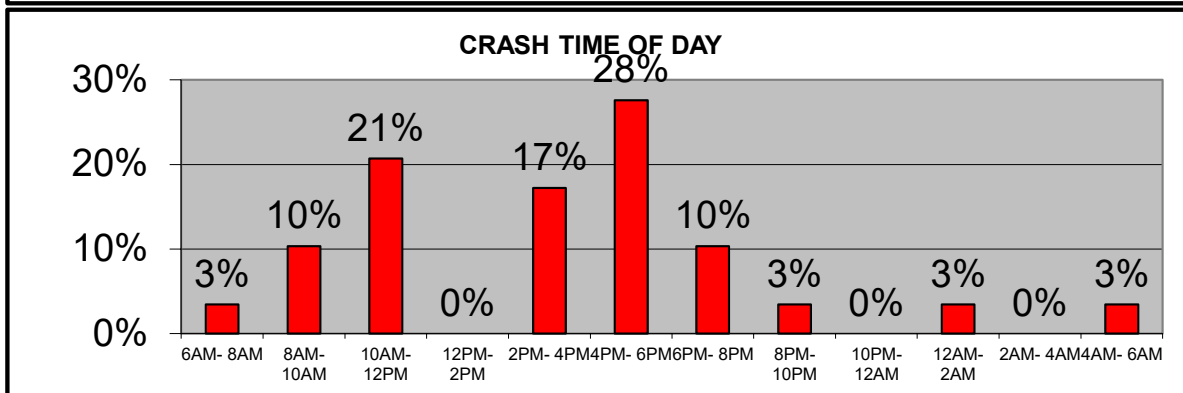
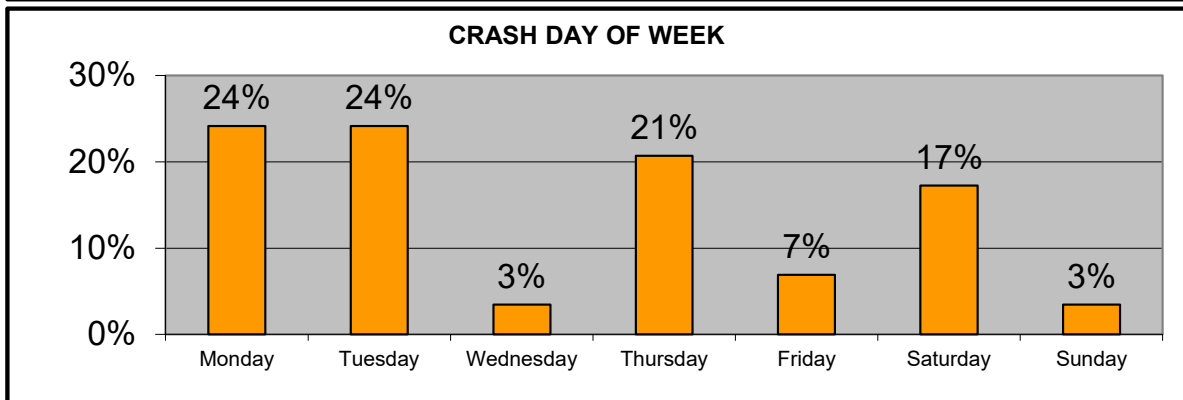
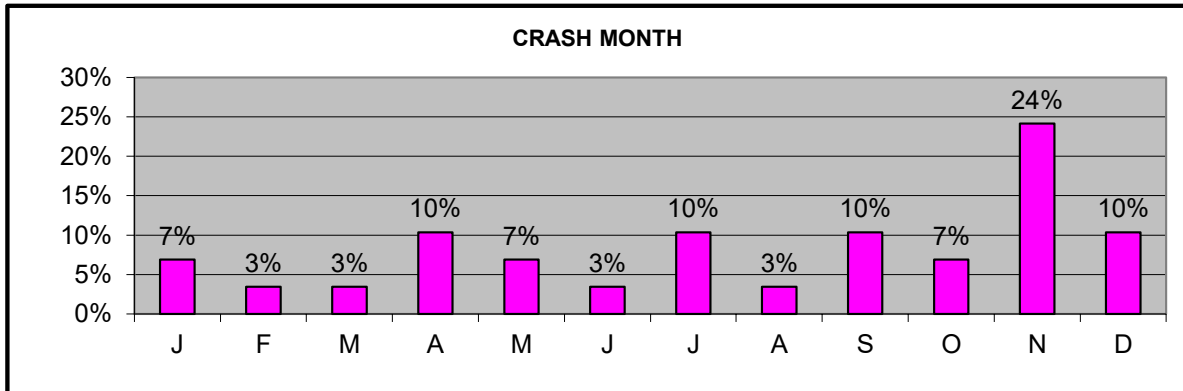
January 1, 2018 - December 31, 2022

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	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 39	Comments
	m/d/y		hh:mm	Type	Type	Type	Type	Type	D1	D2	D3	Type	
23	2/17/22	Thursday	4:00 PM	Rear-end	Daylight	Cloudy	Wet	Followed too closely	51	28		No Apparent Injury	Vehicle 1 was traveling westbound on Hanover Street slowed down in response to a car pulling in front of them from Center Street (east). Vehicle 2 (also traveling westbound) rear ended Vehicle 1 as it was following too close.
24	4/2/22	Saturday	10:55 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	85	21		No Apparent Injury	Vehicle 1 proceeded onto Main Street from Silver Street and struck Vehicle 2 who was driving northbound on Main Street.
25	5/24/22	Tuesday	11:42 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	85	75		No Apparent Injury	Vehicle 2 was turning left from Silver Street to Main Street and struck Vehicle 2 who was traveling southbound on Main Street.
26	7/18/22	Monday	4:49 PM	Angle	Daylight	Rain	Wet	Failed to yield right of way	20	21		No Apparent Injury	Vehicle 1 was turning left onto Main Street from Silver Street. They failed to yield to Vehicle 2 who was traveling southbound on Main Street and struck them.
27	10/25/22	Tuesday	7:48 PM	Single Vehicle Crash	Dark - lighted roadway	Fog, Smog, Smoke	Wet	Visibility Obstructed	85			No Apparent Injury	Vehicle 1 failed to stop at the stop sign on Center Street (west) at Hanover Street due to poor visibility. Vehicle traveled through the intersection and into the baseball field, colliding with the backstop.
28	11/10/22	Thursday	5:55 PM	Angle	Dark - lighted roadway	Clear	Dry	Failed to yield right of way	67	18		No Apparent Injury	Vehicle 1 was turning left from Main Street onto Hanover Street. They failed to yield right of way and hit Vehicle 2 who was traveling westbound on Hanover Street.
29	12/2/22	Friday	8:49 AM	Rear-end	Daylight	Clear	Dry	Followed too closely	27	73		No Apparent Injury	Vehicle 1 (traveling eastbound) who was on Hanover Street and stopped in response to the vehicle in front making a left on Main Street. Vehicle 2 (also traveling eastbound) rear-ended Vehicle 1.

Summary based on Crash Reports obtained from the Hanover Police Department

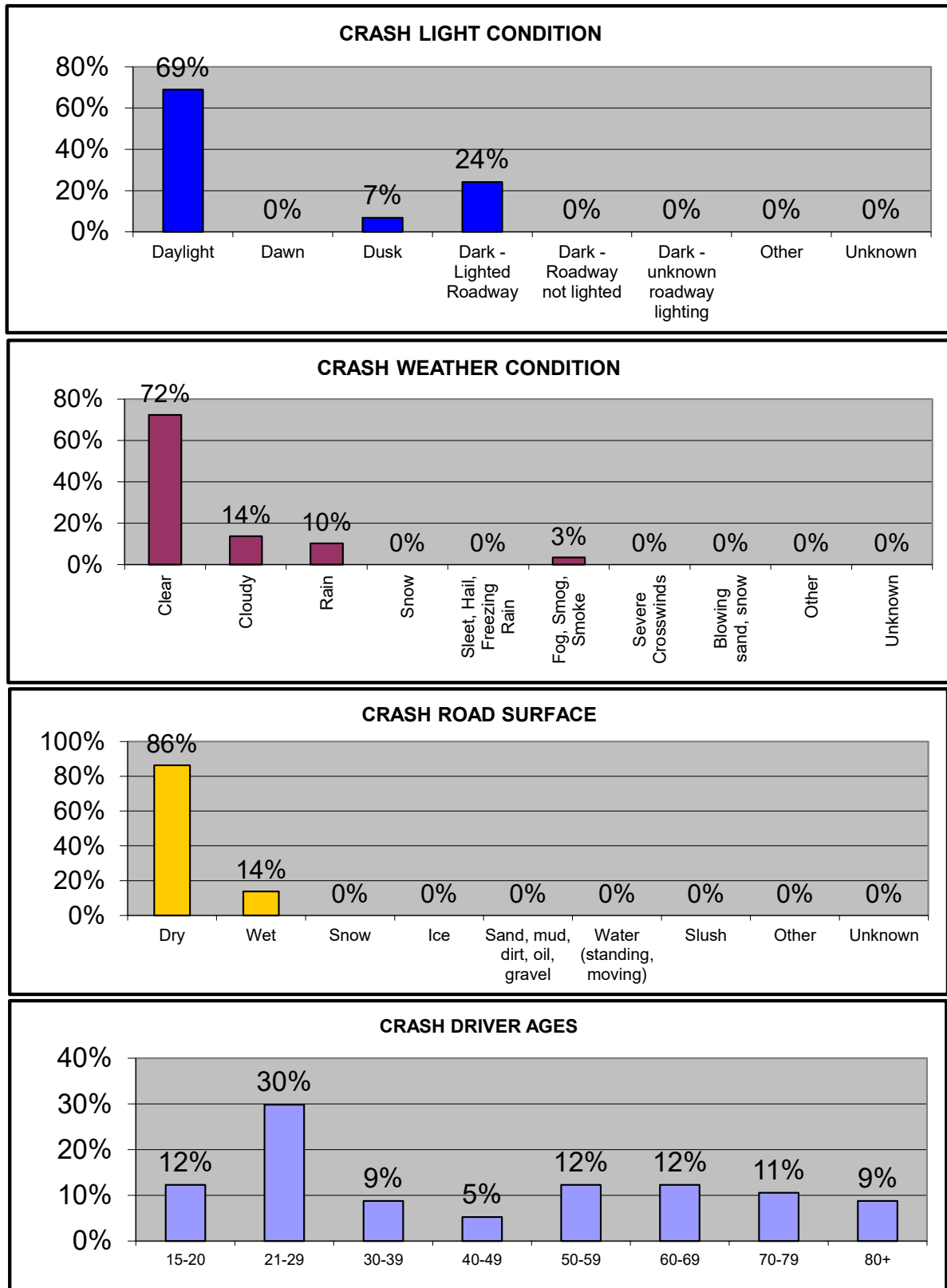
## Crash Data Summary Tables and Charts

Hanover Town Center - Hanover, MA



## Crash Data Summary Tables and Charts

Hanover Town Center - Hanover, MA



## Appendix D. Speed Regulations

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October 26, 1971

*Mr. Sullivan*

THE COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NUMBER 254-B

Highway Location:

MARSHFIELD, PEMBROKE, HANOVER  
AND ROCKLAND

Authority in Control:

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS

Name of Highway:

MARSHFIELD - STATE HIGHWAY -	ROUTE 139
PEMBROKE	" " ROUTE 139
HANOVER	" " ROUTE 139
ROCKLAND	" " ROUTE 139

In accordance with the provisions of Section 18 of Chapter 90 of the General Laws (Ter. Ed.) the following Special Speed Regulation is hereby promulgated:

Special Speed Regulation numbered 254, dated September 3, 1963 is hereby amended by striking out the Regulation in its entirety and inserting in place thereof the following revision and addenda.

The following designated speed limits are established at which motor vehicles may be operated in the areas described.

EASTBOUND

Beginning in Rockland at the junction of Route 123

Thence easterly 0.12 miles at 30 miles per hour  
Thence 0.62 " " 35 " " " to the Hanover town line.

Thence easterly in Hanover

0.28 miles at 45 miles per hour
0.19 " " 35 " " "
1.30 " " 45 " " "
1.03 " " 40 " " "
0.80 " " 45 " " "
0.12 " " 30 " " " ending at the junction

of Route 53 in Hanover.

And beginning again in Pembroke 258 feet east of the junction of Route 53

Thence easterly 1.23 miles at 45 miles per hour  
0.46 " " 50 " " "  
0.62 " " 40 " " " to the Marshfield town  
line.

Thence easterly in Marshfield

2.45 miles at 45 miles per hour	} ending at the junction
0.05 " " 30 " " "	

of Route 3A; the total distance being 9.29 miles.

WESTBOUND

Beginning in Marshfield 220 feet west of the junction of Route 3A,  
Thence westerly 2.46 miles at 45 miles per hour to the Pembroke town line.

Thence westerly in Pembroke

0.62 miles at 40 miles per hour	} ending at the junction
0.46 " " 50 " " "	
1.17 " " 45 " " "	
0.07 " " 30 " " "	

of Route 53.

And beginning again in Hanover 225 feet west of the junction of Route 53,

Thence westerly

0.80 miles at 45 miles per hour	
1.05 " " 40 " " "	
1.30 " " 45 " " "	
0.19 " " 35 " " "	
0.28 " " 45 " " "	to the Rockland town line.

Thence westerly in Rockland

0.03 miles at 45 miles per hour	
0.59 " " 35 " " "	
0.12 " " 30 " " "	ending at junction of

Route 123, the total distance being 9.14 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense Section 14 of Chapter 90.

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly do hereby certify in writing that this regulation is consistent with the public interest.

Standard signs must be erected at the beginning of each zone.

FOR THE DEPARTMENT

DATE: October 26, 1971

BY: Bruce Campbell vjc  
BRUCE CAMPBELL  
COMMISSIONER

David J. Incey  
Registrar of Motor Vehicles

for Highway Engineering

January 7, 1971

TOWN OF HANOVER  
SPECIAL SPEED REGULATION NO. 590

Highway Location: TOWN OF HANOVER  
Authority in Control: TOWN OF HANOVER  
Name of Highway(s): Main Street

In accordance with the provisions of Chapter 90, Section 18, of the General Laws (Ter. Ed.) as amended, the following Special Speed Regulation is

hereby Adopted

by the Board of Selectmen

of the Town of Hanover

That the following speed limits are established at which motor vehicles may be operated in the areas described:

Main Street - NORTHBOUND

Beginning at Silver Street,  
thence northerly on Main Street

0.11 miles at 30 miles per hour

1.77 " " 40 " " "

0.46 " " 35 " " "

0.11 " " 30 " " "

0.49 " " 40 " " "

0.11 " " 35 " " " ending at the Norwell

line; the total distance being 3.05 miles.

Main Street - SOUTHBOUND

Beginning at the Norwell line,  
thence southerly on Main Street

0.11 miles at 35 miles per hour

0.49 " " 40 " " "

0.11 " " 30 " " "

0.46 " " 35 " " "

1.77 " " 40 " " "

0.11 " " 30 " " " ending at Silver Street;

the total distance being 3.05 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

12.12 ✓

The provisions of this regulation shall not, however, abrogate in any sense Chapter 90, Section 14, of the General Laws (Ter. Ed.).

Date of Passage 11-23-70

Francis J. [Signature]  
Edward F. [Signature]  
Allan G. [Signature]  
Board of Selectmen

Attest

[Signature]  
Town Clerk

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 590

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly, do hereby certify that this regulation is consistent with public interest.

Standard signs must be erected at the beginning of each zone.

Date: January 7, 1971

BY:

Edward J. Ribbs [Signature]  
EDWARD J. RIBBS  
COMMISSIONER

for Highway Engineering

Richard M. Langille [Signature]  
Registrar of Motor Vehicles

*Lil Sullivan*  
December 3, 1973

TOWN OF HANOVER  
SPECIAL SPEED REGULATION NO. 870

Highway Location: HANOVER  
Authority in Control: TOWN OF HANOVER  
Name of Highway: Old Washington Street  
Silver Street

In accordance with the provisions of Chapter 90, Section 18, of the General Laws (Ter. Ed.) as amended, the following Special Speed Regulation is

hereby Adopted

by the Board of Selectmen  
of the Town of Hanover

That the following speed limits are established at which motor vehicles may be operated in the areas described:

Old Washington Street - NORTHBOUND

Beginning at a point 300 feet north of Route 53,  
Thence northerly on Old Washington Street  
0.21 miles at 25 miles per hour  
0.23 " " 30 " " " ending at Route 53; the  
total distance being 0.44 miles.

Old Washington Street - SOUTHBOUND

Beginning at a point 200 feet south of Route 53,  
Thence southerly on Old Washington Street  
0.19 miles at 30 miles per hour  
0.27 " " 25 " " " ending at Route 53; the  
total distance being 0.46 miles.

Silver Street - NORTHBOUND

Beginning at a point 1000 feet north of Main Street,  
Thence northerly on Silver Street  
0.72 miles at 40 miles per hour  
0.08 " " 25 " " " ending at Old Washington  
Street; the total distance being 0.80 miles.

Silver Street - SOUTHBOUND

Beginning at a point 200 feet south of Old Washington Street,  
Thence southerly on Silver Street  
0.84 miles at 40 miles per hour  
0.11 " " 30 " " ending at Main Street;  
the total distance being 0.95 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense Chapter 90, Section 14, of the General Laws (Ter. Ed.).

Date of Passage October 17, 1973

Francis J. Hughes

Allan G. Parnes

Board of Selectmen

Attest

Dorothy R. Estes

Town Clerk

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 870

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly, do hereby certify that this regulation is consistent with the public interests.

Standard signs must be erected at the beginning of each zone.

DATE: December 3, 1973

FOR THE DEPARTMENT OF PUBLIC WORKS

BY:

L. T. Parnes

Traffic Engineer

David J. Lucey  
Registrar of Motor Vehicles

TOWN OF HANOVER

FEB 1 1979

SPECIAL SPEED REGULATION NO. 5019

Highway Location: HANOVER  
Authority In Control: TOWN OF HANOVER  
Name of Highway(s): CENTER STREET

In accordance with the provisions of Chapter 90, Section 18, of the General Laws (Ter. Ed.) as amended, the following Special Speed Regulation is

hereby Adopted  
by the Board of Selectmen  
of the Town of Hanover

That the following speed limits are established at which motor vehicles may be operated in the areas described:

CENTRE STREET-NORTHBOUND

Beginning at a point 200 feet north of Broadway  
Thence northerly on Centre Street  
0.57 miles at 35 miles per hour  
1.26 " " 30 " " " ending at Route 139;  
the total distance being 1.83 miles.

CENTRE STREET-SOUTHBOUND

Beginning at a point 200 feet south of Route 139  
Thence southerly on Centre Street  
1.22 miles at 30 miles per hour  
0.55 " " 35 " " "  
0.06 " " 25 " " " ending at Broadway;  
the total distance being 1.83 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense Chapter 90, Section 14, of the General Laws (Ter. Ed).

Date of Passage January 8, 1979

*[Signature]*  
*Janet M. O'Brien*  
*[Signature]*  
Board of Selectmen

Attest

*[Signature]*  
Town Clerk

No. 5019

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 5019

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly, do hereby certify that this regulation is consistent with the public interests.

Standard signs must be erected at the beginning of each zone.

DATE: FEB 1 1979

FOR THE DEPARTMENT OF PUBLIC WORKS

BY:

*[Signature]*  
Traffic Engineer

*[Signature]*  
Chief Deputy Registrar