# ROAD SAFETY AUDIT

Pine Street from the Pine Street/York Street Intersection to the Pine Street/Pleasant Street (Route 139) Intersection Stoughton, Massachusetts

December 19, 2023

Prepared For: Town of Stoughton

Prepared under MassDOT Contract 123116 By: Old Colony Planning Council 70 School Street, Brockton, MA. 02301



# **Table of Contents**

# Contents

Background	1
Project Data	1
Project Location and Description	2
Audit Observations and Potential Safety Enhancements	3
Summary of Road Safety Audit	7

## List of Appendices

Appendix A.	RSA Meeting Agenda
Appendix B.	RSA Audit Team Contact List
Appendix C.	Detailed Crash Data
Appendix D.	Additional Information

## List of Figures

## List of Tables

Table 1: Participating Audit Team Members	1
Table 2: Estimated Time Frame and Costs Breakdown	7
Table 3: Potential Safety Enhancement Summary Pine Street/Dawe School N. Drive/Deady Avenue 3	8
Table 4: Potential Safety Enhancement Summary Pine St East of Ruth Rd to Pleasant St (Rte. 139)10	)
Table 5: Potential Safety Enhancement Summary Pine Street Corridor Wide Issues1	1

# Background

This Road Safety Audit (RSA) was completed by Old Colony Planning Council at the request of the Town of Stoughton. This RSA study was funded through the Old Colony Metropolitan Planning Organization's (MPO) FFY 2024 UPWP #3200 Local Technical Assistance, under contract with the Massachusetts Department of Transportation (MassDOT). The objective of this RSA was to review crash history within the study area, Pine Street from the Pine Street/York Street Intersection to the Pine Street/Pleasant Street (Route 139) Intersection, identify potential risks to all road users, and improve safety and mobility, particularly for vulnerable roadway users (pedestrians, cyclists, and persons using mobility assistance devices). The findings of this audit will supplement safety projects and assist the town in implementing potential short-term and long-term safety improvements (low-cost as well as medium and high-cost improvements).

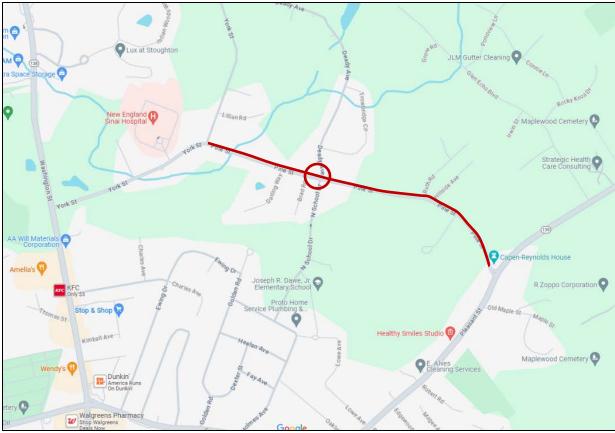
# **Project Data**

This Road Safety Audit was held on December 19, 2023, with an in-person meeting at the Stoughton Police Station and 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.

Audit Team Member	Agency/Affiliation
Dakota DelSignore E.I.T.	MassDOT Traffic and Safety
William Ready	MassDOT District 5
Mojtaba M. Moharrer	MassDOT District 5 Safety
Derek Jackson	MassDOT District 5 Projects
Jim Terlizzi	MassDOT Traffic and Safety
Sgt. James O'Connor	Detective Supervisor/Safety Officer, Stoughton Police Department
Joyce Husseini	Stoughton School Department
Dennis Rego	Stoughton School Department
Craig Horsfall P.E.	Stoughton Engineering
Nick Dufresne	Stoughton Engineering
Guoqiang Li PTP, RSP1	OCPC
Ray Guarino	OCPC

# **Project Location and Description**

Pine Street is an urban collector road running east-west connecting York Street and Pleasant Street (Route 139) in Stoughton. Pine Street is eligible for federal aid as an urban collector road, although it is under the jurisdiction of the Town of Stoughton. York Street connects to Washington Street (Route 138) west of Pine Street, providing regional north-south access to and from Route 128 (I-95 and I-93). Pleasant Street (Route 139) runs east-west providing regional east-west access to and from Route 3. The study area for this Road Safety Audit (RSA) for Pine Street in Stoughton includes Pine Street between the Pine Street/York Street intersection and the Pine Street/Pleasant Street (Route 139) intersection, (not including these intersections), approximately 4,012 feet.



## Figure 1: Locus Map

Pine Street is 24-feet wide with a two-lane cross section for two 12 feet travel lanes. The shoulder width is minimal. A sidewalk with ample grass buffer is provided on the south side of Pine Street from Darling Way to 296 Pine Street (approximately 2,200 feet). There is also a sidewalk on the north side of Pine Street from Deady Avenue west to York Street (approximately 1,400 feet). The speed limit is 30 miles per hour based on the prima facie 30 miles per hour in a thickly settled area. The average daily traffic on Pine Street (ADT) based on an automatic traffic recorder count conducted by OCPC is 4,277 vehicles per day. The ATR count data was collected by OCPC on December 13 and December 14 of 2023. The 85<sup>th</sup> percentile speed was 37.5 miles per hour based on the OCPC traffic count. The percentage of heavy vehicles in traffic is 8.5 percent (also based on the OCPC traffic count). The percentage of buses

based on the count was 0.7 percent (there were 364 heavy vehicles, 331 trucks and 33 buses). There is an exclusion of heavy commercial vehicles on Pine Street for vehicles over 2.5 tons between the hours of 6 AM to 7 PM for seven days a week, based on the MassDOT GeoDOT trucking network map. Signs for the exclusion are posted facing traffic entering Pine Street from Pleasant Street (Route 139) and facing traffic entering York Street from Washington Street (Route 138).

The land use along Pine Street is primarily residential, with Pine Street serving several residential local streets as a collector road. The North School Drive exit for the Dawe School is located off of Pine Street serving as an exit only for the school. Access to the Dawe School, which is located on North School Drive, is primarily via Lowe Avenue off of Pleasant Street to North School Drive, which is one-way northbound. All traffic exiting the school exits via North School Drive. There are two planned developments off of Pine Street for community activities that could potentially increase pedestrian traffic on Pine Street. These include a community garden and a dog park.

The Town of Stoughton is currently planning improvements at the Pine Street/Pleasant Street (Route 139) intersection. These improvements include the realignment of Pine Street as it intersects Pleasant Street to create an alignment closer to 90 degrees. This will narrow the turning radius on the northwest corner of the intersection and remove the painted island on the Pine Street approach that channels right turns from Pine Street to Pleasant Street southbound. The improvement project will allow for the potential design to include a two-lane approach on Pine Street (a separate right turn lane and separate left turn lane), as well as a separate left turn lane on the northbound Pleasant Street approach and a separate right turn lane on the Pleasant Street southbound approach. The improvements will allow for a splitter island on the Pine Street approach to provide pedestrian refuge with a crosswalk across Pine Street. The project is under design and planned for implementation by the town in 2024.

# Audit Observations and Potential Safety Enhancements

Crash reports were compiled from the Stoughton Police Department for the years 2017 through 2022. The collision diagrams and a summary of the crash data for the study area are included in the appendix of this report. During the RSA meeting, an introduction of the RSA process and a summary of the crash information and background data for Pine Street and the study area were presented to the audit participants by OCPC staff. Following the presentation, the members of the audit team discussed the existing issues that affect safety. Safety concerns and deficiencies were identified by the RSA participants and documented by OCPC staff. The study participants continued the discussion in a visit to Pine Street specifically at the Pine Street/Dawe School North Drive/Deady Avenue and at Ruth Road at Pine Street and the curve in Pine Street as it approaches its intersection with Pleasant Street. The participants returned to the Stoughton Police Department meeting room after the field visit to discuss potential long-term and short-term treatments to address deficiencies, also documented by OCPC staff. The following sections list these safety concerns and the potential enhancements that were identified during the RSA.

## Pine Street/Dawe School North Drive/Deady Avenue

Safety Issue: Poor intersection alignment and sight distance limitations. The southbound Deady Avenue approach is not directly aligned opposite of the Dawe School North Drive and there is poor sight distance from the Deady Avenue approach looking east and west at oncoming Pine Street traffic due to the embankment, alignment, and ascending grades approaching the intersection from both Pine Street approaches.

**Enhancement:** Evaluate and update/improve warning signs approaching the intersection on both Pine Street approaches.



Aerial view of the Pine Street/Dawe School North Drive/Deady Avenue intersection.

**Enhancement:** Consider an overhead flashing **Drive/Deady Avenue inters** beacon at the Pine Street/Dawe School North Drive/Deady Avenue intersection.

Enhancement: Evaluate the turning radii at the intersection.

<u>Safety Issue: Stop Sign Placement.</u> The Stop Sign, and Stop Line on the Pine Street eastbound approach is set too far back from the intersection.

**Enhancement:** Consider moving the location of the Pine Street eastbound approach Stop Sign and Stop Line approximately 10 feet closer to the intersection.

**Enhancement:** Evaluate the locations of all the Stop Signs at the intersection. (Consider oversized Stop Signs, post reflectors, or LED lights features).

#### Safety Issue: Crosswalk connects diagonally across the intersection.

**Enhancement:** Consider eliminating the diagonal crosswalk and placing a crosswalk from the southwest corner of the



The above photo shows the diagonal crosswalk as well as the placement of the sign indicating that the North Drive is one-way out to Pine Street. This photo also shows the location of the Stop Sign in advance of the intersection on Pine Street eastbound, which can be moved closer to the intersection.

intersection directly to the northwest corner of the intersection across the Pine Street approach. In addition, install ADA compliant ramps on all sidewalks with access to crosswalks.

**Enhancement:** Consider adding a Rapid Rectangular Flashing Beacon (RRFB) at the crosswalk across Pine Street at the Dawe School North Drive.

**Enhancement:** Consider adding an in-street Pedestrian Crossing sign at the crosswalk ("Yield to Pedestrians in Crosswalk") on Pine Street at the Dawe School North Drive.

Enhancement: Evaluate crosswalk striping for more visible striping.

Safety Issue: The Dawe School North Drive is too wide for a one-way street, in addition, the signs indicating one-way are not located for visibility for vehicles on Pine Street. There is currently parking allowed on the eastern side of the one-way Dawe North School Drive.

**Enhancement:** Relocate and enhance signage for one-way (including adding a one-way arrow, one-way MUTCD R6-1 signs and DO NOT ENTER / WRONG WAY sign assemblies MUTCD R5-2 with R5-1a) on the Dawe School North Drive at Pine Street including way finding signs directing vehicles to the Dawe School entrance off of Lowe Avenue via Pleasant Street.

**Enhancement:** Evaluate pavement striping on the Dawe School North Drive including the consideration of reconfiguring the school exit to two lanes, including a left turn and right turn lane.

### Pine Street East of Ruth Road to Pleasant Street (Route 139)

<u>Safety issue: Vehicle speeding.</u> The crash experience for this section of Pine Street shows a pattern of lane departure crashes in the eastbound direction (eight crashes within the study time period) as vehicles negotiate the curve and descending grade approaching Pleasant Street (Route 139).

**Enhancement:** Consider wider edge lines with reflective paint, (and new striping throughout), evaluate crumbling pavement edges and improve cracked pavement edges.

**Enhancement:** Test the road surface for friction and consider using high friction pavement surface to increase the friction of the road surface through the curve.

**Enhancement:** Consider relocating utility poles further away from the travel lanes and evaluate clear zones and trees as hazards.



Photo above shows the Double Yellow Center Line (DYCL) faded and resembling a passing zone.

Enhancement: Consider adding reflectors to all utility poles.

**Enhancement:** Evaluate and consider installing chevrons or post-mounted delineators on Pine Street before and through the curve approaching Pleasant Street.

Safety Issue: There is a lack of a crosswalk across Pine Street at Ruth Road, although a warning sign is posted for pedestrian crossing.



Enhancement: Consider a

crosswalk across Pine Street at Ruth Road with MUTCD compliant warning signs to connect the

at Ruth Road at the pedestrian crossing sign as well as the faded DYCL.

sidewalk on Ruth Road with the sidewalk on Pine Street.

### Pine Street Corridor Wide Issues

<u>Safety issue: The Double Yellow Center Line (DYCL) is faded and resembles a passing zone,</u> <u>especially on Pine Street East of Ruth Road to Pleasant Street (Route 139).</u>

**Enhancement:** Restripe pavement markings on Pine Street (center lines and fog lines) and consider optical speed bars for better visibility.

#### Safety Issue: Speeding throughout Pine Street.

**Enhancement:** Consider traffic calming methods including narrower travel lanes and consider adding optical speed bars as a visual cue to increase driver awareness of their speed.

Enhancement: Consider electronic feedback speed signs.

<u>Safety Issue: Sign Cutter:</u> Signage throughout Pine Street was found to be faded, inconsistent, and potentially not MUTCD compliant.

**Enhancement:** Review signage throughout the Pine Street corridor for sign clutter and develop a sign plan for warning signs.

**Safety Issue: Lighting is sparse through the Pine Street corridor.** There were at least five crashes that occurred under dark lighting conditions.

Enhancement: Enhance street lighting.

Safety Issue: Lack of signage for Truck Exclusion.

**Enhancement**: Evaluate existing signage for truck exclusion with alternate route. Consider revising the time exclusion for trucks to exclude trucks throughout the day.

#### Safety Issue: Pavement condition was noted poor along Pine Street during the site visit.

Enhancement: Evaluate pavement condition and consider pavement resurfacing improvements.

#### Safety Issue: Lack of sidewalk connections and safe crossings and lack of bicycle accommodation.

**Enhancement:** Consider long-term plan for bicycle and pedestrian accommodation and amenities consistent with local and regional bicycle plans., pedestrian plans, and increased recreational facilities.

# Summary of Road Safety Audit

Based on the review of data, observations of the intersections and study area, and group discussion, possible enhancements that could improve safety at the study location were identified by RSA participants. 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 Tables 3 through 5 summarize 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), mid-term (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).

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 2: Estimated Time Frame and Costs Breakdown

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Poor intersection alignment and sight distance limitations.	Evaluate and update/improve warning signs approaching the intersection on Pine Street on both Pine Street approaches.	Medium	1 Year	Low	Municipality
Poor intersection alignment and sight distance limitations.	Consider an overhead flashing beacon at the Pine Street/Dawe School North Drive/Deady Avenue intersection	Medium	1-3 Years	Medium	Municipality
Poor intersection alignment and sight distance limitations	Evaluate the turning radii at the intersection.	Medium	1-3 Years	Medium	Municipality
Stop Sign Placement. The Stop Sign, and Stop Line, on the Pine Street eastbound approach is set too far back from the intersection.	Consider moving the location of the Pine Street eastbound approach Stop Sign and Stop Line approximately 10 feet closer to the intersection.	Medium	1 Year	Low	Municipality
Stop Sign Placement. The Stop Sign, and Stop Line, on the Pine Street eastbound approach is set too far back from the intersection.	Evaluate the Stop Sign location for all the Stop Signs at the intersection, (Consider oversized Stop Signs, post reflectors, or LED lights features).	Medium	1-3 Years	Medium	Municipality
Crosswalk connects diagonally across the intersection.	Eliminate the diagonal crosswalk and place a crosswalk from the SW corner of the intersection to the NW corner of the intersection. Install ADA compliant ramps.	Medium	1-3 Years	Medium	Municipality
Crosswalk connects diagonally across the intersection.	Consider adding a Rapid Rectangular Flashing Beacon (RRFB) at the crosswalk across Pine Street at the Dawe School North Drive.	Medium	1-3 Years	Medium	Municipality
Crosswalk connects diagonally across the intersection.	Consider adding an in-street Pedestrian Crossing sign at the crosswalk ("Yield to Pedestrians in Crosswalk") on Pine Street at the Dawe School North Drive.	Medium	1 Year	Low	Municipality
Crosswalk connects diagonally across the intersection.	Evaluate crosswalk striping for more visible striping.	Low	1 Year	Low	Municipality

#### Table 3: Potential Safety Enhancement Summary Pine Street/Dawe School N. Drive/Deady Avenue

 Table 3: Potential Safety Enhancement Summary Pine Street/Dawe School N. Drive/Deady Avenue

 (Continued)

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
The Dawe School North Drive is too wide for a one-way street, in addition, the signs indicating one-way are not located for visibility for vehicles on Pine Street. There is currently parking allowed on the one-way Dawe North School Drive.	Relocate and enhance signage for one-way (including adding a one-way arrow) on the Dawe North Drive at Pine Street including way finding signs directing vehicles to the Dawe School entrance off of Lowe Avenue via Pleasant Street.	Low	1 Year	Low	Municipality
The Dawe School North Drive is too wide for a one-way street, in addition, the signs indicating one-way are not located for visibility for vehicles on Pine Street. There is currently parking allowed on the one-way Dawe North School Drive.	Evaluate pavement striping on the Dawe School North Drive including the consideration of reconfiguring the school exit to two lanes, including a left turn and right turn lane.	Medium	1-3 Years	Low	Municipality

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Vehicle speeding. Crash experience shows a pattern of lane departure crashes in the EB direction as vehicles negotiate the curve and descending grade approaching Pleasant St.	Consider wider edge lines with reflective paint, (and new striping throughout), evaluate crumbling pavement edges and improve cracked pavement edges.	Medium	1 Year	Medium	Municipality
Vehicle speeding. Crash experience shows a pattern of lane departure crashes in the EB direction as vehicles negotiate the curve and descending grade approaching Pleasant St.	Test the road surface for friction and consider high friction pavement surface to increase the friction of the road surface through the curve.	Medium	1-3 Years	Medium	Municipality
Vehicle speeding. Crash experience shows a pattern of lane departure crashes in the EB direction as vehicles negotiate the curve and descending grade approaching Pleasant St.	Consider relocating utility poles further away from the travel lanes and evaluate clear zones and trees as hazards.	Medium	1-3 Years	High	Municipality
Vehicle speeding. Crash experience shows a pattern of lane departure crashes in the EB direction as vehicles negotiate the curve and descending grade approaching Pleasant St.	Consider adding reflectors to all utility poles.	Medium	1 Year	Low	Municipality
Vehicle speeding. Crash experience shows a pattern of lane departure crashes in the EB direction as vehicles negotiate the curve and descending grade approaching Pleasant St.	Evaluate and consider installing chevrons or post- mounted delineators on Pine Street before and through the curve approaching Pleasant Street.	Medium	1 Year	Low	Municipality
A lack of a crosswalk across Pine Street at Ruth Road, although a warning sign is posted for pedestrian crossing.	Consider a crosswalk across Pine Street at Ruth Road to connect the sidewalk on Ruth Road with the sidewalk on Pine Street.	Medium	1 Year	Low	Municipality

### Table 4: Potential Safety Enhancement Summary Pine St East of Ruth Rd to Pleasant St (Route 139)

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
The Double Yellow Center Line (DYCL) is faded and resembles a passing zone, especially on Pine Street East of Ruth Road to Pleasant Street (Route 139).	Restripe pavement markings (center lines and fog lines) and consider optical speed bars for better visibility.	Medium	1-3 Years	Medium	Municipality
Speeding throughout Pine Street.	Consider traffic calming methods including narrower travel lane and consider adding optical speed bars as a visual cue to increase driver awareness of their speed."	High	1-3 Years	Medium	Municipality
Speeding throughout Pine Street.	Consider electronic feedback speed signs.	Medium	1-3 Years	Medium	Municipality
Sign Cutter.	Review signage throughout the Pine Street corridor for sign clutter and develop a sign plan for warning signs.	Medium	1-3 Years	Medium	Municipality
Lighting is sparse through the Pine Street corridor.	Enhance street lighting	Medium	> 3 Years	High	Municipality
Lack of signage for Truck Exclusion.	Evaluate existing signage for truck exclusion with alternate route. Consider revising the time exclusion for trucks to exclude trucks throughout the day.	Low	1 Year	Low	Municipality
Pavement condition was noted poor along Pine Street during the site visit.	Evaluate pavement condition and consider pavement resurfacing improvements.	Low	1-3 Years	High	Municipality
Lack of sidewalk connections and safe crossings and lack of bicycle accommodation.	Consider long-term plan for bicycle and pedestrian accommodation and amenities consistent with local and regional bicycle and pedestrian plans.	High	> 3 Years	High	Municipality

### Table 5: Potential Safety Enhancement Summary Pine Street Corridor Wide Issues

# Appendix A. RSA Meeting Agenda

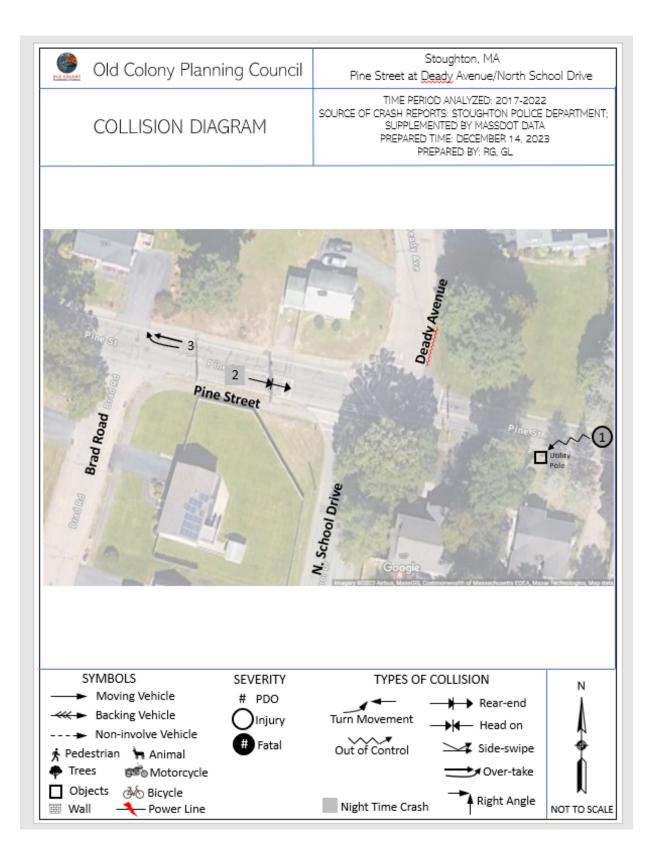
Agenda	Road Safety Audit Stoughton, MA Pine Street Between York Street and Pleasant <u>Street(</u> Route 139) In-person Meeting Location: Stoughton Police Department, 26 Rose Street, Stoughton, MA 02072 Tuesday, December 19th, 2023 1 PM – 3 PM
Type of meeting: Attendees: Please bring:	Road Safety Audit Invited Participants to Comprise a Multidisciplinary Team Thoughts and Enthusiasm
1:00 PM	Welcome and Introductions
1:05 PM	Review of Site-Specific Material - Review and Discuss Project <ul> <li>Review of traffic and collision data</li> <li>Review of operational and physical known challenges</li> </ul>
1:30 PM 2:30 PM	Field Road Safety Audit  • RSA in a group • Car-pool recommended
3:00 PM	Meeting Discussion     Return to Meeting Room for discussion of findings, improvement strategies     and action plan     Adjourn for the Day
Instructions for Particip     Before attending     and complete/co     participants will     After the RSA me	
	se direct questions regarding this RSA to Raymond Guarino, OCPC, (774) no@ocpcrpa.org: or Guogiang, Li, OCPC, 774-539-5149 gli@ocpcrpa.org. Old Colony Planning Council 70 School Street, Brockton, MA 02301

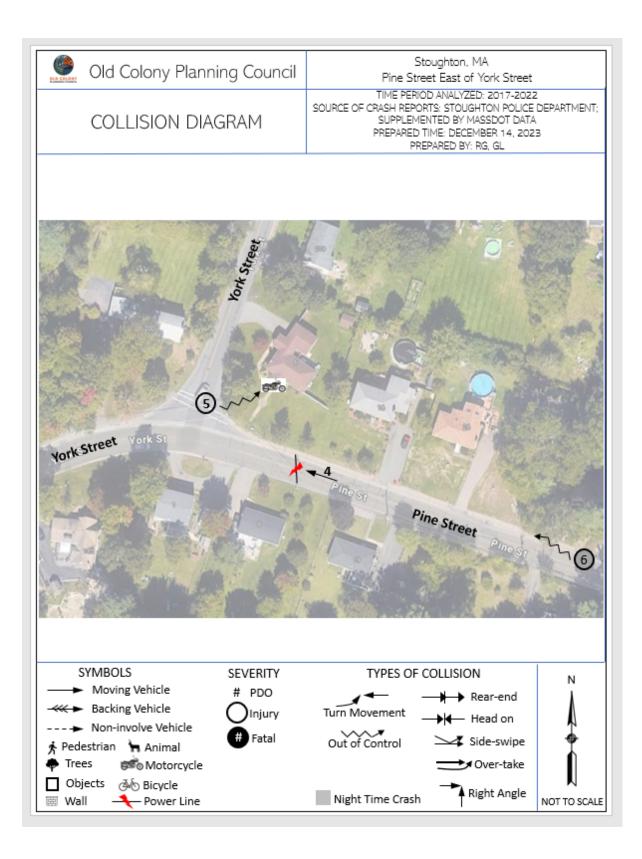
# Appendix B. RSA Audit Team Contact List

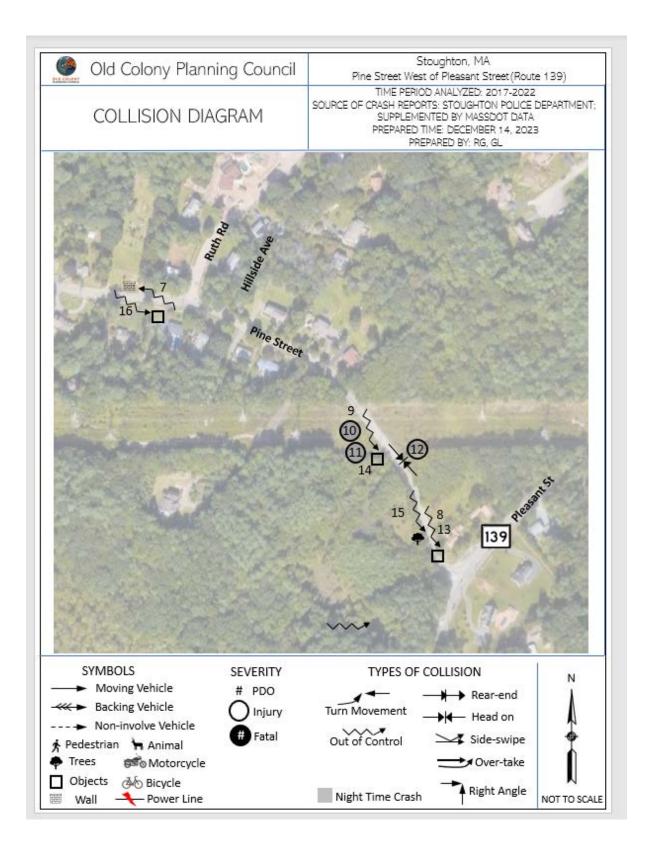
Participating Audit Team Members

Date: December 19, 2023	B Location: P	Location: Pine Street, Stoughton			
Audit Team Members	Agency/Affiliation	Email Address			
Dakota DelSignore E.I.T.	MassDOT MassDOT Traffic and Safety	dakota.d.delsignore@dot.state.ma.us			
William Ready	MassDOT District 5	william.j.ready@dot.state.ma.us			
Mojtaba M. Moharrer	MassDOT District 5	mojtaba.m.moharrer@dot.state.ma.us			
Derek Jackson	MassDOT District 5	derek.jackson@dot.state.ma.us			
Jim Terlizzi	MassDOT Traffic Safety	james.v.terlizzi@dot.state.ma.us			
Sgt. James O'Connor	Detective Supervisor/Safety Officer, Stoughton P. D.	joconnor@stoughton-ma.gov			
Joyce Husseini	Stoughton School Department	jhusseini@stoughton-ma.gov			
Dennis Rego	Stoughton School Department	d.rego@stoughtonschools.org			
Craig Horsfall P.E.	Stoughton Engineering	chorsfall@stoughton-ma.gov			
Nick Dufresne	Stoughton Engineering	ndufresne@ stoughton-ma.gov			
Guoqiang Li PTP, RSP1	OCPC	gli@ocpcrpa.org			
Ray Guarino	OCPC	rguarino@ocpcrpa.org			

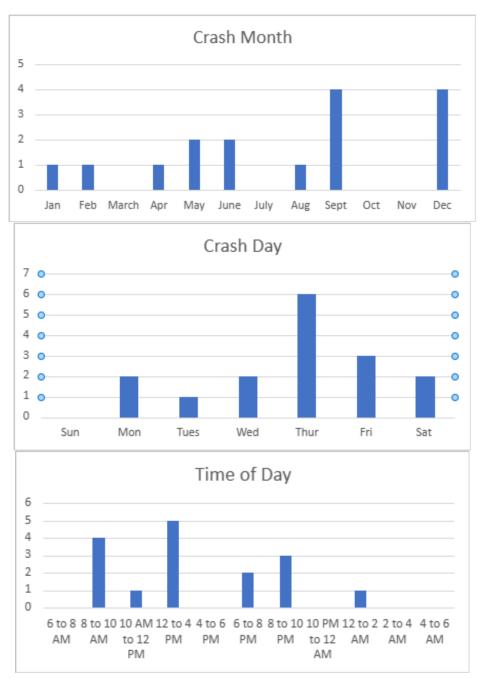
# Appendix C. Detailed Crash Data





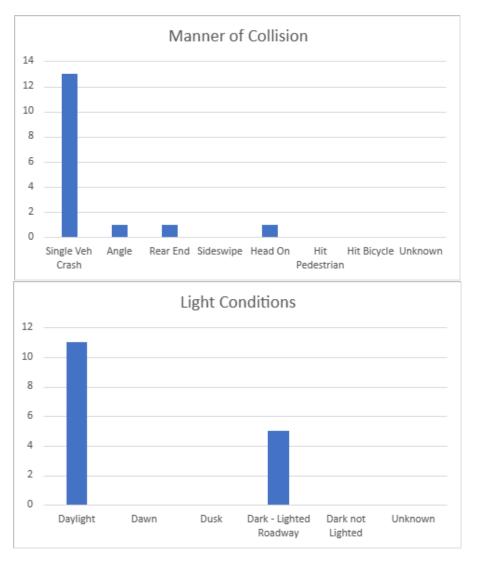


## Crash Time Period Analyzed 2017 to 2022

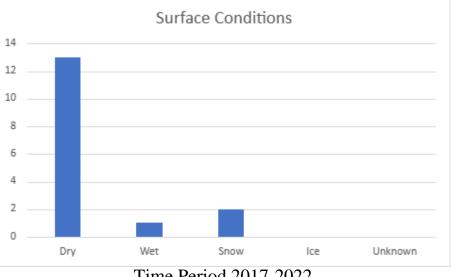


# Time Period 2017-2022

Time Period 2017-2022

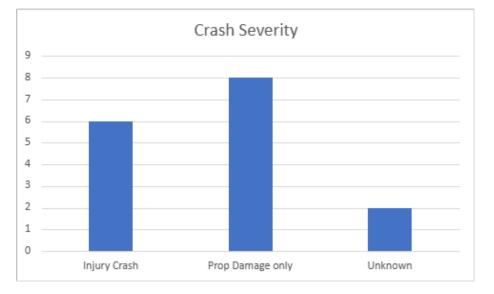


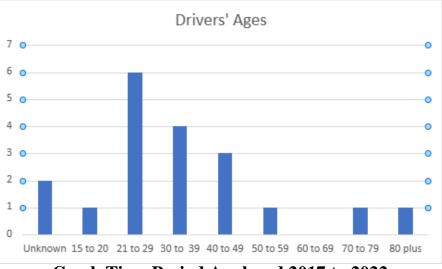
## **Crash Time Period Analyzed 2017 to 2022**



### **Crash Time Period Analyzed 2017 to 2022**

### Time Period 2017-2022





Crash Time Period Analyzed 2017 to 2022

Crash Num	Date	Day	Location	Crash Hour	Severity	Light Conditions	Manner of Collision	Road Surface	Weath er	Driver Contributing Circumstances (All Drivers)	First Harmful Event
1	05/04/2017	Thu	161 PINE ST	8:42 PM	Injury	Dark - lighted roadway	Single vehicle crash	Dry	Cloudy	D1: (Failure to keep in proper lane or running off road)	Collision with utility pole
2	02/22/2019	Fri	PINE ST / Brad Rd	8:02 PM	No injury	Dark - lighted roadway	Rear End	Dry	Clear	D1: (No improper driving) / D2: (Other improper action)	Collision with motor vehicle in traffic
3	09/15/2018	Sat	114 PINE ST	9:42 AM	No injury	Daylight	Angle	Dry	Cloudy	D1: (Unknown) / D2: (Unknown)	Collision with motor vehicle in traffic
4	06/15/2017	Thu	at 16 PINE ST	3:08 PM	Un known	Daylight	Single vehicle crash	Dry	Clear	D1: (No improper driving)	Truck Collision with overhead wires
5	08/02/2019	Fri	6 PINE ST	7:43PM	Injury	Daylight	Single vehicle crash	Dry	Clear	D1: (Inattention)	Collision with curb
6	12/18/2021	Sat	41 pine	12:47 AM	Injury	Dark - lighted roadway	Single vehicle crash	Clear	Clear	D1: (Failure to keep in proper lane or running off road)	COLLISION WITH SHRUBBERY

7	05/01/2018	Tues	224 PINE STREET	8:10 AM	No injury	Daylight	Single vehicle crash	Dry	Clear	D1: (Driving too fast for conditions), (Inattention)	Collision with unknown fixed object
8	09/06/2018	Thu	PINE ST east of Pleasant	2:34 PM	Un known	Daylight	Single vehicle crash	Dry	Clear	D1: (Unknown)	Collision with utility pole
9	06/05/2019	Wed	291 PINE ST	9:05 AM	No injury	Daylight	Single vehicle crash	Dry	Clear	D1: (Unknown)	Collision with utility pole
10	12/02/2019	Mon	291 Pine (380 Pine St)	6:59 PM	Injury	Dark - lighted roadway	Single vehicle crash	Snow	Snow	D1: (No improper driving)	Collision with tree
11	4/2/2021	Fri	281 Pine	9:14 PM	Injury	Dark - lighted roadway	Single vehicle crash	Dry	Clear	D1: (Failure to keep in proper lane or running off road)	Collision with utility pole
12	12/2/2021	Thu	308 Pine Street	11:55 AM	Injury	Daylight	Headon	Clear	Clear	D1: Crossed DYSL to hit D2	Collision with motor vehicle in traffic
13	12/24/2018	Mon	PINE STREET 200 yards east of Pleasant	2:22 PM	No	Daylight	Single vehicle crash	Dry	Clear	D1: (No improper driving)	Collision with motor vehicle in traffic
14	9/28/2022	Wed	291 pine	3:27 PM	No injury	Daylight	Single vehicle crash	Clear	Clear	D1: (Failure to keep in proper lane or running off road)	Collision with utility pole

# Appendix D. Road Safety Audit References

#### Road Safety Audit References

- *FHWA Office of Safety Proven Safety Countermeasures,* U.S. Department of Transportation, Federal Highway Administration <u>https://safety.fhwa.dot.gov/provencountermeasures/</u>.
- *Road Safety Audits, A Synthesis of Highway Practice*. NCHRP Synthesis 336. Transportation Research Board, National Cooperative Highway Research Program, 2004.
- *Road Safety Audits*. U.S. Department of Transportation, Federal Highway Administration, <u>https://safety.fhwa.dot.gov/rsa/</u>
- FHWA Road Safety Audit Guidelines. U.S. Department of Transportation, Federal Highway Administration, 2006.
- Road Safety Audit, 2<sup>nd</sup> edition. Austroads, 2000.
- Road Safety Audits. ITE Technical Council Committee 4S-7. Institute of Transportation Engineers, February 1995.