

ROAD SAFETY AUDIT

Pedestrian Safety and Mobility Audit

Pleasant Street (Route 139) at Lowe Avenue
and Dawe Elementary School

Stoughton, MA

November 17, 2022

Prepared through Old Colony MPO FFY 2023 Unified Planning Work
Program – Local Highway Transportation Technical Assistance:
Under Contract 118969 with MassDOT



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Table of Contents

The Road Safety Audit	2
The Audit Meeting and Team.....	2
Project Location and Description.....	5
Crash Details and Overview	5
Audit Observations and Potential Safety Enhancements.....	6
Summary of Road Safety Audit.....	10

List of Appendices

Appendix A. RSA Meeting Agenda	
Appendix B. RSA Audit Team Contact List	
Appendix C. Detailed Crash Data	
Appendix D. Road Safety Audit References	

List of Figures

Figure 1. Locus Map.....	4
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List of Tables

Table 1. Participating Audit Team Members	3
Table 2: Estimated Time Frame and Costs Breakdown	9
Table 3: Potential Safety Enhancement Summary - Pleasant St (Route 139)/Lowe Ave intersection	11
Table 4: Potential Safety Enhancement Summary – Lowe Avenue	12

The Road Safety Audit

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 the RSA is to identify potential safety issues and possible opportunities for safety improvements for all roadway users. The RSA is intended to be a proactive process based on collaborative, qualitative, and quantitative analyses from a multi-disciplinary team.

This Road Safety Audit (RSA) and Pedestrian Safety and Mobility Audit was conducted for Pleasant Street (Route 139) at Lowe Avenue and Dawe Elementary School upon request of the Town of Stoughton. It focuses on pedestrian safety and mobility as well as vehicle and traffic safety. It was conducted through the Old Colony Planning Council's Local Highway Transportation Technical Assistance program and funded through the Old Colony Metropolitan Planning Organization's (MPO) FFY 2023 Unified Planning Work Program (UPWP). This report includes crash data compilation and analyses as well as background data regarding speeds, signage and traffic control, and traffic flow.

The Audit Meeting and Team

The safety audit took place on November 17, 2022, at the Stoughton Police Department's meeting room in Stoughton. The meeting was facilitated by OCPC staff. OCPC provided study area crash data and collision diagrams to participants as well as background information on traffic volumes, speeds, and signage and traffic control. The collision diagrams were based on crash reports provided by the Stoughton Police Department, which were supplemented with crash data from MassDOT's online crash portal (IMPACT).

The meeting was divided into three portions. The first part focused on a discussion of safety deficiency issues and concerns. The participants then traveled to the Lowe Avenue and Pleasant Street (Route 139) location for field observations, where the discussion continued and OCPC staff took notes to document deficiencies and potential recommendations. The third part of the meeting continued at the Stoughton Police Department meeting room after the field visit and focused on short-term and long-term potential improvements for the intersection. The agenda and the background materials are included in the appendix to this report. The RSA participants formed a multidisciplinary team representing many fields, including planning, engineering, first responders, school department administration, and the Safe Routes to School coordinator. A list of RSA attendees is shown in Table 1. The study area location is shown in Figure 1.

Table 1. Participating Audit Team Members

Audit Team Member	Agency/Affiliation
Marc Tisdelle. P.E.	Town of Stoughton Interim Town Manager
Craig Horsefall. P.E.	Town of Stoughton Assistant Town Engineer
Dakota DelSignore	MassDOT, Traffic and Safety
Michelle Deng	MassDOT, Traffic and Safety
Rob Concellivi	Stoughton Public Schools, Principal, Dawe School
Thomas Raab	Stoughton Public Schools, Superintendent of Schools
Mark Zamanian	Town of Stoughton Redevelopment Authority
James O'Connor	Stoughton Police Department
Paul Giffune	Stoughton Department of Public Works
Maggie Burke	Massachusetts Safe Routes to School
Shawn Bailey	Old Colony Planning Council, Senior Transportation Planner
Guoqiang Li, PTP, RSP1	Old Colony Planning Council, Principal Transportation Planner
Raymond Guarino	Old Colony Planning Council, Principal Transportation Planner

Figure 1. Locus Map



Project Location and Description

Pleasant Street (Route 139) at Lowe Avenue and Dawe Elementary School

The study area consists of the intersection of Pleasant Street (Route 139) at Lowe Avenue/Bento Street and Lowe Avenue to Dawe Elementary School. Pleasant Street (Route 139) is a state numbered route under local jurisdiction (Stoughton) and is classified as a principal urban arterial. Route 139 begins at Stoughton town center extending east with access to Route 24 in Stoughton. Route 139 connects through several communities east of Stoughton extending to Route 3 in Pembroke and provides access to Marshfield and Duxbury.

Pleasant Street (Route 139) is a two-lane state highway, under the jurisdiction of the Town of Stoughton in the vicinity of its intersection with Lowe Avenue. It is approximately 30 feet wide, with a sidewalk on the northwest side of the road. The speed limit varies on Pleasant Street (Route 139); however, it is 35 miles per hour in both directions in the vicinity of its intersection with Lowe Avenue, based on Special Speed regulation Number 513-C. The speed limit increases to 40 miles per hour in both directions on Pleasant Street (Route 139) in the vicinity of Roberts Road which is north of Lowe Avenue. The average annual daily traffic (AADT) on Pleasant Street (Route 139) is 14,380 vehicles per day south of Pine Street, based on MassDOT traffic counts conducted in 2021. There is an ascending grade just south of the Pleasant Street/Lowe Avenue intersection as Pleasant Street approaches its intersection with Central Street, which is a signalized intersection. The land use along this section of Pleasant Street (Route 139) is mostly residential.

Lowe Avenue is a local two-way residential road under Stoughton jurisdiction, which provides access to the Dawe Elementary School. Lowe Avenue is approximately 22 feet wide and has a buffered sidewalk along the northeast side. There is a small white sign at the intersection of Pleasant Street and Lowe Avenue mounted with the street sign that indicates that Lowe Avenue provides access to the Dawe School. There is also an additional sign mounted on this post that indicates that Lowe Avenue is not a through way. Although the sign at the Pleasant Street/Lowe Avenue intersection indicates that Lowe Avenue is not a through way, there is an outlet from Lowe Avenue to Pine Street through the Dawe School property and North School Drive. North School Drive is under the jurisdiction of the Stoughton School department and is one-way northbound to Pine Street. Bento Street is a local residential cul-de-sac with no outlet. It intersects with Pleasant Street slightly more north than Lowe Avenue's intersection with Pleasant Street forming a misaligned four-way intersection. There are two crosswalks at the Pleasant Street/Lowe Avenue/Bento Street intersection, one across Pleasant Street, from the corner of Bento Street to the corner of Lowe Avenue, and the other across Lowe Avenue. The crosswalk across Pleasant Street from Bento Street to Lowe Avenue is on a diagonal due to the misalignment of the intersection. The crosswalk across Lowe Avenue needs to be restriped due to the recent paving overlay made to Lowe Avenue.

Crash Details and Overview

Crash reports were compiled from the Stoughton Police Department and supplemented with data from MassDOT for the years 2017 through October of 2022 (inclusive). Collision diagrams and a summary of the crash data for the study area are included in the appendix of this report.

Audit Observations and Potential Safety Enhancements

During the RSA meeting, an introduction of the RSA process and a summary of the crash information and background data for the study area were presented to the audit participants by OCPC staff. The meeting was held at the Stoughton Police Department conference room on November 17, 2022. Following the presentation, the members of the audit team were asked to discuss the existing issues that affect safety. The discussion was continued on site at the Pleasant Street/Lowe Avenue intersection as the participants visited the study area. Following the site visit, the meeting was reconvened at the police department conference room for a discussion of the potential improvements and follow-up for the next steps in the RSA process. All observations, safety concerns, deficiencies, and potential improvements identified by the RSA participants were documented by OCPC staff. The following sections list the safety concerns and the potential enhancements that were identified during the RSA.

Pleasant Street (Route 139)/Lowe Avenue intersection

Safety Issue: High Speeds on Pleasant Street (Route 139).

Vehicles in both directions along Pleasant Street often travel at high speeds. The 85th percentile speeds recorded in the MassDOT traffic count in 2021 were 46 and 47 miles per hour, although this recorder location was approximately 2,000 feet farther north in the vicinity of Pine Street. The straight alignment and wide travel lanes of Pleasant Street (about 15 feet wide) contribute to the higher speeds. The high speeds along Pleasant Street create hazardous conditions for pedestrians trying to cross at the Lowe Avenue



Looking southwest from Bento Street at the vehicles queued back to Lowe Avenue due to the signal at the Pleasant Street/Central Street intersection.

intersection. This also contributes to a high number of rear-end crashes as vehicles queue back through the Lowe Avenue intersection from the Pleasant Street/Central Street intersection on an ascending grade. Vehicles traveling at a high speed in the Pleasant Street southbound direction do not have enough time to slow down or stop for these vehicles stopped or slowing down due to the signal on Central Street. The crash data showed a high number of rear-end crashes in the southbound direction (eight crashes) caused by the queue on Pleasant Street southbound. This queue also blocks vehicles attempting to take a left turn from Pleasant Street northbound to Lowe Avenue.

Enhancement: Install interactive electronic radar advanced warning signs (speed feedback signs) on Pleasant Street (Route 139) in both directions to alert drivers of potential queues and slow down vehicles as they approach Lowe Avenue. (This is a mid-term one to three years time frame for implementation.)

Enhancement: Install the sign, “Do Not Block Intersection” on the Pleasant Street southbound approach, with pavement markings to aid the sign and show the area where southbound queued vehicles block left turns into Lowe Avenue from Pleasant Street northbound. (This is a short-term less than one year time frame for implementation.)



Enhancement: Consider traffic calming measures including narrowing travel lanes on Pleasant Street to 11 feet in width to slow down traffic. (This is a short-term less than one year time frame for implementation.)

An aerial view of the Pleasant Street (Route 139)/Lowe Avenue/Bento Street intersection shows the skewed alignment of the intersection and the angled crosswalk across Pleasant Street from street corner to street corner.

Safety Issue: Intersection geometry and pedestrian accommodations (poor intersection alignment). The intersection misalignment results in a skewed alignment of the crosswalk across Pleasant Street, which makes the distance for pedestrians longer and extends the time pedestrians are exposed to traffic crossing Pleasant Street. There are no ADA compliant curb ramps. On the Bento side of the crossing there is a utility pole, a driveway and other signage that has the potential to interfere with pedestrian egress. There are no sidewalks provided along the east side of Pleasant Street. Pedestrian crossing signs may be obscured by vegetation and utility poles.



View from the Lowe Avenue approach shows a berm and wall that hinder sight distance.

Enhancement: Realign the crosswalk across Pleasant Street at 90 degrees to shorten the walking distance across Pleasant Street from Bento Street to Lowe Avenue. (This is a short-term less than one year time frame for implementation.)

Enhancement: Install Rapid Rectangular Flashing Beacon across Pleasant Street from Bento Street to Lowe Avenue. Include improvements to sidewalks with ADA compliance where needed. (This is a mid-term one to three years time frame for implementation.)

Enhancement: Consider installing curb bump-outs at the intersection to tighten the curb radii, increase waiting area for pedestrians and shorten the crossing distance. Mid-term

Safety Issue: Poor sight distance on the Lowe Avenue approach due to the berm and wall. The wall forces vehicles turning left into Lowe Avenue to take a wide turn. In addition, there is a need for pavement markings (stop line) due to the recent repaving of the street, and the wall and the berm result in left turn vehicles from Pleasant Street northbound to take a wide left turn, especially for larger vehicles such as school buses, which encroach on the sidewalk on Lowe Avenue. This sidewalk on Lowe Avenue lacks granite curbing.

Enhancement: Add curbing to better define intersection turning radii, add ADA curb ramps where necessary. (This is a long-term less than one year time frame for implementation.)

Enhancement: Restripe the intersection with stop lines and necessary pavement markings.

Enhancement: Initiate a “Pleasant Street Improvement Plan” to develop corridor wide improvements including sidewalks, bicycle lanes, signage, pavement markings (including standard road edge lines along Pleasant Street), lighting, and geometric, traffic control, and traffic flow intersection improvements. (This is a long-term greater than three years time frame for implementation.)

Safety Issue: Although there is one streetlight across the street on a utility pole, this is not sufficient to illuminate the intersection well.

Enhancement: Improve street lighting.

Lowe Avenue

Safety Issue: Lowe Avenue sidewalks lack curbing.

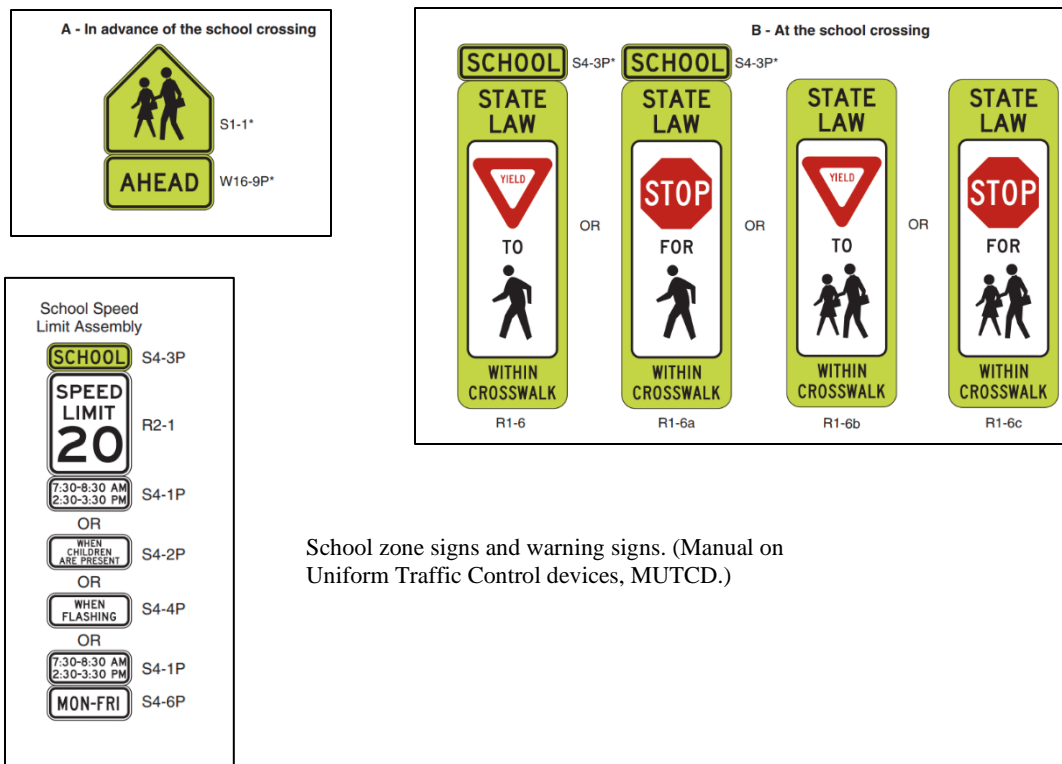
Enhancement: Add curbing to Lowe Avenue sidewalks and curbing at the intersection area on Lowe Avenue at Pleasant Street.

Safety Issue: Lowe Avenue warning signs are lacking and/or antiquated. Lowe Avenue lacks warning signs for pedestrians and students. There is a small white sign at Pleasant Street and Lowe Avenue mounted with the street sign indicating Lowe Avenue provides access to the Dawe School.



View from Bento Street showing a school bus taking a wide left turn into Lowe Avenue.

Enhancement: Upgrade warning signs on Lowe Avenue in compliance with the Manual on Uniform Traffic Control Devices (MUTCD). In addition, consider adding a school zone on Lowe Avenue in the vicinity of the Dawe Elementary School. Install Dawe School wayfinding signs on Pleasant Street.



School zone signs and warning signs. (Manual on Uniform Traffic Control devices, MUTCD.)

School Zones

According to the Manual on Uniform Traffic Devices (MUTCD), school zones “shall only be applicable to schools recognized by the Massachusetts Department of Elementary and Secondary Education, including all public, private, charter, vocational technical, and approved special education schools serving students in one or more grades between K and 12.” A school zone on State Highway, which applies to Route 139, must be approved by MassDOT.

According to the MUTCD, the warrants for establishing a school zone include:

- A. The facility meets the definition of school in the MUTCD.
- B. Children walk or bicycle to or from the school and are expected to cross or enter the roadway where the school zone is proposed; or the school and related facilities (e.g., classrooms, cafeteria, gymnasium, playground, athletic fields, parking lots) are separated by the roadway and require the children to cross the roadway on foot to access the facilities.
- C. The school facility or municipality provides a plan showing the routes that students will use to walk and/or bike to the school and shows the limits of the proposed school zone.
- D. The municipality provides written documentation of their support and/or approval of the school zone.

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 - Pleasant Street (Route 139)/Lowe Avenue intersection

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Agency
High Speeds on Pleasant Street (Route 139).	Install interactive electronic advanced warning signs on Pleasant Street (Route 139) in both directions to slow down vehicles as they approach Lowe Avenue.	Medium	< 1 Year	Low	Stoughton
	Install sign, "Do not block intersection" on the Pleasant Street southbound approach to prevent queued vehicles from blocking left turns into Lowe Avenue from Pleasant Street northbound.	Low	< 1 Year	Low	Stoughton
	Narrow travel lanes on Pleasant Street to 11 feet in width to slow down traffic.	Medium	< 1 Year	Low	Stoughton
Intersection geometry and pedestrian accommodations (poor intersection alignment).	Enhancement: Realign the crosswalk across Pleasant Street at 90 degrees to shorten the walking distance across Pleasant Street from Bento Street to Lowe Avenue.	Medium	< 1 Year	Low	Stoughton
	Install Rapid Rectangular Flashing Beacon across Pleasant Street from Bento Street to Lowe Avenue. Include improvements to sidewalks with ADA compliance where needed.	High	1-3 Years	Medium	Stoughton
	Initiate a "Pleasant Street Improvement Plan" to develop corridor wide improvements including sidewalks, bicycle lanes, signage, pavement markings, lighting, and geometric, traffic control, and traffic flow intersection improvements.	High	> 3 Years	High	Stoughton
	Consider installing curb bump-outs at the intersection to tighten the curb radii, increase waiting area for pedestrians and shorten the crossing distance.	Medium	1-3 Years	Medium	Stoughton
Poor sight distance on the Lowe Avenue approach due to the berm and wall. The wall forces vehicles turning left into Lowe Avenue to take a wide turn.	Add curbing to better define intersection turning radii, add ADA curb ramps where necessary.	Medium	1-3 Years	High	Stoughton
	Restripe the intersection with stop lines and necessary pavement markings.	Medium	< 1 Year	Low	Stoughton
Lack of sufficient lighting to illuminate the intersection.	Improve street lighting.	Medium	1-3 Years	Medium	Stoughton

Table 4: Potential Safety Enhancement Summary – Lowe Avenue

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Agency
Lowe Avenue sidewalks lack curbing.	Add curbing to Lowe Avenue sidewalks.	Medium	>3 Years	High	Stoughton
Lowe Avenue warning signs are lacking and/or antiquated. There is a lack of warning signs for pedestrians and students on Lowe Avenue. There is a small white sign at Pleasant Street and Lowe Avenue mounted with the street sign indicating Lowe Avenue provides access to the Dawe School.	Upgrade warning signs on Lowe Avenue in compliance with the Manual on Uniform Traffic Control Devices (MUTCD). In addition, consider adding a school zone on Lowe Avenue in the vicinity of the Dawe Elementary School. Install MUTCD compliant Dawe School wayfinding signs on Pleasant Street.	Medium	< 1 Year	Low	Stoughton

Appendix A: RSA Meeting Agenda

 Old Colony Planning Council	
Agenda	Pedestrian Safety and Mobility Audit for Pleasant Street (Route 139) at Lowe Avenue and Dawe Elementary School Stoughton, MA Thursday, November 17, 2021 10:00 AM – 12:00 PM
Contact:	Bill McNulty, Old Colony Planning Council (774) 539-5103 wmcnulty@ocpcrpa.org
Attendees:	Invited Participants Include a Multidisciplinary Team including Stoughton Officials (Chief Elected Officials, DPW, Police, Fire, Schools, Administration, MassDOT, FHWA)
Please Bring:	Thoughts and Suggestions
Meeting Location:	Stoughton Police Station 26 Rose Street Stoughton, MA. 02072
10:00 AM	Welcome and Introductions <ul style="list-style-type: none"> • Review of Data and General Discussion of Issues
10:30 AM	Walking Audit of Pleasant Street (Route 139) at Lowe Avenue and Dawe Elementary School <ul style="list-style-type: none"> • Embark to Site • Group Walk of Area • Identification of Potential Safety Improvements
11:30 AM	Wrap-Up Site Audit; Discussion of Next Steps
Instructions For Participants:	
<ul style="list-style-type: none"> • Before attending the Walkability Audit, participants are encouraged to familiarize themselves with the study area, and make note of existing conditions and any deficiencies they observe • 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 Audit process • After the meeting, participants will be asked to comment and respond to the document materials to ensure it is reflective of the Road Safety Audit completed by the multidisciplinary team 	

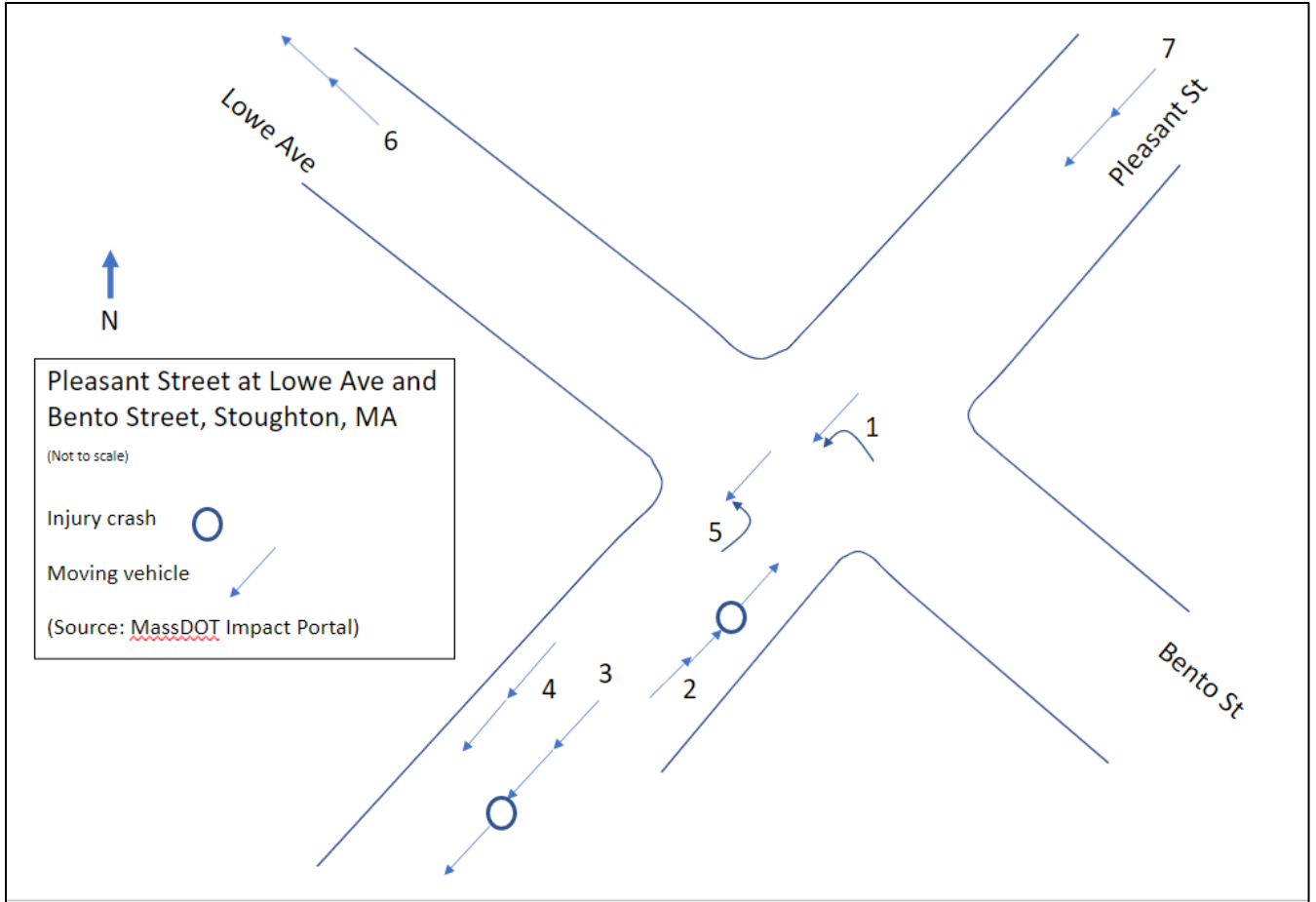
Appendix B: RSA Audit Team Contact List

Participating Audit Team Members

Date: November 17, 2022 Location: Stoughton Police Department Conference room

Audit Team Members	Agency/Affiliation	Contact
Thomas Raab	Superintendent Stoughton Public Schools	t_raab@stoughtonshools.org
Rob Cancellivi	Principal Dawe School	r_cancellivi@stoughtonschools.org
Mark Zamanian	Stoughton Redevelopment	mzanaian@stoughton-ma.gov
Dakota DelSignore	MassDOT Traffic Safety	dakota.d.delsignore@dot.state.ma.us
Michelle Deng	MassDOT Traffic Safety	michelle.deng@dot.state.ma.us
Marc Tisdelle, P.E.	Stoughton Engineering	mtisdelle@stoughton-ma.gov James
Paul Giffune	Stoughton DPW	pgiffine@stoughton-ma.org
James O'Connor	Stoughton Police Department	joconnor@stoughton-ma.org
Maggie Burke	Mass SRTS	maggie.burke@aecom.com
Craig Horsefall, P.E.	Stoughton Engineering	chorsefall@stoughton-ma.org
Shawn Bailey	OCPC, Senior Transportation Planner	sbailey@ocpcrpa.org
Guoqiang Li, PTP, RSP1	OCPC, Principal Transportation Planner	gli@ocpcrpa.org
Raymond Guarino	OCPC, Principal Transportation Planner	rguarino@ocpcrpa.org

Appendix C: Detailed Crash Data

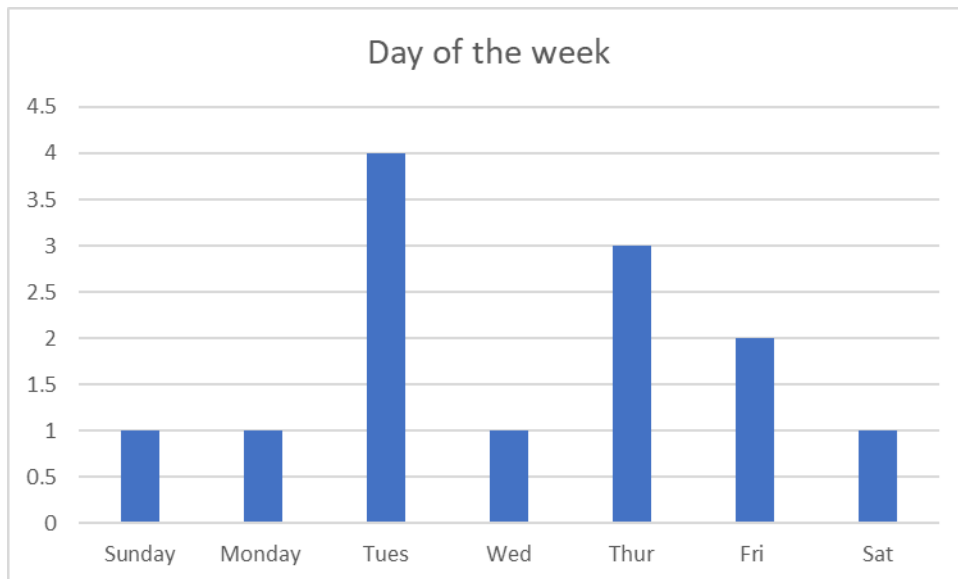
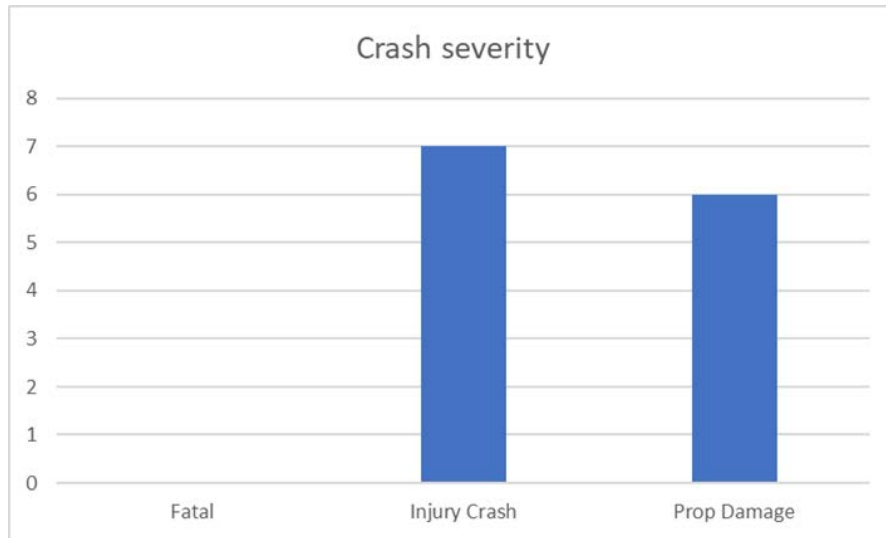


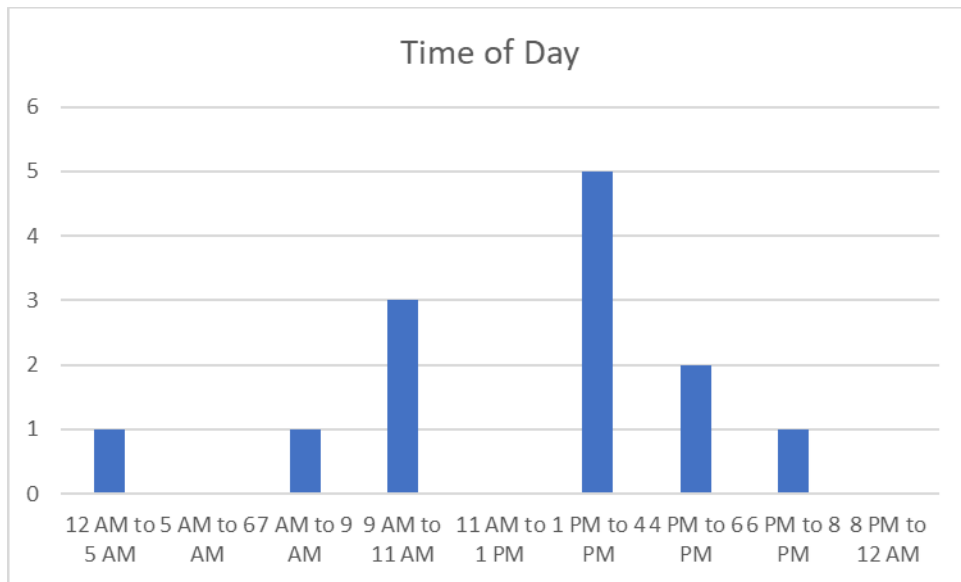
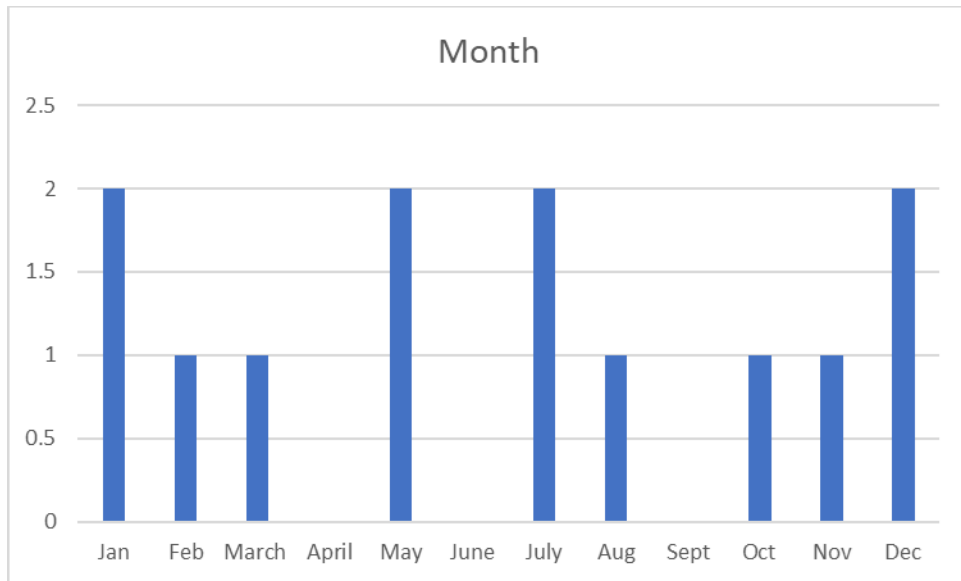
Pedestrian Safety and Mobility Audit—Pleasant Street (Route 139) at Lowe Avenue and Dawe Elementary School, Stoughton, MA, Prepared by Old Colony Planning Council – **Final**

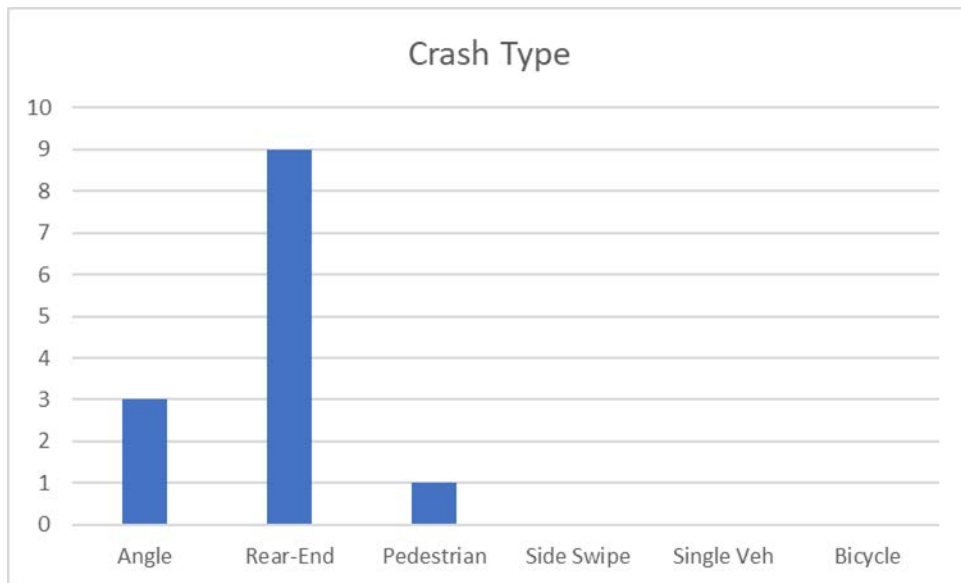
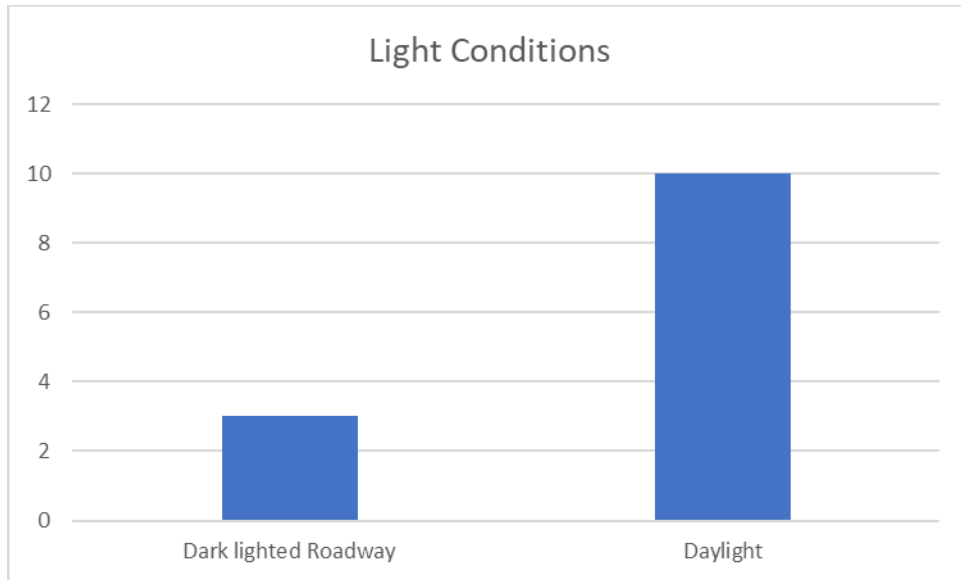
	Crash Date	Crash Severity	Driver Contributing Circumstances (All Drivers)	Light Conditions	Manner of Collision	Road Surface Condition	Weather Conditions
1	1/1/2017	Property damage only (none injured)	D1: (No improper driving) / D2: (Disregarded traffic signs, signals, road markings)	Dark - lighted roadway	Angle	Wet	Rain/Clear
2	5/5/2017	Non-fatal injury	D1: (Followed too closely) / D2: (No improper driving) / D3: (Unknown)	Daylight	Rear-end	Wet	Rain
3	12/6/2017	Non-fatal injury	D1: (No improper driving) / D2: (No improper driving) / D3: (No improper driving)	Daylight	Rear-end	Dry	Clear
4	1/6/2018	Property damage only	D1: (Operating vehicle in erratic, reckless, careless, negligent or aggressive manner) / D2: (No improper driving)	Daylight	Rear-end	Dry	Clear
5	3/19/2019	Property damage only	D1: (Unknown) / D2: (Unknown)	Daylight	Angle	Dry	Clear
6	7/29/2019	Property damage only	D1: (Inattention) / D2: (No improper driving)	Daylight	Rear-end	Dry	Clear
7	10/3/2019	Property damage only (none injured)	D1: (Inattention) / D2: (No improper driving)	Daylight	Rear-end	Wet	Cloudy

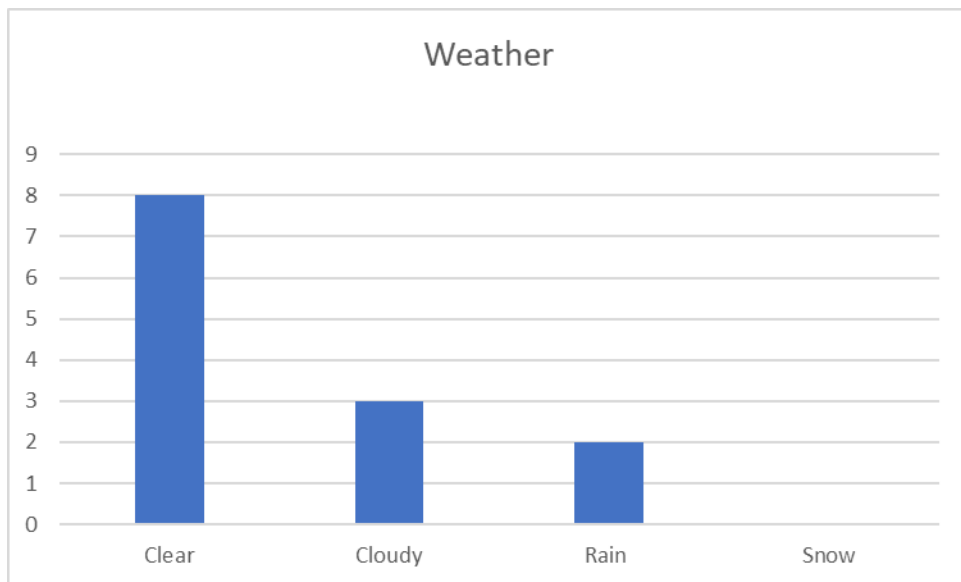
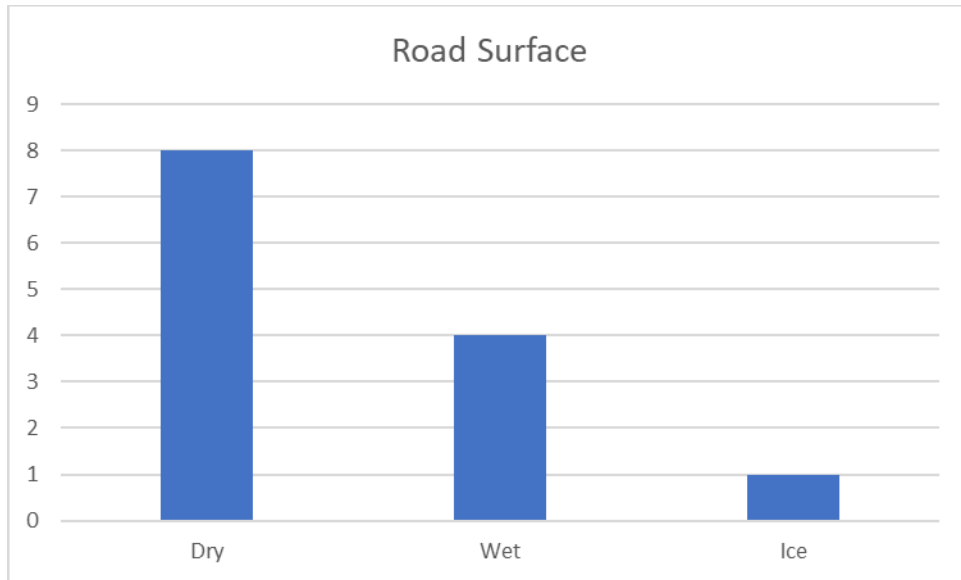
Pedestrian Safety and Mobility Audit—Pleasant Street (Route 139) at Lowe Avenue and Dawe Elementary School, Stoughton, MA, Prepared by Old Colony Planning Council – **Final**

8	7/18/2017	Non-fatal injury	Inattention, hit while waiting for red light in Queue Central St intersection	Daylight	Rear-end	Wet	Cloudy
9	8/11/2017	Non-fatal injury	Inattention, hit while waiting for red light in Queue Central St intersection	Daylight	Rear-end	Dry	Clear
10	5/6/2021	Property Damage Only	At 560 Pleasant Street V1 backing out onto Pleasant St, V2 hit headed southwest on Pleasant hit V1	Daylight	Angle	Dry	Clear
11	11/11/2021	Non-fatal injury	Inattention, hit while waiting for red light in Queue Central St intersection	Daylight	Rear-end	Dry	Clear
12	12/23/2021	Non-fatal injury	Inattention, hit while waiting for red light in Queue Central St intersection	Dark lighted roadway	Rear-end	Dry	Clear
13	2/1/2022	Non-fatal injury	Pedestrian hit by vehicle near Oakland Street. Pedestrian crossed between vehicles in Queue approaching Central Street and was hit by a veh traveling in the opposite direction as visibility was blocked ad pedestrian emerged from cars in Queue.	Dark lighted roadway	Pedestrian	ice	Cloudy









Appendix D. Road Safety Audit References

Road Safety Audit References

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