

ROAD SAFETY AUDIT

Route 3A at Route 3 Exit 10 Ramps; Route 3A at Chestnut Street and Tobey Garden Street; and Route 3A at Church Street and Tremont Street (Route 139)

Kingston and Duxbury, MA

April 2018

Prepared For:
MassDOT and Town of Duxbury



Prepared By:
Old Colony Planning Council
70 School Street, Brockton, MA. 02301
Under MassDOT Contract 88826



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Background

The Road Safety Audit for three locations, (Route 3A at Route 3 Exit 10 in Kingston and Duxbury; Route 3A at Chestnut Street and Tobey Garden Street in Duxbury; and Route 3A at Church Street and Tremont Street (Route 139) in Duxbury), was initiated by a suggestion from MassDOT District Five. On June 21st, 2017, a meeting between MassDOT, the Town of Duxbury, and Old Colony Planning Council took place in the Town of Duxbury with the purpose of discussing the feasibility and project initiation process for reconstructing and signalizing the ramp system between Route 3A and Route 3 at Exit 10, on the Duxbury/Kingston town line. The intersections of Route 3A at Chestnut Street and Tobey Garden Street, and Route 3A at Church Street and Tremont Street (Route 139) were included in the scope of the Road Safety Audit as well as they were both identified as high crash locations in the Old Colony Metropolitan Planning Organization's 2016 Duxbury Route 3A Corridor Study.

Project Data

The Road Safety Audit (RSA) took place on Thursday August 31, 2017 at the Duxbury Town Hall, located at 878 Tremont Street (Route 3A), Duxbury, MA. The meeting was facilitated by OCPC staff. OCPC provided collision diagrams and the latest crash experience (2012 through 2014), based on crash reports provided by the Massachusetts Department of Transportation, (MassDOT).

The RSA meeting consisted of three components. The first portion of the meeting focused on a discussion of the issues and concerns. The participants left the meeting room and proceeded to the intersections to visit the sites for the second portion of the meeting. The discussion of issues was continued during the site visit as OCPC staff took notes. The third portion of the meeting focused on potential short term and long term potential improvements for the intersections. The agenda and the background materials are included in the appendix to this report. Table 1 lists the names and affiliations of the audit participants.

Table 1: Participating Audit Team Members

Audit Team Member	Agency/Affiliation
Bill McNulty	Old Colony Planning Council
Ray Guarino	Old Colony Planning Council
Kyle Mowatt	Old Colony Planning Council
Shayne Trimbell	SRPEDD
Elsa Chan	MassDOT Traffic Safety
Connor Keating	MassDOT Traffic safety
Jason Walters	MassDOT District 5 Projects
Thomas Rebello	MassDOT District 5 Traffic
Paul Brogna	Duxbury Highway Safety
Peter Buttkus	Duxbury DPW
Valerie Massard	Duxbury Town Planner
Police Officers	Duxbury Police Department (did not sign on attendance sheet)
Paul Basler	Kingston DPW
Thomas Bott	Kingston Town Planner
Chief Maurice Splaine	Kingston Police Department
Robert Fennesey	Kingston Town Administrator
Ron Morgan	GATRA
Dennis Donahue	Plymouth & Brockton Bus

Project Locations and Description

This Road Safety Audit examined three specific intersections along the Route 3A Corridor in Duxbury and Kingston. The project locations are shown in Figure 1. The southernmost location in this audit is the ramp system between Route 3A and Pilgrim Highway Route 3 Exit 10 on the town line between Kingston and Duxbury. This location consists of two Route 3 ramp intersections with Route 3A including the Route 3 Northbound on/off Ramp at Route 3A, and the Route 3 Southbound on/off Ramp at Route 3A. The Route 3 Southbound on/off Ramp at Route 3A is partially in Kingston and in Duxbury, and the Route 3 Northbound on/off Ramp at Route 3A is in Duxbury. Both of these ramp intersections are unsignalized and both off ramps have a stop sign control for the channelized left turn and a yield sign for channelized right turns (as well as yield pavement markings) from the ramps to Route 3A.

Route 3A is a two lane facility in Duxbury, except for a section six tenths of a mile in length between Route 53 in Kingston and Woodridge Road in Duxbury, where it is a four-lane cross section. The Pilgrim Highway Route 3 (Exit 10) Northbound and Southbound ramps at Route 3A intersections are located in this four-lane cross section. The other two study area intersections, Route 3A at Chestnut Street and Tobey Garden and Route 3A at Church Street (Route 139) and Tremont Street, are located in the two-lane cross section further north in Duxbury. Route 3A is under the jurisdiction of Massachusetts Department of Transportation (MassDOT) and classified as a major collector in Kingston and a principal arterial.

Pilgrim Highway Route 3 is a four-lane cross section limited access highway classified as a principal arterial and also under state jurisdiction.

Figure 1: Locus Map

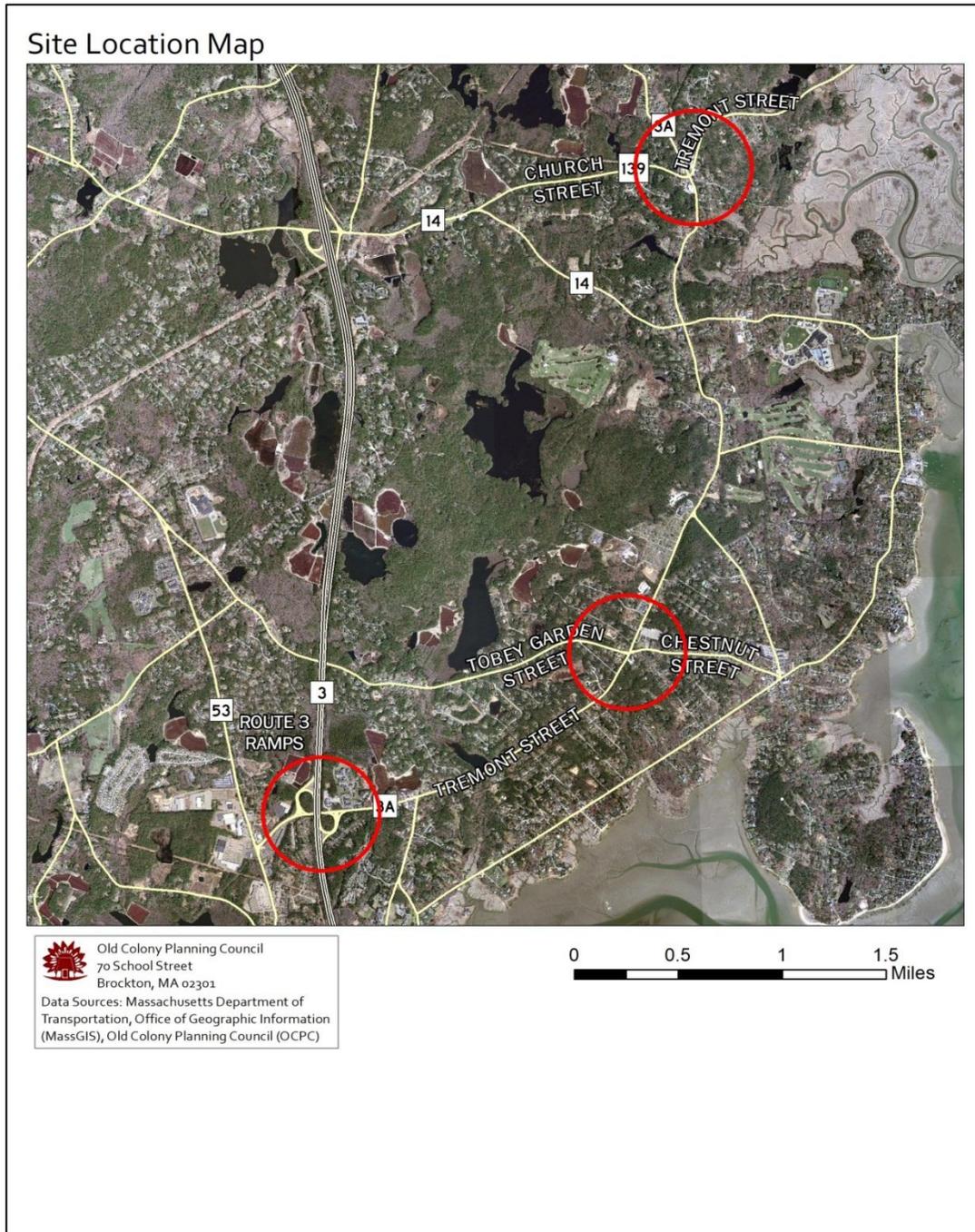


Figure 2: Route 3A at Route 3 Northbound (Exit 10)



Figure 3: Route 3A at Route 3 Southbound (Exit 10)



The speed limit on Route 3A is posted at 40 miles per hour in the northbound direction and 35 miles per hour in the southbound direction just north of the Route 3A and Pilgrim Highway Route 3 Exit 10 interchange. The posted speed limit in the northbound and southbound direction on Route 3A varies between 35 and 40 miles per hour south of the Route 3A/Chestnut Street/Tobey Garden intersection.

North of the Route 3A/Chestnut Street/Tobey Garden intersection to the Route 3A/Church Street/Tremont Street intersection, the posted speed limit varies between 30 and 40 miles per hour.

The Route 3A/Chestnut Street/Tobey Garden intersection is located in Duxbury approximately 1.7 miles north of the Route 3/Route 3A Ramps. This intersection is a four-way intersection, with Tobey Garden Street approaching from the west and Chestnut Street from the east. Tobey Garden is a two-lane collector road under town jurisdiction. Chestnut Street is classified as a minor arterial under town jurisdiction. The intersection has a slightly skewed geometry, as Chestnut Street comes into the intersection slightly north of Tobey Garden Street. A fifth roadway, Pinewood Lane, enters into Chestnut Street immediately adjacent to the intersection. Tremont Street, Chestnut Street, and Tobey Garden Street are all two-lane roadways, with single lane approaches to the intersection. Chestnut Street and Tobey Garden Street are controlled by stop signs, and both approaches have a traffic island to channel traffic.

Figure 4: Route 3A at Tobey Garden Street and Chestnut Street



The northernmost extent of the Audit is the Route 3A at Enterprise Street (Route 3A)/Tremont Street/Church Street (Route 139) intersection in Duxbury, which is approximately 2.5 miles north of the Route 3A/Chestnut Street/Tobey Garden intersection. Church Street (Route 139) is classified as a collector street under town jurisdiction. Tremont Street is designated as Route 3A south of the intersection (northbound approach). The southbound approach is Enterprise Street (Route 3A). Tremont Street continues east from the intersection as Route 139 and is classified as a minor collector under town jurisdiction. Both of the minor street approaches, Church Street and Tremont Street, are designated as Route 139, as Route 3A continues as Enterprise Street north of the intersection. The intersection is stop

sign controlled on the Church Street (Route 139) eastbound approach and the Tremont Street (Route 139) westbound approach. Both of these intersections have a splitter island on the approach. In addition, there is a sharp curve on both the eastbound and westbound approaches just before they intersect with Route 3A. The curves on the eastbound and westbound approaches do not skew the intersection, although they do limit sight lines for approaching vehicles.

Figure 5: Enterprise Street (Route 3A) /Church Street and Tremont Street



Audit Observations and Potential Safety Enhancements

During the RSA meeting prior to the field visit, a brief introduction of the RSA process and a summary of traffic volumes and crash information were presented to the audit participants. Following this brief presentation, the members of the audit team were asked to discuss the existing issues that may affect safety at the three intersections. The audit team then visited each of the intersections as a group, at which time observations, safety concerns, and deficiencies were identified and documented.

Provided below is a list of the safety concerns and the potential enhancements that were identified during the RSA.

Route 3A at Route 3 Exit 10 Ramps

Safety Issue - Speeding on Route 3A.

This section of Route 3A is a four-lane cross section where vehicles are exiting the highway and maintain a high rate of speed heading toward Duxbury from Kingston. There is also a curve in the road just west of the southbound ramps. These factors contribute to unsafe conditions for vehicles entering and exiting the southbound ramps as well as the northbound ramps.

Enhancements: Increased speed enforcement.

Safety Issue – Vegetation on Route 3A blocks signage.

Overgrown vegetation on the side of the road blocks signage including signs directing vehicles to the on-ramps.

Enhancements: Trim overgrown vegetation on the side of the road.

Safety Issue - Area is dark at night.

There is a lack of overhead lighting along Route 3A for proper visibility at night.

Enhancements: Consider the installation of lighting along Route 3A. The installation of additional lighting could likely be accomplished as part of a larger construction project and may require local jurisdiction for maintenance.



Vegetation blocking a sign on the Route 3A eastbound approach

Safety Issue – Lack of sidewalks and bicycle lanes.

There is a vulnerable population residing at the Island Creek development, which utilizes Route 3A to gain access to the Kingsbury Crossing shopping center. There are no sidewalks on either side of Route 3A between the development and the shopping center. There is also a lack of bicycle lanes on Route 3A.

Enhancements: Consider the installation of sidewalks on Route 3A between the Island Creek development and the Kingsbury Shopping Center. This would be consistent with MassDOT's Healthy Transportation Compact. The installation of sidewalks could likely be accomplished as part of a larger construction project, and may require local jurisdiction for maintenance.

Enhancements: Consider installing bicycle lanes on both sides of Route 3A if the right of way is sufficient to allow the expansion of the pavement. Any widening or reconstruction should also take into account conservation issues that might arise due to design and construction.

Safety Issue – Courtesy Crashes.

Vehicles on Route 3A eastbound that have stopped and queued in the left lane in order to turn left onto Route 3 southbound obstruct the view of vehicles in the Route 3A right lane, which are accelerating to pass them on the right. Courtesy Crashes occur when the vehicles on Route 3A eastbound in the left lane allow vehicles exiting the Route 3 southbound ramps to as they turn left to Route 3A eastbound, putting them in conflict with vehicles in the Route 3A eastbound right lane.

Enhancements: Consider the installation of traffic signals. Warrant analyses were conducted for the Island Creek residential development for the Route 3A/Route 3 northbound and southbound ramp intersections, which met the thresholds for signal warrants prescribed in the manual on Uniform Traffic

Control Devices (MUTCD). A MassDOT project for installation of signals at the ramps was approved by the Project Review Committee (PRC) in 2010: *PRC Number 606002 – Duxbury – Signal Installation at Route 3 (Northbound and Southbound) Ramps and Route 3A (Tremont Street)*. According to the MassDOT description, this project includes installing fully actuated traffic control signals at the intersections of Route 3A with the Route 3 north and southbound ramps, and interconnecting and coordinating the two signals. The limits of the project are on Route 3A from approximately 200 feet west of the Route 3A southbound ramp to approximately 200 feet east of the Route 3A northbound ramps.

Safety Issues - Lack of way finding signs.

There is a lack of way finding signs notifying motorists of ramp use.

Enhancements: Install way finding signs.

Safety Issue – Speeding and obstructed views.

There is a curve in the road headed Route 3A eastbound and due to speeding and hazardous conditions occur due to obstructed views of approaching lanes to the Route 3 southbound ramps.

Enhancements: Consider the implementation of a road diet, downsizing the road from four-lane cross section to two-lane cross section; however, this is not recommended as the number of lanes will reduce the capacity of Route 3A and result in fewer gaps for side street traffic to enter.

Safety Issue - Sun glare.

At certain times of the day, and certain times of the year, when the sun is rising and setting and low in the sky, visibility is temporarily poor due to sun glare on the eastbound and westbound sides of Route 3A.

Enhancement: Install traffic signals with back-plates and LED signals.

Safety Issue – Lane drop.

Eastbound Route 3A traffic merges from two lanes into one after the ramps, where the Island Creek entrance access is located. A hazardous condition exists where cars stop to turn into the access drive while other cars are merging from two lanes to one lane.

Enhancement: Consider adding a left turn lane on Route 3A eastbound for access into the Island Creek development to get queuing traffic out of the Route 3A travel lane where the lane merges from two lanes to one. This enhancement might be limited due to the insufficient length for tapers and weaving on Route 3A. The Island Creek development could consider making their access right turn in and right turn out only to eliminate left turn conflicts at this location.

Safety Issue – Long queues on the northbound and southbound off-ramps.

There are long queues that back up on the northbound and southbound off-ramps. This creates “forced flow”, in which vehicles force their way onto Route 3A entering traffic flow unsafely by forcing their way into a gap in the traffic that is insufficient for safe turning movements.

Enhancement: Install traffic signals at the ramps (or roundabout at the northbound exit). Warrant analyses were conducted for the Island Creek residential development to determine if the Route 3A/Route 3 northbound and southbound ramp intersections satisfy the thresholds for signal warrants and both intersections satisfied the warrants prescribed in the Manual on Uniform traffic Control Devices (MUTCD).

Safety Issue – Visibility on the Route 3 northbound off-ramp is limited due to the approach angle.

The Route 3 northbound off ramp approach to the Route 3A/Route 3 Northbound off-ramp intersection is not at a 90 degree, so the line of sight at the stop line has poor visibility, although the visibility can depend on the vehicle being driven.

Enhancement: Re-align the Route 3 northbound off ramp approach to the Route 3A/Route 3 Northbound off-ramp intersection.

Safety Issue – Lack of acceleration lanes

Route 3A lacks acceleration lanes for the right turns to enter from the northbound and southbound Route 3 off ramps.

Enhancement: Add acceleration lanes to Route 3A to receive vehicles exiting from the northbound and southbound Route 3 off ramps. The addition of acceleration lanes on Route 3A would depend on the availability of right-of-way.

Route 3A at Chestnut Street and Tobey Garden Street

Safety Issue - Excessive queues on both side streets.

There are excessive queues and back-ups on Chestnut Street and Tobey Garden Street (stop sign side streets) resulting in reduced patience in drivers attempting to force enter Route 3A. Subsequently, there are a lot of near misses for turning movements. There are especially excessive back-ups on the right turn movement from Chestnut Street to Route 3A. There is a lack of adequate gaps in Route 3A traffic sufficient for safe entrance from the side streets.

Enhancement: Consider constructing a roundabout, as this intersection is a likely candidate for a roundabout if the traffic analysis concurs. In addition, improve striping, add crosswalks, and install bicycle and pedestrian amenities.

Safety Issue - Obstructed sight lines.

There are obstructed views on the Tobey Garden eastbound approach and Chestnut Street westbound approach due to roadside vegetation and the skewed alignment. On the northwest corner there is excessive vegetation blocking sight lines, and the southwest corner also has vegetation blocking sight lines.

Enhancement: Clear roadside vegetation.

Enhancement: Realign the intersection, tighten up the geometry, and relocate Chestnut Street.

Safety Issue – Speeding.

Speeding on Route 3A is problematic.

Enhancement: Conduct enhanced enforcement of speeding.

Route 3A at Tremont Street (Route 139) and Church Street (Route 139)

Safety Issue – Sight lines.

There is limited sight distance on the side street Church Street (Route 139) eastbound approach to the intersection.

Enhancement: Clear vegetation on the northwest corner of the intersection.

Enhancement: Improve pavement marking and striping and add advanced warning signs.

Safety Issue – Speeding.

Speeding on Route 3A is problematic.

Enhancement: Conduct enhanced speeding enforcement and add electronic speed feedback signs on Route 3A.

Safety Issue – Poor intersection alignment.

Both the eastbound Church Street (Route 139) and the westbound Tremont Street (Route 139) approaches to the Route 3A/Church Street (Route 139)/Tremont Street (Route 139) intersection have curves just as they intersect Route 3A. This poor alignment affects the path of turning movements as well as sight lines.

Enhancement: Consider installing a roundabout and/or tighten geometry. This intersection is a likely candidate for a roundabout if the traffic analysis concurs.

Summary of Road Safety Audit

Based on the review of data, on-site field observations and group discussion, the RSA team identified possible enhancements that could improve safety at the three locations. Further study and design work will need to be conducted to determine the feasibility of making some of the improvements.

Table 2 summarizes the estimated time frame and costs breakdown and Tables 3, 4 and 5 summarize the safety issues, possible enhancements, estimated safety payoff, time frame, cost, and 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: Route 3A at Route 3 Northbound and Southbound Ramps:

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Agency
Speeding on Route 3A	Increase speed enforcement	Medium	Short Term	Medium	Local / State PD
Vegetation blocking existing road signage	Clear vegetation within right of way	Medium	Short Term	Low	MassDOT
Area is dark at night	Install lighting	Medium	Mid Term	Medium	MassDOT
Vulnerable population from Island Creek development walking through area to Kingsbury Crossing shopping center	Install sidewalks and bicycle lanes between Island Creek and Route 53	High	Long Term	High	MassDOT
Stopped / queued vehicles in left lane obstructing view of vehicles in the right lane / Courtesy Crashes	Install Traffic Signals	High	Long Term	High	MassDOT
Lack of way finding signs	Install new way finding signs	Low	Short Term	Low	MassDOT
Sun glare	Install Traffic Signals with back-plates and LED signals	High	Long Term	High	MassDOT
Lane Drop - Northbound traffic merges from two lanes into one lane east of the ramps, where the Island Creek access is located. Cars are stopping and merging at the same location.	Add left turn lane for Island Creek, to get queuing traffic for Island Creek out of travel lane / lane merge	High	Mid Term	Medium-High	MassDOT

Table 4: Potential Safety Enhancement Summary: Route 3A at Route 3 Northbound and Southbound Ramps (continued):

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Agency
Safety Issue – Long queues on the northbound and southbound off-ramps	Install traffic signals at the ramps (or roundabout at the northbound exit). Warrant analyses would have to be conducted to determine if the Route 3A/Route 3 northbound and southbound ramp intersections satisfy the thresholds for signal warrants prescribed in the Manual on Uniform traffic Control Devices (MUTCD).	High	Long Term	High	MassDOT
Safety Issue – Visibility on the Route 3 northbound off-ramp is limited due to the approach angle	The Route 3 northbound off ramp approach to the Route 3A/Route 3 Northbound off-ramp intersection is not at a 90 degree, so the line of sight at the stop line has poor visibility.	Medium	Mid Term	High	MassDOT
Safety Issue – Lack of acceleration lanes	Add acceleration lanes to Route 3A to receive vehicles exiting from the northbound and southbound Route 3 off ramps.	Medium	Mid Term	High	MassDOT

Table 5: Potential Safety Enhancement Summary: Route 3A at Tobey Garden Street and Chestnut Street

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Agency
Excessive queues on both side streets reducing patience in drivers attempting to enter Route 3A, creating forced flow	Construct roundabout, improve striping, add crosswalks, install bicycle and pedestrian amenities	High	Long Term	High	MassDOT
Obstructed sight lines on eastbound and westbound approaches due to roadside vegetation and intersection alignment	Clear roadside vegetation	High	Short Term	Low	MassDOT (if within ROW) / Municipality (Outside of ROW)
	Realign the intersection, improve the geometry, relocate Chestnut Street	High	Long Term	High	
Speeding on Route 3A	Speed Enforcement	Medium	Short Term	Low	Duxbury Police

Table 6: Potential Safety Enhancement Summary: Route 3A at Enterprise Street/Church Street (Route 139/Tremont Street (Route 139))

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Agency
Poor Sight Lines	Clear vegetation on the northwest corner of the intersection	High	Short Term	Low	MassDOT (if within ROW) / Municipality (Outside of ROW)
	Improve pavement markings and striping and add advanced warning signs	High	Short Term	Low	MassDOT
Speeding	Enhanced speeding enforcement and add electronic speed feedback signs on Route 3A.	Medium	Short Term	Low	Duxbury Police
Poor intersection alignment	Install a roundabout and/or improve geometry	High	Long Term	High	MassDOT (if within ROW) / Municipality (Outside of ROW)

Appendix A. RSA Meeting Agenda

Agenda	<p align="center">Road Safety Audit for Route 3A at Route 3 Exit 10; Route 3A at Chestnut Street / Tobey Garden Street; and Route 3A at Church Street/ Tremont Street (Route 139), Duxbury Thursday, August 31st, 2017 10:00 AM – 12:00 PM</p>
Contact:	<p>Bill McNulty, Old Colony Planning Council (508) 583-1833 ext. 207 wmcnulty@ocpcrpa.org</p>
Attendees:	<p>Invited Participants Include a Multidisciplinary Team including Duxbury and Kingston Officials (DPW, Police, Fire, Planning, Administration), MassDOT, Transit Providers (GATRA and Plymouth & Brockton), SRPEDD, and OCPC</p>
Please Bring:	<p>Thoughts and Suggestions</p>
Meeting Location:	<p>Duxbury Town Hall – Mural Room 878 Tremont Street (Route 3A) Duxbury, MA. 02332</p>
10:00 AM	<p>Welcome and Introductions at Duxbury Town Hall</p>
10:10 AM	<p>Review and Discussion of Project and Site Specific Material</p> <ul style="list-style-type: none"> • Review of Traffic Data • Existing Conditions and Known Challenges
10:30 PM	<p>Adjourn from Opening Session and head to site visits at each intersection</p> <ul style="list-style-type: none"> • Identify any deficiencies and/or potential improvements at the study area location • OCPC staff will document all observations and comments
11:40 AM	<p>Wrap-Up Site Visit / Conclude Audit Back at Duxbury Town Hall</p>
12:00 PM	<p>Adjourn For The Day</p>
Instructions For Participants:	<ul style="list-style-type: none"> • Before attending the Road Safety 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 Road Safety 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 • Please wear comfortable footwear, and bring safety vest if possible. A limited number of safety vests will be available at the audit.

Appendix B. RSA Audit Team Contact List

Participating Audit Team Members

Date: June 21, 2017 Location: Duxbury, MA

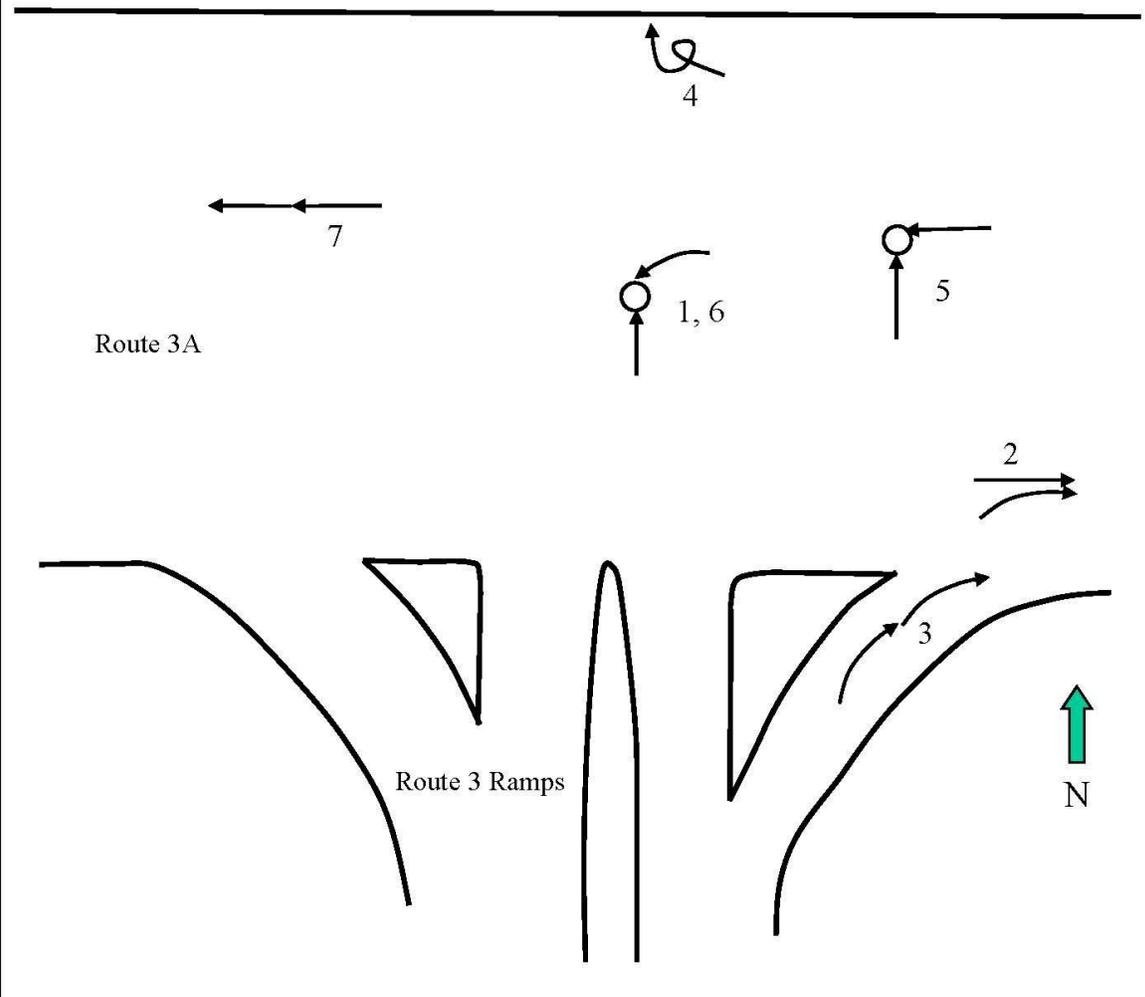
Audit Team Members	Agency/Affiliation	Email Address	Phone Number
Name	Agency	Email	
Bill McNulty	OCPC	wmcnulty@ocpcrpa.org	
Raymond Guarino	OCPC	rguarino@ocpcrpa.org	
Kyle Mowatt	OCPC	kmowatt@ocpcrpa.org	
Shayne Trimbell	SRPEDD	Not available	
Elsa Chan	MassDOT Traffic Safety	elsa.chan@state.ma.us	
Connor Keating	MassDOT Traffic Safety	connor.keating@state.ma.us	
Jason Walters	MassDOT District 5 Projects	jason.walters@state.ma.us	
Thomas Rebello	MassDOT District 5 Traffic	thomas.rebello@state.ma.us	
Paul Brogna	Duxbury Highway Safety	pab100100@aol.com	
Peter Buttkus	Duxbury DPW	buttkus@town.duxbury.ma.us	
Valarie Massard	Duxbury Town Planner	Massard@town.duxbury.ma.us	
Police Officers	Duxbury Police		
Paul Basler	Town of Kingston	pbasler@kingston.mass.org	
Tom Bott	Town of Kingston	pbott@kingston.mass.org	
Maurice Splaine	Kingston Police	msplaine@kingston.mass.org	
Robert Fennesey	Kingston Town Administrator	rfessesey@kingston.mass.org	
Ron Morgan	GATRA		
Dennis Donohue	Plymouth and Brockton Bus	Not available	

Appendix C. Detailed Crash Data

COLLISION DIAGRAM
Route 3A at Route 3 NB Ramps Kingston-Duxbury
Collision Diagram for Crashes (2012, 2013, 2014) Prepared by
OCPC (RG) (source: MassDOT)

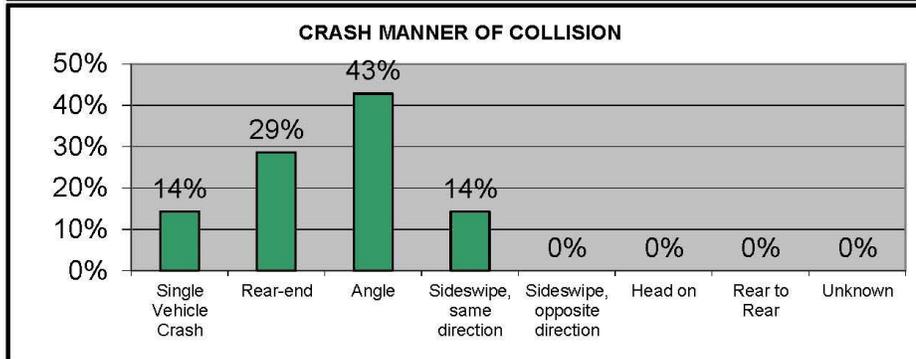
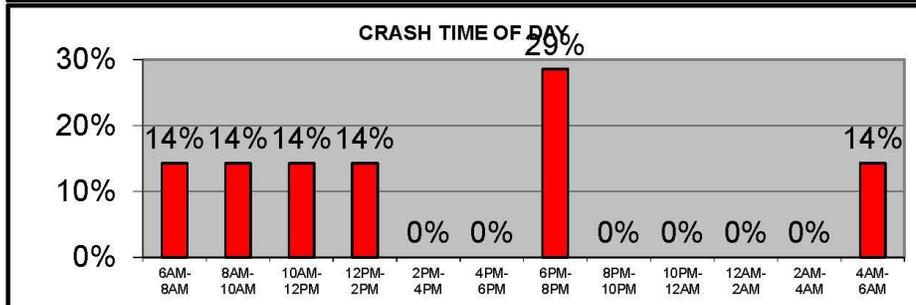
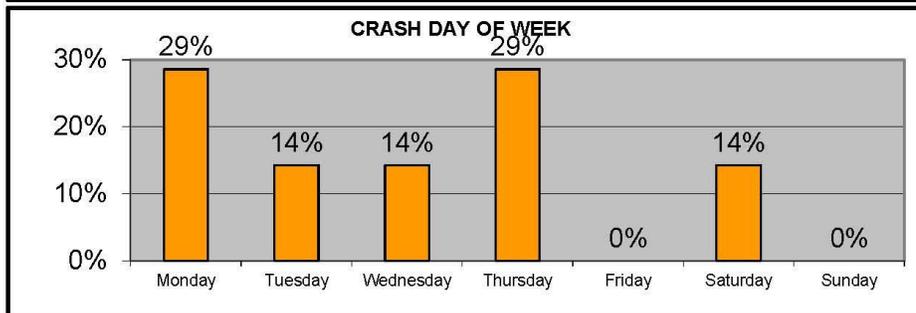
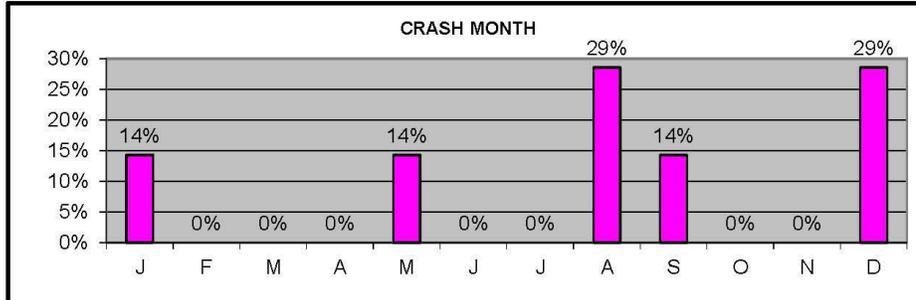
SYMBOLS

- ← Moving Vehicle
- Injury
- XX Crash Number

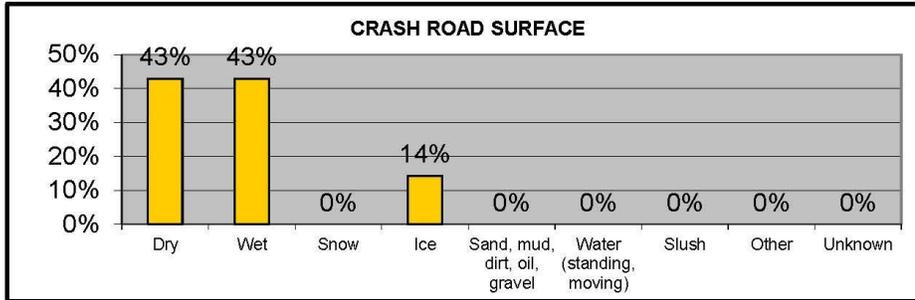
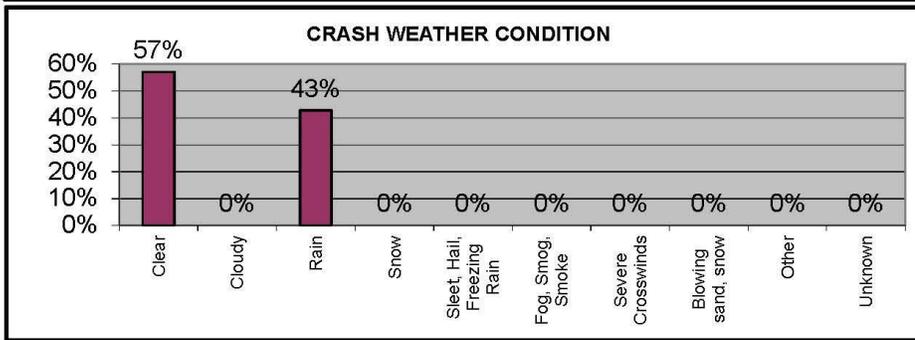
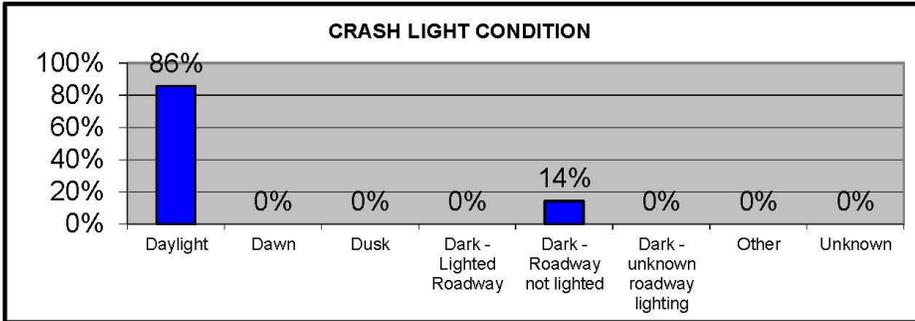


Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	High Speed Involved	FMVSS Violation	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Direction	Most Harmful Event	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At-Risk/Type Intersection	Distance from Nearest Roadway Direction
888489	DUNBURY	25-Aug-2012	10:58 AM	Nonfatal injury	2	0	0	Angle	V1 Traveling straight ahead / V2 Turning left	V1 Northbound / V2 Southbound	V1 Collision with motor vehicle in traffic	V1 - Passenger car / V2 - Passenger car	Dry	Daylight	Clear	TREMONT STREET Rte 3A N Rte 2 N	
883232	DUNBURY	04-Sep-2012	3:59 PM	Property damage only (non-injured)	2	0	0	Sideswipe, same direction	V1 Traveling straight ahead / V2 Changing left, lane	V1 Southbound / V2 Northbound	V1 Collision with other motorable object / V2 Collision with other motorable object	V1 - Passenger car / V2 - Passenger car	Wet	Daylight	Rain/Other	TREMONT STREET Rte 3A N Rte 2 N TO RT 3A	
895237	DUNBURY	20-Dec-2012	3:52 AM	Property damage only (non-injured)	2	0	0	Rear-end	V1 Traveling straight ahead / V2 Changing left, lane	V1 Northbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 - Passenger car / V2 - Passenger car	Wet	Daylight	Cloudy/Rain	TREMONT STREET / Rte 3 N	
378649	DUNBURY	02-Dec-2012	6:49 AM	Property damage only (non-injured)	1	0	0	Single vehicle crash	V1 Traveling straight ahead	V1 Southbound	V1 Collision with object	V1 - Passenger car	Dark - roadway not lit/ill	Clear/Other		TREMONT STREET Rte 3A S	
408517	DUNBURY	18-Jun-2014	1:39 PM	Nonfatal injury	2	1	0	Angle	V1 Blowing or stopped in traffic / V2 Traveling straight ahead	V1 Northbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 - Passenger car / V2 - Passenger car	Wet	Daylight	Rain/Other	TREMONT STREET Rte 3A E Rte 2 N TO RT 3A	
893943	DUNBURY	21-May-2011	8:39 AM	Nonfatal injury	2	2	0	Angle	V1 Turning left / V2 Traveling straight ahead	V1 Southbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 - Passenger car / V2 - Passenger car	Wet	Daylight	Clear	TREMONT STREET Rte 3A N Rte 2 N TO RT 3A	
887115	DUNBURY	11-Aug-2011	7:59 PM	Property damage only (non-injured)	2	0	0	Rear-end	V1 Traveling straight ahead / V2 Traveling straight ahead	V1 Eastbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 - Passenger car / V2 - Passenger car	Wet	Daylight	Clear/Inebriat	TREMONT STREET Rte 30 E	

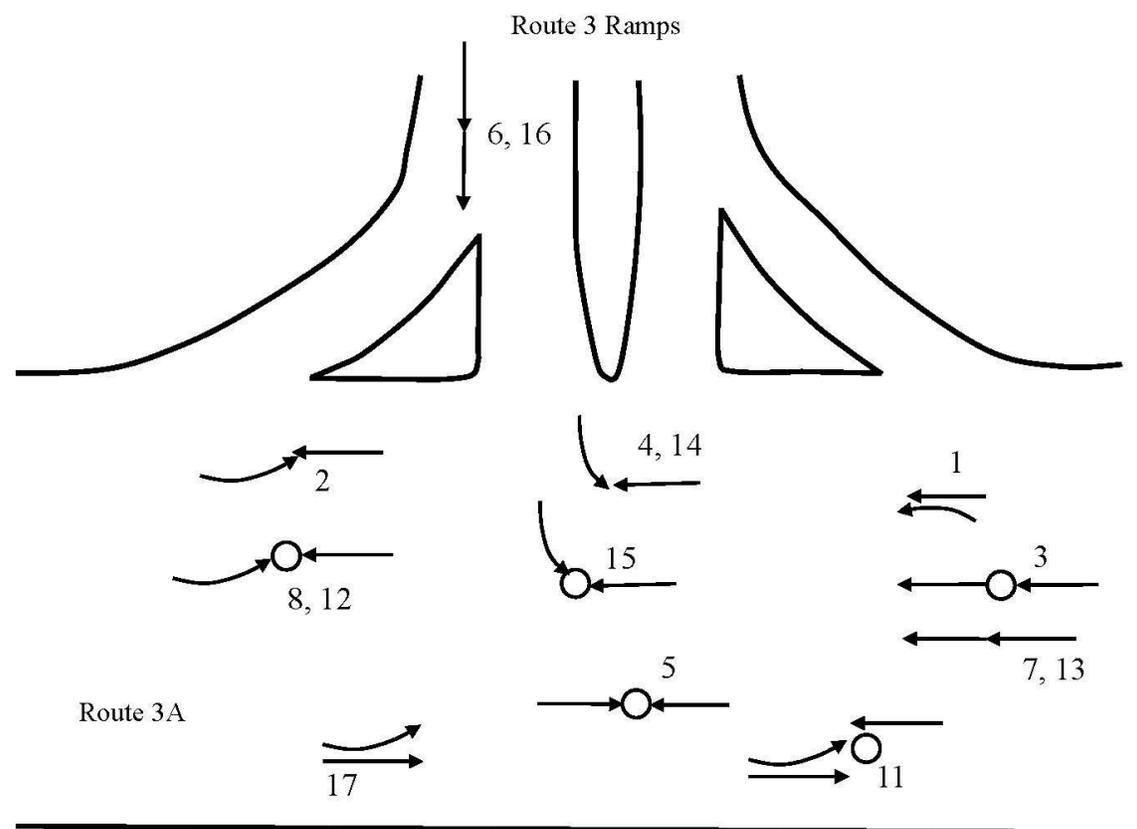
Crash Data Summary Tables and Charts
Route 3A at Route 3 NB Exit 10 Ramps, Duxbury



Crash Data Summary Tables and Charts
Route 3A at Route 3 NB Exit 10 Ramps, Duxbury



COLLISION DIAGRAM
 Route 3A at Route 3 SB Ramps Kingston-Duxbury
 Collision Diagram for Crashes (2012, 2013, 2014) Prepared by
 OCPC (RG) (source: MassDOT)



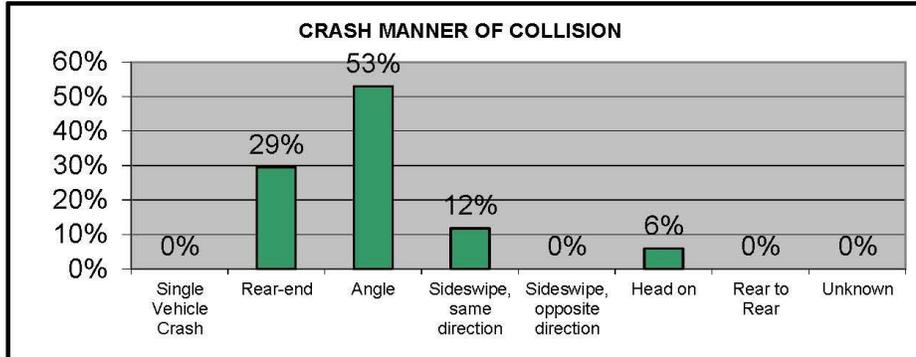
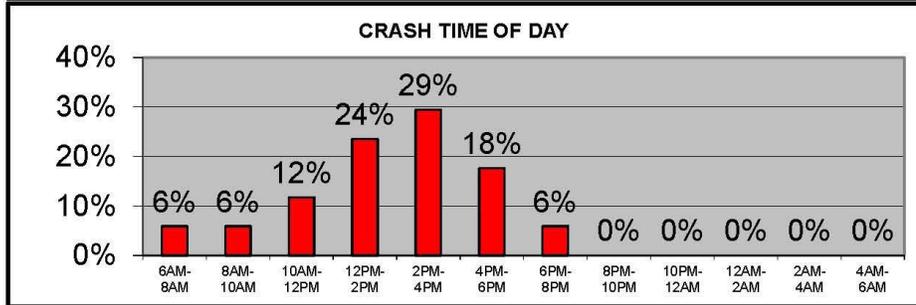
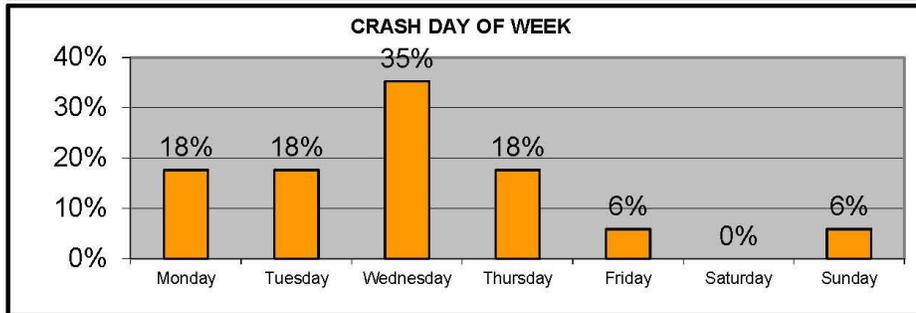
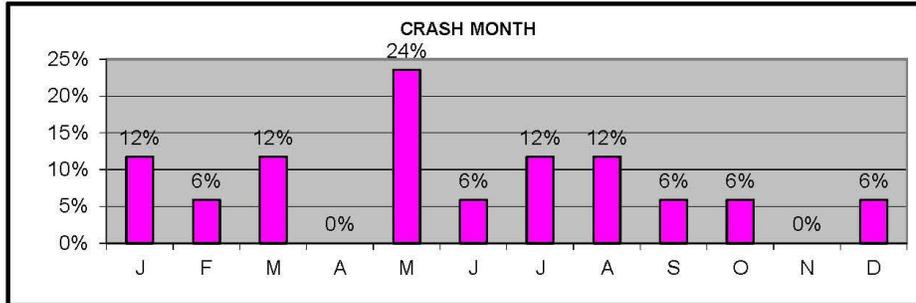
Notes: Not enough details to diagram Crash Numbers 9, and 10

SYMBOLS	
←	Moving Vehicle
○	Injury
XX	Crash Number

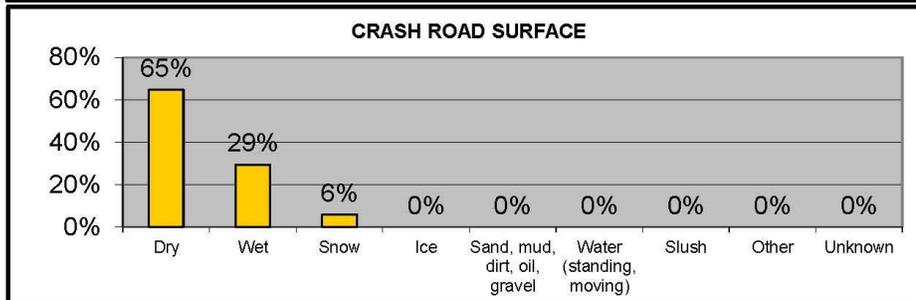
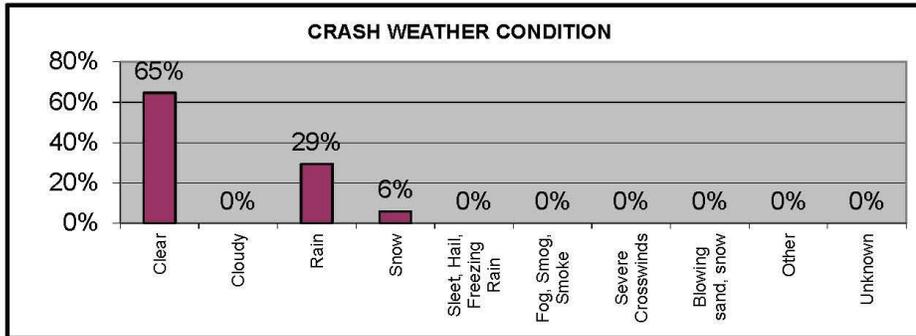
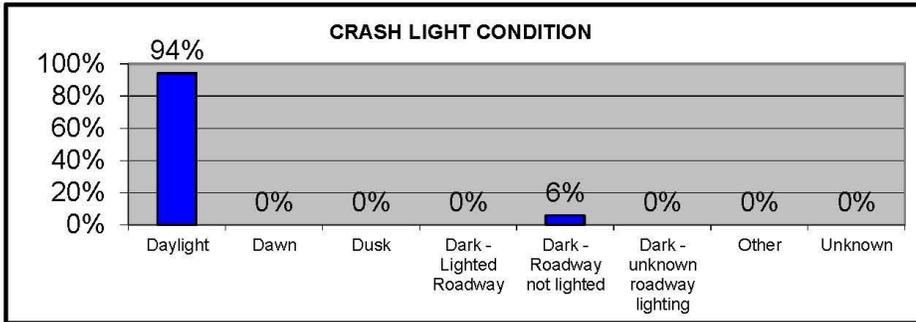


Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	One Person Injured	Two or More Injured	Fatal	Mode of Collision	Vehicle Action Prior to Crash	Vehicle Travel Direction	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	All Roadway Intersection	Distance from Nearest Roadway Intersection
3781280	DUNBURY	30-Mar-2012	1:37 PM	Property damage only	2	0	0	0	Side-swipe, same direction	V1 Entering traffic lane / V2 Entering traffic lane	V1 Westbound / V2 Westbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear		DUNBURY ROAD Rte 3A
9522399	KINGSTON	09-Jan-2013	5:09 PM	Property damage only	2	0	0	0	Angle	V1 Turning left / V2 Traveling straight ahead	V1 Eastbound / V2 Westbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Wet	Dark - roadway not lighted	Cloudy/Rain		DUNBURY RD
5503380	KINGSTON	29-Jan-2013	2:31 PM	Non-fatal injury	2	1	0	0	Rear-end	V1 Slowing or stopped in traffic / V2 Slowing or stopped in traffic	V1 Westbound / V2 Westbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Snow	Daylight	Not Reported		RAMP RT 3 SB TO RT 3A / ROUTE 3A Rte 3A S
9522395	KINGSTON	21-Feb-2013	3:03 PM	Property damage only	2	0	0	0	Angle	V1 Traveling straight ahead / V2 Turning left	V1 Westbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear		ROUTE 3 SB @ 10 EOWY / DUNBURY ROAD
9522397	KINGSTON	07-Mar-2013	3:21 PM	Non-fatal injury	2	1	0	0	Head-on	V1 Traveling straight ahead / V2 Turning left	V1 Westbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear/Unknown		DUNBURY RD
3729977	DUNBURY	15-Mar-2013	2:11 PM	Property damage only	2	0	0	0	Rear-end	V1 Slowing or stopped in traffic / V2 Slowing or stopped in traffic	V1 Southbound / V2 Southbound	V1 Not reported / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear/Unknown		ROUTE 3A Rte 3A S / TREMONT STREET Rte 3A N
9522407	KINGSTON	19-Mar-2013	11:01 AM	Property damage only	1	0	0	0	Rear-end	V1 Entering traffic lane	V1 Westbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear		ROUTE 3 SB @ 10 EOWY / DUNBURY ROAD
9522399	KINGSTON	27-Mar-2013	12:11 PM	Non-fatal injury	2	1	0	0	Angle	V1 Traveling straight ahead / V2 Turning left	V1 Southbound / V2 Northbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear		DUNBURY ROAD / ROUTE 3 SB @ 10 EOWY
9522377	KINGSTON	15-Jun-2013	8:33 AM	Property damage only	2	0	0	0	Angle	V1 Turning left / V2 Entering traffic lane	V1 Westbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear		DUNBURY ROAD / ROUTE 3 SB @ 10 EOWY
9522326	KINGSTON	29-Aug-2013	1:56 PM	Property damage only	2	0	0	0	Angle	V1 Traveling straight ahead / V2 Turning left	V1 Southbound / V2 Westbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Wet	Daylight	Cloudy/Rain		DUNBURY ROAD / ROUTE 3 SB @ 10 EOWY
9540342	KINGSTON	14-Sep-2013	1:45 PM	Non-fatal injury	3	2	0	0	Angle	V1 Traveling straight ahead / V2 Changing lanes / V3 Traveling straight ahead	V1 Eastbound / V2 Eastbound / V3 Westbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic / V3 Collision with motor vehicle in traffic	V1 Passenger car / V2 Light truck/truck, medium, panel, pickup, sport utility with only two doors / V3 Passenger car	Dry	Daylight	Clear		DUNBURY ROAD / ROUTE 3 SB @ 10 EOWY
9540352	KINGSTON	15-Oct-2013	3:38 PM	Non-fatal injury	2	1	0	0	Angle	V1 Turning left / V2 Traveling straight ahead	V1 Northbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Motorcycle	Dry	Daylight	Rain		DUNBURY ROAD / ROUTE 3 SB @ 10 EOWY
3734391	KINGSTON	30-Mar-2014	4:20 PM	Property damage only	2	0	0	0	Rear-end	V1 Slowing or stopped in traffic / V2 Slowing or stopped in traffic	V1 Westbound / V2 Westbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Wet	Daylight	Rain		RAMP RT 3 SB TO RT 3A / ROUTE 3A Rte 3A S W / TREMONT STREET Rte 3A N
3889182	KINGSTON	02-Apr-2014	6:25 PM	Property damage only	2	0	0	0	Angle	V1 Traveling straight ahead / V2 Turning left	V1 Westbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear		RAMP RT 3 SB TO RT 3A / TREMONT STREET Rte 3A N
9525166	KINGSTON	09-Jul-2014	1:02 PM	Non-fatal injury	2	0	0	0	Angle	V1 Traveling straight ahead / V2 Turning left	V1 Westbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear/Unknown		RAMP RT 3 SB TO RT 3A / TREMONT STREET Rte 3A N
9545457	KINGSTON	27-Aug-2014	8:39 AM	Property damage only	2	0	0	0	Rear-end	V1 Slowing or stopped in traffic / V2 Slowing or stopped in traffic	V1 Southbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear		RAMP RT 3 SB TO RT 3A / ROUTE 3A Rte 3A S W / TREMONT STREET Rte 3A N
9587308	KINGSTON	24-Dec-2014	10:56 AM	Property damage only	2	0	0	0	Side-swipe, same direction	V1 Changing lanes / V2 Slowing or stopped in traffic	V1 Northbound / V2 Northbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Wet	Daylight	Cloudy/Rain		RAMP RT 3 SB TO RT 3A / TREMONT STREET Rte 3A N

Crash Data Summary Tables and Charts
Route 3A at Route 3 SB Exit 10 Ramps, Duxbury/Kingston



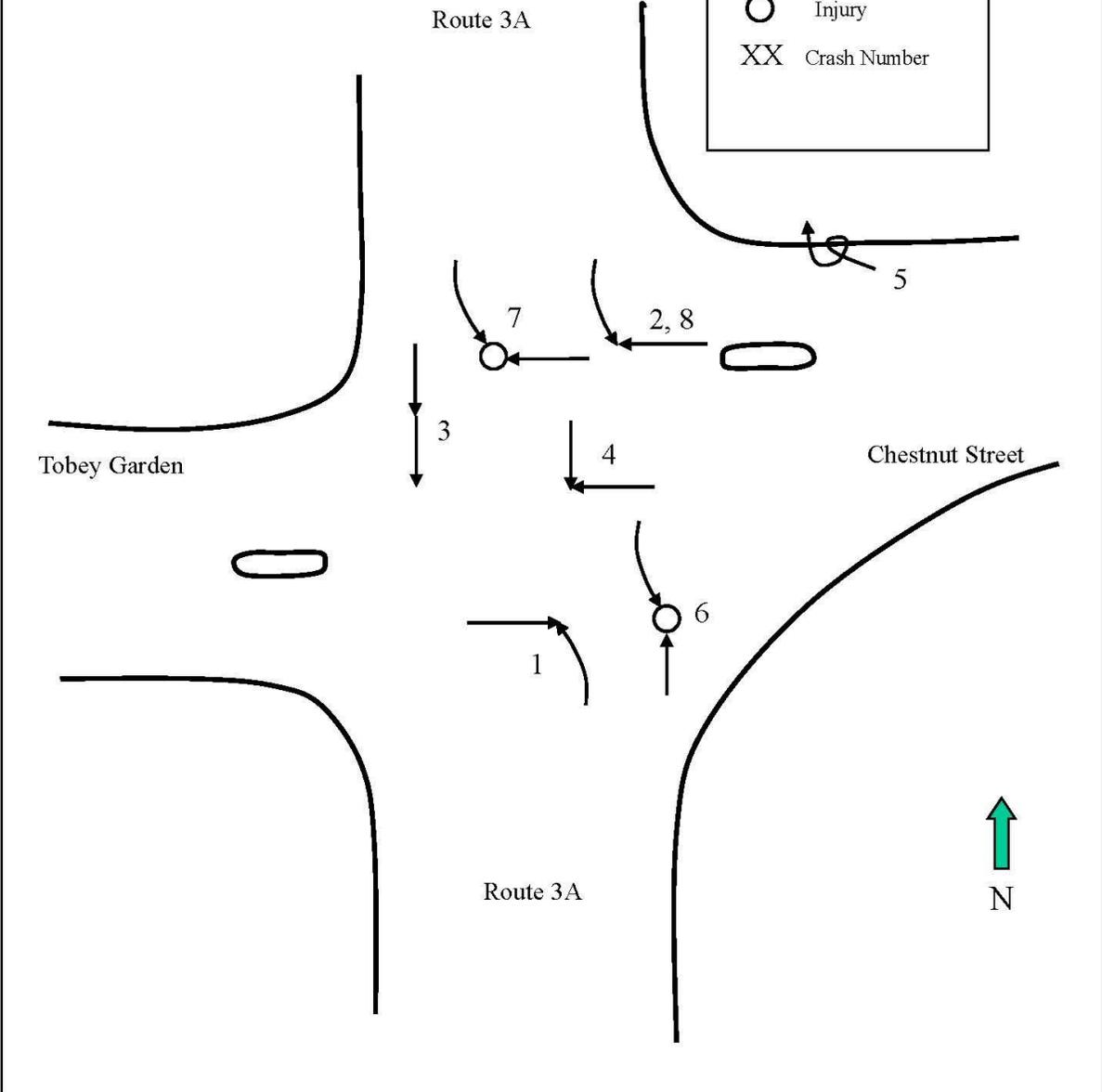
Crash Data Summary Tables and Charts
Route 3A at Route 3 SB Exit 10 Ramps, Duxbury/Kingston



COLLISION DIAGRAM
Route 3A at Tobey Garden and Chestnut Street
Kingston-Duxbury
Collision Diagram for Crashes (2012, 2013, 2014) Prepared by
OCPC (RG) (source: MassDOT)

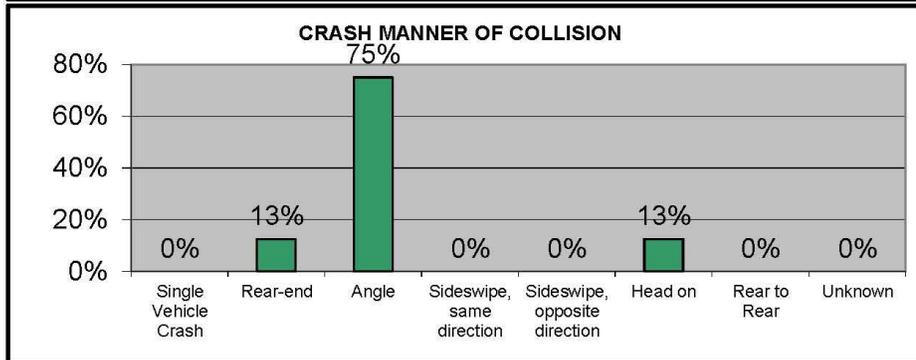
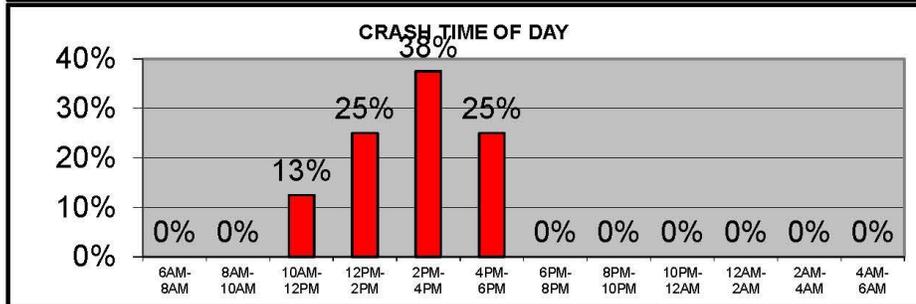
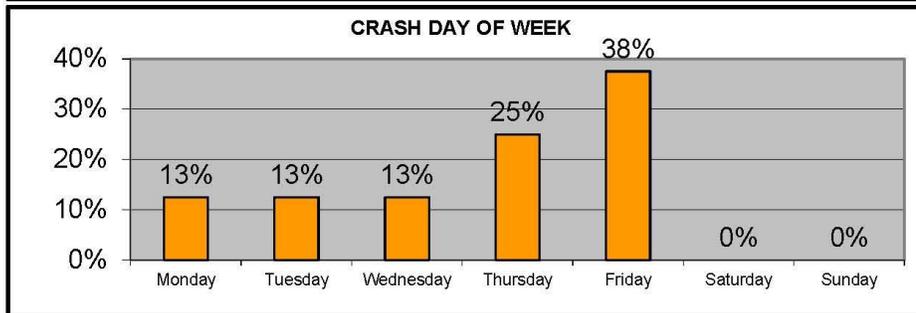
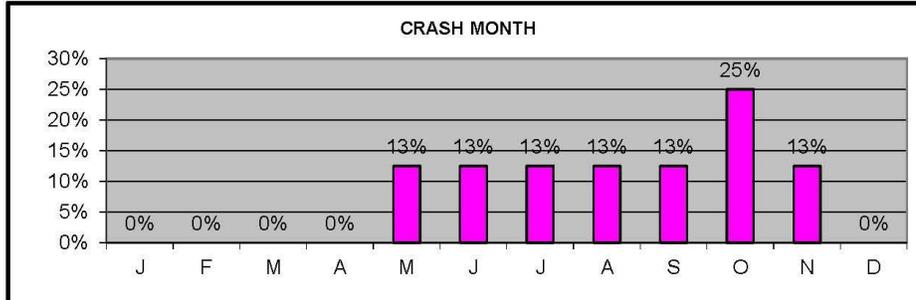
SYMBOLS

- ← Moving Vehicle
- Injury
- XX Crash Number

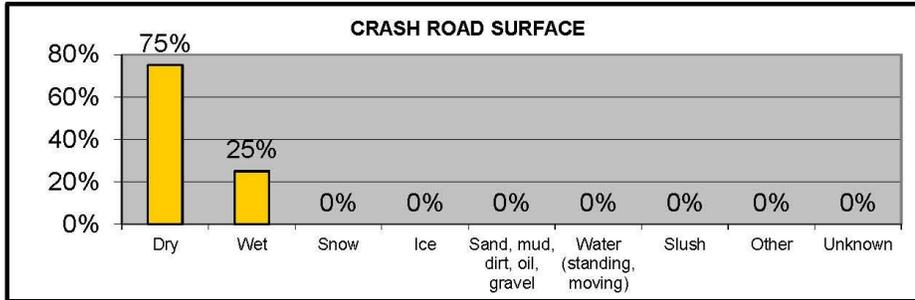
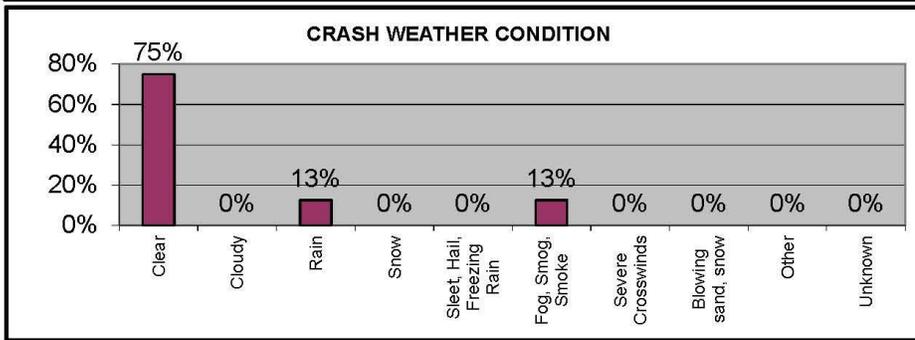
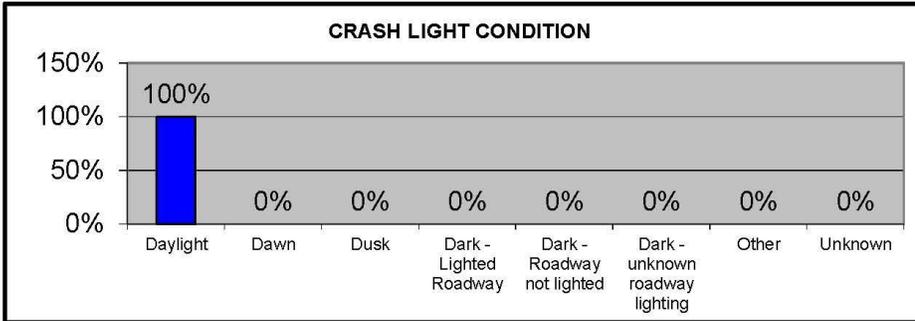


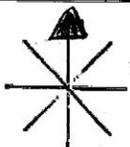
Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Injuries	Fatalities	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Direction	Vehicle Travel Direction	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Risk/Key Intersection	Distance from nearest Roadway Intersection
355908	DUNBURY	18-May-2012	2:28 PM	Not Reported	2	0	0	Angle	01: Turning left / V2: Slowing or stopped in traffic	V1 Northbound / V2 Westbound	V1 Collision with motor vehicle in traffic in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck, minivan, panel, pickup, sport utility with only four (4) tires / V2: Light truck, passenger car / V2: Light truck, passenger car / V2: Light truck, passenger car	Dry	Daylight	Clear	TREMONT STREET @ 34th / CHESTNUT STREET		
358430	DUNBURY	24-Aug-2012	3:29 PM	Property damage only none injured	2	0	0	Angle	01: Turning left / V2: Traveling straight ahead	V1 Southbound / V2 Eastbound	V1 Collision with motor vehicle in traffic in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck, minivan, panel, pickup, sport utility with only four (4) tires / V2: Light truck, passenger car	Dry	Daylight	Clear	TRENTON STREET		
368545	DUNBURY	19-Sep-2012	4:45 PM	Property damage only none injured	2	0	0	Rear-end	01: Slowing or stopped in traffic / V2: Traveling straight ahead	V1 Southbound / V2 Southbound	V1 Collision with motor vehicle in traffic in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck, minivan, panel, pickup, sport utility with only four (4) tires / V2: Light truck, passenger car	Dry	Daylight	Clear	TRENTON STREET / CHESTNUT STREET	100 feet N from Intersection 628 TREMONT STREET / CHESTNUT STREET	
368543	DUNBURY	04-Oct-2012	11:11 AM	Property damage only none injured	2	0	0	Angle	01: Slowing or stopped in traffic / V2: Entering traffic lane	V1 Southbound / V2 Westbound	V1 Collision with motor vehicle in traffic in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck, minivan, panel, pickup, sport utility with only four (4) tires	Wet	Daylight	Cloudy/fog, smog, smoke	TREMONT STREET / CHESTNUT STREET		
374186	DUNBURY	19-Jun-2013	1:24 PM	Property damage only none injured	1	0	0	Head-on	01: Traveling straight ahead	V1 Westbound	V1 Collision with tree	V1: Passenger car	Wet	Dark, roadway poorly lit	Cloudy/Rain	20 TOBEY GARDEN STREET / TREMONT STREET		
375370	DUNBURY	15-Oct-2013	1:18 PM	Non-fatal injury	2	1	0	Angle	01: Traveling straight ahead / V2: Turning left	V1 Northbound / V2 Southbound	V1 Collision with motor vehicle in traffic in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck, minivan, panel, pickup, sport utility with only four (4) tires / V2: Passenger car	Dry	Daylight	Clear	TREMONT STREET @ 34th / CHESTNUT STREET	860 TREMONT STREET	
374320	DUNBURY	15-Nov-2013	3:45 PM	Non-fatal injury	2	1	0	Angle	01: Turning left / V2: Slowing or stopped in traffic	V1 Southbound / V2 Eastbound	V1 Collision with motor vehicle in traffic in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck, minivan, panel, pickup, sport utility with only four (4) tires / V2: Passenger car	Dry	Daylight	Clear	TRENTON STREET / TOBEY GARDEN STREET		
387173	DUNBURY	03-Jul-2014	5:06 PM	Property damage only none injured	2	0	0	Angle	01: Turning left / V2: Entering traffic lane	V1 Southbound / V2 Westbound	V1 Collision with motor vehicle in traffic in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear/No Wind	TRENTON STREET / TOBEY GARDEN ST		

Crash Data Summary Tables and Charts
Route 3A at Chestnut Street and Tobey Garden Street, Duxbury, MA



Crash Data Summary Tables and Charts
Route 3A at Chestnut Street and Tobey Garden Street, Duxbury, MA

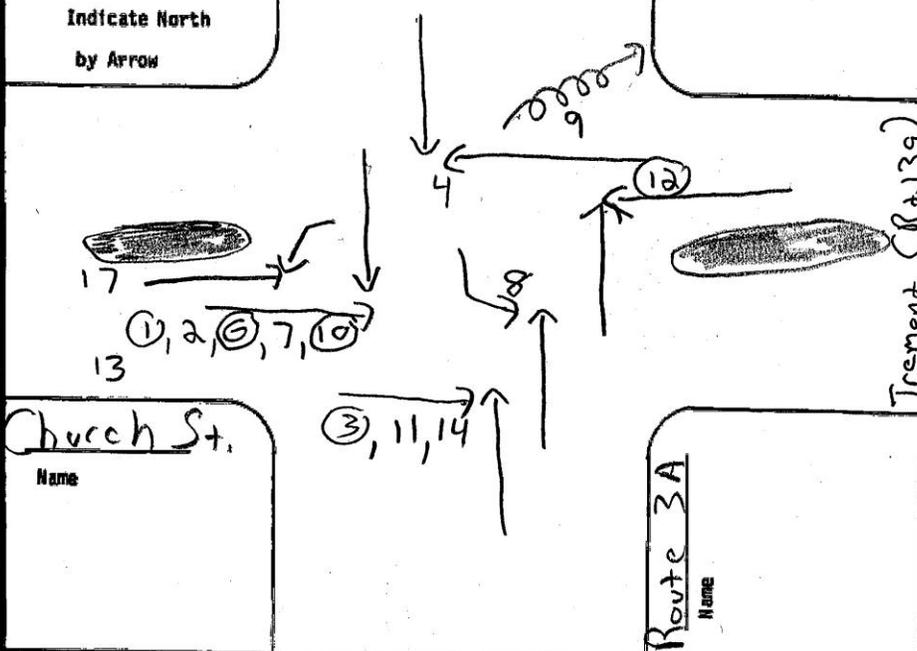




Indicate North
by Arrow

Route 3A

COLLISION DIAGRAM



Church St.
Name

Route 3A
Name

Tremont (Rt. 139)

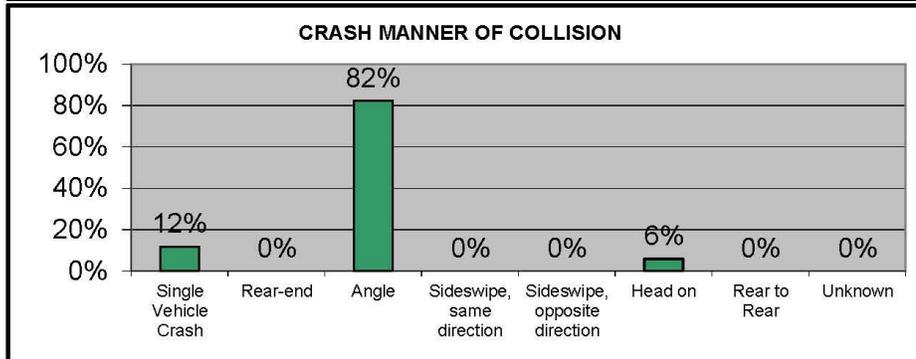
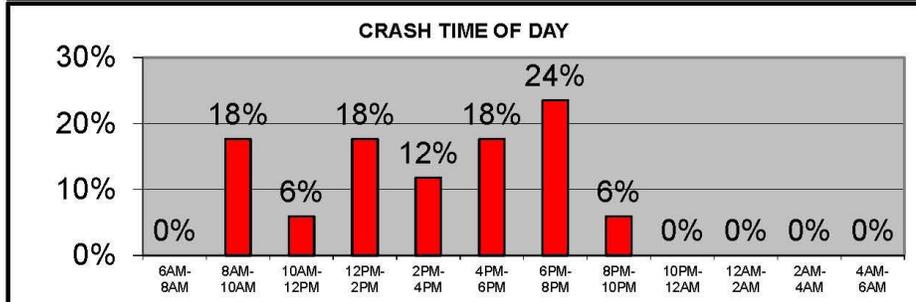
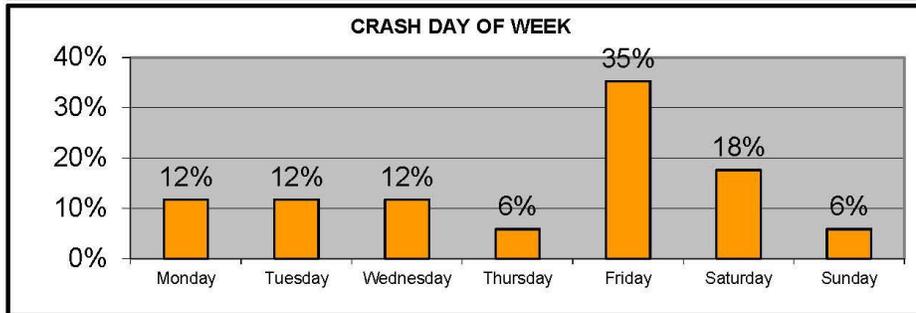
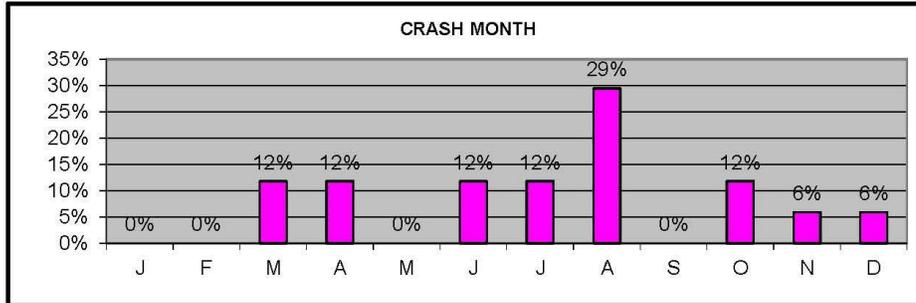
SYMBOLS	TYPES OF COLLISIONS	SHOW FOR EACH ACCIDENT
<ul style="list-style-type: none"> Moving Vehicle Backing Vehicle Non-Involved Vehicle Pedestrian Parked Vehicle Fixed Object Fatal Accident Injury Accident 	<ul style="list-style-type: none"> Rear-End Head On Side Swipe Out of Control Left Turn Right Angle 	<ol style="list-style-type: none"> 1. Approximate location of accident 2. Type of collision and vehicles involved. 3. Time, Day, Date 4. Any other pertinent factors mentioned on the report (i.e. presence of oil on road, ruts, etc.)

INTERSECTION Route 3A and Church/Tremont

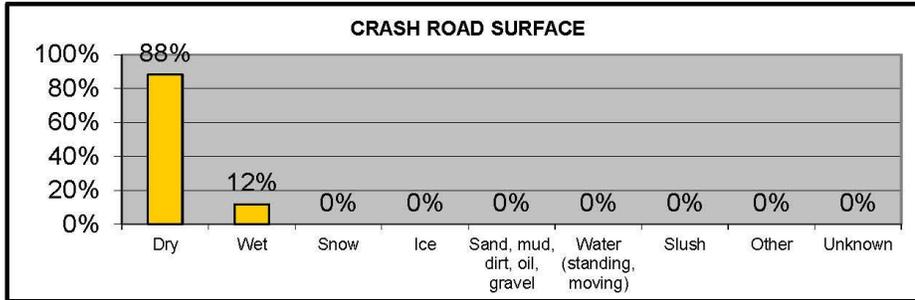
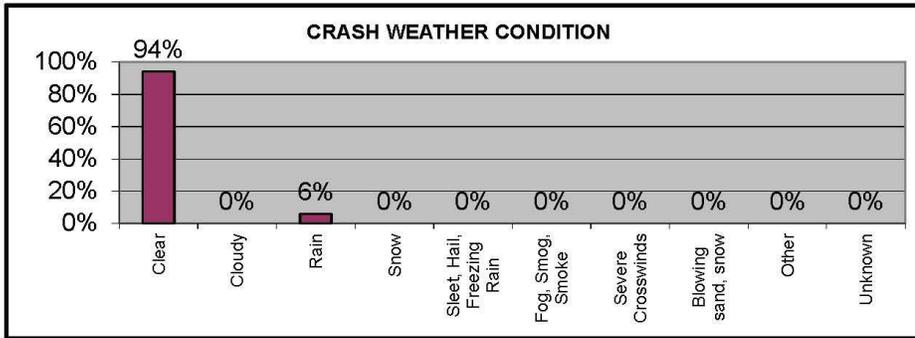
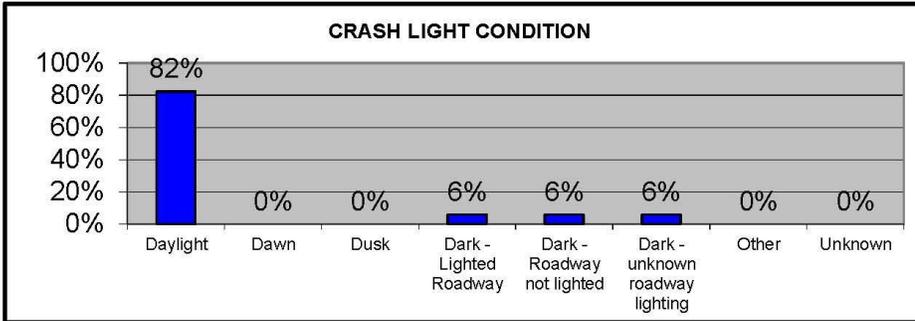
PERIOD FROM: 2012 to 2014

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Hospital Discharges	Total Fatalities	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Hazardous Event	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	All Roadway Intersection	Distance from Nearest Roadway Intersection
360304	DUNBURY	24-Mar-2012	3:45 PM	Non-fatal injury Property damage Bike (one injured)	2	1	0	Angle	V1 Entering traffic lane / V2 Traveling straight ahead	V1 Eastbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear	TREMONT STREET / CHURCH STREET Rte 1A S	
360314	DUNBURY	26-Jun-2012	5:01 PM	Non-fatal injury Property damage Bike (one injured)	2	0	0	Angle	V1 Traveling straight ahead / V2 Slowing or stopped in traffic	V1 Southbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Wet	Daylight	Rain/Ran	TREMONT STREET / CHURCH STREET Rte 139 E	
360303	DUNBURY	30-Jul-2012	9:10 AM	Non-fatal injury Property damage Bike (one injured)	2	2	0	Angle	V1 Traveling straight ahead / V2 Slowing or stopped in traffic	V1 Northbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Light truck/motor vehicle, panel, pickup, sport utility with link four tires / V2 Light truck/motor, minivan, panel, pickup, sport utility with only four tires / V2 Passenger car	Dry	Daylight	Clear	TREMONT STREET / CHURCH STREET	
360610	DUNBURY	03-Aug-2012	7:03 PM	Property damage Bike (one injured)	2	0	0	Angle	V1 Traveling straight ahead / V2 Traveling straight ahead	V1 Westbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Light truck/motor vehicle, panel, pickup, sport utility with link four tires / V2 Passenger car	Dry	Daylight	Clear/Clear	TREMONT STREET / CHURCH STREET	
360606	DUNBURY	23-Aug-2012	6:57 AM	Property damage Bike (one injured)	2	0	0	Angle	V1 Traveling straight ahead / V2 Traveling straight ahead	V1 Northbound / V2 Not reported	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Light truck/motor vehicle, panel, pickup, sport utility with link four tires / V2 Passenger car	Dry	Daylight	Clear	TREMONT STREET / CHURCH STREET	
362274	DUNBURY	29-Aug-2012	9:39 AM	Non-fatal injury Property damage Bike (one injured)	2	2	0	Angle	V1 Traveling straight ahead / V2 Traveling straight ahead	V1 Southbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Light truck/motor vehicle, panel, pickup, sport utility with link four tires / V2 Passenger car	Dry	Daylight	Clear	TREMONT STREET / CHURCH STREET	
369570	DUNBURY	23-Oct-2012	7:20 PM	Property damage Bike (one injured) Property damage Bike (one injured)	2	0	0	Single vehicle crash	V1 Slowing or stopped in traffic / V2 Traveling straight ahead	V1 Eastbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Dark - roadway not lit/d	Clear/Clear	TREMONT STREET / CHURCH STREET	
369580	DUNBURY	26-Oct-2012	7:11 PM	Property damage Bike (one injured)	2	0	0	Head-on	V1 Turning left / V2 Traveling straight ahead	V1 Northbound / V2 Not reported	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Dark - lighted roadway	Clear	Rte 3A / TREMONT STREET / ENTERPRISE STREET	
369496	DUNBURY	23-Nov-2012	9:32 PM	Property damage Bike (one injured)	1	0	0	Single vehicle crash	V1 Turning left	V1 Eastbound	V1 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Dark - unknown roadway lighting	Clear	TREMONT STREET Rte 3A S / Rte 139 E	
369718	DUNBURY	07-Dec-2012	1:33 PM	Non-fatal injury	2	1	0	Angle	V1 Slowing or stopped in traffic / V2 Traveling straight ahead	V1 Eastbound / V2 Southbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Light truck/motor vehicle, panel, pickup, sport utility with only four tires / V2 Light truck/motor, minivan, panel, pickup, sport utility with only four tires	Dry	Daylight	Clear	TREMONT STREET / CHURCH STREET Rte 14 E	
372622	DUNBURY	15-Apr-2013	5:54 PM	Property damage Bike (one injured)	2	0	0	Angle	V1 Traveling straight ahead / V2 Slowing or stopped in traffic	V1 Northbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Light truck/motor vehicle, panel, pickup, sport utility with link four tires / V2 Light truck/motor, minivan, panel, pickup, sport utility with only four tires	Dry	Daylight	Clear/Clear	TREMONT STREET / CHURCH STREET	
372812	DUNBURY	29-Apr-2013	7:12 PM	Non-fatal injury	2	4	0	Angle	V1 Traveling straight ahead / V2 Traveling straight ahead	V1 Northbound / V2 Westbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear	TREMONT STREET / CHURCH STREET	
375492	DUNBURY	05-Jun-2013	12:33 PM	Property damage Bike (one injured) Property damage Bike (one injured)	2	0	0	Angle	V1 Traveling straight ahead / V2 Entering traffic lane	V1 Southbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Light truck/motor vehicle, panel, pickup, sport utility with link four tires / V2 Light truck/motor, minivan, panel, pickup, sport utility with only four tires	Dry	Daylight	Clear	TREMONT STREET / CHURCH STREET	
375487	DUNBURY	21-Jun-2013	2:02 PM	Property damage Bike (one injured)	2	0	0	Angle	V1 Traveling straight ahead / V2 Traveling straight ahead	V1 Northbound / V2 Eastbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Wet	Daylight	Clear	TREMONT STREET / CHURCH STREET	
375491	DUNBURY	07-Aug-2013	11:26 AM	Non-fatal injury	2	1	0	Angle	V1 Slowing or stopped in traffic / V2 Traveling straight ahead	V1 Not reported / V2 Not reported	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Light truck/motor vehicle, panel, pickup, sport utility with only four tires / V2 Passenger car	Dry	Daylight	Clear	TREMONT STREET / CHURCH STREET Rte 139 E	
375490	DUNBURY	10-Aug-2013	5:11 PM	Non-fatal injury Property damage	2	1	0	Angle	V1 Not reported / V2 Not reported	V1 Not reported / V2 Not reported	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear	TREMONT STREET Rte 3A S / CHURCH STREET Rte 139	
378933	DUNBURY	14-Mar-2014	1:02 PM	Property damage Bike (one injured)	2	0	0	Angle	V1 Traveling straight ahead / V2 Turning left	V1 Eastbound / V2 Westbound	V1 Collision with motor vehicle in traffic / V2 Collision with motor vehicle in traffic	V1 Passenger car / V2 Passenger car	Dry	Daylight	Clear	TREMONT ST / 1474 CHURCH STREET	

Crash Data Summary Tables and Charts
Route 3A at Church Street and Tremont Street (Route 139), Duxbury, MA



Crash Data Summary Tables and Charts
Route 3A at Church Street and Tremont Street (Route 139), Duxbury, MA



Appendix D. Additional Information



April 20, 2018

Raymond Guarino, Senior Transportation Planner
Old Colony Planning Council (OCPC)
70 School Street
Brockton, MA 02301

Re: Road Safety Audit Draft Report, Routes 3A and 139 and Intersecting Streets at
Three Locations, Duxbury, MA

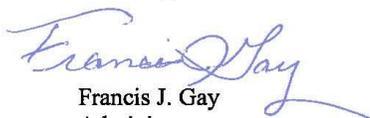
Dear Mr. Guarino:

Thank you for the opportunity to participate in and comment on the above referenced Road Safety Audit for three intersecting roadways in Duxbury, Massachusetts. As you are aware, GATRA operates bus service via its SAIL route through all of these routes.

The findings and recommendations contained within this audit were very thoroughly reported. Without going into too great a level of detail in this response, please be advised that GATRA concurs with the remedial actions contained therein and urges action be taken accordingly by municipal and state authorities. As we are aware of the potential delays in service triggered by such remedial actions, the results in a holistic sense will certainly save time and expedite GATRA service in the long run.

Thank you again for the opportunity to participate in this exercise. Please contact me if I can be of further assistance.

Sincerely,


Francis J. Gay
Administrator

cc: R. Morgan
A. Roman
R. Lawson

Appendix E. Road Safety Audit References

Road Safety Audit References

Massachusetts Traffic Safety Toolbox, Massachusetts Highway Department,
www.mhd.state.ma.us/safetytoolbox.

Road Safety Audits, A Synthesis of Highway Practice. NCHRP Synthesis 336. Transportation Research Board, National Cooperative Highway Research Program, 2004.

Road Safety Audits. Institute of Transportation Engineers and U.S. Department of Transportation, Federal Highway Administration, www.roadwaysafetyaudits.org.

FHWA Road Safety Audit Guidelines. U.S. Department of Transportation, Federal Highway Administration, 2006.

Road Safety Audit, 2nd edition. Austroads, 2000.

Road Safety Audits. ITE Technical Council Committee 4S-7. Institute of Transportation Engineers, February 1995.