

ROAD SAFETY AUDIT

Avon Center

Main St. (Route 28) at East High St and West High Street to
Main Street (Route 28) at East Main Street and West Main Street

Municipality of Avon, MA

October 9, 2024

Prepared For:

Town of Avon



Prepared under MassDOT Contract #126742 By:
Old Colony Planning Council
70 School Street, Brockton, MA. 02301



OLD COLONY
PLANNING COUNCIL

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Background

This Road Safety Audit (RSA) was completed on October 9, 2024 facilitated by the Old Colony Planning Council (OCPC) at the request of the Town of Avon. The study request was initiated due to safety concerns and the need for enhanced accommodation for pedestrians and bicyclists. The study area consists of Route 28 in the Avon Town Center from the East High Street/West High Street/Main Street intersection to the West Main Street/East Main Street (Route 28)/North Main Street (Route 28) intersection, including both signalized intersections. The location of the study area is shown in Figure 1.

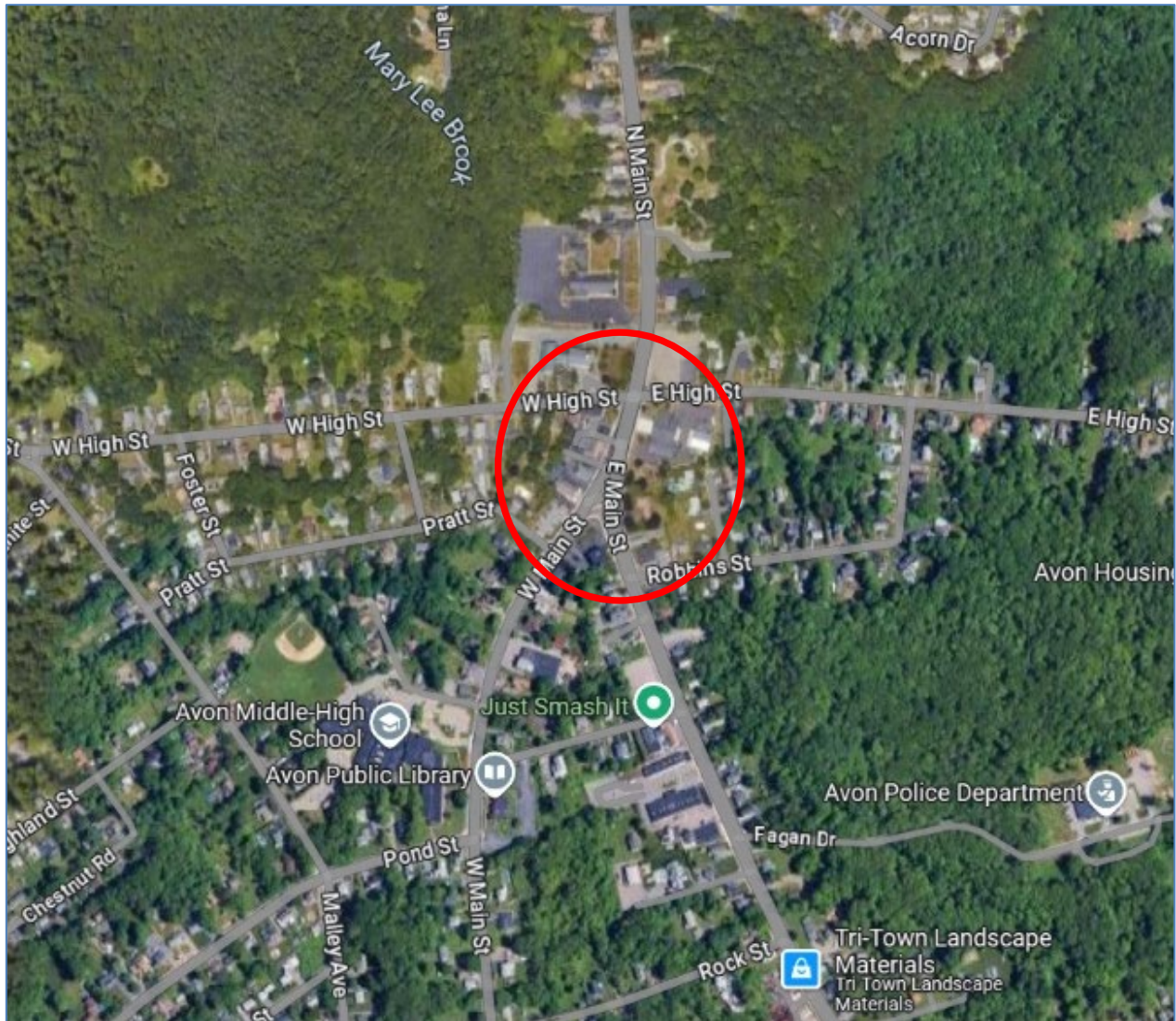


The Avon Center RSA was completed on October 9, 2024 facilitated by OCPC at the request of the Town of Avon.

The Federal Highway Administration defines the RSA as a proactive, formal examination that focuses on road safety conducted by an independent multi-disciplinary team. In the RSA, the safety of all road users is considered, including vulnerable road users. The potential improvements from this study are categorized by timeframe and cost assisting the responsible agencies in their decisions to move forward with potential improvements.

The objectives of this RSA include a review of the crash history at the intersections in the study area, identifying potential risks to all road users, and improving safety and mobility, particularly for vulnerable roadway users (pedestrians, cyclists, and people using mobility assistance devices). The findings of this audit will assist the jurisdictional agencies in implementing potential short-term and long-term safety improvements (as well as low cost, medium, and high cost).

Figure 1: Locus Map



This Road Safety Audit was held on October 9, 2024, at the Board of Selectman’s meeting room (McDermott Room) at Avon Town Offices followed by a field visit to the site. The Audit consisted of an open discussion in the meeting room to discern observations and concerns, with a field visit to the site to observe the location as a group for its physical and operational attributes. Participants capped off the meeting with a discussion and documentation of potential short-term and long-term improvements. Participants included an interdisciplinary team of planners, engineers, public safety officials, and government officials. The members of the audit team were comprised of representatives from local and state agencies including first responders, local officials, transportation planners and engineers. A list of the audit team members is provided in Table 1 and is included in the appendix with their contact information.

Table 1: Participating Audit Team Members

Audit Team Member	Agency/Affiliation
David Charest	Avon Fire Department
Rick Jordan	Avon Planning Department
Chris Bartolotta	Avon Police Department
Brian Martin	Avon DPW
Ron Herrett	Brockton Area Transit
Iolando Spinola	Walk Massachusetts
John Mahoney	Representative William Galvin’s Office
Jason Walters	MassDOT District 5 Projects
Evelyn Densmore	MassDOT Traffic and Safety
Derek Jackson	MassDOT District 5 Projects
Kaustubh Kadam	MassDOT District 5
Majtoba Moharrer	MassDOT District 5
Chanikya Sita	MassDOT District 5
Dakota DelSignore	MassDOT Traffic and Safety
Ahmad Shunhibar	MassDOT District 5
Shawn Bailey	OCPC
Kyle Mowatt	OCPC
Matt Dyer	OCPC
Ray Guarino	OCPC
Guoqiang Li	OCPC

Project Location, Description, and Background Data

The East High Street/West High Street/Main Street (Route 28) Intersection

The East High Street/West High Street/Main Street (Route 28) Intersection is a four-way signalized intersection located at the north end of Avon Center. Main Street is Route 28 in the town center, which connects Brockton center to I-93, Boston and points north. Main Street (Route 28) is classified as a Principal Arterial, which makes it eligible for federal aid. It is under the jurisdiction (ownership) of the Commonwealth of Massachusetts. The posted speed limit on Route 28 is 30 miles per hour (MPH) based on Special Speed Reg. 331. Main Street in the Town center is approximately 60 feet wide and provides sidewalks on both sides of the road. Within the study area, Route 28 provides a four-lane cross section (two lanes northbound and two lanes southbound). There are no bicycle lanes on Route 28 in the Avon center. There is parallel parking on the southbound side of Main Street (Route 28) with pavement markings that designate eight parking spaces and no parking allowed on the northbound side. The Avon Fire Department is located on the east side of Route 28 just south of East High Street with access directly to Route 28. There are several businesses with residences on the westbound side of Route 28 with direct access to Route 28 located opposite the Fire Department south of West High Street.

Based on archived traffic data (2015), the average daily traffic on Main Street (Route 28) south of East High Street and West High Street is 15,641 vehicles per day (VPD), the 85 percentile speed was recorded at 27 MPH, and the percentage of heavy vehicles in the traffic flow is 9 percent. Based on archived traffic data, the average daily traffic on Main Street (Route 28) north of East High Street and West High Street is 19,717 vehicles per day (VPD), the 85 percentile speed was recorded at 37 MPH, and the percentage of heavy vehicles in the traffic flow is 6.3 percent.

Main Street (Route 28) provides two approach lanes on the northbound and southbound approaches to its intersection with West High Street and East High Street, one shared left through lane and one shared right through lane. West High Street has one approach lane to the intersection for shared left, through, and right turn movements. East High Street has one approach lane to its intersection with Main Street (Route 28) for shared left, through, and right turn movements. East High Street and West High Street are classified as a Minor Arterial and are eligible for federal aid. The jurisdiction or ownership of East High Street and West High Street is under the Town of Avon. The width of West High Street varies between 22 and 24 feet, and East High Street is approximately 24 to 26 feet wide. The posted speed limit on East High Street headed westbound toward the intersection is 25 miles per hour. The posted speed limit on East High Street headed eastbound away from the intersection is 30 miles per hour. The posted speed limit on West High Street headed eastbound toward the intersection is 25 miles per hour. The posted speed limit on West High Street headed westbound away from the intersection is 30 miles per hour. There are sidewalks located on the south side of East High Street and the south side of West High Street. There are no bicycle facilities on West High Street and East High Street.

Based on archived traffic data (2015), the average daily traffic on West High Street is 5,737 VPD, the 85 percentile speed was recorded at 33 MPH, and the percentage of heavy vehicles in the traffic flow is 5.4 percent. Based on archived traffic data, the average daily traffic on East High Street is 4,766 VPD, the 85 percentile speed was recorded at 38 MPH, and the percentage of heavy vehicles in the traffic flow is 11.7 percent.

There were 36 crashes at this intersection within the 5-year study period, of which 36 percent were angle type crashes. The crash time of day trended between noon and 6 PM, and the light conditions were daylight for 67 percent of the crashes. The surface conditions were dry for 72 percent of the crashes and the age of the drivers trended toward the younger ages with 64 percent of the drivers under the age of 40 (41 percent being between 20 and 29). Eight of the 36 crashes resulted in personal injury, with the remainder being property damage only. The intersection of East High Street/West High Street/Main Street (Route 28) was identified as a Top 5% Highway Safety Improvement Program (HSIP) crash cluster for the years 2017-2019 within OCPC region.

The West Main Street/East Main Street (Route 28)/Main Street (Route 28) Intersection

The West Main Street/East Main Street (Route 28)/Main Street (Route 28) intersection is a signalized three way intersection in the Avon Center. There is a Civil War monument located in the splitter island on the West Main Street approach to the intersection. West Main Street is classified as a Minor Arterial and is federal aid eligible. It is under the jurisdiction of the Town of Avon. It is a two lane cross section approximately 36 feet wide. The speed limit on West Main Street varies between 25 and 35 miles per hour based on Special Speed Permit 756. The speed limit on West Main Street in the vicinity of East Main Street is 30 MPH in both directions based on Special Speed Permit 756. The speed limit is posted on West Main Street at 30 MPH northbound and 35 MPH southbound south of East Main Street based on field observations. East Main Street (Route 28) is a four-lane cross section through the West Main Street/East Main Street (Route 28)/Main Street (Route 28) Intersection. The East Main Street (Route 28) southbound approach to the intersection has a splitter island for right turns to West Main Street; however, the movement has very little turning radius available causing motorists to make this movement at high speeds close to the parked cars and sidewalk on the west side of Avon Town Center. The north eastbound approach from West Main Street has been marked as two lanes, one right turn only lane and one left turn only lane in the past, although field visits by staff indicate that there are no markings for lane designation currently. There are sidewalks on all sides of the intersection, and there are no bicycle facilities.



The West Main Street/East Main Street (Route 28)/Main Street (Route 28) Intersection.

Based on archived traffic data, the average daily traffic on Main Street (Route 28) north of this intersection is 15,641 vehicles per day, the 85th percentile speeds on Route 28 are 27 MPH at this location, and the percentage of heavy vehicles in the traffic flow is 9 percent.

Audit Observations and Potential Safety Enhancements

Following an introduction to the RSA process and a discussion of the background traffic, crash experience, intersection geometry, and traffic operations, the RSA participants were asked to discuss safety concerns at the Avon Center intersections. Participant observations and comments were documented by OCPC staff. Audit team members then visited the study area as a team, at which time observations were offered in the field and documented by OCPC staff members.

The following sections discuss in detail the safety issues and potential enhancements that were identified during the RSA. Several of the issues identified require further engineering study and engineering design to determine the feasibility of implementing the recommended improvements.

Crash reports were compiled from the Avon Police Department for the years 2019 through 2023. The collision diagrams and a summary of the crash data for the study area are included in the appendix of this report. The following lists safety concerns and the potential enhancements that were identified during the RSA for the Avon Center.

The North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection

Safety Issue: Intersection Alignment The West High Street approach is not directly aligned opposite East High Street and enters the intersection at a slightly skewed angle. This misalignment causes driver confusion as vehicles make left turns from East High Street and West High Street. In addition, North Main Street southbound curves as it approaches the intersection. Angle crashes within the intersection occurred when vehicles went around vehicles that were stopped to turn left.

Enhancement: The location of the traffic signals should be evaluated and improved relative to their location at the intersection, and the addition of refuge islands and the painting of the curbs would improve safety. Refuge islands on the intersection approaches should be considered to protect pedestrians.

Safety Issue: The signal timing and phasing lacks protection for left turn movements. In addition, study participants observed that the yellow and all red clearance were not adequate for vehicles to clear the intersection. Forty-seven percent of the crashes at this intersection (17 out of 37) were angle type collisions. The signal timing for the eastbound and westbound travel appeared to have longer green times than necessary, which lead to long queues on North Main Street and Main Street (Route 28) approaches. Numerous red light running angle crashes reported at this intersection during the study period. Inadequate clearance times, and driver frustration could be contributing factors to this trend. There were seven crashes with red light running reported during the study period. Audit participants also expressed that the left turn movement from Main Street (Route 28) northbound onto West High Street can be extremely difficult to make across two lanes of oncoming traffic.

Enhancement: An Intersection Control Evaluation (I.C.E.) should be conducted for the intersection considering alternative control types such as a roundabout. Right of way takings would most likely be needed to widen the West High Street and East High Street approaches, which are currently only wide enough to accommodate a single shared left, through, right approach lane on each of these approaches.

Enhancement: Evaluate signal timing and phasing improvements and adding exclusive left turn lane storage with protected phases, including pavement marking and lane assignment evaluation.

Safety Issue: The North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection has an emergency pre-emption for emergency vehicles exiting the fire station that is located in the fire station, but lacks the pre-emption mounted on the signal equipment that communicates via infrared transmitters mounted on emergency vehicles. In addition, vehicles stop in front of the Firehouse exit on the northbound approach when stopped for a red light.

Enhancement: Evaluate emergency vehicle signal preemption and signal coordination for improved fire station egress.

Enhancement: Evaluate installing pavement markings (MUTCD Figure 3B-24) “Do Not Block Intersection” markings to Route 28 Main Street at the Fire Department curb cut along with signage indicating not to block the intersection.

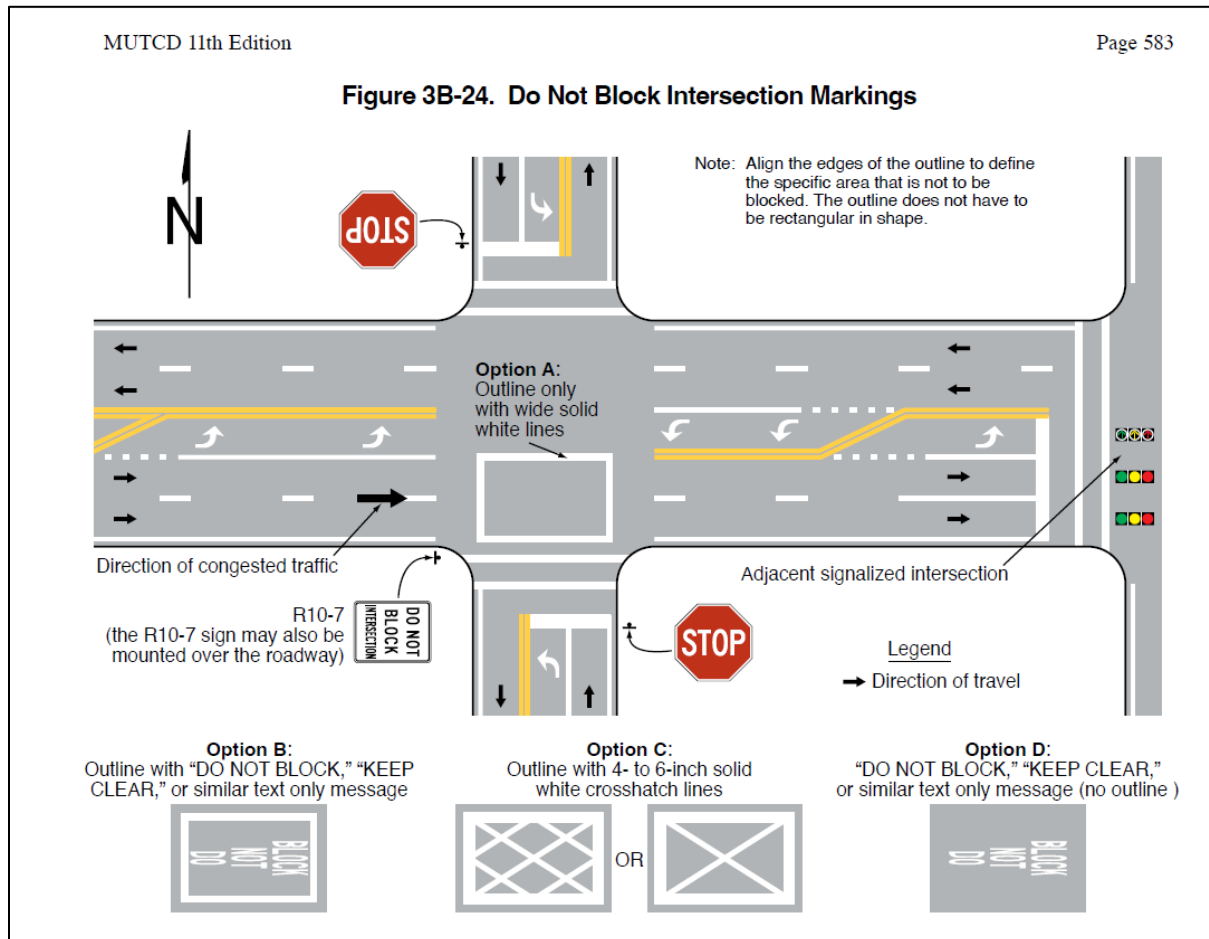
Evaluation: Consider installing signal in front of fire station garage doors to stop traffic when emergency vehicles are exiting.

Safety Issue: **There are long queues between the East Main Street (Route 28)/West Main Street intersection and the North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection. Vehicles exhibit rear-end and sideswipe crashes at they weave from lane to lane vying for the right lane or left lane for turning movements.** Nine rear-end collisions occurred at this intersection, with eight occurring on the Route 28 approaches.

Enhancement: Update traffic signal timing and phasing and coordinate the signal timing between the East Main Street (Route 28)/West Main Street intersection and the North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection to improve safety and operations.

Enhancement: Evaluate roadway cross-section of Route 28 approaches to the intersection including lane designation and number of lanes.

Figure 2: MUTCD Do Not Block Intersection Markings



Safety Issue: The traffic signals are not directly over the two approach lanes on the southbound approach to the North Main Street (Route 28)/Main Street (Route 28/East High Street/West High Street intersection).

Enhancement: Evaluate the placement and/or replacement of traffic signal equipment for the southbound and northbound approaches to align signal heads with the designated lanes.

Safety Issue: The Bus stop on the southeast corner if the intersection is hidden by a fence and the signal cabinet and is not an accessible bus stop.

Enhancement: Remove fence to improve visibility and access

Enhancement:

Move the BAT bus stop to the existing MBTA stop located next to the fire station. Consolidating stops creates a centralized hub, more convenient and efficient for riders transferring between BAT and MBTA services. This would eliminate the need for separate stops and reduce confusion for users.



Bus Stop at the southeast corner of the Main Street (Route 28)/East High Street/West High Street intersection.

Safety Issue: The pedestrian button on the northwest corner is hidden by sign clutter and poles.

Enhancement: Relocate the street signs to avoid clutter and improve access to pedestrian buttons.

Safety Issue: The intersection lacks lane assignment markings and signage on the northbound and southbound approaches to inform drivers which lane they need to be in order to execute their desired movement. Additionally, the northbound and southbound lanes departing the intersection both have unclear signage and markings for the northbound merge and the southbound right turn onto West Main Street.

Enhancement: Install appropriate pavement markings and signage to clarify lane assignments.

Enhancement: Consider installing advanced signal ahead signage (MUTCD W3-3) to warn motorists of upcoming signal.

The West Main Street/East Main Street (Route 28)/Main Street (Route 28) Intersection

Safety Issue: The East Main Street (Route 28) southbound approach to the intersection has a splitter island for right turns to West Main Street; however, the movement has very little turning radius causing motorists to make this movement at high speeds close to the parked cars and sidewalk on the west side of Avon Town Center.

Enhancement: Reconfigure/reconstruct the intersection to extend the sidewalk requiring right turns from Route 28 to make a 90 degree right turn movement to West Main Street.

Safety Issue: Speeding through the intersection and speeding through the Town Center

Enhancement: Consider narrowing the travel lanes for traffic calming.

Enhancement: Add trees to the sidewalks on the west side of Route 28 near the businesses. Street trees, strategically planted, can achieve a traffic-calming effect by visually narrowing the roadway and encouraging slower speeds. They can provide much-needed shade for pedestrians, improving the walkability and overall experience of the Avon Center.

Safety Issue: The southmost parking space on the west side of Main Street blocks the view of pedestrians in the crosswalk from vehicles turning from Main Street (Route 28) southbound to West Main Street.

Enhancement: Redesign and reconstruct the intersection and widen the sidewalk on the west side of Main Street (Route 28) requiring right turns from Route 28 to make a 90 degree right turn movement to West Main Street.

Enhancement: Add warning signs pedestrian crossing to the crosswalk to alert the motorists of the crosswalk.

Safety Issue: The crosswalk across the West Main Street approach to the splitter island is excessive for pedestrians to cross.

Enhancement: Extend the Pedestrian refuge from the island with the monument.

Safety Issue: The signal equipment lacks backplates for alleviating glare.

Enhancement: Install retroreflective back plates.

Safety Issue: The receiving lane on East Main Street (Route 28) southbound merges from two lanes to one lane; however, this merge is close to the intersection and interfering with intersection operations. In addition, the merge sign is mounted too low and may not be visible to drivers.

Enhancement: Move the merge from two lanes to one lane further south from the West Main Street/East Main Street (Route 28)/Main Street (Route 28) Intersection and evaluate merge sign height and placement.

Safety Issue: The northeast West Main Street approach to the intersection lacks pavement markings.

Enhancement: Consider adding pavement markings to the West Main Street approach for lane assignment.

Safety Issue: The traffic signal equipment is antiquated including the pedestrian signals, making them difficult to distinguish “Walk” from “Don’t Walk”.

Enhancement: Upgrade traffic signal equipment including pedestrian signals.

Safety Issue: Access management: The exits from driveways along the southbound lane of Main Street (Route 28) as motorists visit commercial storefronts are not easily visible to drivers traveling on Main Street, and due to the parking along the lane, forces drivers exiting those lots to pull far into the roadway before being able to see oncoming traffic. There were two crashes involving these circumstances. Motorists were observed making illegal U-turns in this area to access the parking spots.

Enhancement: The town should consider access management techniques such as linking parking lots and designating driveways as right turn in and right turn out only.

Summary of Road Safety Audit

Based on the review of data, observations of the study area made in the field, and group discussion, the RSA team identified possible enhancements that could improve safety at the study area locations. Further study and design work will need to be conducted to determine the feasibility of improvements. Table 2 summarizes the estimated time frame and costs, and Table 3 summarizes the safety issues, possible enhancements, estimated safety payoff, time frame, cost, and jurisdiction responsibility. Safety payoff estimates are based on engineering judgment and are categorized as low, medium, and high. The time frame is categorized as short-term (<1 year), midterm (1 to 3 years), or long-term (typically >3 years). Long-term improvements are typically considered to be substantial improvements with an expected time frame for implementation greater than 3 years. The costs are categorized as low (<\$10,000), medium (\$10,001 to \$50,000), or high (>\$50,000).

Table 2: Estimated Time Frame and Costs Breakdown

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

Table 3: Potential Safety Enhancement Summary North Main St. (Route 28)/Main St. (Route 28)/East High St./West High St.

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
The West High St. approach is not directly aligned opposite East High St. and enters the intersection at a slightly skewed angle causing driver confusion as vehicles make left turns. In addition, North Main St. southbound curves as it approaches the intersection.	The location of the traffic signals should be evaluated and improved relative to their location in the intersection, and the addition of refuge islands and the painting of the curbs would improve safety. Refuge islands on the intersection approaches should be considered to protect pedestrians.	Medium	>3 Years	Medium	MassDOT/Town
Signal timing and phasing lacks protection for left turn movements and clearance is not adequate.	An Intersection Control Evaluation (I.C.E.) should be conducted to consider alternatives.	High	>3 Years	High	MassDOT
Signal timing and phasing lacks protection for left turn movements and clearance is not adequate.	Evaluate signal timing and phasing improvements and adding exclusive left turn lane storage with protected phases, including pavement marking and lane assignment evaluation.	Medium	1-3 Years	Medium	MassDOT
The North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection has an emergency pre-emption for emergency vehicles exiting the fire station that is in the fire station, but lacks the pre-emption mounted on the signal equipment that communicates via infrared transmitters mounted on emergency vehicles. In addition, vehicles stop in front of the Firehouse exit on the northbound approach when stopped for a red light.	Evaluate emergency vehicle signal preemption and signal coordination for improved fire station egress.	Medium	1-3 Years	Medium	MassDOT

Table 3: Potential Safety Enhancement Summary North Main St. (Route 28)/Main St. (Route 28)/East High St./West High Street (continued)

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
The North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection lacks signal mounted pre-emption. In addition, vehicles stop in front of the Firehouse exit on the northbound approach when stopped for a red light.	Evaluate installing pavement markings (MUTCD Figure 3B-24) "Do Not Block Intersection" markings to Route 28 Main Street at the Fire Department curb cut along with signage indicating not to block the intersection.	Medium	1-3 Years	Medium	MassDOT
There are long queues between the East Main Street (Route 28)/West Main Street intersection and the North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection. Vehicles exhibit rear-end and sideswipe crashes at they weave from lane to lane vying for the right lane or left lane for turning movements.	Update traffic signal timing and phasing and coordinate the signal timing between the East Main Street (Route 28)/West Main Street intersection and the North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection.	Medium	1-3 Years	Medium	MassDOT
There are long queues between the East Main Street (Route 28)/West Main Street intersection and the North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection.	Evaluate roadway cross-section of Route 28 approaches to the intersection including lane designation and number of lanes.	Medium	< 1 Year	Medium	MassDOT
Safety Issue: The traffic signals are not directly over the two approach lanes on the southbound approach to the North Main Street (Route 28)/Main Street (Route 28)/East High Street/West High Street intersection.	Evaluate the placement and/or replacement of traffic signal equipment for the southbound and northbound approaches to align signal heads with the designated lanes.	Medium	>3 Years	High	MassDOT

Table 3: Potential Safety Enhancement Summary North Main St. (Route 28)/Main St. (Route 28)/East High St./West High Street (continued)

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
The Bus stop on the southeast corner if the intersection is hidden by a fence and the signal cabinet and is not an accessible bus stop.	Remove fence to improve visibility and access.	Low	<1 Year	Low	BAT/Town
The Bus stop on the southeast corner if the intersection is hidden by a fence and the signal cabinet and is not an accessible bus stop.	Move the BAT bus stop to the existing MBTA stop next to the fire station. Consolidating stops creates a more convenient and efficient stop for riders transferring between BAT and MBTA services, eliminating the need for separate stops and reducing confusion for users.	Medium	<1 Year	Low	BAT/MBTA
The pedestrian button on the northwest corner is hidden by sign clutter and poles.	Relocate the street signs to avoid clutter and improve access to pedestrian buttons.	Medium	1-3 Years	Medium	MassDOT
The intersection lacks lane assignment markings and signage on the northbound and southbound approaches to inform drivers which lane they need to be in order to execute their desired movement. Additionally, the northbound and southbound lanes departing the intersection both have unclear signage and markings for the northbound merge and the southbound right turn onto West Main Street.	Install appropriate pavement markings and signage to clarify lane assignments.	Medium	< 1-Year	Low	MassDOT
The intersection lacks lane assignment markings and signage on the northbound and southbound approaches to inform drivers which lane they need to be in order to execute their desired movement. Additionally, the northbound and southbound lanes departing the intersection both have unclear signage and markings for the northbound merge and the southbound right turn onto West Main Street.	Consider installing advanced signal ahead signage (MUTCD W3-3) to warn motorists of upcoming signal.	Medium	< 1-Year	Low	MassDOT


Table 4: Potential Safety Enhancement Summary West Main Street/East Main Street (Route 28)/Main Street (Route 28)

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Safety Issue: The East Main Street (Route 28) southbound approach to the intersection has a splitter island for right turns to West Main Street; however, the movement has very little turning radius causing motorists to make this movement at high speeds close to the parked cars and sidewalk on the west side of Avon Town Center.	Reconfigure/reconstruct the intersection to extend the sidewalk requiring right turns from Route 28 to make a 90 degree right turn movement to West Main Street.	High	<3 Years	High	MassDOT/Town
Speeding through the intersection and speeding through the Town Center	Consider narrowing the travel lanes for traffic calming.	Medium	<1 Year	Low	MassDOT
Speeding through the intersection and speeding through the Town Center	Add trees to the sidewalks on the west side of Route 28 near the businesses. Street trees, strategically planted, can achieve a traffic-calming effect by visually narrowing the roadway and encouraging slower speeds. They can provide much-needed shade for pedestrians, improving the walkability and overall experience of the Avon Center.	Medium	<1 Year	Medium	MassDOT/Town
The southmost parking space on the west side of Main Street blocks the view of pedestrians in the crosswalk from vehicles turning from Main Street (Route 28) southbound to West Main Street.	Redesign and reconstruct the intersection and widen the sidewalk on the west side of Main Street (Route 28) requiring right turns from Route 28 to make a 90 degree right turn movement to West Main Street.	High	<3 Years	High	MassDOT/Town
The southmost parking space on the west side of Main Street blocks the view of pedestrians in the crosswalk from vehicles turning from Main Street (Route 28) southbound to West Main Street.	Add warning signs pedestrian crossing to the crosswalk to alert the motorists of the crosswalk.	Medium	< 1-Year	Low	MassDOT/Town

Table 4: Potential Safety Enhancement Summary West Main Street/East Main Street (Route 28)/Main Street (Route 28)
 (continued)

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
The crosswalk across the West Main Street approach to the splitter island is excessive for pedestrians to cross.	Extend the Pedestrian refuge from the island with the monument.	Medium	1 - 3 Years	Medium	MassDOT/Town
The signal equipment lacks backplates for alleviating glare.	Install retroreflective back plates.	Medium	<1 Year	Low	MassDOT
The receiving lane on East Main Street (Route 28) southbound merges from two lanes to one lane; however, this merge is close to the intersection and interfering with intersection operations. The merge sign is mounted too low and may not be visible to drivers.	Lengthen the merge area further south from the West Main Street/East Main Street (Route 28)/Main Street (Route 28) Intersection and evaluate merge sign height and placement.	Low	<1 Year	Low	MassDOT
The traffic signal equipment is antiquated including the pedestrian signals, making them difficult to distinguish "Walk" from "Don't Walk".	Upgrade traffic signal equipment including pedestrian signals	Medium	1 – 3 Years	High	MassDOT
Access management: The exits from driveways along the southbound lane of Main Street (Route 28) as motorists visit commercial storefronts are not easily visible to drivers traveling on Main Street, and due to the parking along the lane, forces drivers exiting those lots to pull far into the roadway before being able to see oncoming traffic. There were two crashes involving these circumstances. Motorists were observed making illegal U-turns in this area to access the parking spots.	The town should consider access management techniques such as linking parking lots and designating driveways as right turn in and right turn out only.	Medium	1 – 3 Years	Low	Town of Avon

Appendix A. RSA Meeting Agenda

Agenda	Road Safety Audit
	Avon, MA Avon Center From the Route 28 at East High St/West High St intersection to the West Main St at East Main St Route 28 Intersection In-person Meeting Location: Mary McDermott Meeting Room, Avon Town Offices 65 East Main Street Avon, MA 02322 Wednesday, October 9, 2024 1 PM – 3 PM
Type of meeting:	Road Safety Audit
Attendees:	Invited Participants to Comprise a Multidisciplinary Team
Please bring:	Thoughts and Enthusiasm
1:00 PM	Welcome and Introductions
1:05 PM	Review of Site-Specific Material - Review and Discuss Project <ul style="list-style-type: none">• Review of traffic and crash data• Review of operational and physical known challenges
1:30 PM	Field Road Safety Audit <ul style="list-style-type: none">• RSA in a group• Car-pool recommended (or walk)
2:30 PM	Meeting Discussion <ul style="list-style-type: none">• Return to McDermott Meeting Room at Avon Offices for discussion of findings, improvement strategies and action plan
3:00 PM	Adjourn for the Day
Instructions for Participants: <ul style="list-style-type: none">• Before attending the RSA, participants are encouraged to drive through the intersections and complete/consider elements on the RSA Prompt List with a focus on safety.• All participants will be actively involved in the process throughout.• 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.• CONTACT: Please direct questions regarding this RSA to Raymond Guarino, OCPC, (774) 539-2989, r Guarino@ocpcrpa.org or Guoqiang Li, OCPC, 774-539-5149 g Li@ocpcrpa.org	
	Old Colony Planning Council 70 School Street, Brockton, MA 02301


Appendix B. RSA Audit Team Contact List

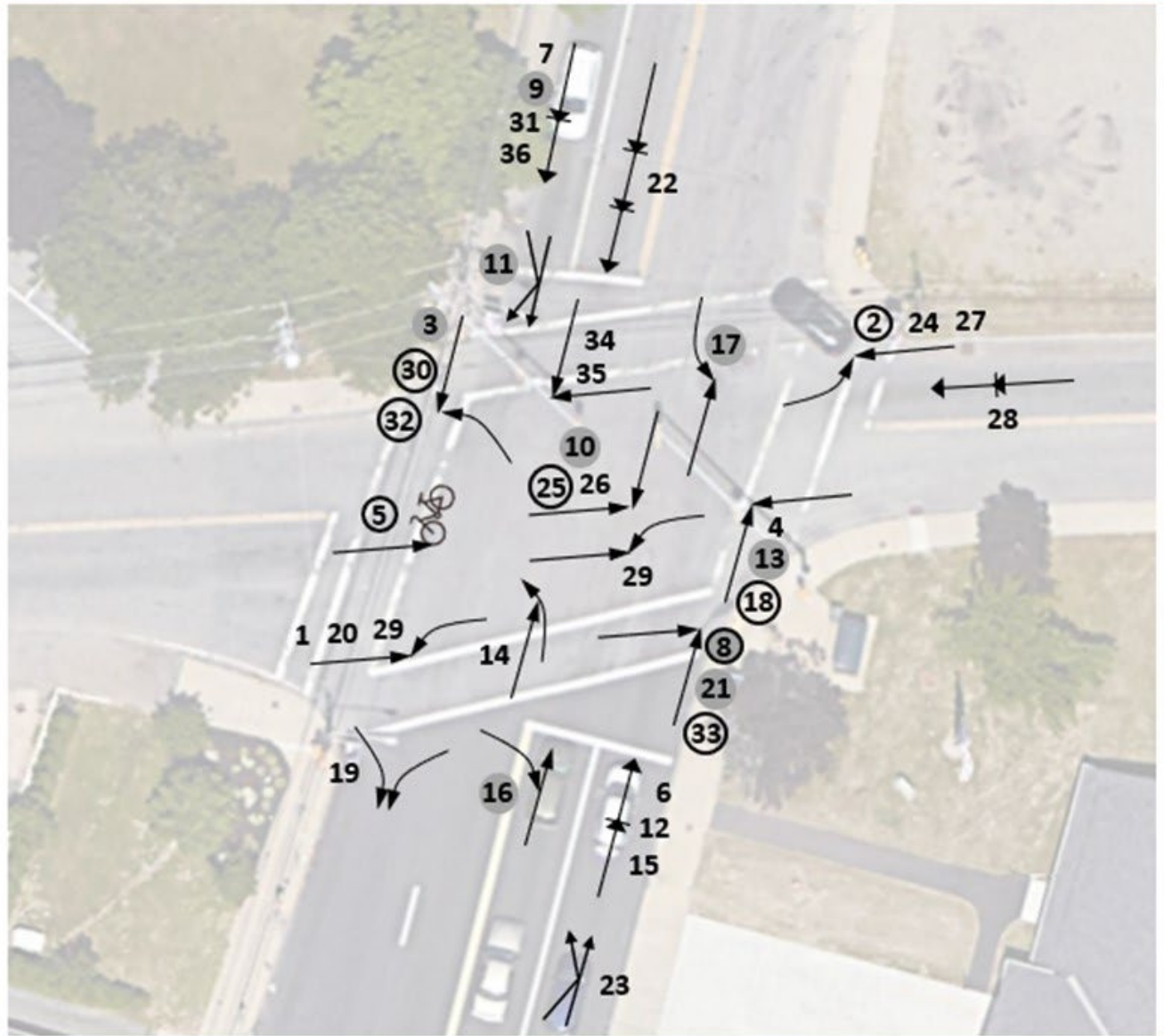
Participating Audit Team Members
























Date: October 9, 2024 Location: Avon, MA

Audit Team Members	Agency/Affiliation	Email Address	Phone Number
Name	Agency	Email	xxx-xxx-xxxx
David Charest	Avon Fire Department	dcharest@avon-ma.gov	(508) 889-9202
Rick Jordan	Avon Planning Department	rjordan@avon-ma.org	(774) 480-1682
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Appendix C. Detailed Crash Data

 Old Colony Planning Council	Avon, MA Main/North Main Streets at East/West High Streets
COLLISION DIAGRAM	TIME PERIOD ANALYZED: 2019, 2020, 2021, 2022 and 2023 SOURCE OF CRASH REPORTS: AVON POLICE DEPARTMENT; SUPPLEMENTED BY MASSDOT DATA PREPARED TIME: September 19, 2024 PREPARED BY: Shawn Bailey



SYMBOLS		SEVERITY	TYPES OF COLLISION		N  NOT TO SCALE
 Moving Vehicle  Backing Vehicle  Non-involve Vehicle  Pedestrian  Animal  Trees  Objects  Wall  Motorcycle  Bicycle  Power Line	 # PDO  Injury  # Fatal	 Turn Movement  Out of Control  Night Time Crash	 Rear-end  Head on  Side-swipe  Over-take  Right Angle		

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Diag ID	Crash ID	Crash Date	Crash Day	Time of Day	Light Conditions	Weather Conditions	Road Surface	Manner of Collision	Driver Contributing Type	Severity	Citation	Abbreviated Narrative
1	19AVO-2852-AC	5/17/19	Friday	11:28 AM	Daylight	Rain	Wet	Single Vehicle Crash	No Improper Driving	PDO	No	EB V1 was traveling through the intersection when WB V2 cut off V1 making a left turn, causing V1 to strike the curb.
2	19AVO-3408-AC	6/5/19	Wednesday	6:37 PM	Daylight	Clear	Dry	Angle	No Improper Driving	Injury	No	WB V1 made a left turn cutting off EB V2 and collided with V2.
3	19AVO-4911-A-AC	7/29/19	Monday	9:42 PM	Dark-lighted roadway	Clear	Dry	Front to Front	No Improper Driving	PDO	No	NB V1 made a left turn cutting off SB V2 and collided with V2.
4	19AVO-6077-AC	9/15/19	Sunday	12:29 PM	Daylight	Clear	Dry	Angle	Unknown	PDO	No	NB V2 ran the red light and struck WB V1.
5	19AVO-6303-AC	9/24/19	Tuesday	3:47 PM	Daylight	Clear	Dry	Unknown	No Improper Driving	Injury	No	EB V1 was hit on the left side of their car by a cyclist, who ran the red light.
6	19AVO-6366-AC	9/26/19	Thursday	4:34 PM	Daylight	Cloudy	Dry	Rear-end	Inattention	PDO	No	NB V2 was stopped behind a vehicle waiting to make a left turn when V2 was rear ended by NB V1.
7	19AVO-7582-A-AC	10/26/19	Saturday	12:27 PM	Daylight	Clear	Dry	Rear-end	Unknown	PDO	No	SB V1 was making a left turn when SB V1 rear ended V2.
8	19AVO-8029-AC	11/6/19	Wednesday	8:26 PM	Dark-roadway not lighted	Clear	Dry	Angle	Unknown	Injury	No	NB V1 and EB V2 collided in the intersection, both claiming they had the green light.
9	19AVO-8906-AC	11/28/19	Thursday	7:06 PM	Dark-lighted roadway	Clear	Unknown	Front to Rear	Unknown	PDO	No	SB V2 was coming to a sudden stop when V2 was rear ended by SB V1.
10	20AVO-494-AC	1/13/20	Monday	4:23 PM	Dark-lighted roadway	Rain	Wet	Angle	Unknown	PDO	No	SB V1 and EB V2 collided in the intersection, both claiming they had the green light.
11	20AVO-3896-AC	5/13/20	Wednesday	12:31 AM	Dark-lighted roadway	Clear	Dry	Sideswipe, Same Direction	Unknown	PDO	No	SB V1 was making a right turn when V1 was side swipped. The other vehicle fled the scene.
12	20AVO-6413-AC	8/22/20	Saturday	1:44 PM	Daylight	Rain	Wet	Rear-end	Inattention	PDO	No	NB V2 slowed to a stop for the red light when NB V1 rear ended, unaware of the red light.
13	20AVO-6505-AC	8/26/20	Wednesday	4:33 AM	Dark-lighted roadway	Clear	Dry	Front to Rear	Unknown	PDO	No	WB V1 and NB V2 collided in the intersection, both claiming they had the green light.
14	20AVO-9523-AC	12/7/20	Monday	7:29 AM	Daylight	Clear	Dry	Rear-end	Made an Improper Turn	PDO	No	NB V1 was traveling through the intersection in the left lane, when NB V1 passed on the right attempting to turn left, colliding with the semi and coming to a stop against a utility pole.
15	21AVO-3455-AC	5/7/21	Friday	7:13 PM	Daylight	Clear	Dry	Front to Rear	No Improper Driving	PDO	No	NB V1 rear ended NB V2, who was stopped at a red light.
16	21AVO-5520-AC	7/8/21	Thursday	11:42 PM	Dark-lighted roadway	Rain	Wet	Angle	Unknown	PDO	No	EB V2 made a right turn and slid (due to wet road conditions) into NB V1, who was stopped at the red light.
17	21AVO-7041-AC	8/21/21	Saturday	10:06 PM	Dark-lighted roadway	Cloudy	Dry	Angle	Unknown	PDO	No	SB V2 made a left turn and collided with NB V1, traveling straight through the intersection.

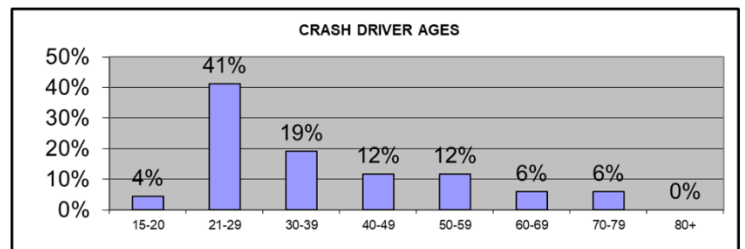
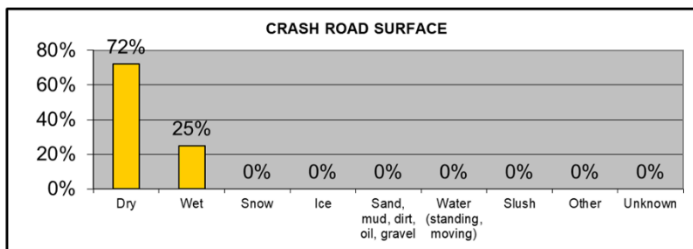
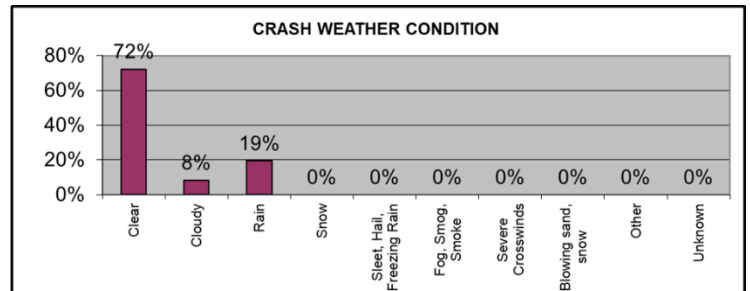
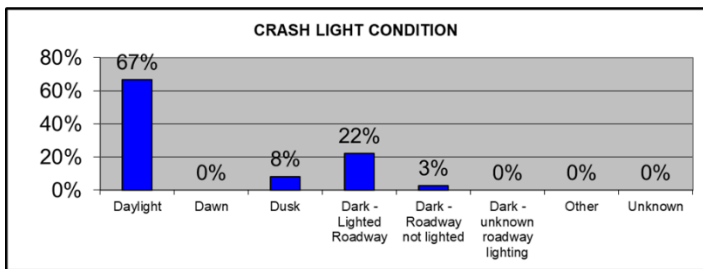
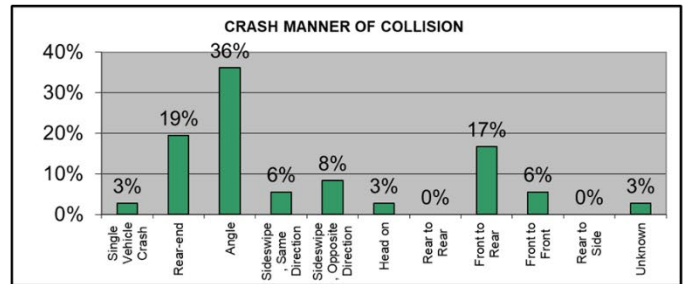
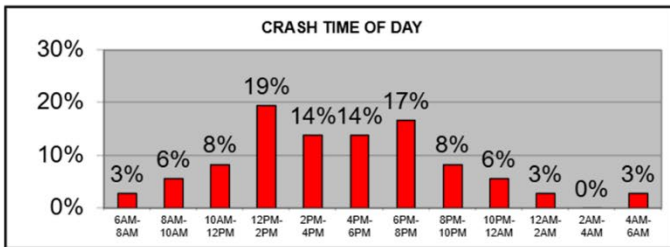
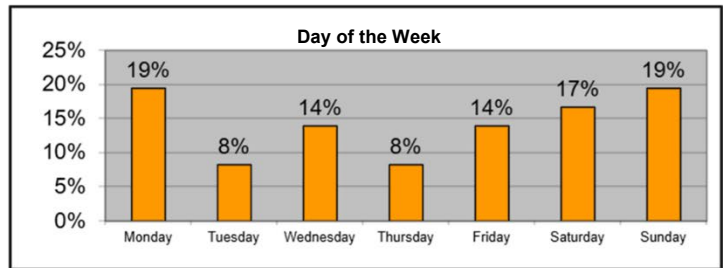
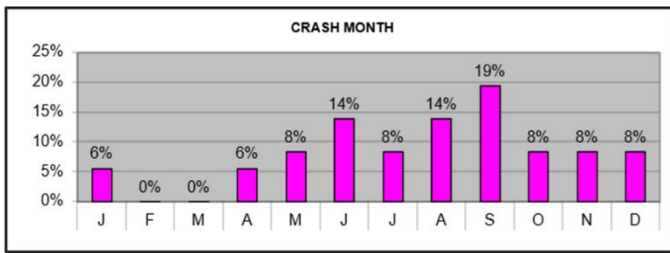
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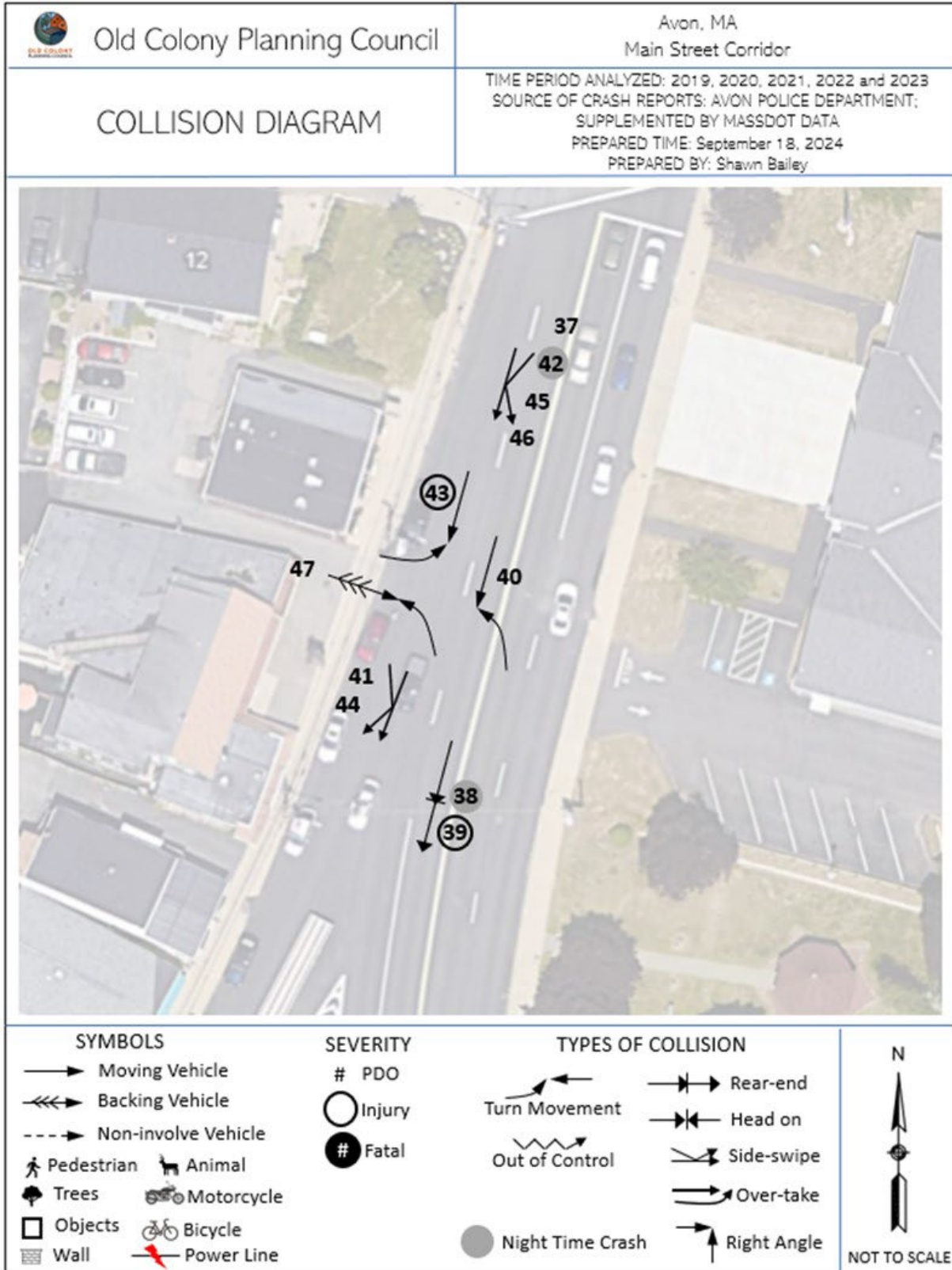
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Diag ID	Crash ID	Crash Date	Crash Day	Time of Day	Light Conditions	Weather Cond	Road Surface	Manner of Collision	Driver Contributing Type	Severity	Citation	Abbreviated Narrative
18	21AVO-7080-AC	8/23/21	Monday	2:39 PM	Daylight	Clear	Dry	Angle	Disregarded Traffic control	Injury	No	NB V2 ran the red light and struck WB V1.
19	21AVO-7921-AC	9/19/21	Sunday	3:27 PM	Daylight	Clear	Dry	Angle	No Improper Driving	PDO	No	EB V1 made a right turn and WB V2 made a left turn to head south and collided after making their turns.
20	21AVO-8239-AC	9/29/21	Wednesday	6:46 PM	Dusk	Clear	Dry	Head on	No Improper Driving	PDO	No	EB V1 went around a vehicle waiting to turn left and collided with WB V2 who was turning left.
21	22AVO-218-AC	1/9/22	Sunday	5:51 PM	Dark-lighted roadway	Cloudy	Wet	Angle	No Improper Driving	PDO	No	NB V1 and EB V2 collided in the intersection, both claiming they had the green light.
22	22AVO-3029-AC	4/30/22	Saturday	12:49 PM	Daylight	Clear	Dry	Front to Rear	No Improper Driving	PDO	No	SB V3 rear ended SB V2, forcing V2 to rear end SB V1. V3 then fled from the scene.
23	22AVO-3950-AC	6/7/22	Tuesday	9:19 AM	Daylight	Clear	Dry	Sideswipe, Same Direction	No Improper Driving	PDO	No	NB V1 was sideswiped by NB V2, who fled the scene.
24	22AVO-4226-AC	6/17/22	Friday	3:45 PM	Daylight	Clear	Wet	Angle	No Improper Driving	PDO	No	EB V1 made a left turn in front of and collided with WB V2.
25	22AVO-4441-AC	6/27/22	Monday	8:01 PM	Dusk	Rain	Wet	Angle	Inattention	Injury	No	NB V2 ran the red light, bounced off WB V1, and struck SB V3 who was stopped at the red light.
26	22AVO-5243-AC	7/30/22	Saturday	7:11 PM	Daylight	Clear	Dry	Front to Rear	Disregarded Traffic control	PDO	No	SB V3 ran the red light, struck EB V1 going through the intersection, and also struck NB V2 who was stopped at the red light.
27	22AVO-6182-AC	9/6/22	Tuesday	2:21 PM	Daylight	Clear	Dry	Sideswipe, Opposite Direction	Unknown	PDO	No	EB V1 made a left turn in front of and collided with WB V2. V1 then fled the scene.
28	22AVO-7475-AC	10/30/22	Sunday	10:47 AM	Daylight	Rain	Wet	Rear-end	No Improper Driving	PDO	No	WB V2 was attempting to make a left turn when WB V1 rear ended V2, attempting to go around V2 to continue straight.
29	22AVO-8527-AC	12/9/22	Friday	4:14 PM	Daylight	Clear	Dry	Sideswipe, Opposite Direction	No Improper Driving	PDO	No	WB V2 turned left in front of and collided with EB V1. Both vehicles views of each other were blocked by a semi in front of V2 also turning left.
30	23AVO-2997-AC	4/28/23	Friday	12:28 PM	Daylight	Clear	Dry	Front to Front	Inattention	Injury	No	NB V1 made a left turn cutting off and colliding with SB V2.
31	23AVO-4652-AC	6/26/23	Monday	12:39 PM	Daylight	Clear	Dry	Rear-end	Unknown	PDO	No	SB V1 was rear ended by SB V2, who then fled the scene.
32	23AVO-6105-AC	8/13/23	Sunday	8:56 AM	Daylight	Clear	Dry	Front to Rear	Unknown	Injury	No	NB V2 turned left in front of and collided with SB V1.
33	23AVO-6761-AC	9/4/23	Monday	4:15 PM	Daylight	Clear	Dry	Sideswipe, Opposite Direction	Unknown	Injury	No	NB V2 ran the red light and struck EB V1, causing V1 to collide into the BAT bus stop shelter.
34	23AVO-7863-AC	10/21/23	Saturday	1:50 PM	Daylight	Rain	Wet	Angle	No Improper Driving	PDO	No	WB V2 ran the red light and collided with SB V1. V2 then fled the scene.
35	23AVO-8549-AC	11/19/23	Sunday	10:16 AM	Daylight	Clear	Dry	Angle	Exceeded Authorized Speed Limit	PDO	No	SB V2, traveling at a high rate of speed, ran the red light and collided with WB V1.
36	23AVO-9079-AC	12/10/23	Sunday	7:26 PM	Dusk	Clear	Dry	Rear-end	Inattention	PDO	No	SB V2 rear ended SB V1, who was stopped for the red light.

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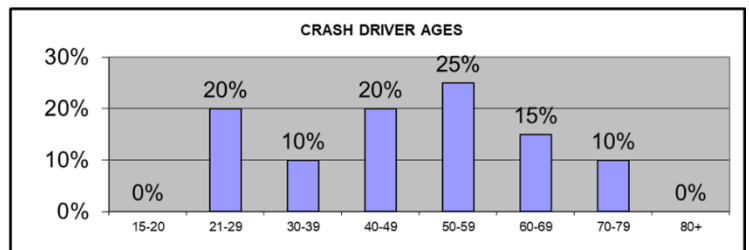
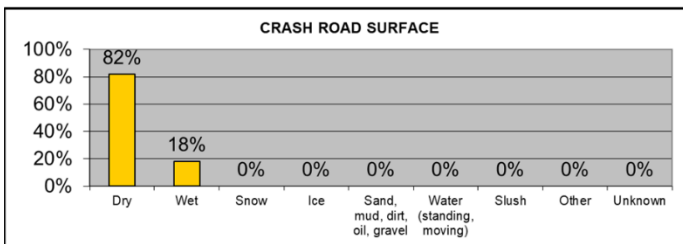
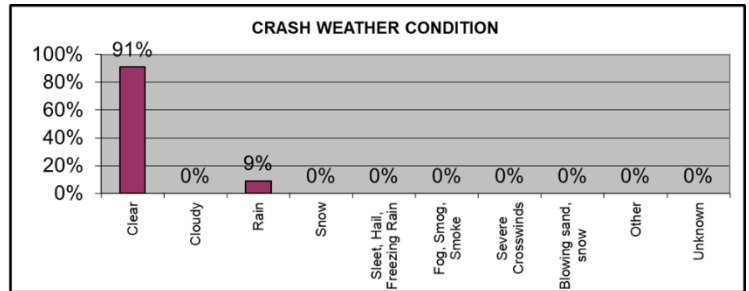
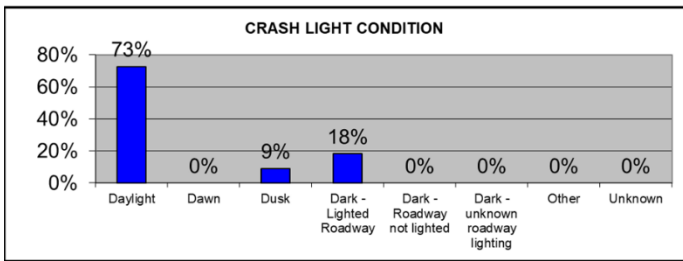
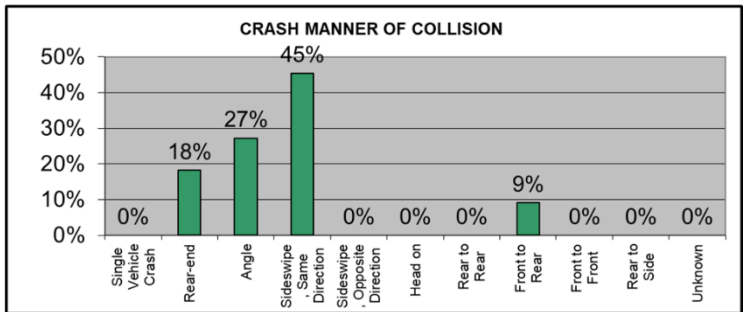
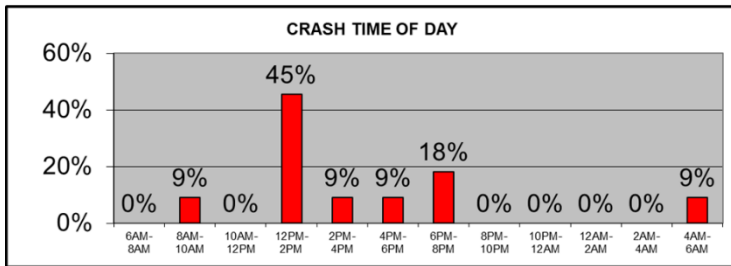
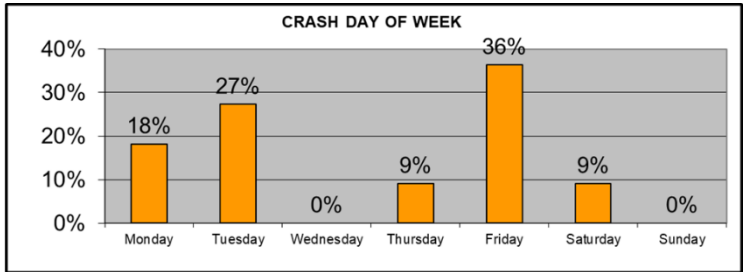
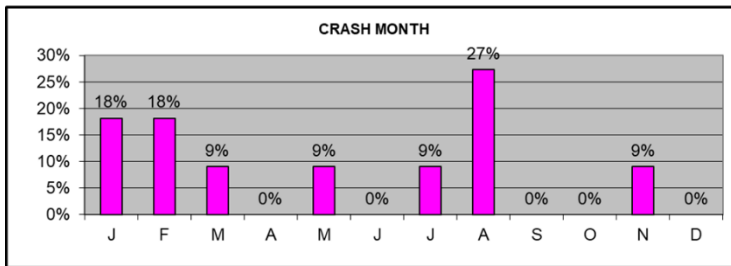
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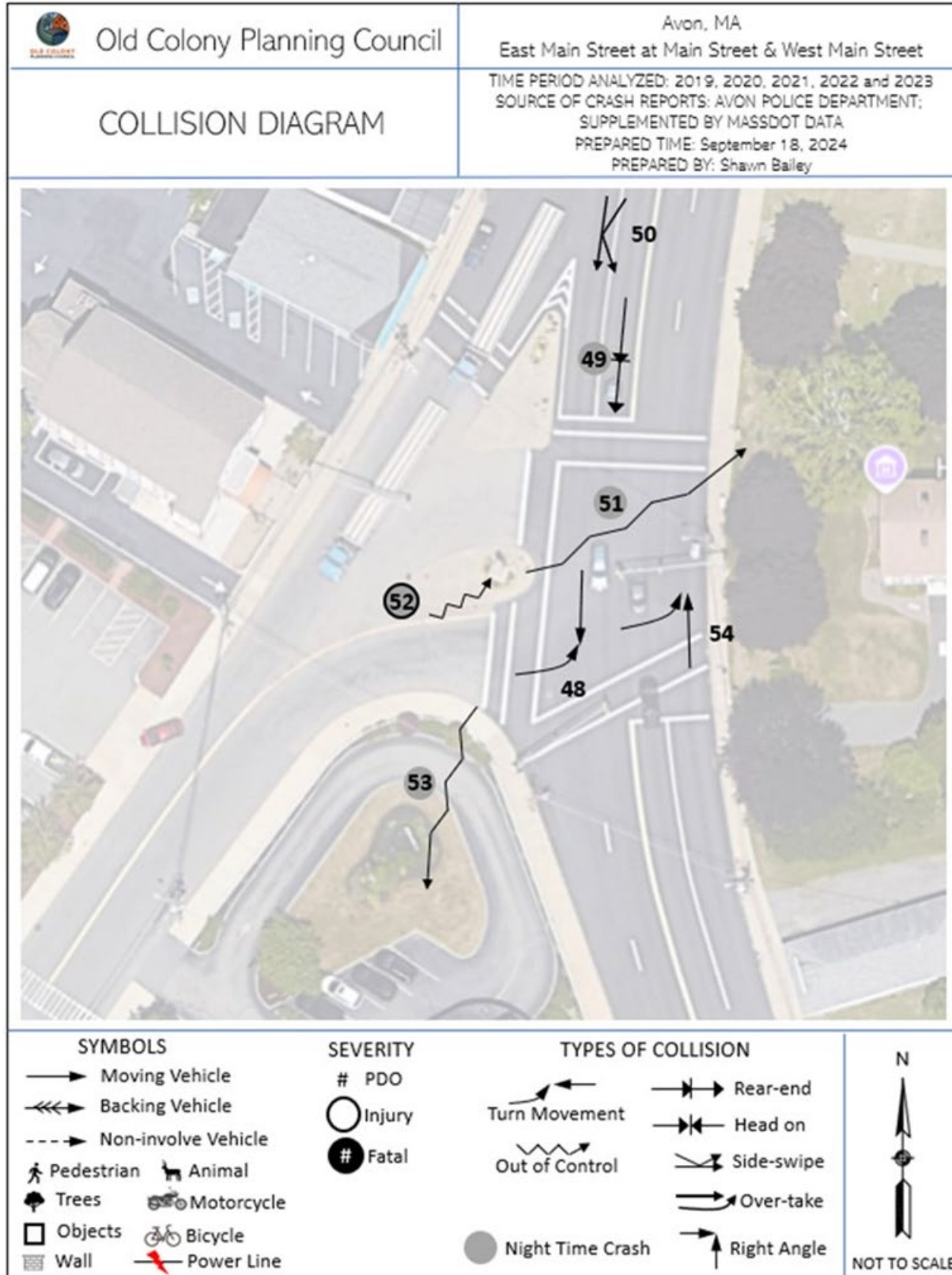
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Diagram ID	Crash ID	Year	Day of Week	Time of Day	Light Conditions	Weather Cond	Road Surface	Manner of Collision	Driver Contributing Type	Severity	Citation	Abbreviated Narrative
37	20AVO-5978-AC	2020	August	2:49 PM	Daylight	Clear	Dry	Sideswipe, Same Direction	Operating Vehicle in Erratic, Reckless, Careless, Negligent, or Aggressive Manner	PDO	No	SB V2 sideswipped the left side of SB V1.
38	20AVO-8585-AC	2020	November	4:57 PM	Dark-lighted roadway	Clear	Dry	Rear-end	Swerving or Avoiding Due to Wind, Slippery Surface, Vehicle, Object, Non-Motorist in Road Way, Etc.	PDO	No	NB V2 rear ended NB V1 after attempting to avoid a separate vehicle trying to merge into V2's lane.
39	21AVO-374-AC	2021	January	12:52 PM	Daylight	Clear	Dry	Rear-end	Inattention	Injury	Yes	NB V2 rear ended NB V1, who was stopped due to traffic.
40	21AVO-1443-AC	2021	February	12:17 PM	Daylight	Clear	Dry	Angle	Failed to Yield Right of Way	PDO	No	NB V2 made a left turn in front of and collided with SB V1, who had the right of way.
41	21AVO-1702-AC	2021	March	12:03 PM	Daylight	Clear	Dry	Sideswipe, Same Direction	No Improper Driving	PDO	No	SB V1 was side swipped by SB V2, who had just pulled out from a roadside parking space.
42	22AVO-531-AC	2022	January	4:41 AM	Dark-lighted roadway	Clear	Dry	Sideswipe, Same Direction	Unknown	PDO	No	SB V1 was side swipped by SB V2, who fled from the scene.
43	22AVO-3365-AC	2022	May	7:21 PM	Daylight	Clear	Dry	Angle	Failed to Yield Right of Way	Injury	No	EB V2 turned left and collided with SB V1.
44	22AVO-6037-AC	2022	August	12:33 PM	Daylight	Clear	Dry	Angle	No Improper Driving	PDO	No	SB V2 pulled out of a parking space and struck SB V1 who was already in the road and had the right of way.
45	23AVO-953-AC	2023	February	8:17 AM	Daylight	Clear	Dry	Sideswipe, Same Direction	Unknown	PDO	No	NB V2 switched lanes and side swipped the left side of NB V1.
46	23AVO-5156-AC	2023	July	12:17 PM	Daylight	Rain	Wet	Sideswipe, Same Direction	Unknown	PDO	No	NB V1 switched lanes and side swipped the right side of NB V2. V1 then fled the scene.
47	23AVO-5900-AC	2023	August	7:38 PM	Dusk	Clear	Wet	Front to Rear	Unknown	PDO	No	WB V1 pulled up behind WB V2, who starting moving in reverse. V1 honked but V2 backed into V1.

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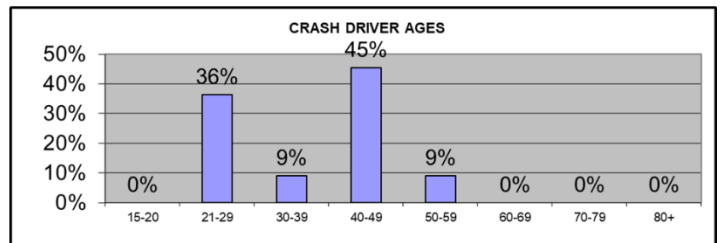
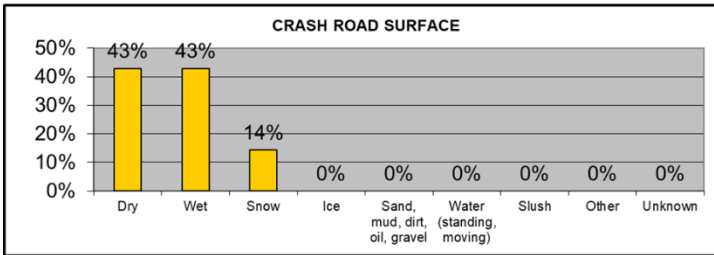
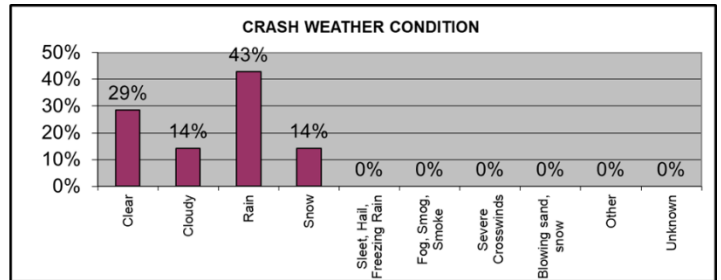
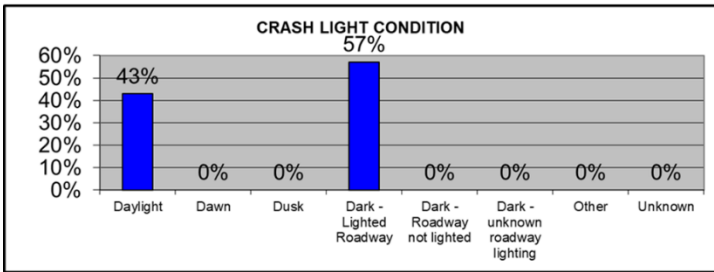
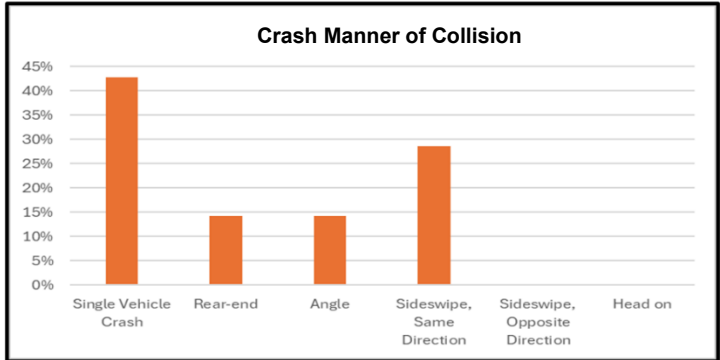
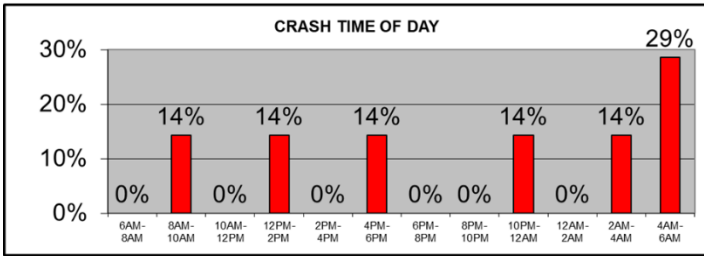
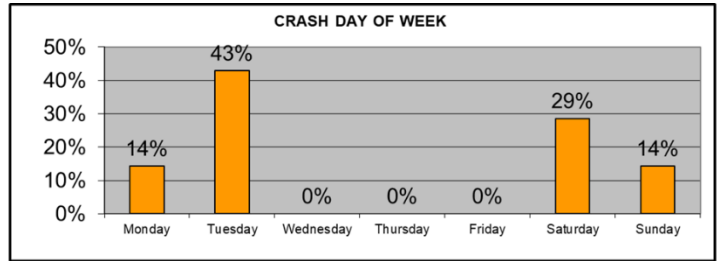
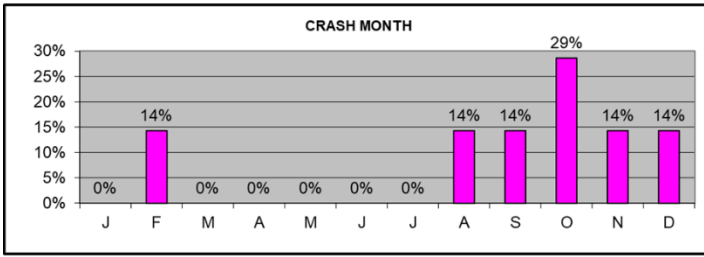




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Diagram ID	Crash ID	Crash Date	Crash Day	Time of Day	Light Conditions	Weather Conditions	Road Surface	Manner of Collision	Driver Contributing Type	Severity	Citation	Abbreviated Narrative
48	19AVO-5754-AC	9/3/19	Tuesday	8:16 AM	Daylight	Clear	Dry	Angle	Unknown	PDO	No	SB V1 ran the red light and collided with EB V2 making a left turn at a green light.
49	19AVO-8765-AC	11/24/19	Sunday	10:42 PM	Dark-lighted roadway	Rain	Wet	Rear-end	Unknown	PDO	No	SB V2 was stopped at the red light when V2 was rear ended by SB V1.
50	21AVO-6420-AC	8/3/21	Tuesday	5:30 PM	Daylight	Cloudy	Dry	Sideswipe, Same Direction	Unknown	PDO	No	SB V1 and SB V2 side swiped each other, each claiming the other driver came into their lane.
51	21AVO-8500-AC	10/9/21	Saturday	3:33 AM	Dark-lighted roadway	Rain	Wet	Single Vehicle Crash		PDO	No	WB V1 struck the center island, crossed the intersection, and caused damage to landscape and multiple signs.
52	22AVO-1165-AC	2/14/22	Monday	4:35 AM	Dark-lighted roadway	Snow	Snow	Single Vehicle Crash	Unknown	Injury	No	EB V1 attempted to break for the red light, but slid on the snowy road and collided with the monument next to the light.
53	22AVO-7155-A-AC	10/18/22	Tuesday	5:28 AM	Dark-lighted roadway	Rain	Wet	Single Vehicle Crash	Unknown	PDO	No	SB V1 hit the curb, lost control, crashed through the fence, and came to a stop after crashing into the drive thru poles of Abington Bank.
54	23AVO-9251-AC	12/16/23	Saturday	1:59 PM	Daylight	Clear	Dry	Sideswipe, Same Direction	Unknown	PDO	No	EB V1 and NB V2 collided in the intersection, each claiming they had the green light.

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Appendix D. Road Safety Audit References

Road Safety Audit References

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