

ROAD SAFETY AUDIT

Route 2 from MM 60 to MM 62.9

Town of Erving

02/17/2023

Prepared For:
MassDOT



On Behalf Of:
Town of Erving



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Background

The Federal Highway Administration defines the Road Safety Audit (RSA) as “the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It identifies safety improvements focused on decreasing the number and severity of roadway crashes.” Various improvements proposed are subdivided from short-term to long-term solutions, with varying costs and benefits to be assessed for each recommendation.

Green International Affiliates (Green) conducted an RSA for the Route 2 corridor segment, beginning from Mile Marker (MM) 60 to MM 62.9, located in the town of Erving, MA. Based on previous crash history researched by Massachusetts Department of Transportation (MassDOT), there was a reported total of 99 crashes that took place from MM 60 to 63.6 during the years of 2013-2019, in which 79 of those crashes took place strictly within the current study area up to MM 62.9. The MassDOT network screening crash-based tool, which ranks the top crash locations based on segments exceeding the predicted number of crashes, classifies this segment on the statewide top 5% fatal injury (FI) categories and on the statewide next 10% all crash categories. It’s also on the Franklin Regional Council of Governments (FRCOG) region’s top 5% crash list for FI and all crashes categories.

Route 2 represents the primary commuter route for residents living in or near Erving and for commercial vehicles travelling long distance. The land use along the project limits is mainly zoned for residential and recreational uses.

Project Data

Green conducted a formal RSA meeting on Wednesday, October 19th, 2022. The Audit was held in the Erving Town Library located at 2 Care Drive, where an Agenda was provided to show the scheduled breakdown of each session and can be found in Appendix A. Upon arrival of all attendees, Green first presented the project scope and the detailed findings regarding three high crash cluster locations identified within the project corridor, followed by a discussion to determine potential improvements. Referenced materials included collision diagrams and attribute charts provided by MassDOT, which can be found in Appendix C. After the meeting adjourned in the morning, the team endeavored on a site walk at the high crash cluster locations within the project segment to make observations and address any other safety issues for improvement. At the end of the site walk, the team convened to confirm all potential improvements for the safety issues as a final conclusion to the RSA meeting. A list of the audit team members and their affiliation is summarized in Table 1 below. Appendix B provides contact information for all the team members.

Table 1: Participating Audit Team Members

Audit Team Member	Agency/Affiliation
Anni H. Autio	MassDOT (Project Manager)
Michelle Deng	MassDOT Traffic Safety
Kevin Fitzgerald	MassDOT Traffic Safety
Katina Keefe	MassDOT District 2- Traffic
Thomas Ruta	MassDOT District 2- Project Development
Noah Lewis	MassDOT District 2- Traffic
Bryan Smith	Erving Town Administration
Glenn McCrory	Erving Highway Superintendent
Laura Gordon	Erving Police Department
Laurie Scarborough	Franklin Regional Council of Governments (FRCOG)
Wayne Waldron	Franklin Transit Management
Michael Perreault	Franklin Regional Transit Authority
Corinne Tobias	Green International Affiliates, Inc.
Dennis Vertiyev	Green International Affiliates, Inc.
Angelica Vazquez-Diaz	Green International Affiliates, Inc.
Tatiana Kairouz	Green International Affiliates, Inc.
David Perloff	Green International Affiliates, Inc.

Project Location and Description

The RSA evaluated the safety issues for the 2.9-mile segment of the Route 2 Corridor in Erving, MA.

Local crash data was initially received from the Erving Police Department for the entire corridor from MM 60 to MM 63.6 during the years of 2013-2019, which were compiled to create collision diagrams and attribute charts. All detailed crash data and materials were created by MassDOT and provided to Green as the main source to represent this current RSA. Crash data and graphs between MM 60 to MM 62.9 are relevant to the current project limits. Green used the collision diagrams to identify any specific section of roadway containing 10 or more crashes, for which a total of three locations met this criterion. All compiled crash summary tables, diagrams, and charts can be found in Appendix C.

The RSA discussion and Site Walk focused on the entire Route 2 Corridor along with the three identified high crash cluster segments, which comprised of the following:

- Route 2 between Maple Avenue and Wheelock Street
- Route 2 in the vicinity of Mile marker 62
- Route 2 near Mountain Road

Descriptions of High Crash Cluster Segments

Route 2 – Corridor Wide

Throughout the entire corridor, Route 2 follows an east-west alignment and represents a major commuter route providing access to the major cities of North Adams to the west and Boston to the east. As mentioned previously, the project area for Route 2 is made up of a 2.9-mile-long roadway segment beginning at MM 60, just west of Old State Road, and terminating at MM 62.9, just east of Mountain Road within the Town of Erving. Route 2 is classified as a Rural Principal Arterial that is owned and maintained by MassDOT. The roadway configuration is made up of one lane in each direction, separated by a double-yellow centerline (DBYL), with a few passing zones for westbound vehicles towards the eastern limits. Shoulders are present throughout the corridor and vary in width. The Average Daily Traffic (ADT) volumes are approximately 8,900 vehicles per day on a typical weekday, where it entails a 38% EB/62% WB directional split in the morning peak hour, and a 54% EB/ 46% WB split during the afternoon peak hour. The posted speed limits ranges from 40 miles per hour (MPH) to 45 MPH throughout the corridor. Raw count data from Automatic Traffic Recorders (ATR) reveals the 85th percentile speeds range from approximately 50 MPH towards the east end of the corridor limits up to 60 MPH towards the west end. Primary land use along Route 2 is residential, recreational and open forest land. This section of Route 2 has no curbs present and does not provide any pedestrian or bicycle accommodations.

Near the eastern limits of the project, Route 2 once had direct affiliation with Old State Road, which now functions as a side street that intersects Route 2 to form a stop-controlled, T-shaped intersection. Old State Road is now classified as a local roadway that is owned and maintained by MassDOT. The roadway accommodates a DBYL to separate the two directions of travel, along with shoulders of one to two feet in width. Old State Road has a relatively flat grade and curves sharply to intersect with Route 2 at a right angle. Looking west from the approach, Route 2 curves downward to form a sag curve. Looking east from the approach, Route 2 curves to the right. The posted speed limit for Old State Road is 35 MPH.

Five more intersections will be discussed in further detail in the next sections regarding the three High Crash Cluster Segments. Details of the project limits and study intersections are shown in Figure 1.

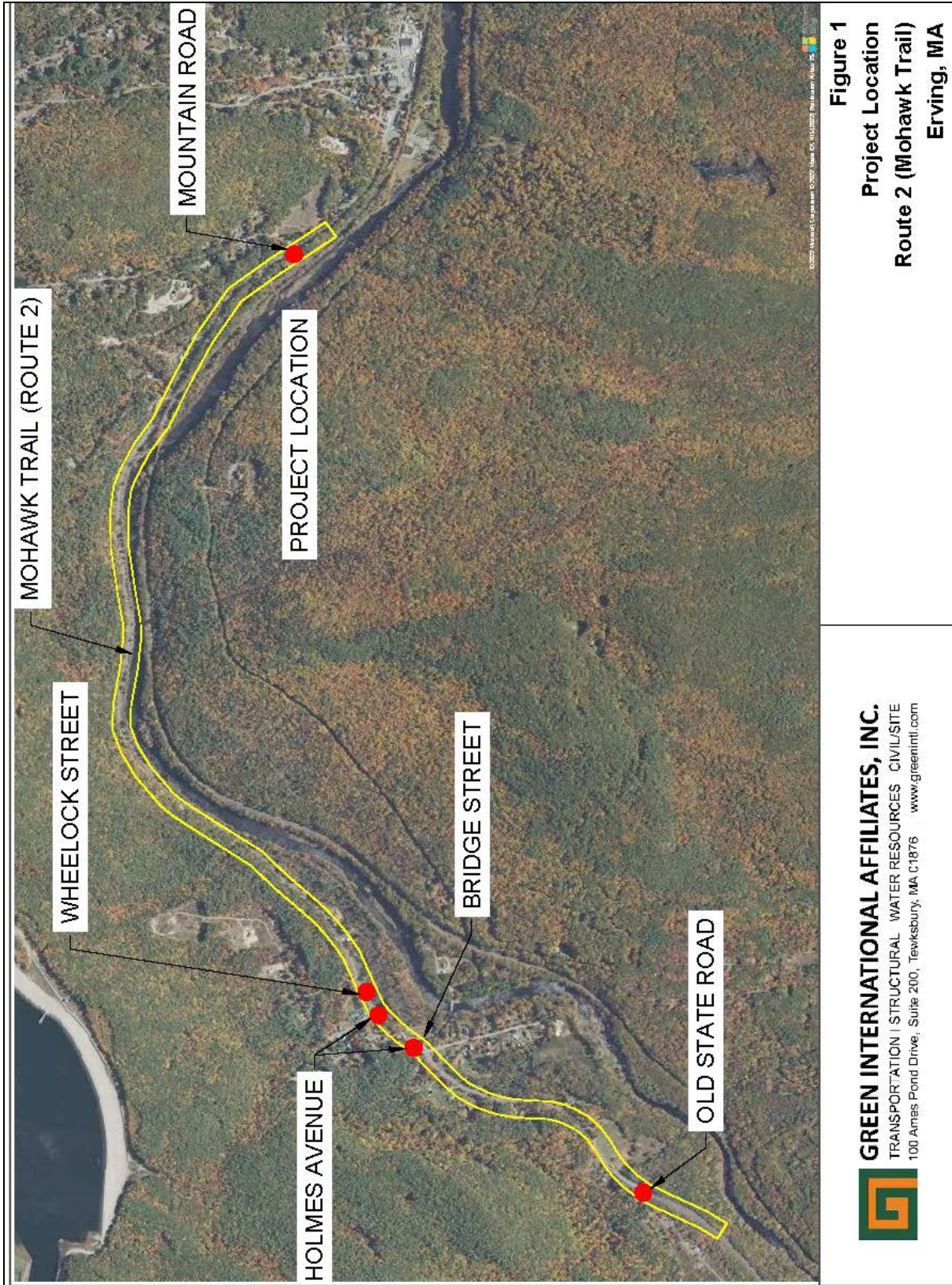


Figure 1: Locus Map

Cluster 1: From MM 0.75 to MM 1.0

This section along Route 2 is approximately located between Maple Avenue and Wheelock Street near the western limits of the project area, and includes the following unsignalized intersections:

- Route 2 at Maple Avenue
- Route 2 at Holmes Avenue (West)/Bridge Street
- Route 2 at Holmes Avenue (East)
- Route 2 at Wheelock Street

In terms of segment characteristics, there are some minor horizontal and vertical curves present along this section of Route 2. Striping is mainly comprised of a solid double-yellow centerline to divide the two lanes of travel and shoulders of varying widths. Guardrails are mainly present on the south side of the road, with a small section that exists in between Wheelock Street and Holmes Avenue (east). Roadway lighting is present at the intersections of Maple Avenue, Bridge Street and Wheelock Street. The posted speed limit is 40 MPH in both directions. The land use along this stretch of roadway is mainly forest land and low-density residential properties.

Towards the western side of this cluster, Maple Avenue is a dead-end local roadway that is owned by the Town of Erving and intersects Route 2 from the south to form a stop-controlled, T-shaped intersection. A stop bar and stop sign are present at the approach for traffic control installments. The approaches at this intersection are at approximately 90-degree angles, with relatively flat grades all-around. Looking west at the approach, Route 2 curves to the left. Looking east of the approach, Route 2 has a slight downgrade until it eventually curves to the right. There is no posted speed limit on Maple Avenue.

Holmes Avenue is a residential roadway owned by the Town of Erving and provides access to other residential roadways leading up to the Farley Ledges Trailhead. Holmes Avenue intersects Route 2 at both ends to form stop-controlled approaches at skewed angles. On the east end, Holmes Avenue is oriented at a relatively steep downgrade coming down towards Route 2, which curves to the left when looking both east and west from the approach. The west end of Holmes Avenue also comes at a similarly steep downgrade towards the approach to Route 2, which curves to the right when looking east and has a crest curve when looking west. Stop bars and stop signs are present on both approaches for traffic control. The roadway width is 15-foot wide but still accommodates 2-way traffic. There is no posted speed limit along Holmes Avenue.



Image 1: Route 2 Approaching Holmes Avenue from Wheelock Street

Bridge Street is a town-owned local road that intersects Route 2 from the south directly across from Holmes Avenue (West) to form a two-way Stop-Controlled intersection. Bridge Street runs at a relatively steep upgrade as it approaches Route 2 perpendicularly, where a stop bar and stop sign are both present for traffic control. The line of sight along Route 2 from Bridge Street is similar to that of Holmes Avenue (West). Bridge Street provides access to the town of Wendell and restricts travel of heavy trucks. Bridge Street also represents a major travel route for thru hikers trekking the New England trail, which runs along Bridge Street and crosses Route 2 towards Holmes Avenue and eventually up to Farley Ledges Trailhead to the north. There is no posted speed limit on Bridge Street.

Wheelock Street is a dead-end roadway that is owned by Erving and classified as a local road. Wheelock Street intersects Route 2 from the north at an approximately 90-degree angle to form a stop-controlled T-intersection, with relatively flat grades all throughout. A stop bar and stop sign are also present at the approach. The line of sight along Route 2 from the Wheelock Street approach is similar to that of Holmes Avenue (East), which is located 100 feet to the west. Wheelock Street has no posted speed limit.

Cluster 2: From MM 1.75 to MM 2.25

This Route 2 section is located near Mile Marker 62 towards the middle of the project area. Cluster 2 is approximately half a mile long and runs parallel to the Millers River adjacent to the south. This section is relatively straight but is located in between two sharp curves located to the east and west. There are no side roads intersecting Route 2 along this segment. Striping comprises of the typical double-yellow centerline, with narrower shoulders that are one to two feet wide. No roadway lighting is present along this section of corridor. There are no curbs at the edge of Route 2, but



Image 2: Route 2 Near Mile Marker 62, Facing East

there are guardrails that are mainly present on the south side of the roadway. At the western end of this roadway section, there are two pullout areas located on either side of the roadway that are typically used for rest areas and recreational use at the river. The posted speed limit is 45 MPH in both directions within this section, and eventually transitions down to 40 MPH to the west where the sharp curve begins. Without the presence of side streets, the land use along this section is primarily forest land.

Cluster 3: From MM 2.5 to MM 2.9

This final segment is located towards the eastern limits of this project near Mile Marker 62.9 and Mountain Road. Along this section, Route 2 operates with one lane in each direction separated by a double-yellow centerline, where it transitions to a passing zone for westbound traffic located west of Mountain Road.



Image 3: Route 2 facing West from Mountain Road

Shoulders also narrow down to a width of one foot. Guardrails are mainly present on the south side of the roadway, with a small section installed on the north side just west of Mountain Road.

Roadway lighting is only present at the intersection of Mountain Road. There are a few areas where school buses stop to pick up students, and school bus warning signs are present to address this scenario. The posted speed limit in Cluster 3 is 45 MPH in both

directions, and eventually transitions down to 35 MPH east of the project limits towards Erving Center. The land use within this section of roadway is primarily forest land and low-density residential properties.

Mountain Road is classified as a local roadway owned by the Town of Erving, where it intersects Route 2 from the north to form a stop-controlled, T-intersection. The two travel lanes on Mountain Road are separated by a single yellow centerline, with 1-foot-wide shoulders on either side. There is also a stop sign and stop bar at the approach to Route 2 for traffic control. Mountain Road curves around and is oriented at a slight downgrade coming down to where it intersects Route 2 at an approximate 90-degree angle. Looking west from the approach, Route 2 curves to the left when looking east from the approach and continues straight when looking west from the approach. The land use surrounding this segment is

primarily forest land, a few scattered residential properties, and the town Cemetery located near the northeast corner of the intersection at Mountain Road.

Audit Observations and Potential Safety Enhancements: Route 2 Corridor-Wide

On the day of the RSA meeting, the team participated in a discussion at the Erving Town Library and then conducted a site walk to each of the three high crash cluster locations to make observations and address any outstanding safety deficiencies specific to each location and for the corridor as a whole.

All issues and improvements identified from the Formal RSA meeting will be discussed in further detail in the upcoming sections of the report. All devised improvements discussed must be implemented in compliance with current design standards from the Manual on Uniform Traffic Control Devices (MUTCD), MassDOT, and the Town of Erving.

Within the 2.9-mile segment, there was a total of 79 reported crashes taking place from 2013-2019. Single vehicle crashes are the most prominent manner of collision, as it constitutes approximately 66% of all crashes recorded. Other outstanding crash attributes include the 33% of all crashes taking place at nighttime and 34% of the crashes resulting in a non-fatal injury.

During the RSA kickoff discussion and site visit, the following safety issues were addressed regarding the Route 2 Corridor as a whole within the project limits:

- Lack of Roadway Lighting
- Vehicular Speeds
- Faded Pavement Markings
- Confined Space
- Lack of Safe Crossings
- Substandard Pavement Quality

Safety Issue #1. Inadequate Roadway Lighting

Observation

Throughout the corridor, the limited lighting at various locations was susceptible to a total of 29 crashes taking place at night, representing approximately 37% of the total crashes within the study area. The lack of lighting apparent throughout the corridor can serve as a contributing factor to this high percentage of single vehicle crashes that took place. Limited lighting can cause drivers to drift away from the travel lane and collide with a fixed object on the side of the road, which occurred in 83% of the total nighttime crashes. Limited lighting can also cause drivers to veer off beyond the roadway centerline to either sideswipe or collide head-on with a vehicle in the opposite direction, which represents the remaining 17%

of the nighttime collisions. There are many utility poles scattered throughout the corridor that have no mounted lighting.

Enhancement

1. Evaluate the feasibility to implement any additional lighting to the other remaining utility poles beyond the intersections to increase the segment visibility at night.
2. Implement a more effective type of lighting that fosters LED power to provide a more durable way of enhancing the visibility of the roadway for drivers.
3. Evaluate the current signage and pavement marking retro-reflectivity; replace faded signs and repaint or resurface the pavement markings to enhance the roadway visibility in addition to street lighting.

Safety Issue #2. High Vehicle Speeds

Observations

The recent Automatic Traffic Recorder (ATR) data provided to Green revealed that the typical vehicle speeds throughout the entire Route 2 Corridor are approximately 10 to 15 MPH over the Posted Speed limits. Approximately 13% of all corridor crashes (10 total crashes) were directly affiliated to high travel speeds or reckless driving, while at least half of all other crashes involved improper driver behavior that can potentially affiliate to high speeds. It is also very dangerous to travel at unsafe speeds due to the presence of sharp curves located at both ends throughout the corridor, which is a potential cause for four single vehicle crashes that involved over-steering and veering off the side to the roadway. Operating at high speeds is one of the leading causes of the single vehicle crashes occurring within the project limits and can also increase the severity of the crashes with higher impact upon collision. All but one of the crashes affiliated to high speeds and/or sharp curvature resulted in single vehicle collisions.

Enhancements

1. Evaluate the existing speed limits and implement traffic calming measures to reduce vehicle speeds.
2. Evaluate the clear zones and relocate objects if possible.
3. Install additional chevron alignment signs to emphasize and guide drivers through segments that have changes in horizontal alignment.

Safety Issue #3. Faded Pavement Markings

Observations

Striping was faded throughout various sections of Route 2. As with insufficient lighting, faded or missing markings can lead to driver confusion and also cause them to veer off the side of the road or into the opposite travel lane, increasing the chances for a vehicle to strike a fixed object on the side of the road or collide with a vehicle in the opposite direction.

Enhancements

1. Implement new retroreflective striping to the double-yellow centerline and shoulders throughout the entire corridor to guide drivers into their own respective travel lane.
2. Install rumble strips on the new double-yellow centerline and shoulder markings to keep drivers alert when driving on sections with limited lighting and tight curves.

Safety Issue #4. Roadway Confinement

Observations

Between Mile Marker 1.0 and the intersection at Mountain Road, the shoulders on Route 2 are narrower to the point where there is nearly no buffer space between the shoulder marking and the edge of roadway. Without a safe buffer space, any vehicle that veers off the shoulder could immediately strike a fixed object adjacent to the shoulders, whether it's a guardrail, ditch, or tree. A total of 24 single vehicle crashes involved fixed objects on the side of the roadway. The town also reported a lot of trees that have also fallen down onto various sections of this roadway, resulting in at least one additional vehicle collision and frequent traffic backups.

Enhancements

1. Identify available space on Route 2 to widen the roadway cross section to accommodate shoulders at a width of 5 feet and up to 7 feet as an alternative setup.
2. Provide regular maintenance and/or remove trees located close enough to the roadway where it's at risk of impeding the roadway if it were to fall.
3. Repave gravel pull off areas at grade with the roadway to accommodate safer transitions for vehicles pulling into and out from Route 2.

Safety Issue #5. Lack of Safe Pedestrian Crossings

Observations

There are recreational facilities along Route 2 such as the Farley Ledges Hiking Trails and flyfishing areas along sections adjacent to Millers River. Parking for the Farley Ledges trailhead is located in a driveway lot along Route 2 west of Maple Avenue, but overflow parking is possible and can result in pedestrians having to park/walk along Route 2. Thru hikers using the New England Trail also need to cross Route 2 via the intersection of Bridge Street and Holmes Avenue. Near the center of the roadway study area, fishers using the river will have to cross Route 2 if they end up parking at any of the gravel pull-out areas on the north side of the roadway. Observations reveal no pedestrian facilities to accommodate recreational activity. The lack of crosswalk striping and warning signage within these respective areas makes it difficult for pedestrians to safely cross Route 2 against vehicles operating at high speeds.

Enhancements

1. Install crosswalks and appropriate traffic control if needed at any location where pedestrian activity is frequent and desire lines are apparent, specifically in areas of high recreational use.
2. Install advanced warning pedestrian signage to emphasize to drivers of any locations where pedestrian crossings can occur.
3. Evaluate implementing a Pedestrian Hybrid Beacon (PHB) or Rectangular Rapid-Flashing Beacon (RRFB) to increase pedestrian safety at newly marked crosswalk locations.

Safety Issue #6. Pavement Quality

Observations

There are cracks and potholes scattered throughout the entire corridor. During the winter, the roadway also tends to get very slippery with ice, which attributes to five of the single vehicle crashes occurring during that time of year.

Enhancements

1. Repave the entire roadway and apply high-friction treatment to the surface for minimal slippage.
2. Assess the Erving traffic network near Route 2 and coordinate with all town residents to ensure that snowplows have a safe route to effectively remove all snow without impeding traffic.

Audit Observations and Potential Safety Enhancements: Route 2 from Maple Avenue to Wheelock Street

The pre-site visit presentation/discussion regarding Cluster One addressed a total of 28 crashes in this cluster, where nine of the crashes resulted in an injury, and nine of the crashes took place at nighttime. Approximately half of the crashes were single-vehicle collisions, while the remaining half included sideswipes, rear-ends and head-on collisions.

Based on remarks made during the pre-audit meeting and site walk, the team devised a list of safety issues that serve as contributing factors subject to improvements for Cluster One:

- Lack of Roadway Lighting
- Faded Pavement Markings
- Deficiencies in Signage
- Intersection Sight Distance

- Pedestrian Accommodations and Access

Safety Issue #1. Inadequate Roadway Lighting

Observation

During the site walk, it was noted that roadway lighting is currently present at the intersections of Maple Avenue, Bridge Street and Wheelock Street. But no lighting is present anywhere else in between these intersections or beyond. The lack of lighting elsewhere throughout the cluster can serve as a contributing factor to the nine crashes that took place at nighttime within this segment. It should also be noted that all of the 4 single vehicle crashes involving animal crossings took place at nighttime. With limited lighting, drivers can easily drift away from the travel lane to either collide with a fixed object on the side of the road or veer off beyond the roadway centerline to either sideswipe or collide head-on with a vehicle in the opposite direction. The crash records indicate a total of 5 crashes of these types mentioned, in which one of those crashes took place at nighttime and could potentially affiliate with the lack of lighting on the roadway. There are a few additional utility poles along this roadway section with no roadway lighting.



Image 4: Utility Poles Along Route 2, East of Wheelock Street

Enhancement

1. Evaluate the feasibility to implement any additional lighting to the other remaining utility poles beyond the intersections to make visibility more frequent for drivers.
2. Implement a more effective type of lighting that fosters LED power to provide a more durable way of enhancing the visibility of the roadway for drivers.
3. Improve pavement marking reflectivity, sign reflectivity, and replace guardrail reflectors as needed to provide more visual guidance in addition to the street lighting.

Safety Issue #2. Faded Pavement Markings

Observations

Striping was faded throughout various sections within this cluster. East of Holmes Avenue (East), shoulder markings on the north side of the road were worn down and contained missing sections. The double-yellow centerline also had some faded sections scattered throughout this section of roadway. Stop bars at all of the side street approaches were faded too. As with insufficient lighting, faded or missing markings can lead to driver confusion and cause them to veer off the side of the road or into the opposite travel lane, as reflected by the 11 single vehicle crashes taking place on the side of the road and the 5 head-on or sideswipe crashes taking place near the center of the road.



Image 5: Faded Shoulder Markings East of Wheelock Street

Enhancements

1. Implement new wet-retroreflective or thermoplastic pavement markings with in-pavement reflectors to the double-yellow centerline and shoulders to serve as visual guidance for drivers navigating throughout this section of roadway.
2. Install rumble strips on the shoulders and double yellow centerline to increase driver awareness on remaining in the correct travel lane.
3. Restripe the stop bars and ensure that it's positioned at a safe location that can foster adequate sight distance for drivers turning onto Route 2.

Safety Issue #3. Sign Deficiencies

Observations

There were a few miscellaneous signs that were faded, which can be less noticeable for drivers. As depicted in Image 6, the R5-2 signs on the two assemblies restricting heavy truck access on Bridge Street are significantly faded to the point where the red “Do Not Enter” symbol over the truck logo is barely visible. The intersection warning sign on Route 2 west of Maple Avenue is also not compliant with the MUTCD and is outdated as well. It should also be noted that all other signs in this corridor are not retroreflective, which can make it difficult for drivers to take notice and respond promptly in a safe manner, especially at night.



Image 6: R5-2 signs on Bridge Street

The street name signs on each of the side street approaches are also sized improperly at dimensions that's smaller than that of the required MUTCD standard for D3-1 signs. Signs of that particular size will be less noticeable to drivers, which can result in driver confusion with interpreting the correct street to turn onto and delayed reactions, resulting in last second turns and rear-end collisions. There were two rear-end collisions taking place at the intersection of Route 2 and Maple Avenue.

Lastly, there is also a lack of warning signage for potential deer crossings, which can potentially affiliate to the four nighttime, single vehicle crashes involving animal crossings within this cluster.

Enhancements

1. Replace old and faded signage with new signs that are compliant with the MUTCD and are retroreflective to be more noticeable for oncoming drivers.
2. Remove all street name signs and install new signs that are sized at the proper dimensions with respect to the MUTCD to make drivers more aware of any oncoming side streets.
3. Install additional advanced deer crossing warning signs to encourage drivers to operate with increased awareness of animal crossings throughout the corridor.

4. Install additional advanced intersection warning signs at appropriate locations to alert drivers of any oncoming side streets to be on the lookout for.

Safety Issue #4. Intersection Sight Distance

Observations

At the eastern corner of the Bridge Street Approach to Route 2, there is a recreational sign assembly for the New England Trail that obstructs the line of sight for drivers looking east on Route 2 to the right. The constraints on sight distance makes it more difficult for drivers to safely turn onto Route 2, with the risk of impeding the travel path of any oncoming vehicle travelling on Route 2. There is also a vertical curve adjacent to the Bridge Street/Holmes Avenue intersection that strictly limits the driver's line of sight to its crest when looking west from either the Bridge Street or Holmes Avenue (West) approach.



Image 7: New England Trail Sign Assembly near the Bridge Street Stop bar

It should also be noted that the Holmes Avenue approaches intersect Route 2 at very skewed angles, which also makes it difficult for drivers to see far along Route 2 in a certain direction and forces them to make either a sharp left or right turn depending on which approach they are on.

Although Wheelock Street intersects Route 2 at a right angle, its sight distance is also limited by a sharp horizontal curve along Route 2 located a few hundred feet to the east.

Enhancements

1. Coordinate with MassDOT to relocate the New England Trail Crossing Sign to the other side of the Bridge Street approach to minimize any obstructions on sight distance.
2. Close off the western approach of Holmes Avenue and redesign the geometry alignment of the eastern approach of Holmes Avenue so that it intersects Route 2 at a more perpendicular angle; this will improve sight distance on both sides.
3. Realign Holmes Avenue to intersect with Wheelock Street to accommodate more uniform traffic flow and less conflict from vehicles turning from closely spaced side street approaches.
4. Modify the vertical crest curve on Route 2 west of Bridge Street to make it more aligned and level with the other vertical roadway profiles adjacent to it.
5. Trim down vegetation and cut down some hillside to remove all obstructions that may inhibit sight distance from various approaches.
6. Relocate any utility poles that may obstruct sight distance.

Safety Issue #5. Pedestrians Accommodations and Access

Observations

The Bridge Street/Holmes Avenue intersection at Route 2 serves as a pedestrian crossing location for thru hikers making use of the New England Trail, which runs along Bridge Street and crosses over Route 2 onto Holmes Avenue. Although no pedestrian crashes occurred in this cluster, Route 2 is a very difficult roadway for pedestrians to cross due to the high vehicular speeds, along with the lack of crosswalks and warning signage for pedestrian crossings.



Image 8: Pedestrian Crossing Location to the New England Trail

Pedestrian activity is also frequented at the Farley Ledges parking lot providing access to the Rattlesnake Trail, which is located further west of Maple Avenue. When parking gets overflowed, pedestrians have to walk on the side of Route 2.

Enhancements

1. Provide shuttle services to transport any recreational hikers to/from any trailheads to prevent any pedestrian activity on Route 2 and to minimize any parking overflow on any of the trailhead parking lots.
2. Expand the existing parking lot at Farley Ledges Trailhead to minimize any overflow parking along Route 2, further west of Maple Avenue.
3. Evaluate the feasibility of accommodating two additional bus stops for Franklin Regional Transportation Authority (FRTA) Bus No. 32.
4. Evaluate installing a shared use path along Route 2 to keep pedestrians and cyclists away from vehicle traffic.
5. Establish a multi-use path across the Wendell Town border to provide a safer alternative route for pedestrians and cyclists travelling to/from Erving Center.
6. Under the condition that the western approach of Holmes Avenue is closed off, install a sidewalk along the closed stretch in addition to a crosswalk between Bridge Street and Holmes Avenue (West) to provide safe pedestrian access.
7. Evaluate implementing a Pedestrian Hybrid Beacon (PHB) or Rectangular Rapid-Flashing Beacon (RRFB) to increase pedestrian safety at newly marked crosswalk locations.

Audit Observations and Potential Safety Enhancements: Route 2 near Mile Marker 62

The RSA team also presented and discussed Cluster Two, which comprised of a total of 16 crashes in this cluster. Six of the crashes resulted in non-fatal injuries and four of the crashes took place at nighttime. There were 15 single vehicle crashes and one sideswipe collision, which is expected since there are no side streets present in this roadway section.

Based on the Discussion and Site Walk, the team devised a list of safety deficiencies for this cluster location as follows:

- Lack of Roadway Lighting
- Roadway Confinement
- Deficiencies in Signage
- Faded Pavement Markings

The following sections provide further details on each of the safety issues mentioned and how it represents a contributing factor to the high number of crashes present along this roadway section. A list of potential solutions is also provided to address the existing safety issues and enhance the safety of the roadway.

Safety Issue #1. Inadequate Roadway Lighting

Observation

During the site walk, there was no roadway lighting present for most of this roadway section due to the lack of space available to install utility poles. The lack of lighting throughout the cluster can serve as a contributing factor to four crashes that took place at nighttime, constituting 25% of the total crashes within this cluster. There are a few additional utility poles located at both ends of this roadway section with no roadway lighting mounted on it.

Enhancement

1. Identify and evaluate any feasible areas to propose utility poles for additional roadway lighting.
2. Install roadway lighting at any other existing utility poles residing on this roadway section to enhance the visibility of any roadway sections that are lacking in it.
3. Implement a more effective type of lighting that fosters LED power to provide a more durable way of enhancing the visibility of the roadway for drivers.



Image 9: Route 2 Section with No Utility Poles

4. Improve pavement marking reflectivity, sign reflectivity and replace guardrail reflectors as needed.

Safety Issue #2. Roadway Confinement

Observations

Along various sections of this roadway, the shoulders are narrower to the point where there is nearly no buffer space between the shoulder marking and the edge of roadway. Without a safe buffer space, any vehicle that veers off beyond the shoulder is immediately at risk of striking a fixed object, which can comprise of guardrail, ditches, or trees. In contrast to other sections of Route 2, this cluster has a lot of steeper side slopes located just beyond the north side of the roadway, increasing the chances of impact to occur when veering off beyond the shoulders. There were 9 crashes within this cluster that involved vehicles veering off to the side of the road, in which 8 of those crashes took place on the north side of the roadway. The town also reported a lot of trees that have also fallen down onto various section of this roadway, resulting in traffic backups and one single vehicle collision with a fallen tree.



Image 10: Narrow Shoulders along Route 2

Enhancements

1. Identify available space on the north side of Route 2 to widen the roadway cross section and accommodate shoulders ranging from 5 to 7 feet wide when possible.
2. Trim and cut down any trees that are at a distance close enough to create an impedance on the roadway.
3. Repave the gravel pull off areas and make it at grade with the roadway to accommodate safer transitions for vehicle pulling into and out from Route 2.

Safety Issue #3. Sign Deficiencies

Observations

None of the signs in this corridor are retroreflective, which makes it difficult for drivers to take notice and respond accordingly in a safe manner. Without the visibility of essential warning and regulatory signs, drivers will not be aware of any upcoming road conditions to watch out for, especially with the high amount of animal crossings occurring at night.

Due to the remoteness of this section of roadway, the team also noticed a lack of mile marker signs present. The lack of reference points can make it difficult for emergency responders to easily navigate the road and reach their destination safely in time.



Image 11: Existing signs Oriented Sideways

Towards the eastern end of this section, it was noted that some of the No Passing zone signs were placed at incorrect locations. This can put drivers at risk for a head on collision if they end up passing a car at an inopportune time.

The audit team also took note of the lack of chevron signs along curved sections, which can startle drivers when there is no visual warning to make them proceed with caution through dangerous curves adjacent to this cluster.

Lastly, there were some concerns raised on whether the existing school bus stop signs were placed at proper locations and if there was a sufficient amount.

Enhancements

1. Replace old and faded signs with new signs that are compliant with the MUTCD and are retroreflective to be more noticeable for oncoming drivers.
2. Replace the current Passing Zone signs with new ones installed at proper locations based on AASHTO guidelines on passing sight distance and from the MUTCD, so that drivers can be properly informed on the correct areas that allow for passing.
3. Install additional Mile Marker Signs to act as reference markers for emergency responders.
4. Inspect all school bus stop signs to confirm that it's been placed at a proper location and at a safe distance from any sharp curves nearby.

Safety Issue #4. Faded Pavement Markings

Observations

Although the striping is not as faded in this roadway section, the lack of retroreflectivity on the pavement markings strictly limits the visibility of drivers and their ability to operate safely within their respective travel lanes. As discussed earlier on roadway confinement, the shoulder pavement lines are positioned close to the edge of roadway at various locations, increasing the chances for a vehicle to collide into a fixed object when encroaching just beyond the shoulder striping. The deficiencies in the roadway striping can also contribute to the nine single vehicle crashes that resulted from drivers veering off the road.



Image 12: Faded double-yellow centerline along Route 2 near MM 62.

Enhancements

1. Restripe the corridor with new wet-reflective or thermoplastic pavement markings that includes in-pavement reflectors to visually guide drivers into their respective lanes.

2. Install rumble strips on the shoulders and double yellow centerline to increase driver awareness on remaining in the correct travel lane.

Audit Observations and Potential Safety Enhancements: Route 2 near Mountain Road

The RSA presentation on Cluster Three addressed a total of 11 crashes, in which three crashes resulted in non-fatal injuries and three crashes took place at night. The majority of the crashes comprised of 9 single vehicle collisions, which tend to occur in the westbound direction. The remaining two crashes comprising of two rear-end collisions taking place at the intersection of Mountain Road.

Based on the discussion and observations from the site walk, the team came up with the following safety issues present on this section of roadway:

- Lack of Roadway Lighting
- Roadway Confinement
- Drainage Issues and Stormwater Runoff
- Faded Pavement Markings
- Deficiencies in Signage
- Intersection Sight Distance
- Pedestrian Accommodations and Access

The following sections provide further details on each of the safety issues mentioned and how it represents a contributing factor to the high number of crashes present along this roadway section. A list of potential solutions is also provided to address the existing safety issues and enhance the safety of the roadway.

Safety Issue #1. Inadequate Roadway Lighting

Observation

During the site walk, there was only one streetlight mounted on the utility pole adjacent to the Mountain Road approach. There is no street lighting present in all other areas on this roadway stretch despite the high number of utility poles. As discussed, a lack of roadway lighting can increase driver confusion and the potential to stray away from the travel lane, which can affiliate to 45% (5 crashes) of the total crashes involving single vehicle crashes veering off on the north side of the Route 2 west of Mountain Road. As noted in Appendix C, there were six total crashes taking

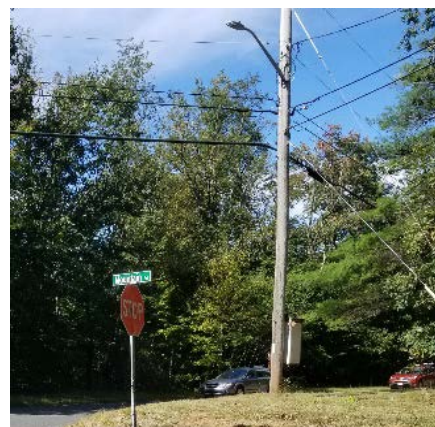


Image 13: The Lone Roadway Light at Mountain Road

place on both sides of Route 2 along scattered locations within the cluster where limited lighting was apparent.

Enhancement

1. Evaluate the feasibility to install roadway lighting on any of the other existing utility poles or install additional utility poles in the area outside of the Mountain Road intersection for enhancing visibility to drivers.
2. Implement a more effective type of lighting that fosters LED power to provide a more durable way of enhancing the visibility of the roadway for drivers.

Safety Issue #2. Roadway Confinement

Observations

The roadway shoulder narrows down to a width of less than one foot on both sides of this roadway section, providing minimal space between the shoulder lines and the edge of roadway. Any vehicle that veers off the shoulders are in danger of immediately striking a fixed object, as reflected by the six single vehicle crashes mentioned previously. Neither are there any chevrons to provide proper warning to drivers navigating through sharp horizontal curves. The majority of the single vehicle crashes (5 crashes) tend to affiliate with fixed objects such as guardrails and utility poles.

Enhancements

1. Identify available space to widen the roadway and accommodate shoulders of a larger width along the Route 2 section parallel to Gary Street.
2. Install additional chevron signs to warn and guide drivers to proceed with caution through sections with swift changes in horizontal curvature.
3. In addition to the roadway widening, construct a retaining wall between Gary Street and Route 2 to prevent any slope runoff and to create a stable barrier between the two streets.
4. Trim down any trees and remove any fixed objects that are in danger of falling into the roadway.



Image 14: Narrow Shoulders along Route 2 West of Mountain Road

Safety Issue #3. Drainage Issues and Stormwater Runoff

Observations

It has been reported that subsurface water tends to seep into the road after a long rainstorm in areas along Route 2 west of the Mountain Road intersection. As another possible contributing factor to the five single vehicle crashes occurring on the north side of the roadway, the presence of water and the limits on drainage can cause vehicles to lose traction on the road and veer off from the travel lane.

Enhancements

1. Inspect all pavement areas along the critical spillover areas to confirm that there are enough catch basins present to drain water properly; or implement more catch basins if there's not enough.
2. Adjust the grading of the roadside slope and the roadway to minimize any possibility of water seeping onto Route 2.

Safety Issue #4. Faded Pavement Markings

Observations

The striping for shoulders and double-yellow centerline is faded along various locations along this corridor. As discussed earlier on roadway confinement, the shoulder pavement lines are positioned close to the edge of roadway at various locations. The deficiencies in the roadway striping can also serve as a contributing factor to those six single vehicle crashes that occurred beyond the edge of the roadway.



Image 15: Faded double-yellow centerline along Route 2 East of Mountain Road

Enhancements

1. Restripe the corridor with new retroreflective pavement markings that's either of the wet-reflective or thermoplastic type to visually guide drivers into their own respective lane.
2. Install rumble strips on the shoulders and double yellow centerline to increase driver awareness on remaining in the correct travel lane.
3. Replace any old guardrail reflectors as needed to enhance the visibility of the roadway.

Safety Issue #5. Sign Deficiencies

Observations

None of the signs in this corridor are retroreflective, which makes it difficult for drivers to take notice and respond accordingly in a safe manner. Without the visibility of essential warning and regulatory signs, drivers will not be aware of upcoming roadway conditions.

The street name sign for Mountain Road is also designed at a size that is smaller than the D3-1 dimension requirements from the MUTCD. Street name signs designed at that small of a size can make it difficult for drivers to recognize what it reads. The street name sign for Gary Street is also at a substandard size and was seen lying on the ground during the site walk. Street name signs subject to these conditions can result in delayed driver reactions,



Image 16: Temporary Sign Assembly for Truck Restrictions on Mountain Road

sudden turns and rear-end collisions.

The audit team also took note of the lack of chevron signs along curved sections, which startle drivers when there is no visual warning to make them proceed with caution through dangerous curves within this cluster.

The team also noticed that the only warning signage for restricting trucks on Mountain Road was a temporary, wooden sign assembly with an R5-2 panel. No permanent signs of that type are currently present.

Lastly, with the 45 MPH to 35 MPH speed reduction, there is also a lack of signs warning drivers to operate more conservatively in the eastbound direction when heading towards Erving Center. Without these signs, drivers operating at higher speeds can have trouble slowing down soon enough when approaching Erving Center where there are pedestrian crossings.

Enhancements

1. Replace old and faded signage with new signs that are compliant with the MUTCD and are retroreflective to be more noticeable for oncoming drivers.
2. Remove the existing street name signs and install new D3-1 signs for Mountain Road and Gary Street on separate posts to make drivers more aware of upcoming side streets.
3. Install a permanent R5-2 (No Trucks) sign assembly for restricting trucks and remove the temporary assembly to emphasize the restriction of trucks on Mountain Road.
4. Install additional chevron alignment signs to warn and guide drivers to proceed with caution through segments with swift changes in horizontal alignment.
5. Install W3-5 warning signage to provide drivers an advanced notice of a lower speed limit section and to encourage lower speeds when heading to Erving Center in the eastbound direction.

Safety Issue #6. Intersection Sight Distance

Observations

At the Mountain Road intersection approach to Route 2, the team took note of any obstructions and features that served as a limiting factor for the intersection sight distance. The stop bar along Mountain Road is placed far back from the Route 2 edge of travel way, making it very difficult for drivers to see far along Route 2 in either direction. Other obstructions on sight distance included trees and utility poles. Sight distance constraints can lead to unsafe turning movements from minor streets, especially if the driver is unable to notice any oncoming vehicles travelling on Route 2 when taking a turn.



Image 17: Limited Sight Distance when Looking West from the Stop Bar on Mountain Road

Enhancements

1. Restripe the stop bar at a location closer to the edge of travel way to increase the line of sight for drivers turning out from Mountain Road and to comply with the requirements of the latest AASHTO Standards for Intersection Sight Distance.
2. Cut down any vegetation, trees and high ground that may inhibit sight distance from various approaches.
3. Coordinate with National Grid to relocate any utility poles that may obstruct sight distance.

Safety Issue #7. Pedestrian Accommodations and Access

Observations

The town administration reported frequent pedestrian and bicycle activity along Route 2 in this section due to its proximity to Erving Center. Although none of the reported crashes involved pedestrians or cyclists, any foot travel along Route 2 is dangerous due to the narrow shoulders and limited roadway lighting. A crash involving a pedestrian/cyclist can be fatal or result in a significant injury.

Enhancements

1. Install a pedestrian path between Gary Street and Erving Center to detour pedestrians/cyclists away from Route 2.
2. Implement a detour through Blue Heron Road as a safer alternative route for pedestrians and cyclists to travel to/from Erving Center while avoiding Route 2.

Summary of Road Safety Audit

Green conducted the Road Safety Audit meeting to compile and document all necessary information on existing safety issues and future enhancements for Route 2 from MM 60 to MM 62.9.

As summarized by the breakdowns shown in Table 2, all improvements vary in terms of the amount of time and cost it takes to implement, along with the amount of benefit to safety. The required cost and the amount of safety payoff towards crash reduction will be assessed to determine the effectiveness and priority of each improvement. All estimates are based on engineering judgement and typical construction practices.

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

All observed safety issues and potential enhancements from the previous sections are summarized in Table 3.

Table 3: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Lack of Lighting	Evaluate the feasibility of using available utility poles to provide lighting	High	Short-Term	Medium	Town of Erving
	Coordinate with utility companies to install additional street lighting	High	Mid-Term	Medium	Town of Erving
	Implement brighter LED lighting	High	Mid-Term	Medium	Town of Erving
	Improve pavement marking and sign reflectivity; replace all guardrail reflectors with new ones	Medium	Short-Term	Medium	MassDOT
High Speeds	Evaluate the feasibility of directed patrol at the sections of the road where drivers tend to speed above posted limits	Medium	Short-Term	Low	Town of Erving Police Department
	Install curve or narrow road warning signs to alert drivers of dangerous conditions requiring slower speeds	Medium	Short-Term	Low	MassDOT
Faded Pavement Markings	Implement new retroreflective striping with in-pavement reflectors to the centerlines and shoulders along the road through the use of wet-reflective or thermoplastic pavement types.	Medium	Mid-Term	Medium	MassDOT
	Restripe and reposition stop lines at side streets to ensure better sight distance	High	Short-Term	Low	MassDOT
	Incorporate rumble strips along the new pavement markings to keep drivers alert	High	Mid-term	Low	MassDOT
Poor Pavement Conditions	Repave entire roadway	Medium	Long-Term	Medium	MassDOT
	Apply high-friction surface treatment if speeding continues to be an issue along this segment	Medium	Mid-Term	Medium	MassDOT

Road Safety Audit—Site Location Description
 Prepared by company

Roadway Confinement	Widen roadway and provide 5 ft shoulders throughout the segment	High	Long-Term	Medium	MassDOT
Lack of Multi-Modal Accommodations	Widen shoulders to pull bus completely out of travel lanes and consider adding bus stops and pullout areas	Low	Long-Term	Medium	MassDOT
	Formalize crossings (especially for frequent hikers) by adding crosswalks and sidewalks	Medium	Long-Term	Medium	MassDOT
	Evaluate installing a shared-use path along Route 2 and/or on Wendell side to accommodate bikers heading to/from Erving Center	Low	Long-Term	Medium	Town of Erving
	Add retroreflective school bus warning signs as needed	Medium	Short-Term	Low	MassDOT
	Construct PHB's or RRFB's at frequent pedestrian crossings to provide warnings for sudden stops and gradual reduction in speed in advance of signal	Medium	Long-Term	High	MassDOT
	Cut hill side along some sections to provide more sight distance	High	Long-Term	High	MassDOT
Insufficient Sight Distance	Relocate utility poles blocking sight distance	Medium	Short-Term	Low	Town of Erving
	Relocate signs blocking sight distance	Medium	Short-Term	Low	MassDOT
	Re-align the geometry of any minor streets with skewed approaches to intersect Route 2 at a more perpendicular angle.	High	Long-Term	High	MassDOT
	Clear out vegetation blocking sight distance	Medium	Short-Term	Low	MassDOT
	Replace all street name signs and other outdated/worn-down signs with bigger retroreflective signs complying with standards	Low	Short-Term	Low	Town of Erving

Road Safety Audit—Site Location Description
 Prepared by company

	Install Chevron Markers along dangerous curves	High	Short-Term	Low	MassDOT
Animal-Crossing Related Accidents	Install additional deer/bear crossing warnings signage	Low	Short-Term	Low	MassDOT
Distractions	Provide wide shoulders along the segments causing distractions, such as stretch of road adjacent to Millers River	High	Long-Term	Medium	MassDOT
	Pave pullout areas or grade gravel to match new road level	Medium	Short-Term	Low	MassDOT
Falling Trees	Implement selective tree trimming, especially where slopes are affected while still preserving the cultural significance and scenic character of the area	Medium	Short-Term	Low	MassDOT
Lack of Noise Markers	Install rumble strips along the road to alert inattentive drivers of potential danger	High	Long-Term	High	MassDOT
Lack of Reference Points	Add mile marker signs along the road to serve as reference in case of emergencies	Low	Short-Term	Low	MassDOT
Unclear Passing Zones	Redefine No-Passing Zones based on available passing sight distance	High	Mid-Term	Medium	MassDOT
	Add appropriate signage and pavement markings to make it clear to drivers the limits over which passing is not permitted	High	Mid-Term	Medium	MassDOT
Inadequate Truck Guidance	Add No Trucks signs along side streets to inform drivers of no available destination for trucks along these roads	Low	Short-Term	Low	Town of Erving
Poor Drainage	Evaluate drainage on site and consider adding catch basins at locations where road tends to flood	Low	Mid-Term	Medium	MassDOT

Appendix A. RSA Meeting Agenda

Agenda

Road Safety Audit

LOCATION

Meeting Location: Erving Public Library
2 Care Drive, Erving, MA 01344
October 19, 2022
10:00 AM – 3:00 PM

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

10:00 AM **Welcome and Review of Site Specific Material**

- Introductions
- Crash, Speed & Volume Summaries– provided in advance
- Existing Geometries and Conditions

11:00 AM **Visit the Site**

- Drive to Route 2, starting from MM 60 and ending at MM 62.9
- As a group, identify areas for improvement
- Break for lunch at 12:00 PM; resume site visit at 1:00 PM

2:30 PM **Post Visit Discussion / Completion of RSA**

- Discuss observations and finalize findings
- Discuss potential improvements and finalize recommendations

3:00 PM **Adjourn for the Day – but the RSA has not ended**

Instructions for Participants:

- Before attending the RSA on DATE, participants are encouraged to drive through the roadway corridor 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

Participating Audit Team Members

Date: October 19th, 2022 Location: Erving, MA

Audit Team Members	Agency/Affiliation	Email Address	Phone Number
Anni Autio, PM	MassDOT (Project Manager)	anni.h.autio@dot.state.ma.us	617-352-8024
Michelle Deng	MassDOT Traffic Safety	michelle.deng@state.ma.us	857-368-9637
Kevin Fitzgerald	MassDOT Traffic Safety	Kevin.T.fitzgerald@state.ma.us	857-368-9619
Katina Keefe	MassDOT District 2- Traffic	Katina.keefe@state.ma.us	413-320-2451
Thomas Ruta	MassDOT District 2- Project Development	thomas.ruta@state.ma.us	413-368-2067
Noah Lewis	MassDOT District 2- Traffic	Noah.u.lewis@state.ma.us	413-727-1351
Bryan Smith	Erving Town Administration	bryan.smith@erving.ma.gov	413-422-1707
Glenn McCrory	Erving Highway Superintendent	glenn.mccrory@erving.ma.gov	413-423-3500 ext. 1400
Laura Gordon	Erving Police Department	laura.gordon@erving-ma.gov	413-423-3301
Laurie Scarborough	Franklin Regional Council of Governments (FRCOG)	lscarbrough@frcog.org	413-774-3167
Wayne Waldron	Franklin Transit Management	WayneW@frcog.org	413-773-8090
Michael Perreault	Franklin Regional Transit Authority	michael@frta.org	413-774-2262 ext. 105
Corinne Tobias	Green International Affiliates, Inc.	ctobias@greenintl.com	617-519-8734
Dennis Vertiyev	Green International Affiliates, Inc.	dvertiyev@greenintl.com	
Angelica Vazquez-Diaz	Green International Affiliates, Inc.	avazquezdiaz@greenintl.com	
David Perloff	Green International Affiliates, Inc.	dperloff@greenintl.com	978-843-5219
Tatiana Kairouz	Green International Affiliates, Inc.	tkairouz@greenintl.com	

Appendix C. Detailed Crash Data



CRASH DIAGRAM

SYMBOLS		TYPE OF CRASH	SEVERITY	
→	Moving Vehicle	↔	Head on	#
←	Backing Vehicle	→	Rear End	Injury
- - -	Non-involved Vehicle	↘	Angle	#
♣	Involved Pedestrian	↻	Turning Movement	Fatal
♣	Non-involved Bicycle	↔	Sideswipe	#
♣	Involved Animal	↻	Out of Control	Property Damage Only
♣	Direction of Motion	■	Night Time Crash	
♣	Parked Vehicle			
□	Fixed Object			

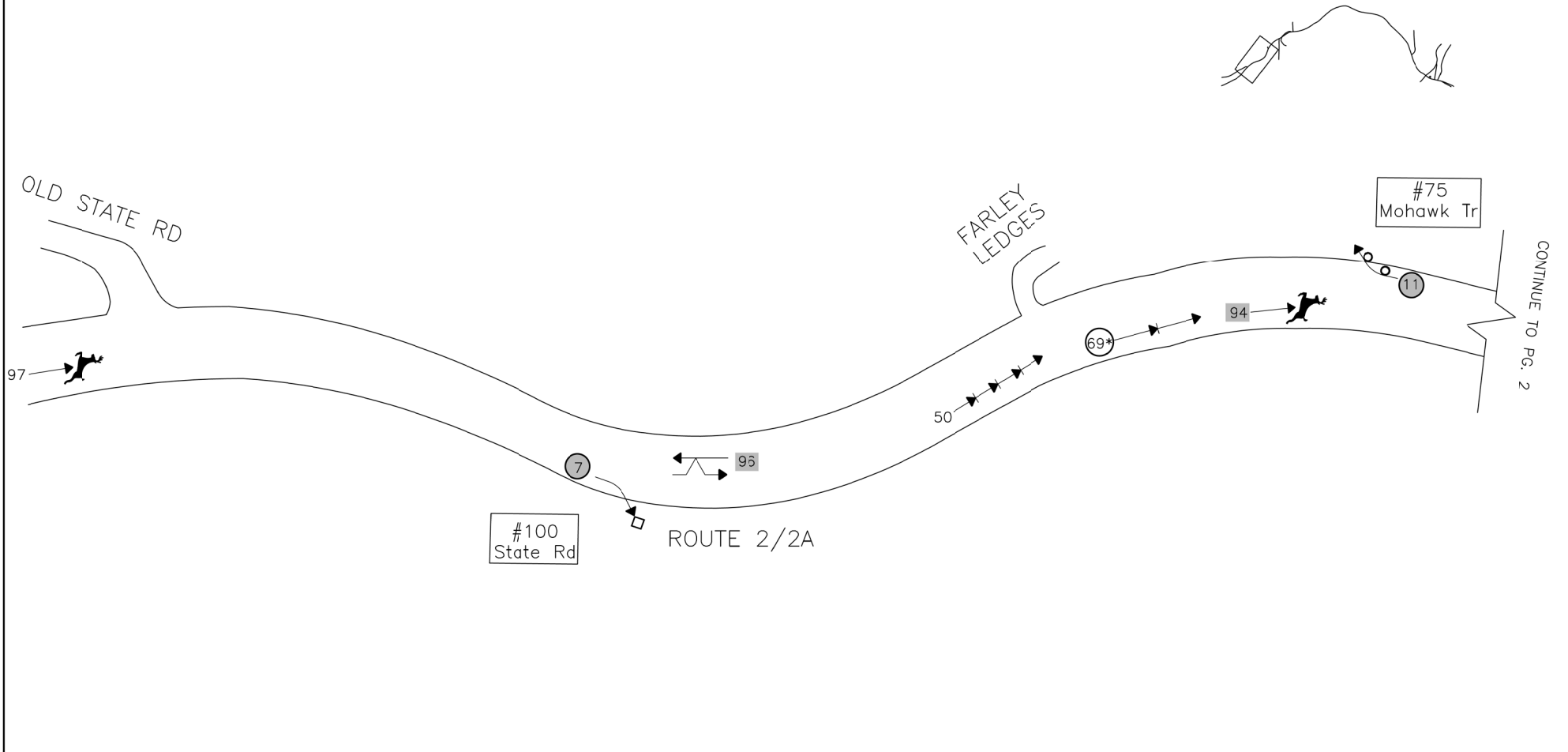
ERVING, MA
 ROUTE 2/2A FROM MM 60.0-63.6
 REGION: FRCOG

TIME PERIOD ANALYZED: 1/1/2013-12/31/2019
 SOURCE OF CRASH REPORTS: MUNICIPALITY/STATE POLICE DEPARTMENT
 DATE PREPARED: 4/7/2021
 PREPARED BY: JB

SHEET 1 OF 5



NOT TO SCALE



*Crash location approximated. See Comments for more details.



CRASH DIAGRAM

SYMBOLS		TYPE OF CRASH	SEVERITY	
→	Moving Vehicle	↔	Head on	#
←	Backing Vehicle	→	Rear End	Injury
- - -	Non-involved Vehicle	↘	Angle	#
♣	Involved Pedestrian	↪	Turning Movement	Fatal
♣	Non-involved Pedestrian	↪	Sideswipe	#
♣	Involved Bicycle	↪	Out of Control	Property Damage Only
♣	Non-involved Bicycle	⊠	Night Time Crash	
♣	Involved Animal			
♣	Non-involved Animal			
→	Direction of Motion			
▣	Parked Vehicle			
▣	Fixed Object			

ERVING, MA

ROUTE 2/2A FROM MM 60.0-63.6

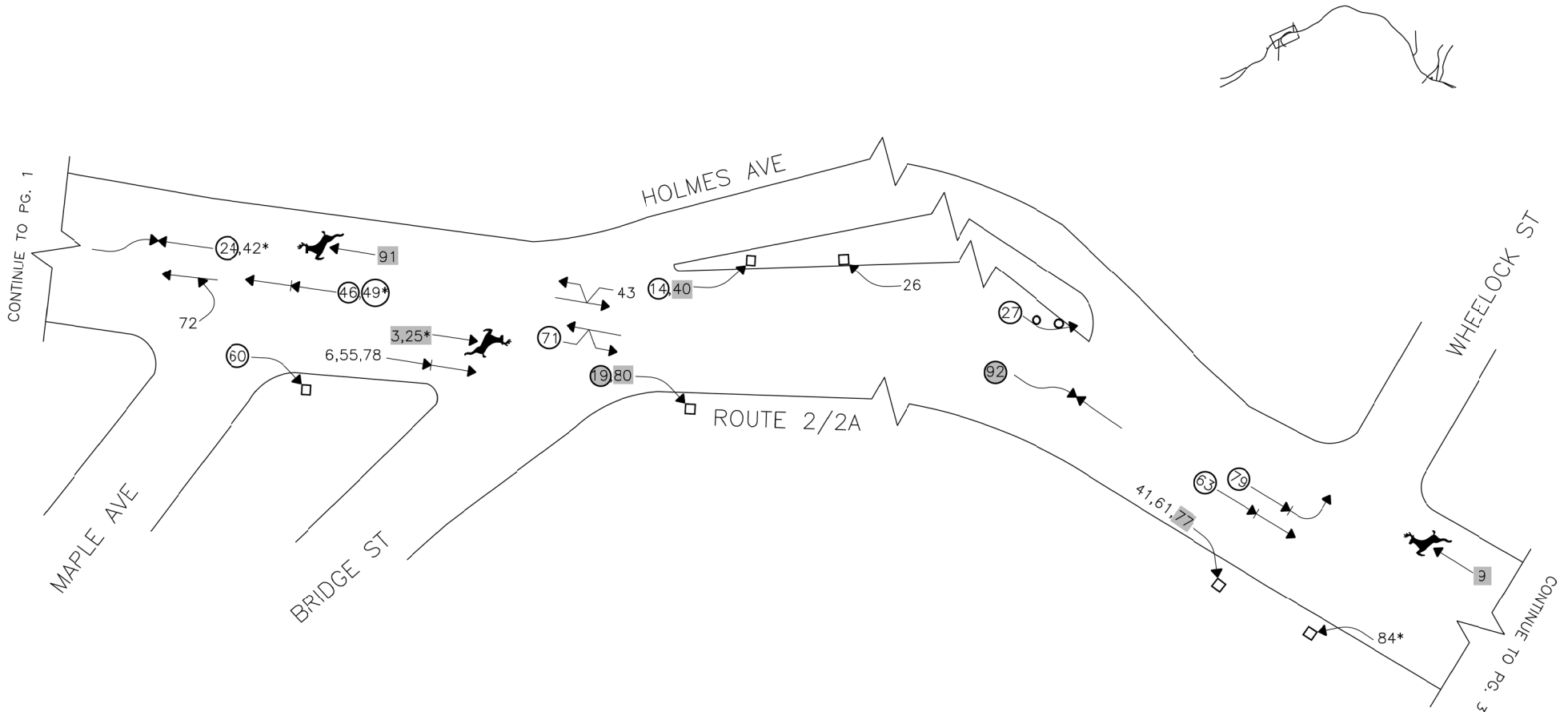
REGION: FRCOG

TIME PERIOD ANALYZED: 1/1/2013-12/31/2019
 SOURCE OF CRASH REPORTS: MUNICIPALITY/STATE POLICE DEPARTMENT
 DATE PREPARED: 4/7/2021
 PREPARED BY: JB

SHEET 2 OF 5



NOT TO SCALE



*Crash location approximated. See Comments for more details.



CRASH DIAGRAM

SYMBOLS		TYPE OF CRASH	SEVERITY
→	Moving Vehicle	↔	Head on
←	Backing Vehicle	→	Rear End
- - -	Non-Involved Vehicle	↘	Angle
Involved	Non-Involved	↻	Turning Movement
🚶	Pedestrian	↔	Sideswipe
🚲	Bicycle	🌀	Out of Control
🐾	Animal	🌙	Night Time Crash
→	Direction of Motion	⊘	Property Damage Only
🚗	Parked Vehicle		
☐	Fixed Object		

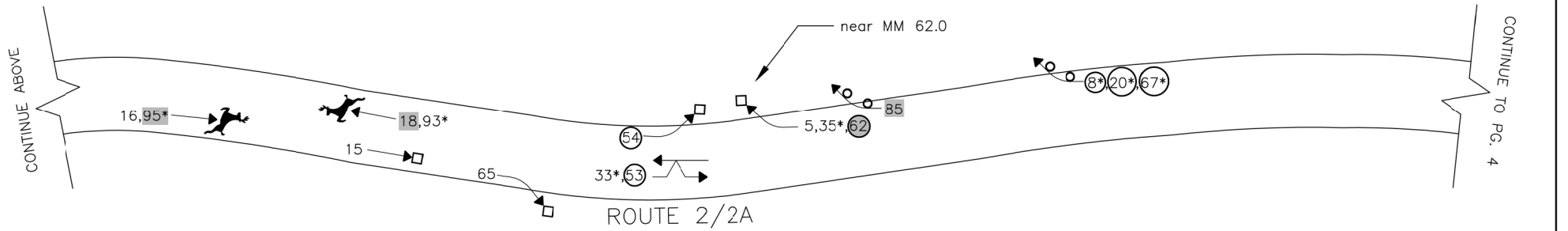
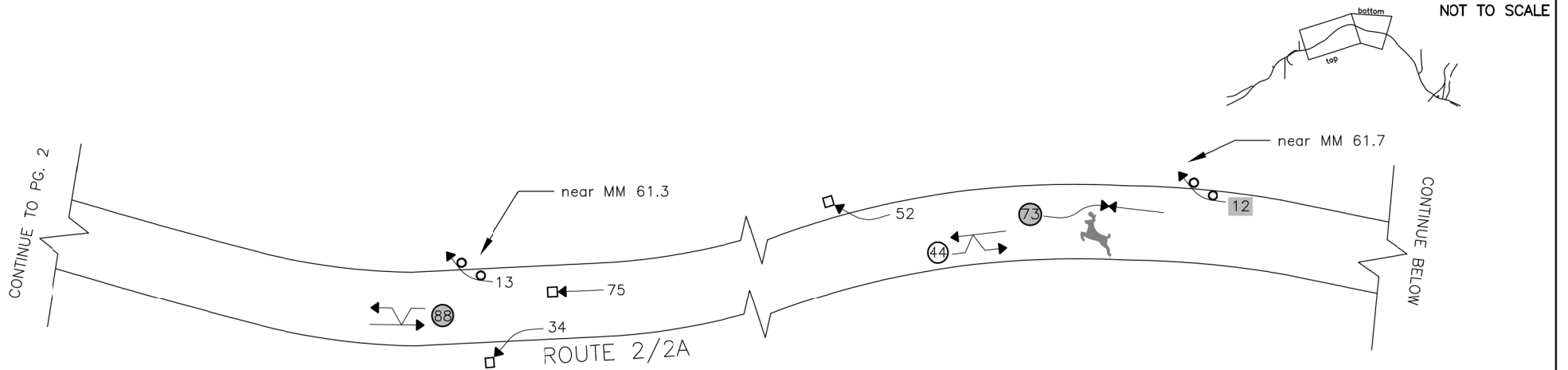
ERVING, MA

ROUTE 2/2A FROM MM 60.0-63.6

REGION: FRCOG

TIME PERIOD ANALYZED: 1/1/2013-12/31/2019
 SOURCE OF CRASH REPORTS: MUNICIPALITY/STATE POLICE DEPARTMENT
 DATE PREPARED: 4/7/2021
 PREPARED BY: JB

SHEET 3 OF 5



*Crash location approximated. See Comments for more details.



CRASH DIAGRAM

SYMBOLS		TYPE OF CRASH	SEVERITY
	Moving Vehicle		Head on
	Backing Vehicle		Rear End
	Non-involved Vehicle		Angle
	Involved Pedestrian		Turning Movement
	Non-involved Pedestrian		Sideswipe
	Involved Bicycle		Out of Control
	Non-involved Bicycle		Night Time Crash
	Involved Animal		
	Non-involved Animal		
	Involved Parked Vehicle		
	Non-involved Parked Vehicle		
	Involved Fixed Object		
	Non-involved Fixed Object		
			Injury
			Fatal
			Property Damage Only

ERVING, MA

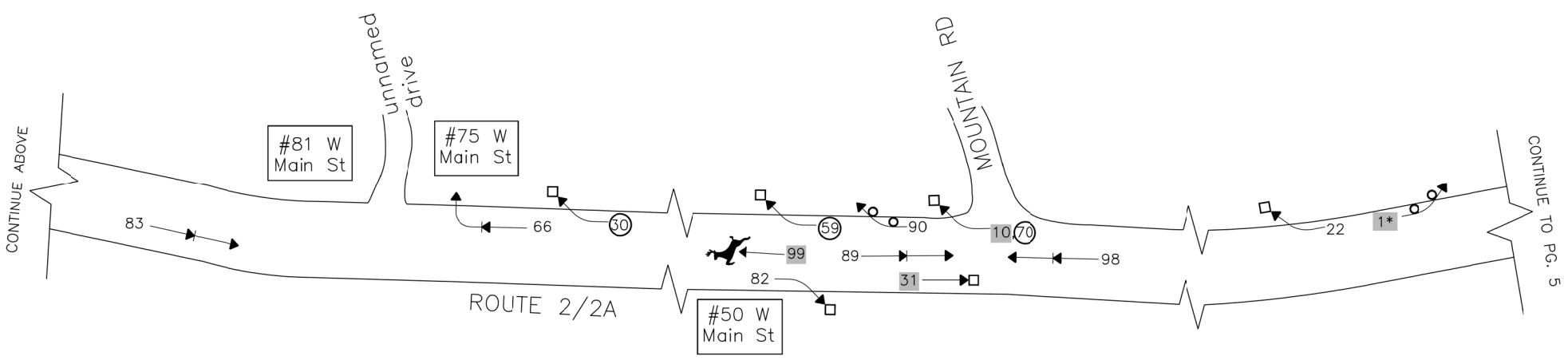
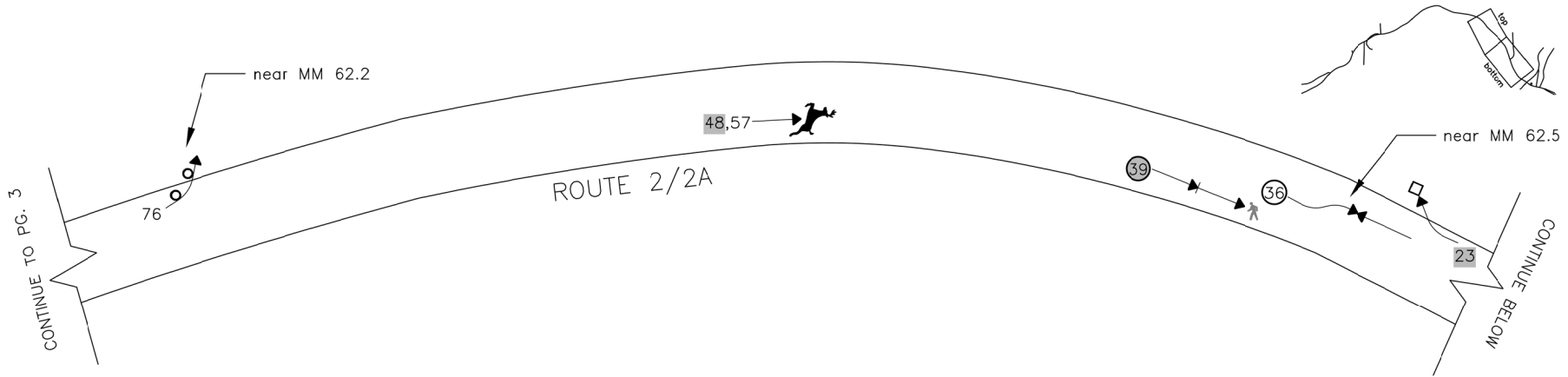
ROUTE 2/2A FROM MM 60.0-63.6

REGION: FRCOG

TIME PERIOD ANALYZED: 1/1/2013-12/31/2019
 SOURCE OF CRASH REPORTS: MUNICIPALITY/STATE POLICE DEPARTMENT
 DATE PREPARED: 4/7/2021
 PREPARED BY: JB

SHEET 4 OF 5

NOT TO SCALE



*Crash location approximated. See Comments for more details.



CRASH DIAGRAM

SYMBOLS		TYPE OF CRASH		SEVERITY
	Moving Vehicle		Head on	#
	Backing Vehicle		Rear End	Injury
	Non-involved Vehicle		Angle	#
	Involved Pedestrian		Turning Movement	Fatal
	Non-involved Pedestrian		Sideswipe	#
	Involved Bicycle		Out of Control	Property Damage Only
	Non-involved Bicycle		Night Time Crash	
	Involved Animal			
	Non-involved Animal			
	Direction of Motion			
	Parked Vehicle			
	Fixed Object			

ERVING, MA

ROUTE 2/2A FROM MM 60.0-63.6

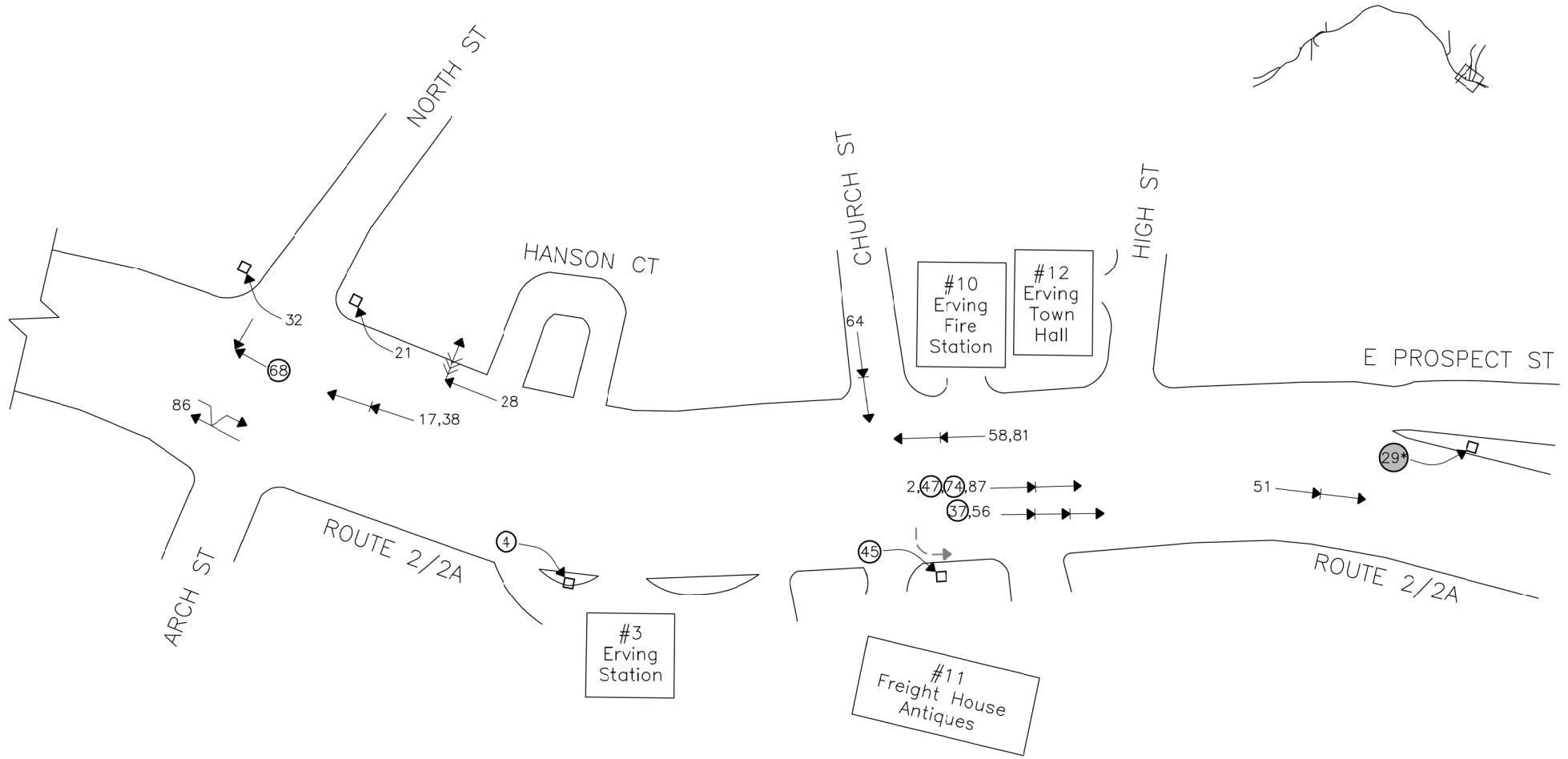
REGION: FRCOG

TIME PERIOD ANALYZED: 1/1/2013-12/31/2019
 SOURCE OF CRASH REPORTS: MUNICIPALITY/STATE POLICE DEPARTMENT
 DATE PREPARED: 4/7/2021
 PREPARED BY: JB

SHEET 5 OF 5



NOT TO SCALE



*Crash location approximated. See Comments for more details.

Crash Data Summary Table

Route 2/2A from MM 60.0-63.6, Erving, MA
1/1/2013-12/31/2019

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Driver Distracted By	D1 Age	D2 Age	D3 Age	D4 Age	Comments
#	mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	Type	#	#	#	#	
1*	01/29/13	Tuesday	11:00 PM	Single vehicle crash	Dark - roadway not lighted	Sleet, hail, freezing rain	Ice	Driving too fast for conditions		49				MV1 was traveling EB toward Erving Center. While going downhill and into a horizontal curve, the driver lost control of the vehicle due to icy road conditions.
2	04/22/13	Monday	9:10 AM	Rear-end	Daylight	Clear	Dry	Inattention		50	69			MV1 was traveling EB and stopped at High St. MV2 was distracted by emergency lights and rear-ended MV1.
3	04/28/13	Sunday	8:45 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	No improper driving		65				MV1 was traveling EB near Bridge St. An animal (believed to be a bear) ran out of the woods in front of the vehicle, and MV1 struck it.
4	05/03/13	Friday	2:14 PM	Single vehicle crash	Daylight	Clear	Dry	Physical impairment		89				MV1 was traveling EB opposite Hanson Ct. The driver failed to follow the horizontal curve and struck the sign outside the Box Car Restaurant.
5	07/01/13	Monday	3:15 PM	Single vehicle crash	Daylight	Cloudy	Wet	Failure to keep in proper lane or running off road		46				MV1 was traveling WB near MM 62.0. The driver drove off the right side of the road and up an embankment.
6	08/15/13	Thursday	3:30 PM	Rear-end	Daylight	Clear	Dry	Inattention		39	60			MV2 was traveling EB and stopped to make a left onto Holmes Ave. MV1 (a tractor trailer) was unable to stop and rear-ended MV2.
[7]	10/28/13	Monday	7:29 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	Inattention		51				MV1 was traveling EB just past 100 State Rd. The driver drove off the right side of the road and struck guardrail and a utility pole.
8*	11/24/13	Sunday	8:35 AM	Single vehicle crash	Daylight	Clear	Snow	Driving too fast for conditions		58				MV1 was traveling WB along the river. The driver lost control of the vehicle and drove off the right side of the road.
9	12/30/13	Monday	4:54 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	No improper driving		31				MV1 was traveling WB near MM 61.0. A deer ran out of the woods in front of the vehicle, and MV 1 struck it.
10	01/03/14	Friday	1:30 AM	Single vehicle crash	Dark - roadway not lighted	Snow	Snow	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.		48				MV1 was traveling WB and plowing just past Mountain Rd. The driver moved over for a vehicle traveling EB and struck the guardrail.
11	01/06/14	Monday	10:42 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Ice	No improper driving		40				MV1 was traveling WB near 75 Mohawk Trail. The driver encountered black ice and lost control of the vehicle.
12	01/28/14	Tuesday	5:30 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	Fatigued/asleep		58				MV1 was traveling WB just past MM 61.7. The driver fell asleep and drove off the right side of the road, striking a ditch.
13	02/05/14	Wednesday	8:00 AM	Single vehicle crash	Daylight	Snow	Snow	Driving too fast for conditions		20				MV1 was traveling WB about 1,500' prior to MM 61.0. The driver was traveling too fast for weather conditions and lost control of the vehicle, striking the guardrail on the opposite side of the road.
14	03/02/14	Sunday	10:10 AM	Single vehicle crash	Daylight	Cloudy	Dry	Fatigued/asleep		39				MV1 was traveling EB near Bridge St. The driver fell asleep, drifting first to the right over two snowbanks before crossing the centerline and striking a tree off the opposite shoulder.
15	03/06/14	Thursday	11:20 AM	Single vehicle crash	Daylight	Clear	Dry	No improper driving		56				MV1 was traveling EB near MM 62.0. A MassDOT employee was cutting down a tree off the right side of the road. The tree fell into the road and MV1 struck it.
16	03/29/14	Saturday	8:18 AM	Single vehicle crash	Daylight	Cloudy	Wet	No improper driving		52				MV1 was traveling EB near MM 61.9. A deer ran out of the woods in front of the vehicle, and MV1 struck it.
17	04/16/14	Wednesday	7:39 AM	Rear-end	Daylight	Clear	Wet	Followed too closely		33	18			MV1 was traveling WB prior to the Box Car Restaurant (3 W Main St) when it slowed for the vehicle in front of it. MV2 was following too closely and rear-ended MV1.
18	04/21/14	Monday	10:00 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	No improper driving		70				MV1 was traveling WB just past MM 62.0. A raccoon ran out of the woods in front of the vehicle, and MV1 struck it.
19	05/09/14	Friday	8:58 PM	Single vehicle crash	Dark - roadway not lighted	Rain	Wet	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner		39				MV1 was traveling EB prior to Farley Rd (Bridge St). The driver was intoxicated and drove off the right side of the road, striking a utility pole.
20**	06/13/14	Friday	7:50 PM	Single vehicle crash	Daylight	Clear	Dry	Exceeded authorized speed limit		22				MV1 was traveling WB in the area of the river. The driver was going too fast and rolled off the right side of the road, striking a tree.
21	07/02/14	Wednesday	4:00 PM	Single vehicle crash	Daylight	Rain	Wet	Made an improper turn		57				MV1 was traveling WB and turned right onto North St. The vehicle struck the Pocket Saver building on the NE corner of the intersection.
22	09/05/14	Friday	11:00 AM	Single vehicle crash	Daylight	Clear	Dry	Fatigued/asleep		85				MV1 was traveling WB near MM 63.0. The driver fell asleep and drove off the right side of the road, striking a rock wall.

Crash Data Summary Table

Route 2/2A from MM 60.0-63.6, Erving, MA
1/1/2013-12/31/2019

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Driver Distracted By	D1 Age	D2 Age	D3 Age	D4 Age	Comments
#	mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	Type	#	#	#	#	
23	10/19/14	Sunday	2:50 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	Fatigued/asleep	Talking on hands-free electronic device	22				MV1 was traveling WB just past MM 62.5. The driver fell asleep and drove off the right side of the road, striking a rock. The vehicle then crossed the centerline twice before coming to rest in the WB shoulder.
24	10/25/14	Saturday	9:15 AM	Head on	Daylight	Clear	Dry	Fatigued/asleep		24	47	43		MV1 was traveling EB prior to Maple Ave. MV1 crossed the centerline and struck MV2 head-on. MV1 then struck MV3 traveling behind MV2.
25**	11/21/14	Friday	6:25 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	No improper driving		63				MV1 was traveling EB in the area of Farley Flats. A deer ran out of the woods in front of the vehicle, and MV1 struck it.
26	11/25/14	Tuesday	9:35 AM	Single vehicle crash	Daylight	Cloudy	Wet	Failure to keep in proper lane or running off road		21				MV1 was traveling WB just prior to Bridge St. The driver went off the right side of the road and hit an embankment.
27	12/11/14	Thursday	6:53 AM	Single vehicle crash	Dawn	Snow	Snow	Illness		59				MV1 was traveling EB between the Holmes Ave intersection. The driver had a seizure and drove off the left side of the road, hitting an embankment.
28	02/02/15	Monday	7:55 AM	Angle	Daylight	Snow	Snow	Inattention		25	34			MV2 was traveling WB in front of the Pocket Saver (5 W Main St) parking lot. MV1 was plowing the lot and backed up into the road, striking MV2.
29**	02/19/15	Thursday	9:50 PM	Single vehicle crash	Dark - lighted roadway	Clear	Ice	Driving too fast for conditions		39				MV1 was traveling EB around E Prospect St. The driver was going too fast for conditions and lost control of the vehicle, striking a snow bank on the left side of the road.
30	02/20/15	Friday	10:59 AM	Single vehicle crash	Daylight		Wet	Distracted		33				MV1 was traveling WB in front of 75 W Main St. An unknown vehicle in front of MV1 braked hard, causing the driver to swerve off the right side of the road.
31	02/23/15	Monday	7:40 PM	Single vehicle crash	Dark - roadway not lighted	Cloudy	Dry	No improper driving		23				MV1 was traveling EB near Mountain Rd. A unknown vehicle (a tractor trailer) traveling in the opposite direction threw ice onto the vehicle, causing damage.
32	05/11/15	Monday	2:30 PM	Single vehicle crash	Daylight	Clear	Dry	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner		23				MV1 was traveling WB and attempted a right turn onto North St. The vehicle slid off the road and struck the building on the NW corner of the intersection.
33**	06/07/15	Sunday	12:40 PM	Sideswipe, opposite direction	Daylight	Clear	Dry	No improper driving		Unknown	57			MV1 was traveling WB in the area of the river. An unknown vehicle going in the opposite direction sideswiped MV1.
34	07/07/15	Tuesday	10:34 AM	Single vehicle crash	Daylight	Cloudy	Dry	Fatigued/asleep		28				MV1 was traveling WB near MM 61.3. The driver fell asleep, causing the vehicle to run off the road to the right before crossing the centerline and striking guardrail.
35**	07/26/15	Sunday	3:44 PM	Single vehicle crash	Daylight	Clear	Dry	Over-correcting/over-steering		35				MV1 was traveling WB in the area of the river. The driver was going too fast and rolled off the right side of the road, striking a tree.
36	08/04/15	Tuesday	2:27 PM	Head on	Daylight	Rain	Wet	Failure to keep in proper lane or running off road		25	43			MV1 was traveling EB near MM 62.5. The driver was going too fast for condition and lost control of the vehicle, striking MV2, which was traveling WB, head-on.
37	09/03/15	Thursday	3:40 PM	Rear-end	Daylight	Clear	Dry	Followed too closely		77	19	53		MV2 and MV3 were stopped EB waiting for a vehicle to turn left onto High St. MV1 rear-ended MV2, causing MV2 to rear-end MV3.
38	10/16/15	Friday	7:21 AM	Rear-end	Daylight	Clear	Dry	Followed too closely		17	63			MV2 was traveling WB prior to North St. The vehicle slowed due to traffic and was rear-ended by MV1.
39	12/11/15	Friday	9:15 PM	Rear-end	Dark - roadway not lighted	Fog, smog, smoke	Wet	Followed too closely		47	28	Unknown		MV1 was traveling EB near MM 62.4. A pedestrian in the middle of the road was attempting to stop traffic, which caused MV1 to slow. MV2 rear-ended MV1.
40	02/15/16	Monday	11:35 PM	Single vehicle crash	Dark - lighted roadway	Snow	Snow	Driving too fast for conditions		51				MV1 was traveling EB at the W intersection of Holmes Ave. The driver struck a guardrail when attempting to turn left onto Holmes Ave due to snowy conditions.
41	03/03/16	Thursday	2:25 PM	Single vehicle crash	Daylight	Clear	Dry	Inattention		60				MV1 was traveling EB prior to Wheelock St. The vehicle drove off the right side of the road and struck a tree.
42**	04/06/16	Wednesday	6:03 AM	Head on	Daylight	Clear	Dry	Failure to keep in proper lane or running off road		47	54			MV1 was traveling EB in the area of Farley Flats. The vehicle crossed the centerline and struck MV2 head-on.
43	05/06/16	Friday	10:28 AM	Sideswipe, opposite direction	Daylight	Cloudy	Dry	Failure to keep in proper lane or running off road		58	49			MV2 was traveling WB prior to Maple Ave. The vehicle crossed the centerline and sideswiped MV1, traveling EB, on MV1's driver's side.

Crash Data Summary Table

Route 2/2A from MM 60.0-63.6, Erving, MA
1/1/2013-12/31/2019

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Driver Distracted By	D1 Age	D2 Age	D3 Age	D4 Age	Comments
#	mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	Type	#	#	#	#	
44	05/26/16	Thursday	8:57 AM	Sideswipe, opposite direction	Daylight	Clear	Dry	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner		65	38			MV2 was traveling EB near MM 61.7. The driver was intoxicated and the vehicle crossed the centerline, sideswiping MV1.
45	06/27/16	Monday	4:00 PM	Single vehicle crash	Daylight	Clear	Dry	Other improper action		29				MV1 was traveling EB opposite Church St. An unknown vehicle turned left from Church St, causing MV1 to swerve and strike a stone wall in at the Freight House.
46	08/11/16	Thursday	1:34 PM	Rear-end	Daylight	Clear	Dry	Followed too closely		55	57			MV1 was traveling WB and turning left onto Maple Ave. MV2 then rear-ended MV1.
47	08/20/16	Saturday	11:45 AM	Rear-end	Daylight	Clear	Dry	Fatigued/asleep		51	52			MV2 was traveling EB and stopped opposite High St. Operator of MV1 fell asleep rear-ended MV2.
48	10/19/16	Wednesday	1:46 AM	Single vehicle crash	Dark - roadway not lighted	Cloudy	Dry	No improper driving		34				MV1 was traveling EB just before MM 62.3 A deer ran out of the woods in front of the vehicle, and MV1 struck it.
49**	10/20/16	Thursday	8:20 AM	Rear-end	Daylight	Clear	Dry	Other improper action		23	28			MV2 was traveling WB near Farley Flats and slow due to traffic. MV1 rear-ended MV2.
50	11/19/16	Saturday	1:00 PM	Rear-end	Daylight	Clear	Dry	Failed to yield right of way		49	47	67	21	MV2, MV3, and MV4 were traveling EB and stopped at Farley Ledges. MV1 rear-ended MV2, who in turn rear-ended MV3, who in turn rear-ended MV4.
51	11/25/16	Friday	12:45 PM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	Other activity (searching, eating, personal hygiene, etc.)	23	24			MV1 was traveling EB slowed to turn left at the W intersection of E Prospect St. MV2 rear-ended MV1.
52	12/25/16	Sunday	8:30 AM	Single vehicle crash	Daylight	Clear	Ice	Driving too fast for conditions		27				MV1 was traveling WB just prior to MM 61.6. The vehicle hit black ice and slid off the right side of the road, striking a utility pole.
53	03/21/17	Tuesday	12:25 PM	Sideswipe, opposite direction	Daylight	Cloudy	Dry	Inattention		47	51			MV1, a pickup truck with a camper top in the bed, was traveling EB near MM 62.0. MV1 crossed the centerline and sideswiped MV2, traveling WB, on MV2's driver's side.
54	04/21/17	Friday	1:35 PM	Single vehicle crash	Other	Rain	Wet	Distracted	Other activity (searching, eating, personal hygiene, etc.)	24				MV1 was traveling EB near MM 62.0. The driver was distracted eating a bagel and crossed over the centerline, striking the embankment on the left side of the road.
55	05/27/17	Saturday	11:40 AM	Rear-end	Daylight	Clear	Dry	Followed too closely		20	28			MV2 was traveling EB at stopped and the intersection of Bridge St/Holmes Ave. MV1 rear-ended MV2.
56	06/01/17	Thursday	5:25 PM	Rear-end	Daylight	Clear	Dry	Followed too closely		46	39	27		MV3 was traveling EB and slowed to make a left turn onto High St. MV 2 was traveling behind MV3 and also slowed. MV1 rear-ended MV2, causing MV2 to rear-end MV3.
57	06/06/17	Tuesday	6:50 AM	Single vehicle crash	Daylight	Rain	Wet	No improper driving		35				MV1 was traveling EB just past MM 62.2. A deer ran out of the woods in front of the vehicle, and MV1 struck it.
58	08/05/17	Saturday	1:00 PM	Rear-end	Daylight	Rain	Wet	Followed too closely		51	70			MV2 was traveling WB near Erving Evangelical Church (4E Main St). MV2 stopped due to traffic and MV1 rear-ended it.
59	08/22/17	Tuesday	6:33 AM	Single vehicle crash	Daylight	Clear	Dry	Fatigued/asleep	Other activity (searching, eating, personal hygiene, etc.)	20				MV1 was traveling WB just prior to 50 W Main St. The driver fell asleep and drove off the right side of the road, striking guardrail.
60	09/18/17	Monday	3:28 PM	Single vehicle crash	Daylight	Clear	Dry	Followed too closely		44				MV1 was traveling EB near Maple Ave. An unknown vehicle several cars ahead took a sudden turn, causing the driver to abandon his motorcycle to avoid hitting other vehicles stopping.
61	10/15/17	Sunday	3:25 PM	Single vehicle crash	Daylight	Clear	Dry	Fatigued/asleep		67				MV1 was traveling EB near the eastern intersection of Holmes Ave. The driver fell asleep and ran off the left side of the road, striking guardrail.
62	10/22/17	Sunday	6:40 AM	Single vehicle crash	Dawn	Clear	Dry	Other improper action		20				MV1 was traveling WB near MM 62.0. The driver crossed over the centerline before overcorrecting several times, causing the vehicle to roll over the right side of the road.
[63]	12/31/17	Sunday	11:45 AM	Rear-end	Daylight	Clear	Dry	Other improper action		68	18			MV1 was traveling EB just prior to Wheelock St. The driver slowed to allow a vehicle in front of it to turn and was rear-ended by MV2.
64	01/22/18	Monday	3:45 PM	Rear-end	Daylight	Rain	Wet	Followed too closely		57	68			MV2 was traveling SB on Church St and stopped at the intersection with MA 2. MV1 rear-ended MV2.
[65]	02/23/18	Friday	2:53 PM	Single vehicle crash	Daylight	Rain	Wet	Physical impairment		23				MV1 was traveling EB near MM 61.9. The driver was impaired and struck the guardrail on the right side of the road.

Crash Data Summary Table

Route 2/2A from MM 60.0-63.6, Erving, MA
1/1/2013-12/31/2019

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Driver Distracted By	D1 Age	D2 Age	D3 Age	D4 Age	Comments
#	mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	Type	#	#	#	#	
66	03/19/18	Monday	10:21 AM	Rear-end	Daylight	Clear	Dry	Followed too closely	Other activity (searching, eating, personal hygiene, etc.)	58	27			MV1 was traveling WB and turning right into their driveway at 75 W Main St. MV2 rear-ended MV1.
67**	04/18/18	Wednesday	4:12 PM	Single vehicle crash	Daylight	Clear	Dry	Operating defective equipment		16				MV1 was traveling WB in the area of the river. The vehicle's steering wheel locked, causing the vehicle to go off the right side of the road and strike guardrail.
68	06/07/18	Thursday	11:41 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way		67	64			MV1 was traveling WB. MV2 was traveling SB on North St and stopped at the intersection. MV2 pulled out onto MA 2 with an obstructed view and struck MV1.
69*	07/04/18	Wednesday	10:43 AM	Rear-end	Daylight	Clear	Dry	Followed too closely		21	43	Unknown		MV1 was traveling EB in the area of Farley Flats. MV1 slowed for unknown vehicle in front of it attempting to turn left and was rear-ended by MV2.
70	07/04/18	Wednesday	8:04 PM	Single vehicle crash	Dusk	Clear	Dry	Failure to keep in proper lane or running off road	Other activity (searching, eating, personal hygiene, etc.)	23				MV1 was traveling WB at Mountain Rd. MV1 went off the right side of the road and struck guardrail.
71	07/16/18	Monday	12:43 PM	Sideswipe, opposite direction	Daylight		Dry	Operating defective equipment		48	40	50	34	(Crash occurred during response to a separate collision.) MV1 (a box truck) was traveling EB at Maple Ave. Traffic slowed and MV1 crossed over the centerline, sideswiping MV2 traveling WB, sideswiping MV3 traveling WB, and sideswiping MV4 (a tractor trailer) traveling EB before hitting a retaining wall on the left side of the road.
72	07/16/18	Monday	12:16 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Other activity (searching, eating, personal hygiene, etc.)	47	40			MV1 was traveling WB. MV2 did not see MV1 and turned left onto MA 2 from Maple Ave. MV2 struck MV1.
73	07/24/18	Tuesday	11:35 PM	Head on	Dark - roadway not lighted	Clear	Dry	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	External distraction (outside the vehicle)	17	21			MV1 was traveling EB prior to MM 61.8. The driver swerved to avoid an animal and crossed the centerline, striking MV2 head-on.
74	08/25/18	Saturday	12:48 PM	Rear-end	Daylight	Clear	Dry	Operating defective equipment		17	42			MV2 was traveling EB opposite High St and stopped in traffic. MV1 rear-ended MV2.
75	08/31/18	Friday	5:08 PM	Single vehicle crash	Daylight	Cloudy	Dry	No improper driving		44				MV1 was traveling WB just prior to MM 61.3. A tree fell across the roadway, and MV1 struck it.
76	09/21/18	Friday	12:28 PM	Single vehicle crash	Daylight	Cloudy	Dry	Illness		28				MV1 was traveling EB prior to MM 62.2. The driver was stung by a bee and experienced an allergic reaction. The vehicle crossed the centerline and came to rest on the left side of the road.
77	10/26/18	Friday	7:41 PM	Single vehicle crash	Dark - unknown roadway lighting	Rain	Wet	Fatigued/asleep	Other activity (searching, eating, personal hygiene, etc.)	49				MV1 was traveling EB opposite Wheelock St. The driver fell asleep and struck guardrail on the right side of the road, coming to rest in the ditch.
78	10/27/18	Saturday	1:22 PM	Rear-end	Daylight	Rain	Wet	Followed too closely		36	40			MV2 was traveling EB at Bridge St. MV1 rear-ended MV2 as it slowed and began to turn right.
79	11/03/18	Saturday	8:09 AM	Rear-end	Daylight	Rain	Wet	Followed too closely		30	37			MV1 was traveling EB at Wheelock St. MV1 slowed to make a left turn when it was rear-ended by MV2.
80	11/10/18	Saturday	8:37 PM	Single vehicle crash	Dark - roadway not lighted	Rain	Ice	Driving too fast for conditions		21				MV1 was traveling EB at Maple Ave. The vehicle slid off the right side of the road due to icy conditions and struck guardrail.
81	11/20/18	Tuesday	4:13 PM	Rear-end	Daylight	Sleet, hail, freezing rain	Wet	Distracted		21	19			MV2 was traveling WB at Church St. The vehicle slowed due to an unknown vehicle turning onto Church St. MV1 rear-ended MV2.
82	11/25/18	Sunday	11:49 AM	Single vehicle crash	Daylight	Cloudy	Wet	Driving too fast for conditions		24				MV1 was traveling EB prior to Mountain Rd. The driver swerved off the right side of the road to avoid stopped vehicles and struck a tree.
83	01/29/19	Tuesday	2:22 PM	Front to Rear	Daylight	Clear	Dry	Followed too closely		75				MV1 was traveling EB at 81 W Main St. The vehicle slowed due to an unknown vehicle in front of it turning left into the driveway. MV2 rear-ended MV1.
84*	02/03/19	Sunday	12:20 PM	Single vehicle crash	Daylight	Cloudy	Dry	Over-correcting/over-steering		40				MV1 was traveling WB near MM 61. The driver went off the right side of the road and overcorrected, causing the vehicle to cross the centerline and come to rest in the river.

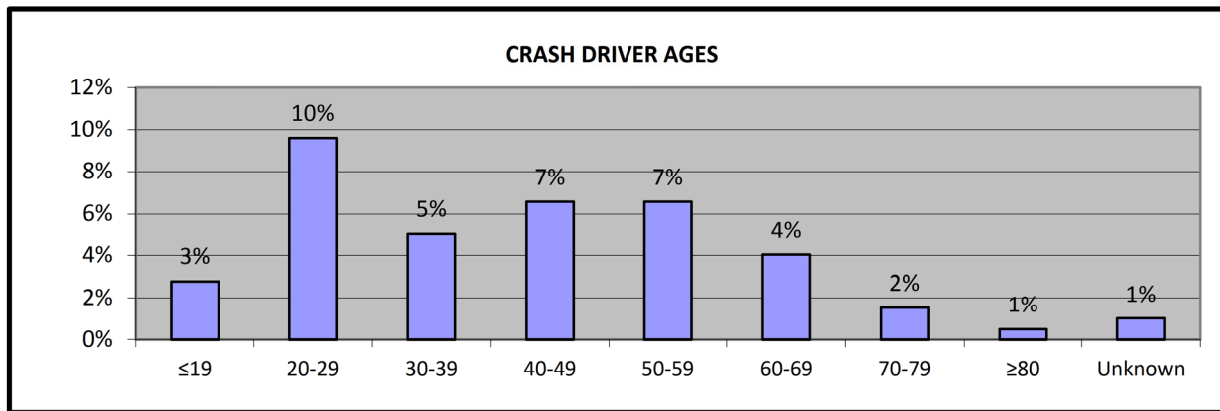
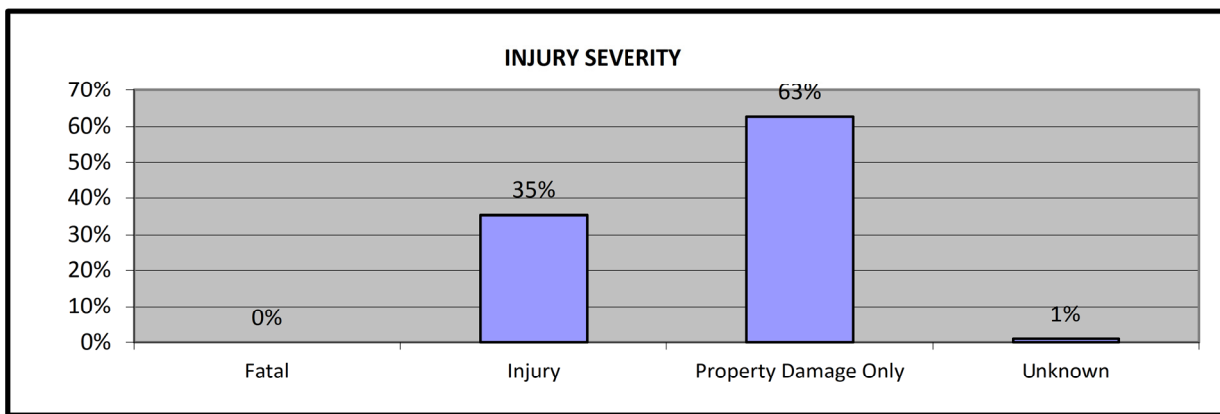
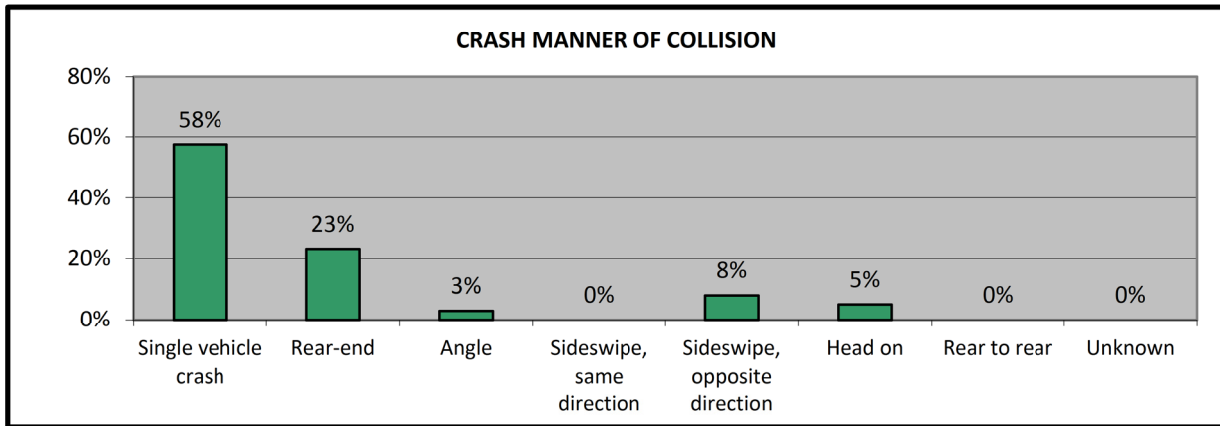
Crash Data Summary Table

Route 2/2A from MM 60.0-63.6, Erving, MA
1/1/2013-12/31/2019

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Driver Distracted By	D1 Age	D2 Age	D3 Age	D4 Age	Comments
#	mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	Type	#	#	#	#	
85	03/10/19	Sunday	6:53 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	Failure to keep in proper lane or running off road		36				MV1 was traveling WB near MM 62.0. The operator lost control of the vehicle went off the right side of the road, striking a ditch.
86	05/07/19	Tuesday	4:15 PM	Sideswipe, opposite direction	Dusk	Rain	Wet	Visibility obstructed		20	18			MV2 was traveling WB at North St. MV1 was stopped at North St SB and took a left turn with an obstructed view. MV2 swerved to the left and was sideswiped by MV1.
87	06/15/19	Saturday	4:15 PM	Rear-end	Daylight	Clear	Dry	Followed too closely		17	18			MV2 was traveling EB at Freight House Antiques. An unknown vehicle exited the driveway, causing MV2 to stop. MV1 rear-ended MV2.
88	07/19/19	Friday	9:30 PM	Sideswipe, opposite direction	Dark - roadway not lighted	Clear		Physical impairment		51	54			MV1 was traveling WB at MM 61.3. The vehicle crossed the centerline and sideswiped MV2. The vehicle crossed the centerline twice more before striking guardrail on the left side of the road.
89	07/30/19	Tuesday	2:52 PM	Front to Rear	Daylight	Clear	Dry	Followed too closely	Other activity, electronic device (navigation system, DVD player, etc.)	27	70			MV2 was traveling EB and stopped to make a left onto Mountain Rd. MV1 rear-ended MV2.
90	08/02/19	Friday	7:35 PM	Single vehicle crash	Daylight	Clear	Dry	Operating defective equipment		59				MV1 was traveling WB just past Mountain Rd. The vehicle's steering wheel locked, resulted in MV1 striking guardrail.
91	08/11/19	Sunday	8:20 PM	Single vehicle crash	Dark - lighted roadway	Clear	Dry	No improper driving		30				MV1 was traveling WB just past Maple Ave. A deer ran out of the woods in front of the vehicle, and MV1 struck it.
92	10/14/19	Monday	7:27 PM	Head on	Dark - roadway not lighted	Clear	Dry	Failure to keep in proper lane or running off road	Talking on hand-held electronic device	59	67			MV2 was traveling WB just past the E intersection of Holmes Ave. MV1, traveling EB, crossed the centerline and struck MV2 head-on. Operator of MV1 stated she was on a conference at the time of the crash.
93*	10/16/19	Wednesday	7:22 AM	Single vehicle crash	Daylight	Clear	Dry	No improper driving		35				MV1 was traveling WB in the area of the river. A deer ran out of the woods in front of the vehicle, and MV1 struck it.
94	10/27/19	Sunday	8:26 PM	Single vehicle crash	Dark - lighted roadway	Rain	Wet	No improper driving		47				MV1 was traveling EB just prior to 75 State Rd. A deer ran out of the woods in front of the vehicle, and MV1 struck it.
95**	10/28/19	Monday	8:26 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	No improper driving		65				MV1 was traveling EB in the area of the river. A bear ran out of the woods in front of the vehicle, and MV1 struck it.
96	11/09/19	Saturday	6:39 PM	Sideswipe, opposite direction	Dark - roadway not lighted	Clear	Dry	Failure to keep in proper lane or running off road		63	Unknown			MV1 was traveling WB near 100 State Rd. An unknown vehicle crossed the centerline and sideswiped MV1.
97	12/13/19	Friday	9:44 AM	Single vehicle crash	Daylight	Cloudy	Dry	No improper driving		71				MV1 was traveling EB near MM 60.1. A deer ran out of the woods in front of the vehicle, and MV1 struck it.
98	12/19/19	Thursday	10:51 AM	Front to Rear	Daylight	Clear	Dry	Followed too closely		25	26			MV1 was traveling WB just prior to Mountain Rd. MV1 slowed and stopped with traffic due to an approaching WB police cruiser with lights activated. MV2 rear-ended MV1.
99	12/23/19	Monday	1:46 AM	Single vehicle crash	Dark - roadway not lighted	Clear	Wet	No improper driving		27				MV1 was traveling WB past Mountain Rd. A deer ran out of the woods in front of the vehicle, and MV1 struck it.

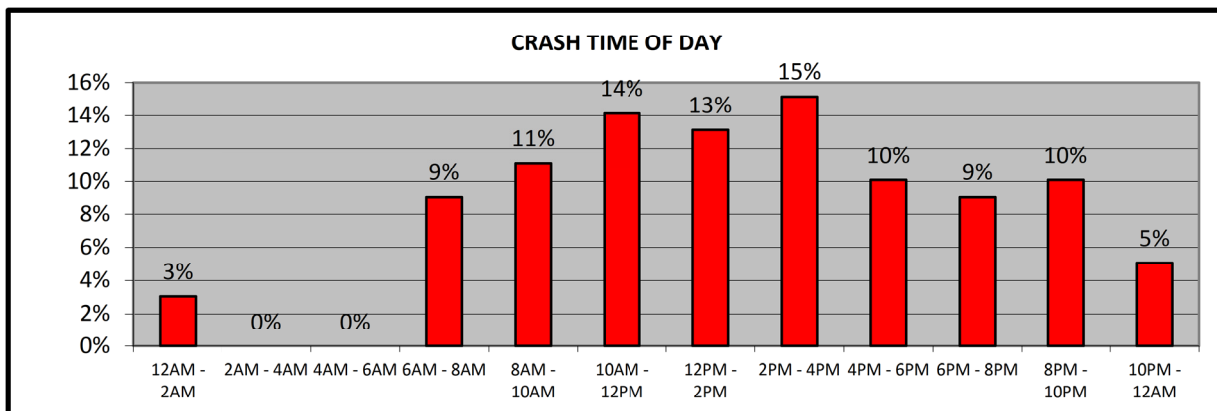
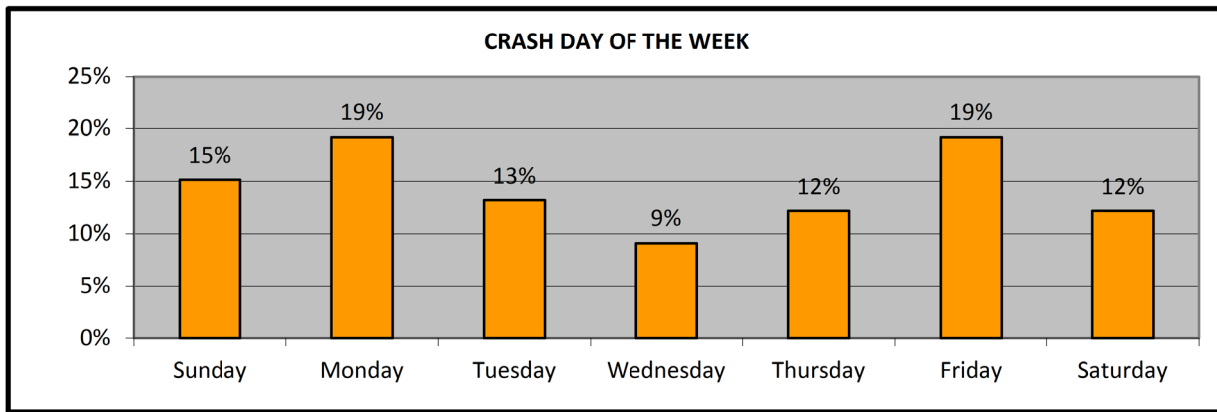
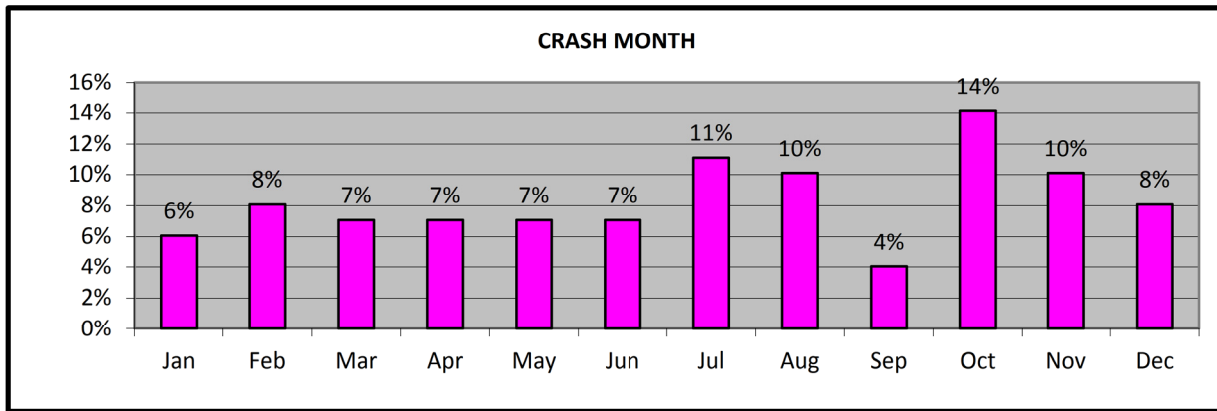
* - Crash logged as "Located" but had to be approximated.
 ** - Crash logged as "Not Enough Info" but was approximated.
 [] - Crash logged as "No: Enough Info" but found exact match.

Crash Data Summary Charts
Route 2/2A from MM 60.0-63.6, Erving, MA



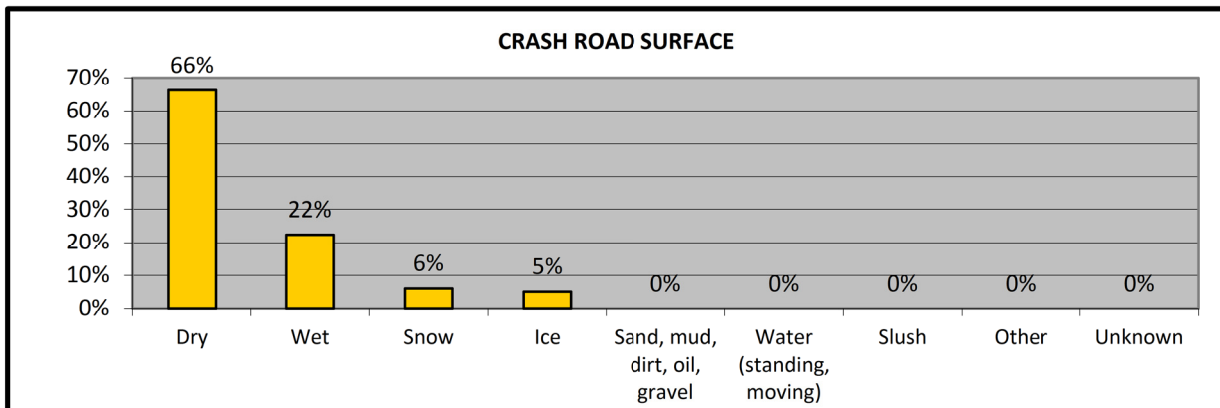
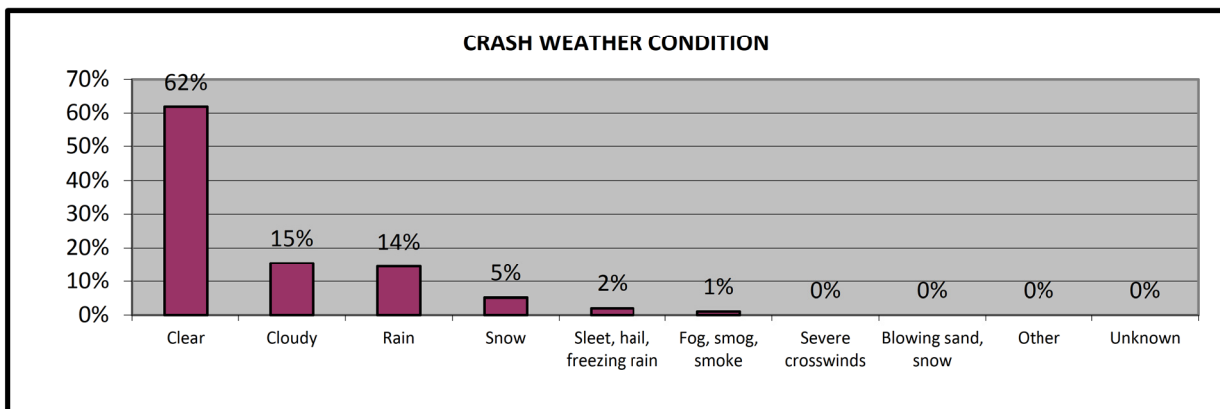
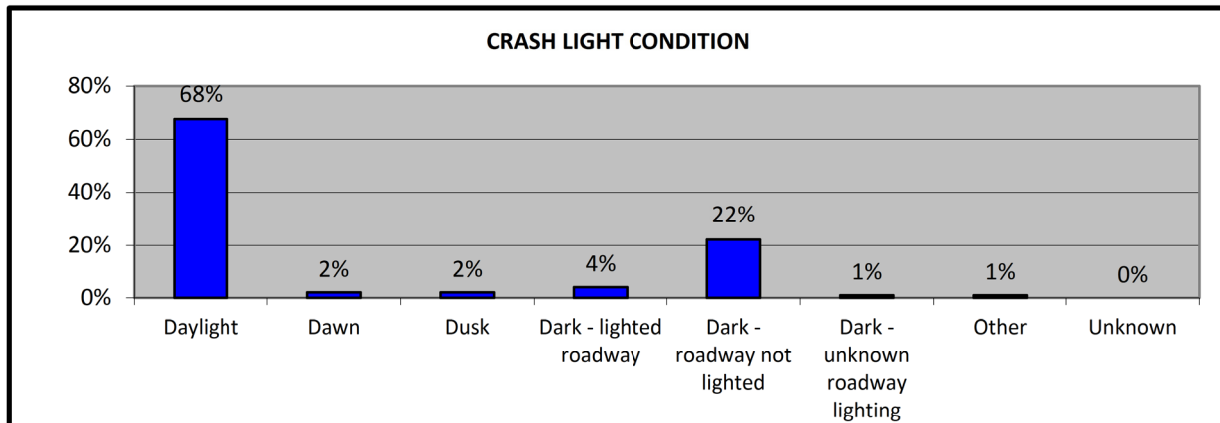
Crash Data Summary Charts

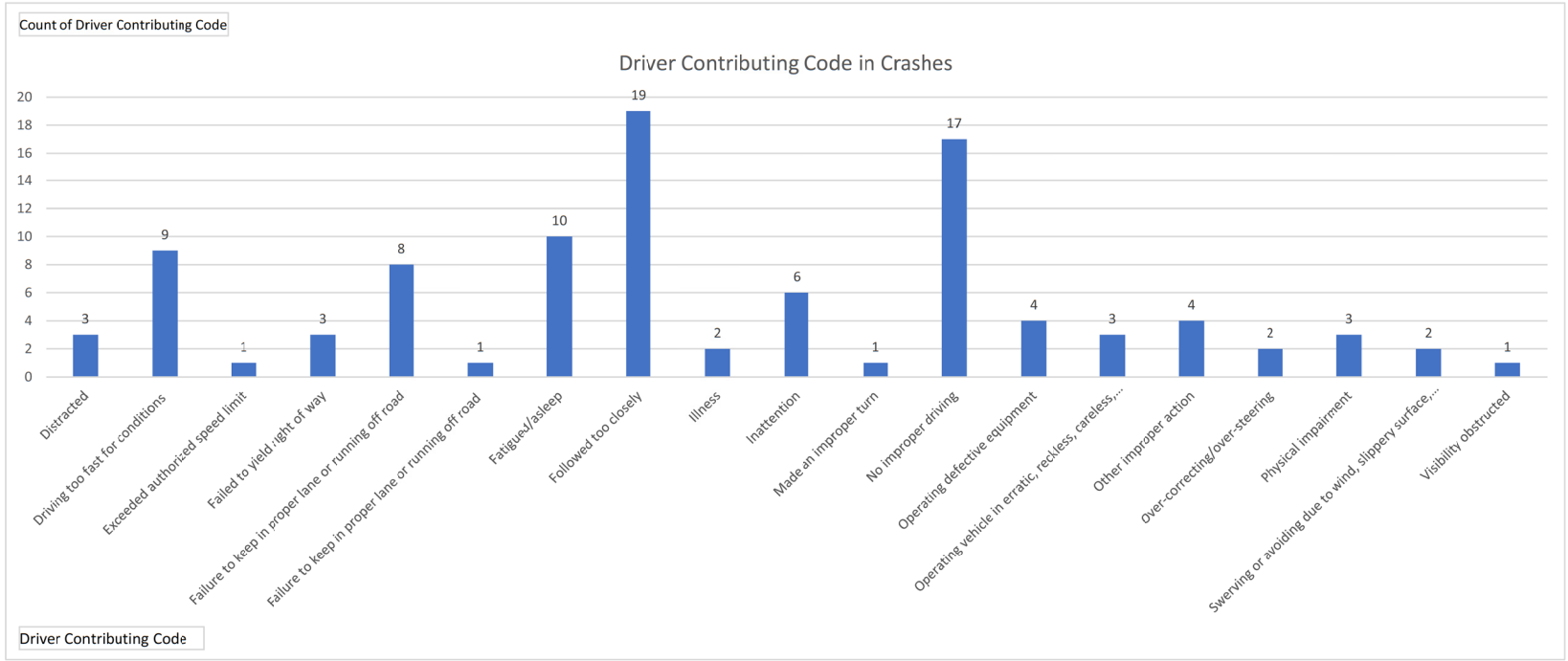
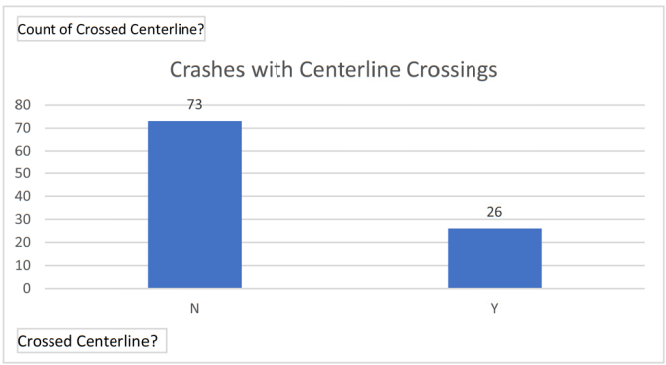
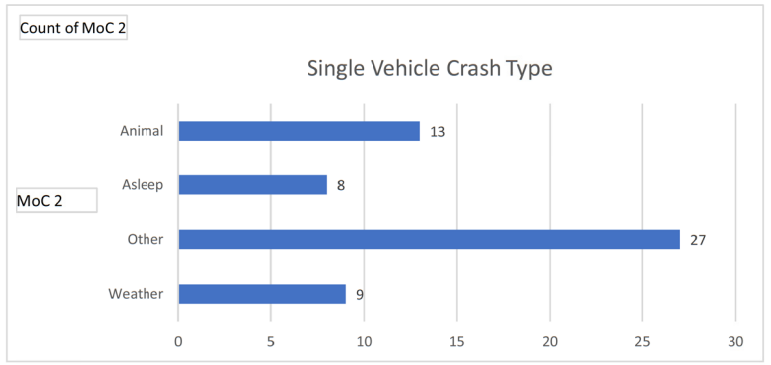
Route 2/2A from MM 60.0-63.6, Erving, MA



Crash Data Summary Charts

Route 2/2A from MM 60.0-63.6, Erving, MA





Appendix D. Road Safety Audit References

Road Safety Audit References

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