

# ROAD SAFETY AUDIT

Route 20

Town of Oxford/Town of Charlton

April 2016

Prepared For:  
MassDOT



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## Background

The Federal Highway Administration (FHWA) defines a Road Safety Audit (RSA) as the formal safety examination of an existing or future road or intersection by an independent, multidisciplinary team. The purpose of an RSA is to identify potential safety issues and possible opportunities for safety improvements considering all roadway users. This RSA evaluates the Route 20 corridor in the towns of Oxford and Charlton, MA, from Route 12 to the east to Richardson Corner Road to the west. Within the corridor, the RSA excludes the Route 20 intersections with Route 56 and Route 12, since RSAs were completed in January 2015 and January 2012, respectively, for the two intersections. A safety audit was scheduled for this corridor as part of the proposed redesign of Route 20 and at the request of MassDOT and Town officials.

Within the corridor, there are no HSIP high crash locations with the exception of Route 20 at Route 56, which is not included as part of this RSA. However, there was a fatal crash that occurred within the project corridor at the curved segment just east of the Oxford/Charlton town line during the weekday morning peak hour on October 26, 2015.



A key objective of the RSA is to identify both short-term and long-term safety improvements that can be made at the corridor and incorporated in potential improvements of this corridor. It should be noted that prior to the RSA, interim safety improvements were installed on Route 20, in the vicinity of the location of the fatal crash. The interim improvements were completed in January 2016 and were included as part of the RSA discussion. The improvements include:

- A median guardrail on the section of Route 20 from the Charlton / Oxford town line to the west to the property at 80 Southbridge Road (Route 20) to the east. The roadway has been widened to accommodate the addition of median guardrail.
- Permanent speed feedback signs were installed in advance of the curve near Oak Drive in both the eastbound and westbound direction.
- A curve warning system was installed on the curve at Oak Drive. This system is activated when vehicles approach the curve at high speeds.
- Yellow centerline stanchions were installed on sections of Route 20. At the time of the audit meeting, not all of the proposed stanchions were in place. The remaining locations where they are missing are proposed to be filled in as part of the interim improvements.

A public information meeting was held by MassDOT District 3 on Monday, February 22, 2016 to discuss the Reconstruction of Route 20 project in advance of the RSA. The interim improvements were presented and then the long term project was discussed. Comments from the public were solicited to help gain information of the types of improvements that should be implemented within the corridor beyond the interim improvements.

## Project Data

An RSA was completed for the Route 20 corridor from Route 12 to the east to Richardson Corner Road to the west, excluding the intersections of Route 20 at Route 56 and Route 20 at Route 12, on February 26, 2016 at the Oxford Police Department. As shown below in Table 1, the audit team consisted of a multidisciplinary team with representatives from state, regional and local agencies providing expertise in the engineering, planning, maintenance and emergency response fields. Contact information for the RSA participants is provided in Appendix A of this report.

Within the email invitation sent on February 4, 2016 to each participant in the RSA, background material was provided. This information included collision diagrams and crash data summaries, prepared by McMahon Associates, for the corridor. During the RSA meeting, these materials were reviewed as a group prior to the corridor review. Due to the length of the corridor and inability to safely walk along the corridor, the field visit was conducted using corridor videos filmed prior to the meeting. Following the corridor review, the team discussed additional concerns and potential solutions for the existing safety issues.

**Table 1. Participating Audit Team Members**

<b>Audit Team Member</b>	<b>Agency/Affiliation</b>
John Mastera	MassDOT Highway Safety
Jim Danila	MassDOT Traffic
Joe Frawley	MassDOT District 3 Traffic
Lola Campbell	MassDOT District 3 Traffic
Dan Daniska	CMRPC
Yahaira Graxirena	CMRPC
Brian Palaia	Oxford Town Manager
Sean Divoll	Oxford Department of Public Works
Michael Hassett	Oxford Police Department
Lt. Anthony Saad	Oxford Police Department
Capt. Kenneth Sellers	Oxford Fire Department
Nicholas Lambert	Oxford Fire Department
Chief James A. Pervier	Charlton Police Department
Lt. Jim Murphy	Massachusetts State Police
Lt. Tom Zona	Massachusetts State Police
Phil Viveiros	McMahon Associates
Allison Luff	McMahon Associates

## Project Location and Description

As shown in Figure 1, Route 20 generally runs in the east/west direction through Oxford and Charlton. Route 20 is classified as an urban principal arterial under MassDOT jurisdiction. The study area begins at the intersection with Route 12 and continues west to the intersection with Richardson Corner Road. The RSA focuses on operations and safety on Route 20 and includes the driveways and intersections along this corridor, excluding the intersection with Route 56 and Route 12.

Route 20 within the project limits is classified as an Urban Principal Arterial and is under MassDOT jurisdiction. The highway is called Worcester Road in Charlton and Southbridge Road in Oxford. Within the study area, it is typically an undivided four-lane facility with a posted speed limit ranging from 40mph to 50mph. The travel lanes are approximately 11-foot wide with one-foot shoulders. Opposing directions of travel are separated by a double yellow centerline painted over a rumble strip throughout the entire project corridor. Delineator posts are also installed along the roadway centerline in several sections of Route 20. As previously noted, guardrail was installed for the segment of Route 20 adjacent to a major curve and extends from approximately the Charlton/Oxford town line to the property located at 80 Southbridge Road, approximately 1,000 feet east of Oxbow Road. A majority of the intersecting roads are collector roads for residential areas. Utility poles line the north and south sides of the corridor at varying locations. Route 20 is abutted by a combination of residential and commercial land uses.

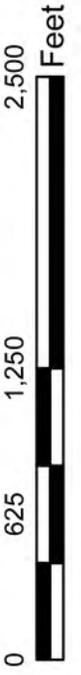
Crash data was received from the MassDOT for the study area intersections from January 2012 through October 2015. Based on this data, there were a total of 87 crashes reported within the study area corridor during the time periods reviewed. Of the 87 crashes that occurred, 40 of the crashes occurred in the eastern segment of the roadway between Route 12 and Route 56, 19 crashes occurred in the middle segment of Route 20 between Route 56 and Oxbow Road, and 28 crashes occurred in the western segment between Oxbow Road and Richardson Corner Road.

The highest crash types along the corridor involved rear-end collisions, which accounted for 40% of crashes. It was noted during the RSA meeting that vehicles stop in the left most lane of Route 20 to turn left onto an unsignalized roadway or driveway, which is a contributing factor to this high number of rear-end collisions. A total of 16% of the crashes were sideswipe collisions, which may be caused by this same condition. Of the crashes, 23% were single vehicle crashes, which may indicate geometric problems within the corridor. While the majority of crashes occurred under clear conditions, 25% of crashes occurred in rain/snow, which may indicate problems with roadway surface, geometry, or drainage.

As noted earlier, there was a fatal crash that occurred within the project corridor at the curved segment adjacent to the Oxford/Charlton town line during the weekday morning peak hour on October 26, 2015. The vehicle heading east crossed over the centerline and collided in the westbound lane with an oncoming truck. The collision impact caused the vehicle to move back into the eastbound lane where it was struck again by another vehicle. This crash is not formally included in the statistics summarized for this report, as the investigation of this crash was ongoing at the time of the RSA; however, the detailed crash diagrams and crash data summary, provided in Appendix C, include information about this crash.



FIGURE 1 - EASTERN SEGMENT  
 ROUTE 20 CORRIDOR  
 ROAD SAFETY AUDIT  
 OXFORD/CHARLTON, MA



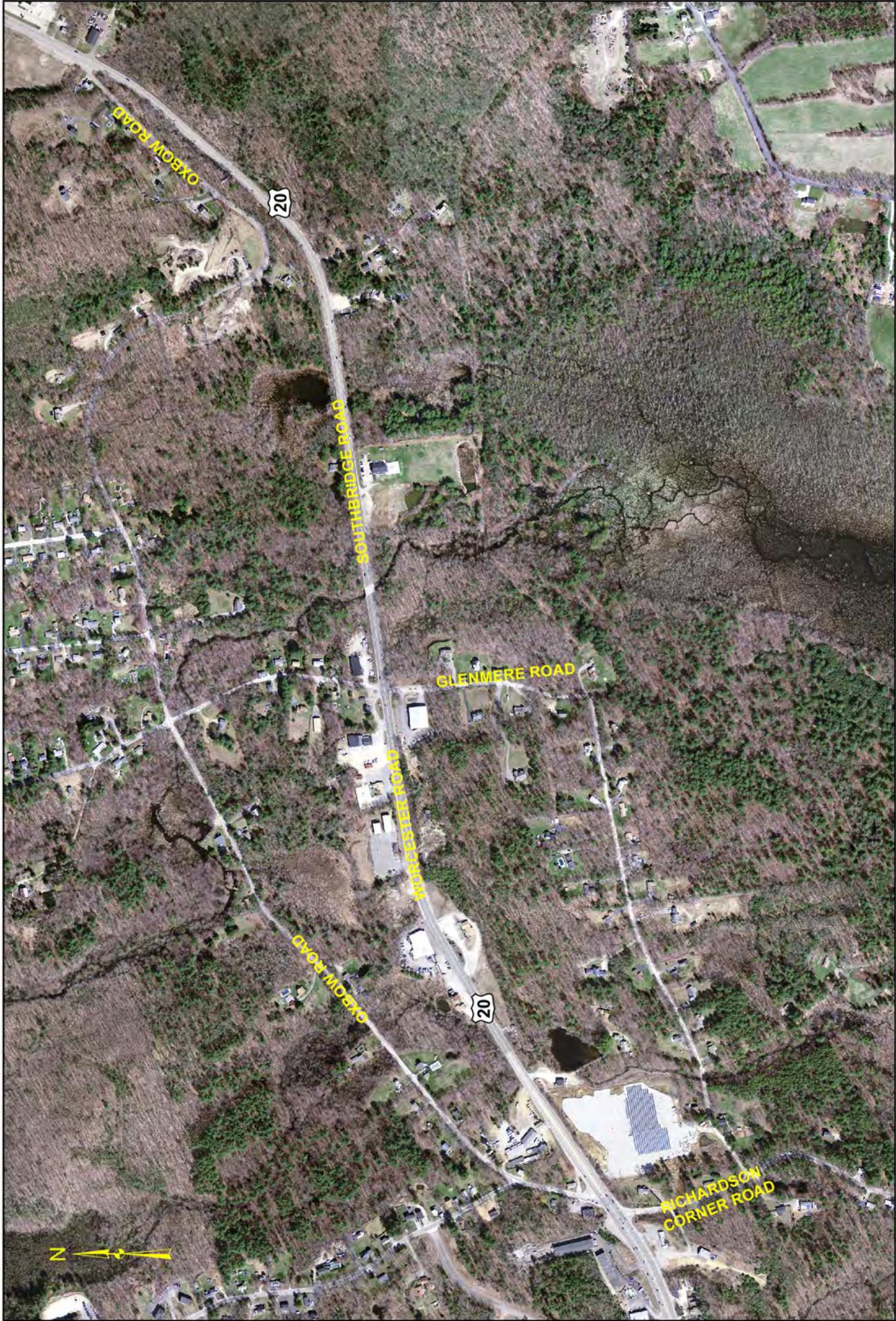
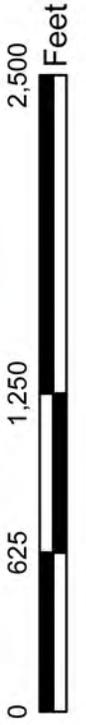


FIGURE 1 - WESTERN SEGMENT  
ROUTE 20 CORRIDOR  
ROAD SAFETY AUDIT  
OXFORD/CHARLTON, MA



# Road Safety Audit Observations and Potential Improvements

During the RSA meeting prior to the field visit, a brief introduction of the RSA process and a summary of traffic volumes and crash information were presented to the audit participants. Following this brief presentation, the members of the audit team were asked to discuss the existing issues that may affect safety along the Route 20 corridor. The audit team then reviewed the corridor videos as a group, at which time observations of various safety concerns and deficiencies were identified and documented. Provided below is a list of the safety concerns that were identified during the RSA for the corridor and the potential enhancements identified during the RSA.

## **Safety Issue #1: Interim Improvement Issues**

### **Observations:**

As part of the discussion during the RSA, audit team members identified issues within the corridor that pertain directly to the interim improvements installed by MassDOT.

The interim improvements that were installed include radar speed feedback signage. The signs are positioned in the eastbound and westbound direction in advance of the horizontal curve adjacent to Oak Drive. It was noted during the RSA meeting that while the speed feedback signage is a positive improvement to help reduce vehicle speeds, the posted speed limit signage is missing at these locations for drivers to compare actual travel speeds to the posted speed limit.



With the implementation of the guardrail barrier in the vicinity of the curve near Oak Drive, left turns are unavailable, which have raised the issue of where vehicles are able to make an appropriate U-turn. In the westbound direction, the first available intersection to make the U-turn movement is at the signalized intersection with Richardson Corner Road. This location, however, does not have the available space for larger vehicles and trucks to U-turn. Vehicles have been observed at this location making a three-point turn, or U-turning via the channelized right turn onto Oxbow Road to the north to make a left turn back to Route 20 to reverse direction. It was also discussed during the RSA that vehicles are turning left into private properties to make U-turns; the property located across from O'Malley's Truck and Auto Body shop (426 Worcester Road) was specifically noted as an example.

It should be noted that the currently proposed redesign of Route 20 includes installation of a permanent median barrier within the corridor, with left-turns and U-turns to be accommodated at specific locations. Audit team members noted that during the February 22<sup>nd</sup> public information meeting, it was discussed that any location to the west of



Richardson Corner Road would not be feasible as a U-turn location, as it would be difficult to educate and enforce people to bypass Richardson Corner Road. It was discussed by audit team members that this U-turn location would not be a feasible solution until the reconstruction project is constructed. However, the construction of a U-turn truck turnout as an interim improvement was widely supported by RSA participants.

With the implementation of the guardrail, Oxbow Road is now restricted to right-in/right-out only movements at its intersection with Route 20. Global Positioning System (GPS) directions, however, are still directing people to make left turns at this location.

While the implementation of the guardrail section is generally supported by the first responders participating in the RSA, the addition does present an obstacle to emergency response to quickly respond to calls. Larger emergency response vehicles also have a difficult time making U-turns at the Richardson Corner Road intersection to reverse direction to the eastbound lanes.

The guardrail was also noted to create a hazard at some private driveways for larger vehicle egress back to Route 20. These vehicles used to encroach on the centerline when exiting a driveway, and now are unable to do so.

**Enhancements:**

- Consider including the speed limit signage at the two existing speed feedback signs implemented as part of the interim improvements.
- Consider providing advanced signage designating specific areas where U-turns should be made, particularly for heavy vehicles.
- Consider providing truck turn-out areas at designated U-turn locations (such as Richardson Corner Road) to allow larger vehicles to make the movements.
- Update GPS information to be consistent with current roadway conditions.

- Evaluate locations for right-of-way acquisition to provide appropriate U-turn locations. Specifically, the property adjacent to Pioneer Drive (a former Chinese restaurant) was identified by audit participants.
- Consider providing breaks in Route 20 barriers to facilitate U-turns for emergency response vehicles as a long-term measure.
- Consider modifications to private driveways to allow for efficient egress of larger vehicles with the addition of the new guardrail.
- Consider installation of additional delineator posts with shorter spacing between posts at both ends of the new guardrail to discourage U-turn movements using private driveways.

## **Safety Issue #2: Speeds**

### **Observations:**

Vehicle speeds were noted as a major problem throughout the Route 20 corridor. The posted speed limit from Route 12 to Route 56 is 40 miles per hour, while the remainder of the corridor is posted at 50 miles per hour. Based on speed data collected as part of the Route 20 reconstruction project, the 85<sup>th</sup> percentile speeds on Route 20 are approximately 60 miles per hour. The signs appear to be undersized and somewhat faded.

In the eastern segment of the corridor, vehicles move slower due to intersection congestion. The middle and western segments of Route 20, however, experience much less congestion, allowing vehicles to travel at a much higher rate of speed. This becomes a particular problem in areas where there are curves in the roadway, such as the curve adjacent to Oak Drive.

With regard to crash data, single vehicle crashes account for 25% of the total corridor crashes, which may indicate that there is a geometric problem with the roadway, or that vehicles are traveling too fast to safely traverse the roadway without losing control of their vehicle. Inclement weather may also be a factor as four of these single vehicle crashes occurred in wet/snow conditions. As shown in the crash diagrams, seven crashes occurred at the curve near Oak Street over the crash period reviewed where vehicles lost control of their vehicles and collided into a stationary object or with another vehicle; the fatal crash in October 2015 also occurred within this curve.



During the RSA meeting, representatives from the Town of Oxford, Town of Charlton, and Massachusetts State Police departments agreed that Route 20 is a difficult roadway on which

to enforce speeds due to the geometric constraints of the roadway and lack of safe places to pull over a vehicle. While Route 20 is under state jurisdiction, the State Police works together with the two municipal police departments to patrol Route 20.

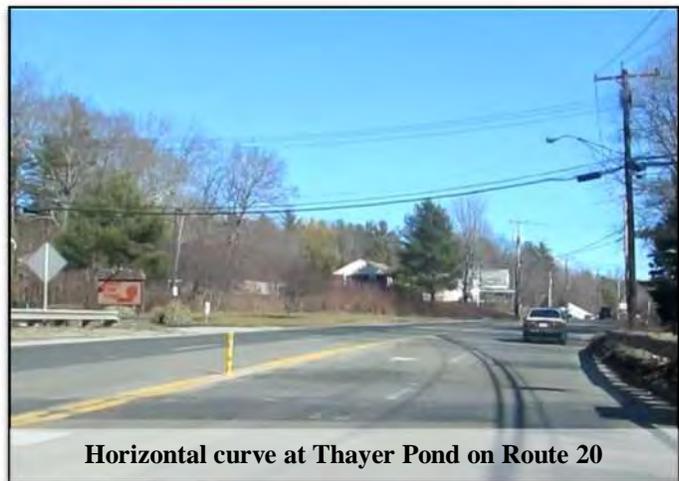
**Enhancements:**

- Evaluate design improvements for the central and western segments of Route 20 that will reduce vehicle speeds and allow for a speed limit reduction.
- Consider providing larger sized speed limit signage to help alert drivers of the posted speed limit.
- Consider adding additional regulatory signs with speed feedback signs throughout the corridor to alert motorists of their current travel speeds, and include the posted speed limit to supplement the feedback signage.
- Evaluate locations that can be utilized as designated pull-off areas to aid in police enforcement of the posted speed limit.
- Investigate funding sources to provide additional police enforcement.
- Consider providing advisory speed warning signage at locations where the roadway geometry requires vehicles to slow down.

**Safety Issue #3: Sight Distance**

**Observations:**

Audit team members discussed several locations where sight distance was an issue within the corridor. The first location is at the entrance to Thayer Pond, a residential development located on Route 20 approximately 750 feet east of Route 56. There is a slight horizontal curve at this location that obstructs sight lines from vehicles exiting the development. Additionally, queues from the westbound approach of the intersection of



**Horizontal curve at Thayer Pond on Route 20**

Route 20 at Route 56 often extend beyond this driveway during the weekday afternoon peak hour. It is difficult for vehicles to see the upcoming queue on Route 20 traveling westbound, which may be a contributing factor in the number of rear-end collisions at this location.

Another area where sight distance was noted to be an issue is at the Mobil gasoline station in the central segment of Route 20, located across from Pioneer Drive, and approximately 500 feet east of the beginning of the recently installed guardrail. There is a horizontal curve approximately 500 feet to the east of the eastern Mobil site driveway. Since vehicle speeds on

Route 20 often exceed the posted speed limit, this horizontal curve causes a sight distance concern at these driveways. Due to the presence of left-turn bays on Route 20 serving the Mobil station and Pioneer Drive, vehicles turning left out of the site also have to travel across three travel lanes to accept a gap in traffic, which is difficult to judge from the driveway. Both driveways at the Mobil Gas Station are also used as full access driveways due to a lack of guidance regarding driveway operations.

The entrance to the Boulder Industrial Park, located to the west of Route 56, was noted by audit participants to have poor sight distance that is obstructed by the horizontal curve at Route 56 as well as overgrown vegetation.

**Enhancements:**

- Evaluate relocating the Thayer Pond driveway to a location on Route 20 with better sight lines to improve driveway sight distance.
- Evaluate improvements, including traffic signal retiming, at the intersection of Route 56 and Route 20 to reduce queuing in the westbound direction on Route 20.
- Consider installing dynamic queue (or “Red Signal Ahead”) signage in the westbound direction approaching Route 56 to alert motorists of queuing conflicts.
- Consider designating the eastern Mobil driveway as an entrance only driveway and the western site driveway as an exit only driveway to simplify access/egress at the Mobil site, reduce conflicts on Route 20, and increase sight distance to the east for vehicles exiting the site.
- Investigate design alternatives to help slow speeds through this corridor.
- Trim overgrown vegetation adjacent to the Boulder Industrial Park driveway to improve sight distance exiting the driveway.

**Safety Issue #4: Permissive Left Turns/U-Turns**

**Observations:**

Audit team members noted that a major issue causing conflicts on Route 20 are vehicle stopping in the left most lane to make a permissive left turn onto an unsignalized roadway or into a driveway. Vehicles are in conflict with high speed traffic sharing the left lane and continuing through on Route 20. This was discussed to be a major contributing factor to the number of rear-end and sideswipe collisions that occurred within the study area corridor. Rear-end collisions accounted for 41% of the total crashes while sideswipe collisions accounted for 16% of the total collisions. Permissive left turns at the signalized intersections, specifically at the intersection of Route 20 and Route 56, were also noted to be somewhat of an issue. While the intersection of Route 20 at Route 56 is not included as part of this RSA, some audit participants suggested that this issue should be considered as part of the reconstruction project.

Additionally, it was observed by audit participants that several of these rear-end collisions occur under the condition that drivers stop to yield the right-of-way to a motorist entering the stream of traffic, commonly referred to as “courtesy crashes”.

**Enhancements:**

- Evaluate major left turn movements along Route 20 and determine if an exclusive left turn lane could be added at various locations to reduce the conflicts with high speed traffic on Route 20.
- Consider decreasing the spacing between the delineating stanchions to reduce the availability for permissive left turns and U-turns at uncontrolled locations.
- Consider providing a jughandle intersection at the intersection with Pioneer Drive to allow for safer maneuvers into and out of the Mobil Station driveways as well as provide a location to perform a U-turn.
- Provide additional signage at private driveways to discourage drivers from utilizing these properties for U-turns.

**Safety Issue #5: Emergency Response**

**Observations:**

As previously discussed, police representatives agreed that Route 20 is a difficult roadway to enforce speeds due to the geometric constraints of the roadway and lack of safe places to pull a vehicle over. Additionally, it was noted that in the event of a crash on Route 20, the emergency response requires lane closures since there are no shoulders to move the vehicles involved or to park the emergency vehicles. In the event of a larger crash that requires medical and fire response, Route 20 may have to be completely stopped in one direction to have fire and ambulance response on the roadway.

Congestion on the eastern segment was also noted as an issue for first responders to maneuver on Route 20, particularly the westbound queueing from the intersection of Route 20 at Route 56 extending beyond the Thayer Pond Village entrance.

**Enhancements:**

- Evaluate improvements at the intersection of Route 56 and Route 20 to reduce queueing in the westbound direction on Route 20.

**Safety Issue #6: Roadway Geometry**

**Observations:**

There are several locations where roadway geometry was noted to be an issue. At the intersection of Route 20 and Turner Road, there is an issue with the grade of Turner Road as it connects to Route 20. Truck traffic frequently travels this segment from the adjacent Walmart on Route 12 to connect to Route 20, and due to the grade, the trucks bottom out and

get stuck at this intersection. During times where congestion is heavy at the signalized intersection of Route 12 at Route 20, GPS mapping will route vehicles down this road, including truck traffic. Missing shoulders along sections of the Route 20 corridor were also discussed to be an issue and a contributing factor to corridor crashes due to the limited maneuvering space.

Perhaps the largest discussion of roadway geometry is at the horizontal curve adjacent to Oak Drive. The interim improvements of the guardrail, speed feedback signage, and dynamic warning chevrons are short-term mitigation to help reduce crashes at this location. To the north of the roadway, the land is steeply graded and a retaining wall is located around the curve as well. Audit participants noted that



horizontal alignment improvements could be made if the retaining wall were removed and the land were regraded, but it would be costly mitigation.

Access management was noted as a corridor wide issue, particularly in the segment of roadway to the west of Route 56, and specifically for a driveway to a vacant lot on the southern side of the roadway. Some of these locations have large driveway openings, making it difficult for drivers to determine where vehicles will be turning in.

**Enhancements:**

- Consider a heavy vehicle exclusion for Turner Road to eliminate trucks accessing this intersection.
- Educate local businesses that trucks exiting their facilities should not utilize Turner Road to access Route 20.
- Evaluate improvements to make Turner Road a dead end street or closing off Turner Road mid-block and eliminating access to Route 20.
- Update GPS mapping to avoid routing vehicles down Turner Road.
- Evaluate the feasibility to smoothen the Oak Drive curve by widening the roadway to the north to reduce the number of crashes resulting from drivers losing control.
- Consider reducing the width of private driveways abutting Route 20 to help drivers determine the appropriate entrances to the driveways.
- Provide wider shoulders along the Route 20 corridor as a long-term measure to increase safety by providing adequate recovery width along the roadway.

## **Safety Issue #7: Roadway Conditions**

### **Observations:**

It was discussed during the meeting that 25% of crashes occurred during inclement weather (rain or snow). Audit participants agreed that icing on the roadway, particularly around the Oak Drive curve is an issue. The addition of the guardrails both in the center of Route 20 and along the side makes snow removal more difficult. Snow builds up against the guardrails, melts, and refreezes, contributing to the issue of icing on the roadway. Sections of Route 20 were also noted to have pavement distress that may worsen the roadway conditions in inclement weather as well.

It was also noted during the audit that there are several roadside obstructions that may be a contributing factor to the number of single vehicle collisions such as utility poles and unprotected sign posts. Additionally, since Route 20 is an east/west facing roadway, solar glare was noted by audit participants to be an issue, particularly during the weekday afternoon for westbound traffic.



It was also noted during the RSA meeting that there is missing speed limit signage in the westbound direction approaching Route 56. The speed limit here is intended to be reduced to 40 mph approaching the signalized intersection of Route 20 at Route 56.

### **Enhancements:**

- Consider resurfacing the remaining sections of Route 20 that were not resurfaced with the implementation of the interim improvements to improve traction on the roadway surface.
- Consider providing warning signage in advance of locations where icing is expected to warn motorists of the upcoming hazard.
- Evaluate drainage structure improvements to reduce the amount of water left on the roadway.
- Consider tree trimming in areas where icing is expected to increase the amount of sunlight on the roadway to melt the ice.
- Provide a police presence to monitor areas where solar glare is most significant.
- Replace the missing speed limit sign to post the speed limit at 40 miles per hour in the westbound direction on Route 20 approaching Route 56.

### **Safety Issue #8: School Bus Operations**

#### **Observations:**

An audit participant noted that there is an existing school bus stop located within the Oak Drive curve. Prior to the interim improvements, when the bus stopped on Route 20, all traffic on Route 20 in both directions was required to stop. With the interim improvements in place, only the eastbound lanes (bus stop side) are required to stop since Route 20 is now median-divided. This location does not have any shoulders or any safe pull off for the bus stop. Additionally, there is poor sight distance going around this horizontal curve, and the presence of a stopped vehicle in the traveled way presents a safety hazard to motorists.

#### **Enhancements:**

- Evaluate providing a shoulder or turnout location in this segment of Route 20 to provide a safe bus stop.
- Reroute the bus route to relocate this bus stop.
- Consider providing a sidewalk or path to the adjacent properties to the west where a bus would be able to access the roadway off of Route 20.

## Recommendations

After the site visit, audit participants returned to discuss the safety issues and consider various improvements. The audit participants were encouraged to consider both short and long-term improvements for each of the existing safety issues. Each improvement considered has been categorized as short-term, mid-term, or long-term based on the definitions shown in Table 2. Additionally, a cost category has been assigned to each improvement based on the parameters set forth in Table 2.

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

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

## Summary of Road Safety Audit

A summary of the potential recommendations discussed by the RSA audit team are summarized in Table 3. The recommendations are summarized based on the potential safety payoff, time frame, approximate cost and responsible agency. The safety payoff is a subjective judgment of the potential effectiveness of the safety recommendations listed below.

**Table 3. Potential Safety Enhancement Summary**

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Agency
Interim Improvements	Consider including regulatory speed limit signage with the speed feedback signage installed	Low	Short-Term	Low	MassDOT
Interim Improvements	Consider providing advanced warning signage for U-Turns areas, particularly for heavy vehicles	Medium	Mid-Term	Low	MassDOT
Interim Improvements	Consider providing truck turn out areas at designated U-Turn locations	Medium	Mid-Term	High	MassDOT
Interim Improvements	Update GPS information to be consistent with current roadway conditions	Low	Short-Term	Low	MassDOT
Interim Improvements	Evaluate locations for right-of-way acquisition	Medium	Mid-Term	High	MassDOT
Interim Improvements	Consider providing breaks in the Route 20 barrier for emergency vehicle access	Low	Long-Term	Low	MassDOT
Interim Improvements	Consider driveway modifications to provide adequate egress from private driveways	Low	Mid-Term	Medium	Property Owners/ MassDOT
Interim Improvements	Consider installation of additional delineator posts with shorter spacing between posts at both ends of the new guardrail	Low	Short-Term	Low	MassDOT
Speeds	Evaluate design improvements to reduce travel speeds and allow for speed limit reduction	High	Long-Term	High	MassDOT
Speeds	Consider providing larger speed limit signs	Low	Short-Term	Low	MassDOT
Speeds	Consider adding additional regulatory signs with speed feedback signage	Medium	Short-term	Medium	MassDOT
Speeds	Evaluate locations that can be utilized as designated pull-off areas	Medium	Mid-term	Medium	Town of Charlton/ Town of Oxford/ MassDOT
Speeds	Investigate funding sources to provide additional enforcement	Low	Mid-Term	Low	Town of Charlton/ Town of Oxford/ MassDOT
Speeds	Consider providing additional advisory speed warning signage	Medium	Mid-Term	Medium	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Agency
Sight Distance	Evaluate relocating the Thayer Pond driveway	Low	Long-Term	High	MassDOT/Town of Oxford
Sight Distance	Evaluate improvements at the intersection of Route 56 and Route 20	High	Long-Term	High	MassDOT
Sight Distance	Consider installing dynamic queueing signage on Route 20 WB	Low	Mid-Term	Medium	MassDOT
Sight Distance	Consider designating an entrance only and exit only driveway to the Mobil Station	Low	Short-Term	Low	Town of Oxford/ MassDOT/Mobil
Sight Distance	Investigate design alternatives to help slow down speeds in corridor	High	Long-Term	High	MassDOT
Sight Distance	Trim overgrown vegetation adjacent to industrial park driveway	Medium	Short-Term	Low	Town of Charlton/ Town of Oxford/ MassDOT
Permissive Left Turns/ U-Turns	Evaluate major left turn movements along Route 20 and determine where left turn lanes are needed	High	Long-Term	High	MassDOT
Permissive Left Turns/ U-Turns	Consider decreasing stanchion spacing to help prohibit illegal U-Turns	Low	Short-Term	Low	MassDOT
Permissive Left Turns/ U-Turns	Consider providing a jughandle intersection at Pioneer Drive	High	Long-Term	High	MassDOT
Permissive Left Turns/ U-Turns	Provide additional signage to discourage motorists from u-turning in private driveways	Low	Short-Term	Low	Property Owners/ MassDOT
Emergency Response	Evaluate improvements at the intersection of Route 56 and Route 20	High	Long-Term	High	MassDOT
Roadway Geometry	Consider a heavy vehicle exclusion for Turner Road	Low	Short-Term	Low	Town of Oxford/ MassDOT
Roadway Geometry	Educate local businesses to avoid utilizing Turner Road	Low	Short-Term	Low	Town of Oxford
Roadway Geometry	Evaluate improvements to make Turner Road a dead-end, eliminating access to Route 20	Low	Long-Term	Medium	MassDOT/Town of Oxford
Roadway Geometry	Update GPS mapping to not route vehicles to Turner Road	Low	Short-Term	Low	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Agency
Roadway Geometry	Evaluate the feasibility of realigning the Oak Drive curve	High	Long-Term	High	MassDOT
Roadway Geometry	Consider reducing the width of adjacent private driveways	Low	Mid-Term	Medium	MassDOT/ Property Owners
Roadway Geometry	Provide wider shoulders along the Route 20 corridor	High	Long-Term	High	MassDOT
Roadway Conditions	Consider resurfacing the remaining sections of Route 20	Medium	Mid-Term	High	MassDOT
Roadway Conditions	Consider providing warning signage in advance of icy sections	Low	Short-Term	Low	MassDOT
Roadway Conditions	Evaluate drainage structure improvements	Medium	Mid-Term	Medium	MassDOT
Roadway Conditions	Consider tree trimming in areas where ice is expected	Low	Short-Term	Low	MassDOT
Roadway Conditions	Provide a police presence during hours of solar glare	Low	Short-Term	Low	Town of Oxford/ Town of Charlton
Roadway Conditions	Replace speed limit signage in the westbound direction approaching Route 56	Low	Short-Term	Low	MassDOT
School Bus Operations	Evaluate providing a shoulder or turn out location for a bus stop	Low	Long-Term	Medium	MassDOT
School Bus Operations	Reroute bus route to relocate stop	Low	Short-Term	Low	Town of Oxford
School Bus Operations	Consider providing a sidewalk to adjacent property for safe pick-up	Low	Mid-Term	Medium	Town of Oxford

## Appendix A. RSA Meeting Agenda

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# Agenda

## Road Safety Audit

Charlton/Oxford, MA

Route 20 from Richardson's Corner to Main Street  
(Route 12)

Meeting Location: Oxford Police Department Training Room

Meeting Address: 503 Main Street, Oxford, MA

February 26, 2016

9:00 AM – 12:00 PM

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

9:00 AM Welcome and Introductions

9:15 AM Discussion of Safety Issues

- Crash history, Speed Regulations – provided in advance
- Review the Video of the Roadway

10:30 AM Site Visit

- Drive to specific hot spot locations along the corridor
- As a group, identify areas for improvement

11:30 AM Discussion of Potential Improvements

- Discuss observations and finalize safety issue areas
- Discuss potential improvements and finalize recommendations

12:00 PM Adjourn for the Day – but the RSA has not ended

### Instructions for Participants:

- Before attending the RSA on February 26<sup>th</sup>, participants are encouraged to drive/walk through the intersection and complete/consider elements on the RSA Prompt List with a focus on safety.
- All participants will be actively involved in the process throughout. Participants are encouraged to come with thoughts and ideas, but are reminded that the synergy that develops and respect for others' opinions are key elements to the success of the overall RSA process.
- After the RSA meeting, participants will be asked to comment and respond to the document materials to assure it is reflective of the RSA completed by the multidisciplinary team.

## Appendix B. RSA Audit Team Contact List

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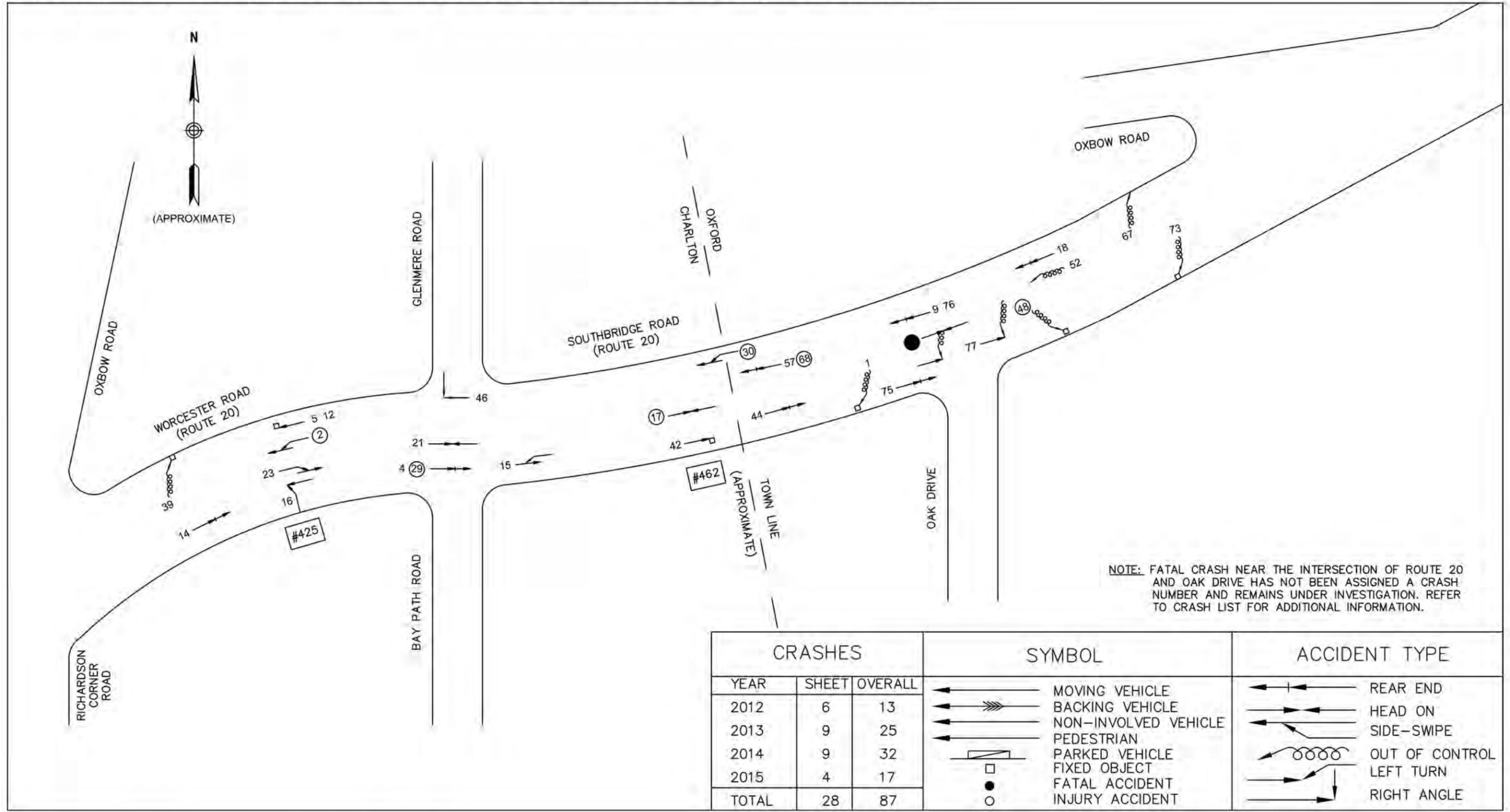
## Participating Audit Team Members

Date: February 26, 2016 Location: Oxford Police Department

<b>Audit Team Members</b>	<b>Agency/ Affiliation</b>	<b>Email Address</b>	<b>Phone Number</b>
John Mastera	MassDOT Highway Safety	John.Mastera@state.ma.us	857-368-9648
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Lola Campbell	MassDOT District 3	Alolade.Campbell@state.ma.us	508-929-3887
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Yahaira Graxirena	CMRPC	ygraxirena@cmrpc.org	508-459-3321
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Lt. Anthony Saad	Oxford Police Department	asaad@town.oxford.ma.us	508-987-0156
Capt. Kenneth Sellers	Oxford Fire Department	ksellers@town.oxford.ma.us	508-987-6012
Nicholas Lambert	Oxford Fire Department	nlambert@town.oxford.ma.us	508-723-2818
Chief James A. Pervier	Charlton Police Department	James.Pervier@townofcharlton.net	508-248-2251
Lt. Jim Murphy	Massachusetts State Police	James.Murphy@massmail.state.ma.us	508-829-8326
Lt. Tom Zona	Massachusetts State Police	Thomas.Zona@massmail.state.ma.us	508-347-3352
Phil Viveiros	McMahon Associates	pviveiros@mcmahonassociates.com	508-823-2245
Allison Luff	McMahon Associates	aluff@mcmahonassociates.com	508-823-2245

## Appendix C. Detailed Crash Data

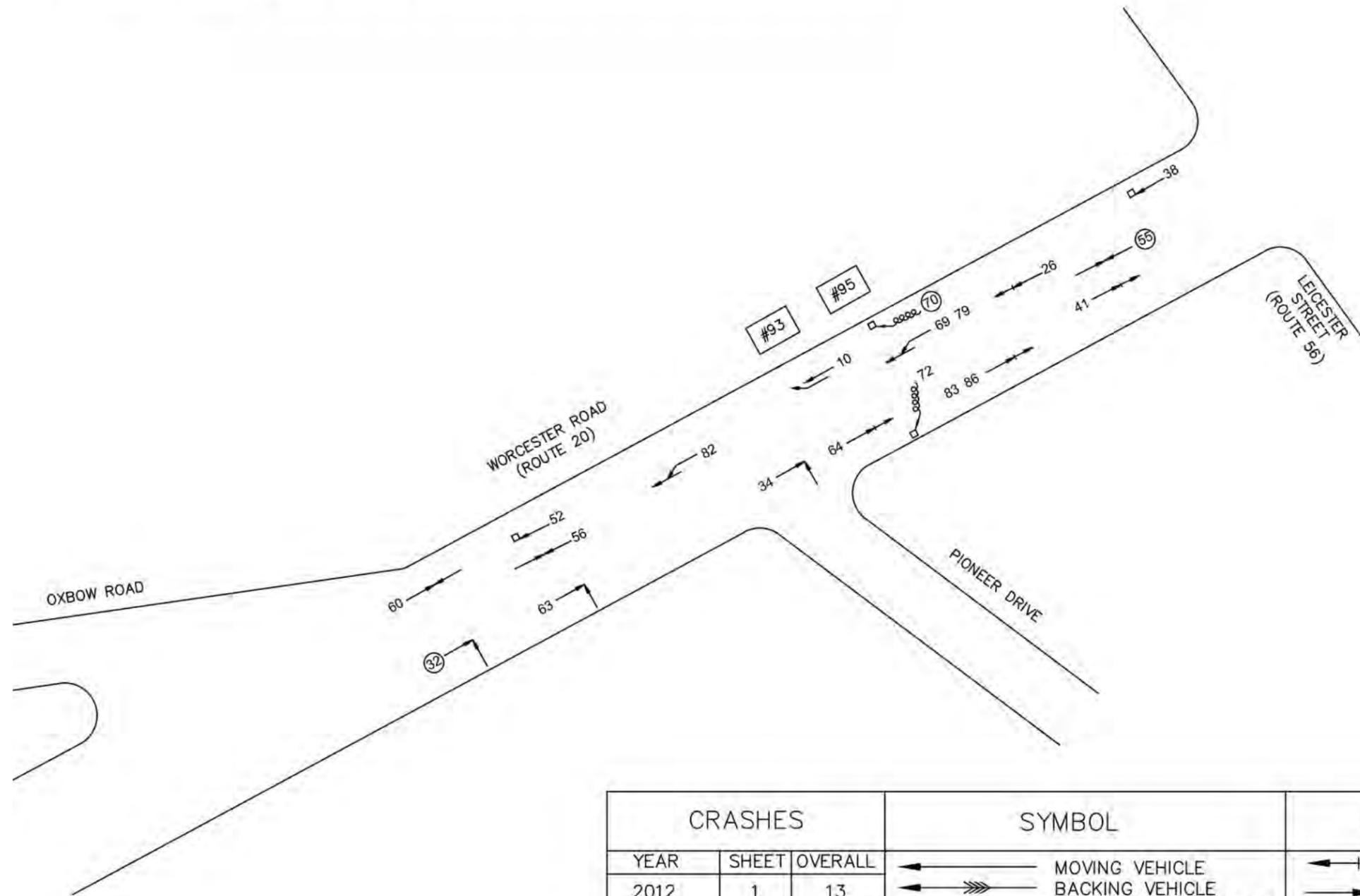
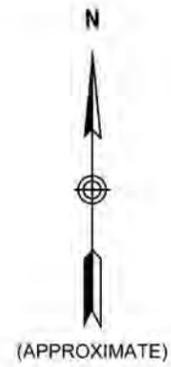
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NOT TO SCALE



Crash Diagram - Western Segment  
 January 2012- October 2015  
 Route 20  
 Charlton/Oxford, Massachusetts

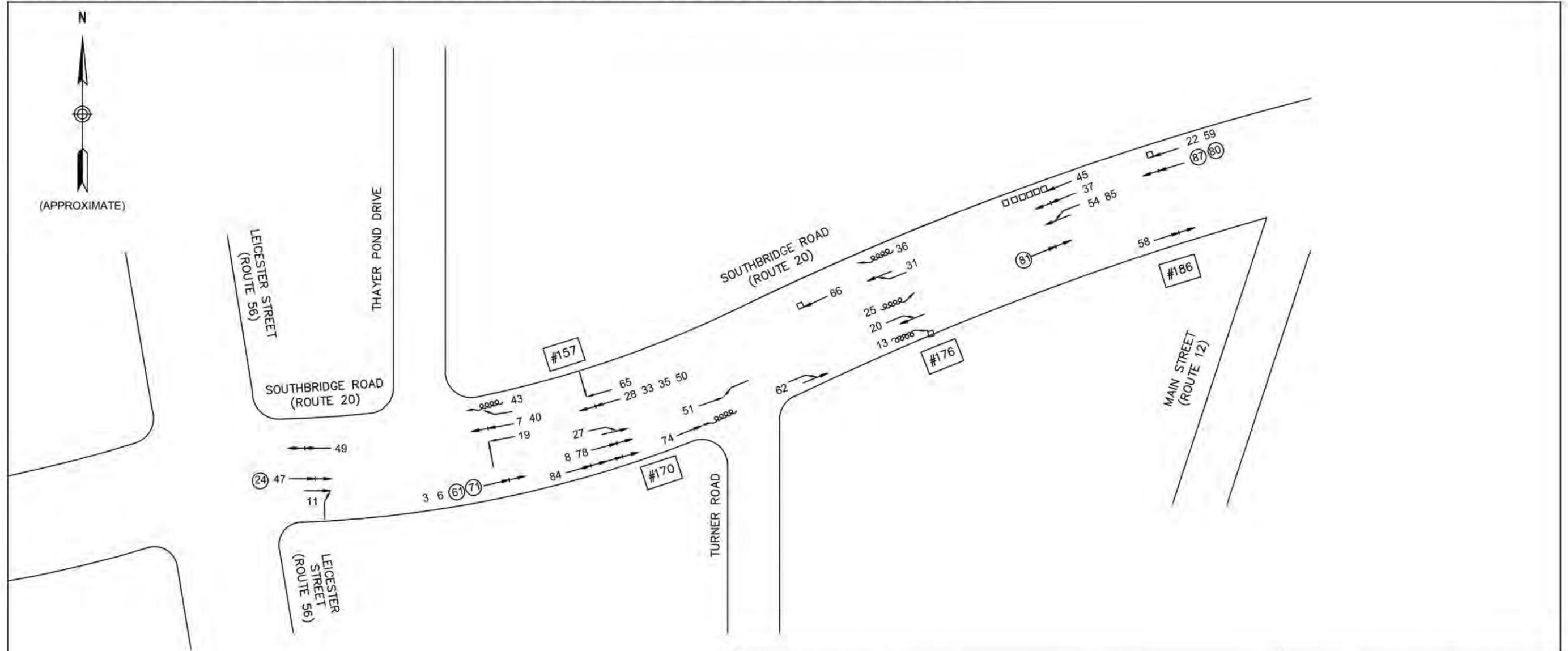


CRASHES			SYMBOL		ACCIDENT TYPE	
YEAR	SHEET	OVERALL				
2012	1	13	←	MOVING VEHICLE	←   →	REAR END
2013	4	25	← →	BACKING VEHICLE	← →	HEAD ON
2014	9	32	←	NON-INVOLVED VEHICLE	← ↘	SIDE-SWIPE
2015	5	17	←	PEDESTRIAN	← ○	OUT OF CONTROL
			□	PARKED VEHICLE FIXED OBJECT	← ↙	LEFT TURN
			●	FATAL ACCIDENT	← ↘	RIGHT ANGLE
			○	INJURY ACCIDENT		
TOTAL	19	87				

NOT TO SCALE



Crash Diagram - Middle Segment  
 January 2012 - October 2015  
 Route 20  
 Charlton/Oxford, Massachusetts



CRASHES			SYMBOL		ACCIDENT TYPE	
YEAR	SHEET	OVERALL				
2012	6	13	←	MOVING VEHICLE	← ←	REAR END
2013	12	25	←	BACKING VEHICLE	←→←	HEAD ON
2014	14	32	←	NON-INVOLVED VEHICLE	←↘	SIDE-SWIPE
2015	8	17	←	PEDESTRIAN	←○○○○	OUT OF CONTROL
			□	PARKED VEHICLE	←↙	LEFT TURN
			□	FIXED OBJECT	←↘	RIGHT ANGLE
			●	FATAL ACCIDENT		
			○	INJURY ACCIDENT		
TOTAL	40	87				

NOT TO SCALE



Crash Diagram - Eastern Segment  
 January 2012 - October 2015  
 Route 20  
 Charlton/Oxford, Massachusetts

Route 20 Charlton - Oxford

Crash Number	Segment	Crash Date	Crash Day	Crash Time	Crash Severity	Manner of Collision	Driver Behavior	Driver Age Striking Veh	Ambient Conditions	Weather Condition	Roadway Condition	Comments
1	Western	1/21/2012	Saturday	10:02 AM	Property Damage	Single vehicle crash	Over-correcting/over-steering	24	Daylight	Snow	Snow	Veh 1 lost control during a snow storm and hit the guard rail
2	Western	2/9/2012	Thursday	3:47 PM	Non-fatal injury	Sideswipe, same direction	Unknown	67	Daylight	Clear	Dry	Veh 2 turned into Veh 1's lane, striking the side of Veh 1
3	Eastern	3/8/2012	Thursday	5:31 PM	Property Damage	Rear-end	Inattention	19	Daylight	Clear	Dry	Veh 1 slowed, Veh 2 rear-ended Veh 1, and Veh 3 rear-ended Veh 2
4	Western	3/11/2012	Sunday	12:36 PM	Property Damage	Rear-end	Followed too closely	19	Daylight	Clear	Dry	Veh 1 slowed and Veh 2 could not stop in time
5	Western	4/18/2012	Wednesday	2:43 PM	Property Damage	Single vehicle crash	No improper driving	64	Daylight	Clear	Dry	Right front wheel came off vehicle on Route 20 and hit a parked car
6	Eastern	5/15/2012	Tuesday	5:29 PM	Property Damage	Rear-end	Inattention	60	Daylight	Cloudy	Wet	Veh 2 stopped, and Veh 1 rear-ended Veh 2
7	Eastern	7/5/2012	Thursday	12:02 PM	Property Damage	Rear-end	Inattention	23	Daylight	Clear	Dry	Veh 1 stopped, and Veh 2 rear-ended Veh 1
8	Eastern	7/30/2012	Monday	10:03 AM	Property Damage	Rear-end	Inattention	21	Daylight	Clear	Dry	Veh 2 stopped, and Veh 1 rear-ended Veh 2
9	Western	10/2/2012	Tuesday	7:54 PM	Property Damage	Rear-end	Driving too fast for conditions	31	Dark	Rain	Wet	Veh 1 was slowing when it rear-ended Veh 2
10	Middle	10/6/2012	Saturday	12:06 AM	Property Damage	Angle	Failure to keep in proper lane	49	Dark	Clear	Dry	Veh 2 was towing two trailers (Veh 3 & 4) when it cut off Veh 1, who hit the side of Veh 3
11	Eastern	10/10/2012	Wednesday	1:15 PM	Property Damage	Angle	Failed to yield right of way	18	Daylight	Cloudy	Wet	Veh 2 entered inner travel lane without looking, struck Veh 1 on the side of vehicle
12	Western	10/20/2012	Saturday	8:40 PM	Property Damage	Single vehicle crash	No improper driving	57	Dark	Clear	Dry	Veh 1 was travelling when it was hit by a deer
13	Eastern	11/10/2012	Saturday	12:10 PM	Property Damage	Single vehicle crash	Distracted	62	Daylight	Clear	Dry	Veh 1 became distracted and drove off road, hitting a parked car
14	Western	1/4/2013	Friday	3:30 PM	Property Damage	Rear-end	Unknown	20	Dusk	Cloudy	Dry	Veh 2 rear-ended Veh 1 who was stopped in traffic
15	Western	1/16/2013	Wednesday	6:13 AM	Property Damage	Sideswipe, opp direction	No improper driving	51	Dawn	Snow	Snow	Veh 1 slid on icy snow and hit Veh 2, which was in the opposite lane
16	Western	2/6/2013	Wednesday	1:16 PM	Property Damage	Angle	Failed to yield right of way, Inattention	68	Daylight	Cloudy	Dry	Veh 2 did not see Veh 1, striking Veh 1
17	Western	2/8/2013	Friday	2:00 PM	Non-fatal injury	Head on	Speeding; poor conditions	22	Daylight	Snow	Snow	Veh 2 was travelling too fast on snow, skidded across the yellow line and hit Veh 1 head on
18	Western	2/8/2013	Friday	2:41 PM	Property Damage	Rear-end	Inattention	43	Daylight	Snow	Snow	Veh 1 rear-ended Veh 2
19	Eastern	3/5/2013	Tuesday	6:36 PM	Property Damage	Angle	Unknown	18	Dark	Clear	Dry	Veh 2 tried to change into Veh 1's lane, and hit the side of Veh 1
20	Eastern	3/8/2013	Friday	2:00 AM	Property Damage	Sideswipe, opp direction	Speeding; poor conditions	30	Dark	Snow	Snow	Driver spun out of control and hit a parked car
21	Western	3/18/2013	Monday	5:45 PM	Property Damage	Head on	Unknown, Other improper action	72	Dusk	Cloudy	Dry	Veh 1 and Veh 2 turned into each other
22	Eastern	3/19/2013	Tuesday	2:38 PM	Property Damage	Single vehicle crash	No improper driving	38	Daylight	Snow	Slush	Driver slid into a utility pole
23	Western	5/16/2013	Thursday	8:40 AM	Property Damage	Sideswipe, same direction	Failure to keep in proper lane	84	Daylight	Clear	Dry	Veh 2 was side-swiped by Veh 1 who was trying to pass her
24	Eastern	5/19/2013	Sunday	6:03 PM	Non-fatal injury	Rear-end	Inattention	45	Daylight	Rain	Wet	Veh 1 rear-ended Veh 2's trailer
25	Eastern	5/24/2013	Friday	11:25 PM	Property Damage	Single vehicle crash	Speeding; poor conditions	26	Dark	Rain	Wet	Veh 1 turned too heavily and rolled over guard rail
26	Middle	6/1/2013	Saturday	10:36 AM	Property Damage	Rear-end	Inattention	20	Daylight	Clear	Dry	Veh 2 slowed and stopped when Veh 1 rear-ended Veh 2
27	Eastern	6/1/2013	Saturday	10:43 AM	Property Damage	Sideswipe, same direction	Over-correcting/over-steering	24	Daylight	Clear	Wet	Veh 2 swerved into the side of Veh 1
28	Eastern	6/6/2013	Thursday	8:36 PM	Property Damage	Rear-end	Distracted	49	Dark	Cloudy	Wet	Veh 2 rear-ended Veh 1
29	Western	6/19/2013	Wednesday	7:44 PM	Non-fatal injury	Rear-end	Over-correcting/over-steering, Inattention	49	Daylight	Clear	Dry	Veh 1, a motorcycle, locked up brakes and slid into the rear of Veh 2
30	Western	7/27/2013	Saturday	2:16 PM	Non-fatal injury	Sideswipe, same direction	Inattention	37	Daylight	Clear	Dry	Veh 1 attempted to merge right, Veh 2 (motorcycle) merged left then swerved back and flipped over.
31	Eastern	8/14/2013	Wednesday	1:35 PM	Property Damage	Sideswipe, same direction	Made an improper turn	83	Daylight	Clear	Dry	Veh 1 tried to make a u-turn and struck the right side of Veh 2
32	Middle	9/11/2013	Wednesday	1:45 PM	Non-fatal injury	Angle	Unknown	64	Daylight	Unknown	Unknown	Veh 2 hit Veh 1 as Veh 1 was attempting to turn left out of driveway
33	Eastern	10/11/2013	Friday	3:29 PM	Property Damage	Rear-end	Inattention	60	Daylight	Clear	Dry	Veh 2 rear-ended Veh 1

Route 20 Charlton - Oxford

Crash Number	Segment	Crash Date	Crash Day	Crash Time	Crash Severity	Manner of Collision	Driver Behavior	Driver Age Striking Veh	Ambient Conditions	Weather Condition	Roadway Condition	Comments
34	Middle	11/5/2013	Tuesday	1:15 PM	Property Damage	Angle	Operating vehicle in erratic, reckless, careless, negligent, or aggressive behavior	39	Daylight	Clear	Dry	Veh 1 was turning left while Veh 2 was traveling toward Veh 1. They collided. Driver 1 was OUI.
35	Eastern	11/22/2013	Monday	9:41 PM	Property Damage	Rear-end	No improper driving	33	Dark	Cloudy	Wet	Veh 1 didn't see that Veh 2 had stopped, so Veh 1 rear-ended Veh 2
36	Eastern	12/13/2013	Friday	8:00 PM	Non-fatal injury	Single vehicle crash	Speeding; poor conditions	40	Dark	Clear	Ice	Veh 1 was travelling too fast, avoided vehicles, and flipped
37	Eastern	12/13/2013	Friday	8:00 PM	Property Damage	Rear-end	No improper driving	79	Dark	Clear	Ice	Veh 1 rear-ended a flipped Veh 2 without enough time to stop
38	Middle	12/17/2013	Tuesday	11:30 AM	Unknown	Single vehicle crash	Speeding; poor conditions	32	Daylight	Snow	Snow	Veh 1 lost control in a snowstorm and hit a utility pole
39	Western	1/2/2014	Thursday	10:14 AM	Property Damage	Single vehicle crash	No improper driving	21	Daylight	Snow	Snow	Veh 1 lost control and hit a tree
40	Eastern	1/17/2014	Friday	5:16 PM	Property Damage	Rear-end	No improper driving	41	Dusk	Clear	Dry	Veh 1 rear-ended Veh 2
41	Middle	1/18/2014	Saturday	11:41 AM	Property Damage	Rear-end	Speeding; poor conditions	34	Daylight	Snow	Snow	Veh 2 skidded on snow and rear-ended Veh 1
42	Western	2/1/2014	Saturday	11:23 PM	Property Damage	Single vehicle crash	No improper driving	30	Dark	Cloudy	Dry	Veh 1 was driving when a deer hit the vehicle
43	Eastern	2/19/2014	Wednesday	2:45 PM	Property Damage	Sideswipe, same direction	No improper driving	31	Daylight	Snow	Snow	Veh 1 lost control and blocked the road, then Veh 2 hit the side of Veh 1
44	Western	2/24/2014	Monday	6:13 PM	Property Damage	Rear-end	Unknown	30	Dark	Clear	Dry	Veh 1 struck Veh 2 from behind
45	Eastern	3/15/2014	Saturday	4:42 AM	Property Damage	Single vehicle crash	Speeding	28	Dark	Rain	Wet	Operator of Veh 1 was operating under the influence when he drove off the road and into 6 parked cars
46	Western	3/19/2014	Wednesday	5:07 PM	Property Damage	Angle	Unknown	43	Daylight	Clear	Dry	Veh 2 turned into traffic and struck Veh 1
47	Eastern	3/22/2014	Saturday	3:55 PM	Property Damage	Rear-end	No improper driving	46	Daylight	Clear	Dry	Veh 2 rear-ended Veh 1 (who was stopped in traffic), and then swerved and hit Veh 3 as well
48	Western	3/31/2014	Monday	10:43 AM	Non-fatal injury	Single vehicle crash	Speeding; poor conditions; Over-correcting/over-steering	42	Daylight	Snow	Ice	Veh 1 slid on the road due to slush and hit a guard rail
49	Eastern	4/8/2014	Tuesday	4:14 PM	Property Damage	Rear-end	Followed too closely	29	Daylight	Clear	Dry	Veh 1 and 2 were slowed for traffic, but Veh 3 didn't slow in time, and rear-ended Veh 2 and 1
50	Eastern	5/5/2014	Monday	4:51 PM	Property Damage	Rear-end	Inattention	18	Daylight	Clear	Dry	Veh 1 slowed, and Veh 2 rear-ended Veh 1
51	Eastern	5/6/2014	Tuesday	5:38 PM	Non-fatal injury	Angle	No improper driving	21	Daylight	Clear	Dry	Veh 2 was performing a u-turn when it was struck by Veh 1
52	Middle	5/16/2014	Friday	2:38 PM	Property Damage	Single vehicle crash	No improper driving	43	Daylight	Rain	Wet	Veh 1 slipped on a puddle and drove into a tree
53	Western	7/15/2014	Tuesday	11:54 PM	Property Damage	Single vehicle crash	Visibility obstructed	38	Dark	Rain	Wet	Veh 1's view was obstructed by the rain and he drove off the road and into an embankment
54	Eastern	7/29/2014	Sunday	3:15 PM	Property Damage	Sideswipe, same direction	Swerving to avoid object	62	Daylight	Clear	Dry	Veh 1 swerved to avoid a stopped truck, struck side of Veh 2
55	Middle	8/7/2014	Thursday	5:17 PM	Non-fatal injury	Head on	Failure to keep in proper lane	68	Daylight	Rain	Wet	Veh 1 crossed the yellow lines and hit Veh 2, then 3, and finally 4 head on
56	Middle	8/7/2014	Thursday	6:42 PM	Property Damage	Head on	Operating vehicle in erratic/ reckless behavior	32	Daylight	Cloudy	Dry	Veh 1 crossed the yellow lines and hit Veh 2, causing Veh 3 to veer off the road
57	Western	8/19/2014	Tuesday	7:38 PM	Property Damage	Rear-end	Visibility obstructed	22	Daylight	Clear	Dry	Veh 2 was behind another vehicle which obstructed its view, and then rear-ended Veh 1 after it moved
58	Eastern	9/16/2014	Tuesday	3:25 PM	Property Damage	Rear-end	No improper driving	44	Daylight	Clear	Dry	Veh 1 was travelling slow when Veh 2 rear-ended Veh 1
59	Eastern	9/23/2014	Tuesday	5:35 PM	Property Damage	Single vehicle crash	No improper driving	NA	Daylight	Clear	Dry	A tire fell off of Veh 2 and struck Veh 1
60	Middle	9/27/2014	Saturday	12:11 PM	Unknown	Head on	Physical impairment	66	Daylight	Clear	Dry	Veh 1 swerved across the yellow lines and hit Veh 2 head on
61	Eastern	10/3/2014	Friday	5:58 PM	Non-fatal injury	Rear-end	Inattention	67	Daylight	Clear	Dry	Veh 3 and Veh 2 slowed for a turning vehicle, and were struck from behind by Veh 1
62	Eastern	10/17/2014	Friday	3:35 PM	Property Damage	Sideswipe, same direction	Unknown	82	Daylight	Clear	Dry	Veh 2 merged left to avoid constriction, but collided with Veh 1
63	Middle	10/18/2014	Saturday	10:37 AM	Property Damage	Angle	Failed to yield right of way, inattention	48	Daylight	Cloudy	Dry	Veh 2 was struck by Veh 1 when trying to cross the street
64	Middle	11/2/2014	Sunday	1:10 PM	Property Damage	Rear-end	Inattention	22	Daylight	Cloudy	Dry	Veh 2 slowed, and Veh 1 rear-ended Veh 2
65	Eastern	11/6/2014	Thursday	10:58 AM	Property Damage	Angle	Failure to keep in proper lane	80	Daylight	Rain	Wet	Veh 1 was travelling west when Veh 2, travelling south, pulled into Veh 1's lane
66	Eastern	11/8/2014	Saturday	11:29 PM	Property Damage	Single vehicle crash	No improper driving	52	Dark	Clear	Dry	A deer ran out in front of Veh 1 and damaged the front of the car

Route 20 Charlton - Oxford

Crash Number	Segment	Crash Date	Crash Day	Crash Time	Crash Severity	Manner of Collision	Driver Behavior	Driver Age Striking Veh	Ambient Conditions	Weather Condition	Roadway Condition	Comments
67	Western	11/11/2014	Tuesday	10:20 PM	Property Damage	Single vehicle crash	Over-correcting/over-steering/overturn	30	Dark	Unknown	Unknown	Veh 1 oversteered/overturned across westbound lanes of roadway
68	Western	12/2/2014	Tuesday	4:49 PM	Non-fatal injury	Rear-end	Inattention	60	Dusk	Clear	Dry	Veh 1 slowed, and was hit by Veh 2. Then Veh 2 was hit by Veh 3.
69	Middle	12/4/2014	Thursday	7:05 PM	Property Damage	Sideswipe, same direction	Inattention, Made an improper turn	33	Dark	Clear	Dry	Veh 1 turned right into Veh 2 without seeing it
70	Middle	12/6/2014	Saturday	2:09 AM	Non-fatal injury	Single vehicle crash	Operating vehicle in erratic, reckless, careless, negligent, or aggressive behavior	23	Dark	Cloudy	Wet	Driver was operating under the influence and went off the road and into a utility pole
71	Eastern	12/28/2014	Sunday	12:29 PM	Non-fatal injury	Rear-end	Inattention	31	Daylight	Cloudy	Wet	Veh 1 became distracted and rear-ended Veh 2
72	Middle	1/3/2015	Saturday	5:43 PM	Property Damage	Single vehicle crash	No improper driving	45	Dark	Snow	Snow	Veh 1 spun out of control from the snow and hit a guardrail
73	Western	1/16/2015	Friday	8:33 AM	Unknown	Single vehicle crash	Over-correcting/over-steering	32	Daylight	Clear	Dry	Veh 1 accelerated around a corner and swerved off the road into a stone wall
74	Eastern	2/21/2015	Saturday	6:13 PM	Property Damage	Head on	Over-correcting/over-steering	35	Dark	Clear	Ice	Veh 2 spun out of control and collided with Veh 1
75	Western	2/26/2015	Thursday	8:36 AM	Property Damage	Rear-end	Inattention	42	Daylight	Cloudy	Dry	Veh 1 was stopped in traffic when Veh 2 rear-ended Veh 1
76	Western	2/27/2015	Friday	10:10 AM	Property Damage	Rear-end	Followed too closely, Inattention	92	Daylight	Clear	Dry	Veh 2 rear-ended Veh 1
77	Western	3/20/2015	Friday	5:40 PM	Property Damage	Angle	No improper driving	28	Daylight	Snow	Snow	Veh 1 changed lanes and lost control, colliding with Veh 2
78	Eastern	4/13/2015	Monday	2:35 PM	Property Damage	Rear-end	Followed too closely	19	Daylight	Clear	Dry	Veh 1 stopped for turning vehicle, and Veh 2 struck Veh 1 from behind
79	Middle	5/6/2015	Wednesday	4:48 PM	Property Damage	Sideswipe, same direction	Unknown	41	Daylight	Clear	Dry	Veh 2 turned into Veh 1's lane, and Veh 1 continued to travel forward, striking Veh 2
80	Eastern	5/22/2015	Friday	10:44 AM	Non-fatal injury	Rear-end	Followed too closely	34	Daylight	Clear	Dry	Veh 2 and Veh 2 were both pulling into moving lane when Veh 2 rear-ended Veh 1
81	Eastern	6/3/2015	Wednesday	12:14 PM	Non-fatal injury	Rear-end	Inattention	24	Daylight	Clear	Dry	Veh 2 was stopped for construction, while Veh 1 didn't notice it, and rear-ended Veh 2
82	Middle	6/17/2015	Wednesday	4:14 PM	Non-fatal injury	Sideswipe, same direction	Failure to keep in proper lane, Unknown	22	Daylight	Clear	Dry	Veh 2 cut off Veh 1; 2 injuries
83	Middle	6/22/2015	Monday	4:50 PM	Property Damage	Rear-end	Inattention, Followed too closely	25	Daylight	Clear	Dry	Veh 2 rear-ended Veh 1
84	Eastern	9/25/2015	Friday	5:07 PM	Property Damage	Rear-end	Inattention	46	Daylight	Clear	Dry	Veh 1,2,3 were all stopped in traffic while Veh 4 rear-ended Veh 3, who rear-ended Veh 2, and then v1
85	Eastern	9/28/2015	Monday	2:31 PM	Property Damage	Sideswipe, same direction	Failure to keep in proper lane	26	Daylight	Clear	Dry	Veh 1 tried to cross into Veh 2's lane, and collided with Veh 2
86	Middle	9/30/2015	Wednesday	7:27 AM	Property Damage	Rear-end	Inattention, Unknown	40	Daylight	Rain	Wet	Veh 1 rear-ended Veh 2
87	Eastern	10/30/2015	Friday	12:02 PM	Non-fatal injury	Rear-end	Inattention	74	Daylight	Clear	Dry	Veh 2 struck the rear of Veh 1, who had stopped
N/A*	Western	10/26/2015	Monday	8:30 AM	Fatal	Head on	Unknown	31	Daylight	Unknown	Unknown	Veh 1 traveling east crossed centerline and collided in the westbound lane with oncoming Veh 2. Veh 1 was pushed back into the eastbound lane upon impact where it was struck by Veh 3, which was travelling eastbound. Refer to news article for additional information

\* Information obtained from news article from Telegram and Gazette (<http://www.telegram.com/article/20151026/NEWS/151029375>)

