

# ROAD SAFETY AUDIT

Summer Street (Route 53) at Franklin Street

Town of Duxbury

April 2018

Prepared For:  
MassDOT



Prepared By:  
McMahon Associates, Inc.  
350 Myles Standish Blvd. Suite 103  
Taunton, MA 02780



# Table of Contents

---

## Contents

<b>Background .....</b>	<b>1</b>
<b>Project Data.....</b>	<b>1</b>
<b>Project Location and Description.....</b>	<b>3</b>
<b>Audit Observations and Potential Safety Enhancements.....</b>	<b>5</b>
<b>Recommendations.....</b>	<b>9</b>

## List of Appendices

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

## List of Figures

Figure 1: Locus Map.....	2
--------------------------	---

## List of Tables

Table 1: Participating Audit Team Members.....	1
Table 2: Estimated Time Frame and Costs Breakdown.....	9
Table 3: Potential Safety Enhancement Summary.....	10

## Background

The Federal Highway Administration (FHWA) defines a Road Safety Audit (RSA) as the formal safety examination of an existing or future road or intersection by an independent, multidisciplinary team. The purpose of an RSA is to identify potential safety issues and possible opportunities for safety improvements considering all roadway users. This RSA evaluates the non-signalized intersection of Summer Street (Route 53) at Franklin Street in Duxbury, MA, as shown in Figure 1.

A safety audit was scheduled for this high crash intersection at the request of the Town of Duxbury. The intersection of Summer Street (Route 53) at Franklin Street was identified as a Highway Safety Improvement Program (HSIP) high crash location for the periods 2011-2013. This indicates that the intersection falls within the top 5% high crash locations within the Old Colony Planning Council (OCPC) region.

A key objective of the RSA is to identify short-term, mid-term, and long-term safety improvements that can be made at the subject intersection and incorporated in potential improvements of this intersection.

## Project Data

A Road Safety Audit was completed for the intersection of Summer Street (Route 53) at Franklin Street in the Town of Duxbury on April 3, 2018. The agenda for the RSA meeting held at the Duxbury Town Hall in Appendix A of this report. As shown below in Table 1, the audit team consisted of a multidisciplinary team with representatives from state, regional and local agencies providing expertise in the engineering, planning, maintenance and emergency response fields. Contact information for the RSA attendees is provided in Appendix B of this report.

**Table 1: Participating Audit Team Members**

<b>Audit Team Member</b>	<b>Agency/Affiliation</b>
Bill McNulty	Old Colony Planning Council
Raymond Guarino	Old Colony Planning Council
Christopher Falcos	MassDOT Traffic Safety
Elsa Chan	MassDOT Traffic Safety
Bianca Marshall	MassDOT District 5
Michael Carbone	Town of Duxbury Police Department
Kevin Nord	Town of Duxbury Fire Department
Peter Buttkus	Town of Duxbury Department of Public Works
Valerie Massard	Town of Duxbury Planning Department
Philip Viveiros	McMahon Associates
Paul Bakis	McMahon Associates



Within the email invitation sent on March 27, 2018 to each participant in the RSA, background material was provided. This information included a collision diagram and MassDOT crash data summary for the intersection. During the RSA meeting, these materials were reviewed as a group prior to the field visit to the intersection. During the RSA field visit, various safety issues were observed and identified. Following the RSA field visit, the team returned to discuss additional concerns and potential solutions for the existing safety issues.

## Project Location and Description

### *Study Area Roadways*

As shown in Figure 1, Summer Street (Route 53) is a two-way roadway that generally extends in the north-south direction through the Town of Duxbury. Summer Street (Route 53) is classified as an urban minor arterial under MassDOT jurisdiction. Summer Street (Route 53) is primarily abutted by low-density residential land uses on both sides. There are no sidewalks provided on either side of the roadway; however there are shoulders on both sides ranging between 4-11 feet wide. The posted speed limit on Summer Street (Route 53) is 45 miles per hour (mph).

Franklin Street is a two-way roadway that generally extends in the east-west direction between Valley Street to the west and Union Bridge Road to the east. Franklin Street is classified as an urban minor arterial under Town of Duxbury jurisdiction. There are no sidewalks or shoulders on either side of Franklin Street. The posted speed limit on Franklin Street is 30 miles per hour (mph).

### *Study Area Intersection*

The unsignalized intersection of Summer Street (Route 53) and Franklin Street is located in the western end of the Town of Duxbury. Approximately 140 feet north of the intersection, High Street branches off Summer Street (Route 53) to the northwest. At the study area intersection, the northbound and southbound approaches on Summer Street (Route 53) provide a multipurpose lane in each direction separated by a double yellow centerline. The eastbound and westbound approaches on Franklin Street also consist of a multipurpose lane in each direction separated by a single yellow centerline. Lane use signage or pavement markings are not present on any approach. There are crosswalk markings at the southern leg of the intersection across Summer Street (Route 53). There is a Pedestrian Crossing (W11-2) sign assembly (with a down arrow plaque) for northbound vehicles just south of the crosswalk and a similar sign assembly at the crosswalk location for southbound vehicles.

### *Crash Data*

Crash data was received from the Duxbury Police Department for the time period 2011-2017; it should be noted that data for 2016 and 2017 was not officially closed at the time the data was compiled, indicating the potential for additional unreported crashes for those years. Based on this data, there were a total of 37 crashes reported from the beginning of 2011 through the end of 2017 at the intersection of Summer Street (Route 53) and Franklin Street. Of the 37 crashes that occurred in the time period reviewed, 34 crashes (92%) were angle collisions. There were also two rear end crashes (5%) and one out of control crash (3%).

The majority of crashes, 19 crashes (51%), were due to drivers failing to yield right of way as they entered the intersection. Of the remaining crashes, eight (22%) were due to drivers disregarding traffic signs, signals, and road markings, six (14%) were due to driver inattention, one due to a fatigued/asleep driver, one due to a distracted driver, one due to another improper action, and one was not due to improper driving. A total of 28 crashes (76%) occurred during daytime lighting conditions, and nine (24%) occurred during low lighting conditions. Overall, one crash resulted in a fatality (3%), 21 crashes (56%) resulted in personal injury, and the remaining 15 crashes (41%) resulted in property damage only.

A detailed crash diagram of the study area intersection is provided in Appendix C.

## 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 the 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 intersection of Summer Street (Route 53) and Franklin Street. The audit team then visited the study area intersection as a group, at which time observations of various safety concerns and deficiencies were identified and documented. Provided below is a list of the safety concerns that were identified during the RSA for the intersections and the potential enhancements identified during the RSA.

### Safety Issue #1: Intersection Visibility

#### Observations:

Audit team members noted that there are currently visibility issues at the intersection due to multiple factors: obstructions such as overgrown vegetation and the stockade fence at the southeast corner and the intersection geometry.

Participants noted that overgrown vegetation, including trees, obstruct the ability of drivers to see conflicting traffic as they approach the intersection. This is especially true for eastbound drivers on Franklin Street as they approach Summer Street (Route 53). The trees act as a “buffer” and impact the visibility of Summer Street. It was observed that some tree clearing has occurred at the northwest corner of the intersection, which helps improve sight lines. Participants also reported that sight distance is impacted by the stockade fence at the southeast corner of the intersection for drivers traveling both westbound on Franklin Street and northbound on Summer Street.

Audit team members stated that the current roadway geometry at the intersection contributes to insufficient sight distance for drivers, especially eastbound vehicles on Franklin Street approaching Summer Street (Route 53). Due to the slight increase in roadway grade of Franklin Street, participants noted that Summer Street is not visible until entering the intersection and “sneaks up” on approaching drivers. The roadway geometry appears to create the illusion that Franklin Street is continuous past Summer Street (Route 53), with the yellow centerline on Franklin Street seen as a continuous line across Summer Street (Route 53). Audit team members identified another safety concern due to the downward slope/crest of Summer Street to the north of the intersection. As vehicles travel southbound on Summer Street (Route 53) towards Franklin Street, they are not visible far enough in advance as the crest curve on Summer Street obscures approaching vehicles. These observed sight distance issues are supported by the



crash data, which shows the majority of crashes occurring in the far side of the intersection for Franklin Street traffic; 65% of eastbound angle crashes and 71% of westbound angle on Franklin Street occur when passing the second leg of Summer Street (Route 53). In addition, several of the narratives found in the crash data reveal that the eastbound/westbound driver never saw the southbound driver traveling down Summer Street (Route 53).

The intersection geometry was also observed by participants to be problematic where High Street intersects Summer Street (Route 53) north of Franklin Street. Participants noted that the roadway alignment suggests that High Street is the continuous street, rather than Summer Street (Route 53). Another noted issue was that drivers heading south on High Street come to a rolling stop into Summer Street before quickly turn left onto Franklin Street eastbound. Participants noted that this turn from High Street to Summer Street is treated as a yield by drivers rather than a stop due to the soft angle. There is also a lack of a stop line at the High Street approach.



Intersection of High Street (left) and Summer Street (right), showing downward slope of Summer Street.

#### Enhancements:

- Continue vegetation maintenance to prevent overgrowth obstructing sight distance.
- Determine right-of-way to inform necessary tree trimming.
- Consider raising the roadway elevation of Summer Street (Route 53) within the intersection to provide vertical separation and make the roadway more apparent.
- Evaluate the potential for sight line easements at the intersection corners to improve sight distance.
- Consider removal or relocation of the stockade fence on the southeast corner to improve sight distance, in conjunction with the property owner.
- Consider realigning High Street at its intersection with Summer Street (Route 53) to square off High Street, making Summer Street the apparent through street.
- Evaluate the feasibility of converting High Street to one-way northbound to prevent rolling stops into Summer Street.
- Evaluate the feasibility of implementing a left turn restriction from Summer Street (Route 53) to High Street.
- Consider adding a stop line for the High Street approach to Summer Street (Route 53) to reinforce the stop condition at this approach.



## Safety Issue #2: Pavement Markings & Signage

### Observations:



**View of intersection looking west shows faded pavement markings and faded Route 53 marker**

Audit team members noted that the pavement markings and signage at the intersection are ineffective. On Franklin Street, participants pointed out that STOP signs are placed ahead of the stop bars at the intersection, increasing the likelihood of drivers coming to a stop too early, and rolling into the intersection. It was also noted by participants that approaches to the intersection are wide, forcing STOP signs to be located further from the intersection. On the eastbound approach, the view of the STOP sign is obstructed by overgrown vegetation and a utility pole. Throughout the intersection, audit team members observed faded pavement markings, including the

stop bars, shoulder lines on Summer Street, and crosswalk.

Audit team members expressed desire for improved signage in terms of both quality and placement, but to avoid sign clutter. For example, participants identified that the Route 53 markers are faded and obstructed by vegetation overgrowth. Participants also noted a lack of Route 53 markers prior to the intersection, and that adding them could help warn drivers of the upcoming intersection. Additionally, participants noted that there are two Pedestrian Crossing (W11-2) signs next to missing crosswalk markings across Summer Street (Route 53) south of the intersection. It was also noted by participants that the area has little pedestrian traffic, although a jogger was observed during the audit. Team members also noted that residents requested MassDOT District 5 to repaint the crosswalk and add pedestrian signs, indicating potential demand for pedestrian accommodations at this intersection. Audit participants also suggested that the relative lack of adequate advance warning signs approaching the intersection from all directions contributes to the intersection geometry issues by not providing adequate information to approaching drivers. Specifically, participants were not satisfied with the placement of the existing Route 53 markers within the intersection.

### Enhancements:

- Evaluate the placement and quantity of existing signage and the need to replace missing signs or provide supplemental signage, such as “Intersection Ahead” signs.
- Consider installing supplemental street name plaques to advance “Intersection Ahead” signs to increase driver awareness of the intersecting streets.
- Consider adding oversized street signs to improve wayfinding for drivers.
- Evaluate the relocation/removal of power poles to improve visibility of signage.
- Consider the installation of oversized stop signs, post reflectors, left-side stop signs and/or LED flashing stop signs to increase awareness of the stop conditions on Franklin Street and High Street.
- Consider reapplying existing pavement markings to increase retroreflectivity and durability.
- Consider installing fog lines on both Franklin Street approaches to enhance the presence of Summer Street (Route 53) to approaching traffic.

- Consider replacing the existing route markers for Route 53 and adding advanced guide signs for Route 53 on both Franklin Street approaches.
- Consider restriping the crosswalk across Summer Street to enhance visibility.

### Safety Issue #3: Intersection Layout

#### Observations:



Audit team members noted that the existing intersection is very wide, and it was noted that the wide intersection also creates wide turning radii. Team members noted that the shoulders on Summer Street (Route 53) are also wide. Drivers may have trouble judging the intersection width as they approach. Additionally, participants observed that Summer Street (Route 53) is hidden from view from Franklin Street; it is not apparent how large the intersection is in reality. The width of the intersection was also noted as a potential challenge to pedestrians at the existing crosswalk, along with a lack of pedestrian facilities. Additionally, participants observed inconsistent lighting,

with only one luminaire on the northeast side of the intersection and another luminaire at High Street.

Participants also identified the guardrail on the southeast corner of the intersection along Summer Street (Route 53) as a safety issue. The end of the guardrail closest to the intersection is buried. An audit participant identified that the buried end of the guardrail was the cause of a rollover accident, although this is not explicitly presented in the crash data.

Audit team members noted that the majority of crashes (nearly 60%) resulted in personal injuries and that poor driver behavior, including speeding and driver distraction, may be caused by the wide intersection and lack of visual variety in the area. There also may be a high proportion of commuters using the location as a cut-through. Regular enforcement of speeding was noted as a difficulty for the Town.

Participants stated that heavy vehicles also pose a safety concern at the intersection. Although there is currently a truck restriction on Franklin Street westbound, trucks have been observed using this route to access a newly opened UPS facility in Kingston. Participants expressed concern that Summer Street (Route 53) is now a major corridor for heavy vehicles. During the field visit, tire tracks were observed in the sand in the northeast corner of the intersection, suggesting vehicles, possibly trucks, are over tracking.

#### Enhancements:

- Consider narrowing the travel lanes on Summer Street (Route 53) and Franklin Street by shifting edge line markings and/or reducing pavement width to encourage slower speeds.
- Consider reducing the amount of pavement in the intersection by reducing the radii at corners, depending on evaluation of truck exclusion routes and commercial traffic.
- Consider installing pedestrian ramps and other pedestrian amenities at the existing crosswalk.

- Evaluate existing night lighting and consider upgraded lighting to enhance visibility of the intersection.
- Consider upgrading the guardrail on the southwest corner of the intersection along Summer Street by installing an impact attenuator at the buried end.
- Consider installing speed feedback signs for drivers to promote reduced speeds.
- Consider installing a flashing intersection warning beacon to alert drivers of the intersection
- Evaluate the feasibility of placing a truck exclusion on Franklin Street east of the intersection.

## Recommendations

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

Table 2: Estimated Time Frame and Costs Breakdown

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

## Summary of Road Safety Audit

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

Table 3: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Intersection Visibility	Continue vegetation maintenance to prevent overgrowth obstructing sight distance.	Medium	Short-Term	Low	Town of Duxbury/Property Owners
Intersection Visibility	Determine right-of-way to inform necessary tree trimming.	Medium	Short-Term	Low	MassDOT/Town of Duxbury
Intersection Visibility	Consider raising the roadway elevation of Summer Street (Route 53) within the intersection to provide vertical separation and make the roadway more apparent.	High	Long-Term	High	MassDOT/Town of Duxbury
Intersection Visibility	Evaluate the potential for a sight line easement at the intersection corners to improve sight distance.	Medium	Short-Term	Low	MassDOT/Town of Duxbury
Intersection Visibility	Consider removal or relocation of the stockade fence on the southeast corner to improve sight distance, in conjunction with the property owner.	Medium	Mid-Term	Medium	Town of Duxbury/Property Owner
Intersection Visibility	Consider realigning High Street at its intersection with Summer Street (Route 53) to square off High Street, making Summer Street the apparent through street.	High	Long-Term	High	MassDOT/Town of Duxbury
Intersection Visibility	Evaluate the feasibility of converting High Street to one-way northbound to prevent rolling stops into Summer Street.	High	Mid-Term	Low	Town of Duxbury
Intersection Visibility	Evaluate the feasibility of implementing a left turn restriction from Summer Street (Route 53) to High Street.	Medium	Short-Term	Low	MassDOT/Town of Duxbury
Intersection Visibility	Consider adding a stop line for the High Street approach to Summer Street (Route 53) to reinforce the stop condition at this approach	Medium	Mid-Term	Low	Town of Duxbury

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
<b>Pavement Markings &amp; Signage</b>	Evaluate the placement and quantity of existing signage and the need to replace missing signs or provide supplemental signage, such as “Intersection Ahead” signs.	Low	Short-Term	Low	MassDOT/Town of Duxbury
<b>Pavement Markings &amp; Signage</b>	Consider installing supplemental street name plaques to advance “Intersection Ahead” signs to increase driver awareness of the intersecting streets.	Low	Short-Term	Low	MassDOT/Town of Duxbury
<b>Pavement Markings &amp; Signage</b>	Consider adding oversized street signs to improve wayfinding for drivers	Low	Short-Term	Low	Town of Duxbury
<b>Pavement Markings &amp; Signage</b>	Evaluate the relocation/removal of power poles to improve visibility of signage.	Low	Mid-Term	Medium	MassDOT/Utility Companies/Town of Duxbury
<b>Pavement Markings &amp; Signage</b>	Consider the installation of oversized stop signs, post reflectors, left-side stop signs and/or LED flashing stop signs.	Medium	Mid-Term	Medium	Town of Duxbury
<b>Pavement Markings &amp; Signage</b>	Consider reapplying existing pavement markings to increase retroreflectivity and durability.	Medium	Mid-Term	Medium	MassDOT/Town of Duxbury
<b>Pavement Markings &amp; Signage</b>	Consider installing fog lines on both Franklin Street approaches to enhance the presence of Summer Street (Route 53) to approaching traffic.	Medium	Short-Term	Low	Town of Duxbury
<b>Pavement Markings &amp; Signage</b>	Consider replacing the existing route markers for Route 53 and adding advanced guide signs for Route 53 on both Franklin Street approaches.	Low	Short-Term	Low	MassDOT/Town of Duxbury
<b>Pavement Markings &amp; Signage</b>	Consider restriping the crosswalk across Summer Street to enhance visibility.	Low	Short-Term	Low	MassDOT
<b>Intersection Layout</b>	Consider narrowing the travel lanes on Summer Street (Route 53) and Franklin Street by shifting edge line markings and/or reducing pavement width.	High	Mid-Term	Medium	MassDOT/Town of Duxbury

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Intersection Layout	Consider reducing the amount of pavement in the intersection by reducing the radii at corners, depending on evaluation of truck exclusion routes and commercial traffic.	High	Mid-Term	High	MassDOT/Town of Duxbury
Intersection Layout	Consider installing pedestrian ramps and other pedestrian amenities at the existing crosswalk.	Medium	Mid-Term	Medium	MassDOT
Intersection Layout	Evaluate existing night lighting and consider upgraded lighting to enhance visibility of the intersection.	Medium	Mid-Term	Medium	MassDOT/Town of Duxbury
Intersection Layout	Consider upgrading the guardrail on the southwest corner of the intersection along Summer Street by installing impact attenuators at the buried end.	Medium	Mid-Term	Medium	MassDOT
Intersection Layout	Consider installing speed feedback signs for drivers to promote reduced speeds.	Medium	Short-Term	Low	MassDOT
Intersection Layout	Consider installing a flashing intersection warning beacon to alert drivers of the intersection.	Medium	Mid-Term	High	MassDOT
Intersection Layout	Evaluate the feasibility of placing a truck exclusion on Franklin Street east of the intersection.	Low	Short-Term	Medium	MassDOT/Town of Duxbury

## Appendix A. RSA Meeting Agenda

---

# Agenda

## Road Safety Audit

Duxbury, MA

Summer Street (Route 53) at Franklin Street

Meeting Location: Duxbury Town Hall

Tuesday, April 3, 2018

10:00 AM – Noon

Type of meeting:	High crash location – Road Safety Audit
Attendees:	Invited participants to comprise a multidisciplinary team
Please bring:	Thoughts and enthusiasm!!
10:00 AM	Welcome and Introductions
10:15 AM	Discussion of Safety Issues <ul style="list-style-type: none"><li>• Crash history, speed regulations, recent and existing projects – all provided in advance</li><li>• Existing geometries and conditions</li></ul>
10:45 AM	Site Visit <ul style="list-style-type: none"><li>• Drive to the intersection of Summer Street (Route 53) at Franklin Street</li><li>• As a group, identify areas for improvement</li></ul>
11:30 AM	Discussion of Potential Improvements <ul style="list-style-type: none"><li>• Discuss observations and finalize safety issue areas</li><li>• Discuss potential improvements and finalize recommendations</li></ul>
Noon	Adjourn for the Day – but the RSA has not ended

### Instructions for Participants:

- Before attending the RSA on April 3, participants are encouraged to drive through the intersection and complete/consider elements on the RSA Prompt List with a focus on safety.
- All participants will be actively involved in the process throughout. Participants are encouraged to come with thoughts and ideas, but are reminded that the synergy that develops and respect for others' opinions are key elements to the success of the overall RSA process.
- After the RSA meeting, participants will be asked to comment and respond to the document materials to assure it is reflective of the RSA completed by the multidisciplinary team.



## Appendix B. RSA Audit Team Contact List

---

## Participating Audit Team Members

Date: April 3, 2018 Location: Duxbury, MA

<b>Audit Team Members</b>	<b>Agency/Affiliation</b>	<b>Email Address</b>	<b>Phone Number</b>
Bill McNulty	Old Colony Planning Council	wmcnulty@eocpcrpa.org	508-583-1833
Raymond Guarino	Old Colony Planning Council	rguarino@ocpcrpa.org	508-583-1833
Christopher Falcos	MassDOT Traffic Safety	Christopher.falcos@state.ma.us	857-368-9636
Elsa Chan	MassDOT Traffic Safety	elsa.chan@state.ma.us	
Bianca Marshall	MassDOT District 5	bianca.marshall@state.ma.us	508-884-4335
Michael Carbone	Town of Duxbury Police Department	mcarbone@duxburypolice.org	781-934-5656
Kevin Nord	Town of Duxbury Fire Department	nord@town.duxbury.ma.us	781-934-5693
Peter Buttkus	Town of Duxbury Department of Public Works	Buttkus@town.duxbury.ma.us	781-934-1100
Valerie Massard	Town of Duxbury Planning Department	massard@town.duxbury.ma.us	781-934-1100 x5475
Philip Viveiros	McMahon Associates	pviveiros@mcmahonassociates.com	508-823-2245
Paul Bakis	McMahon Associates	pbakis@mcmahonassociates.com	617-556-0020

## Appendix C. Detailed Crash Data

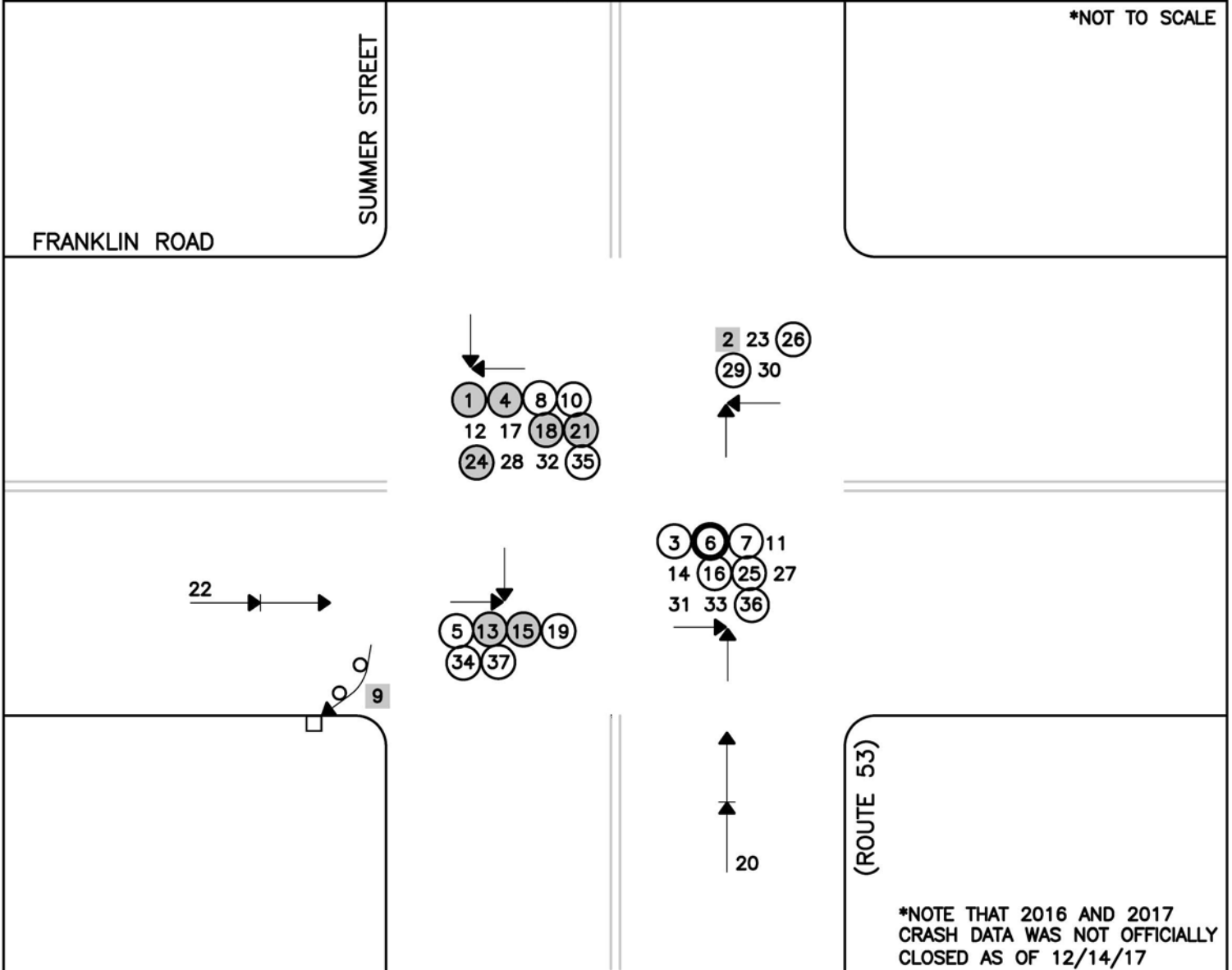
---

CRASH DIAGRAM

TIME PERIOD ANALYZED: 2011-2017  
SOURCE OF CRASH REPORTS: DUXBURY POLICE DEPARTMENT  
DATE PREPARED: 12/14/2017  
PREPARED BY: CONNOR KEATING

SHEET 1 OF 1

\*NOT TO SCALE



SYMBOLS		TYPES OF CRASH	SEVERITY
	Moving Vehicle		Injury Fatal
	Backing Vehicle		
	Non-Involved Vehicle		
	Involved Pedestrian		
	Involved Bicycle		
	Involved Animal		
	Direction of Motion		
	Parked Vehicle		
	Fixed Object		



**Crash Data Summary Table**  
 Franklin Street at Summer Street (Route 53), Duxbury, MA  
 2011 - 2017

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	D1 Age	D2 Age	D3 Age	D4 Age	Comments
#	mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	#	#	#	#	
1	01/29/11	Saturday	5:38 PM	Angle	Dark - lighted roadway	Clear	Slush	Disregarded traffic signs, signals, road markings	28	19			WB V2 failed to stop at the stop sign and struck SB V1.
2	01/30/11	Sunday	7:15 PM	Angle	Dark - roadway not lighted	Cloudy	Wet	Failed to yield right of way	28	25			WB V1 stopped at the stop sign and never saw NB V2. V1 pulled out into the intersection and struck V2.
3	02/14/11	Monday	3:02 PM	Angle	Daylight	Clear	Wet	Failed to yield right of way	73	22			EB V2 failed to use caution entering the intersection and struck NB V1.
4	04/02/11	Saturday	7:36 PM	Angle	Dark - roadway not lighted	Clear	Dry	Disregarded traffic signs, signals, road markings	26	17			WB V2 failed to stop at the stop sign and struck SB V1.
5	05/01/11	Sunday	1:53 PM	Angle	Daylight	Clear	Dry	Disregarded traffic signs, signals, road markings	74	28			EB V2 failed to stop at the stop sign and struck SB V1.
6	06/02/11	Thursday	9:45 AM	Angle	Daylight	Clear	Dry	Inattention	57	47	58		EB V2 failed to stop at the stop sign and struck SB V1. Operator of V2 suffered a fatal injury.
7	08/22/11	Monday	11:57 AM	Angle	Daylight	Clear	Dry	Inattention	84	48			EB V2 failed to stop at the stop sign and struck NB V1.
8	10/13/11	Thursday	11:24 AM	Angle	Daylight	Rain	Wet	Disregarded traffic signs, signals, road markings	46	65			WB V1 was stopped at the intersection. V1 then pulled out suddenly in front of SB V2 causing the collision.
9	12/04/11	Sunday	6:56 AM	Single vehicle crash	Dark - lighted roadway	Clear	Dry	Fatigued/asleep	23				SB V1 was attempting to turn right and missed the turn and went off the roadway into the woods. Operator left the scene.
10	12/08/11	Thursday	4:14 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	54	59			WB V1 was stopped at the intersection. V1 then pulled out suddenly in front of SB V2 causing the collision.
11	12/26/11	Monday	11:13 AM	Angle	Daylight	Clear	Dry	Inattention	32	27			EB V2 failed to stop at the stop sign and struck NB V1.
12	03/21/12	Wednesday	4:08 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	69	34			WB V1 was stopped at the intersection. V1 then pulled out and struck SB V2 causing the collision.
13	09/10/12	Monday	6:40 PM	Angle	Dusk	Clear	Dry	Failed to yield right of way	20	78			EB V1 was stopped at the intersection. V1 then pulled out and struck SB V2 causing the collision.
14	10/18/12	Thursday	7:59 AM	Angle	Daylight	Clear	Dry	Inattention	38	80			EB V1 was stopped at the intersection. V1 then pulled out and struck NB V2 causing the collision.
15	03/22/13	Friday	6:56 AM	Angle	Dawn	Cloudy	Wet	Failed to yield right of way	20	56			EB V1 was stopped at the intersection. The operator of V1 thought V2 had its directional signal on to turn and as a result pulled out into the intersection. V2 did not turn and struck V1.
16	08/26/13	Monday	1:00 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	47	Unknown			EB V1 stopped at the stop sign and never saw NB V2. V1 pulled out into the intersection and struck V2.
17	02/07/14	Friday	4:21 PM	Angle	Daylight	Cloudy	Dry	Failed to yield right of way	48	70			WB V1 was stopped at the intersection. V1 then pulled out suddenly in front of SB V2 causing the collision.
18	05/06/14	Tuesday	8:38 PM	Angle	Dark - roadway not lighted	Clear	Dry	Disregarded traffic signs, signals, road markings	22	17			WB V2 failed to stop at the stop sign and struck SB V1.
19	09/07/14	Sunday	12:20 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	29	55			EB V1 pulled out into the intersection and did not notice a motorcycle that had just turned onto Summer Street from High Street. The motorcyclist jumped off the bike, which slid into V1.
20	02/10/15	Tuesday	10:21 AM	Rear-end	Daylight	Clear	Snow	No improper driving	55	42			NB V2 slid on a snowy roadway striking V1 in traffic.
21	02/21/15	Saturday	5:41 PM	Angle	Dark - unknown roadway lighting	Snow	Snow	Disregarded traffic signs, signals, road markings	48	23			WB V2 failed to stop at the stop sign and struck SB V1. Operator of V2 said she did not see the stop sign.
22	06/07/15	Sunday	2:24 PM	Rear-end	Daylight	Clear	Dry	Distracted	19	17			Operator of V2 looked down to plug in his cell phone and struck V1, who was stopped at the stop sign.
23	11/27/15	Friday	2:03 PM	Angle	Daylight	Clear	Dry	Other improper action	16	46			WB V1 was stopped at the intersection. V1 then pulled out, saw V2 coming, and stopped in the middle of the intersection. NB V2 didn't have time to stop and struck V1.
24	02/21/16	Sunday	8:21 PM	Angle	Dark - lighted roadway	Clear	Dry	Disregarded traffic signs, signals, road markings	65	71			WB V2 failed to stop at the stop sign and struck SB V1.
25	03/27/16	Sunday	12:31 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	24	64			EB V2 failed to stop at the stop sign and struck NB V1.
26	06/25/16	Saturday	2:21 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	60	73			WB V1 was stopped at the intersection. V1 then pulled out suddenly in front of NB V2 causing the collision.
27	06/27/16	Monday	12:24 PM	Angle	Daylight	Clear	Dry	Inattention	21	22			EB V1 was stopped at the intersection. V1 then pulled out suddenly in front of NB V2 causing the collision.
28	07/12/16	Tuesday	11:02 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	54	61			WB V1 stopped at the stop sign and never saw SB V2. V1 pulled out into the intersection and struck V2.
29	08/05/16	Friday	3:12 PM	Angle	Daylight	Clear	Dry	Disregarded traffic signs, signals, road markings	60	35			WB V1 went around a stopped vehicle to the wrong side of the road, went through the stop sign, and struck NB V2.
30	08/24/16	Wednesday	6:31 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	16	38			WB V2 failed to stop at the stop sign and struck NB V1.
31	09/06/16	Tuesday	9:15 AM	Angle	Daylight	Rain	Wet	Failed to yield right of way	59	36			EB V2 failed to stop at the stop sign and struck NB V1.

## Crash Data Summary Table

Franklin Street at Summer Street (Route 53), Duxbury, MA  
2011 - 2017

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	D1 Age	D2 Age	D3 Age	D4 Age	Comments
#	mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	#	#	#	#	
32	03/03/17	Friday	8:23 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	19	35			WB V2 stopped then proceeded to enter Summer Street. The operator spilled her cup of tea and became distracted, resulting in a collision with SB V1.
33	06/08/17	Thursday	7:32 AM	Angle	Daylight	Clear	Dry	Inattention	61	18	36		EB V1 stopped at the stop sign and never saw NB V2. V1 pulled out into the intersection and struck V2.
34	06/26/17	Monday	6:03 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	17	31			EB V1 stopped at the stop sign and thought he "had enough time" to proceed through the intersection. V1 pulled out and struck SB V2.
35	07/17/17	Monday	5:24 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	18	44			WB V1 stopped at the stop sign and never saw SB V2. V1 pulled out into the intersection and struck V2.
36	08/08/17	Tuesday	4:15 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	54	43			EB V1 stopped at the stop sign and never saw NB V2. V1 pulled out into the intersection and struck V2.
37	08/10/17	Thursday	5:19 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	17	67			EB V1 stopped at the stop sign and never saw SB V2. V1 pulled out into the intersection and struck V2.

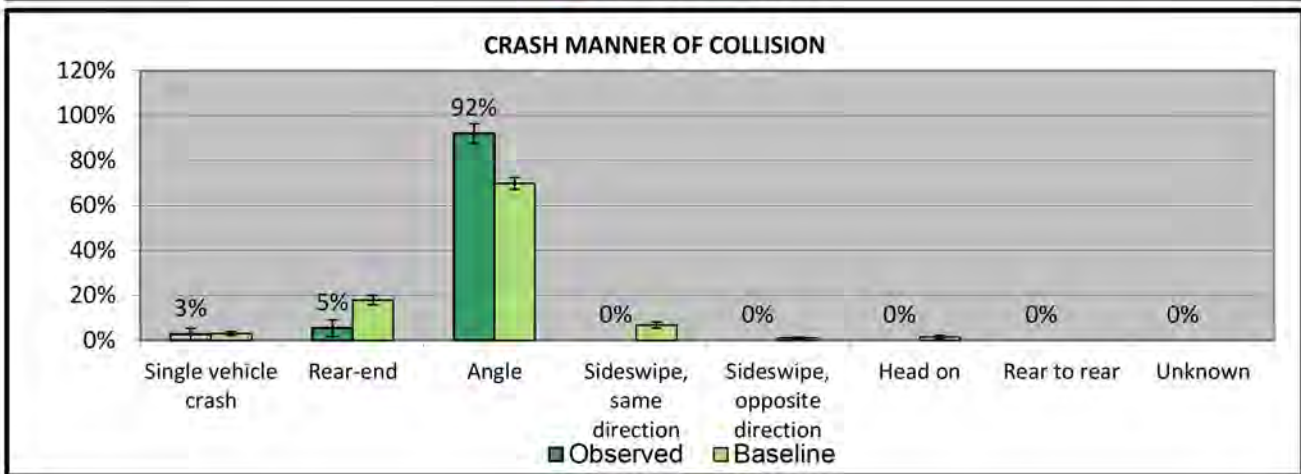
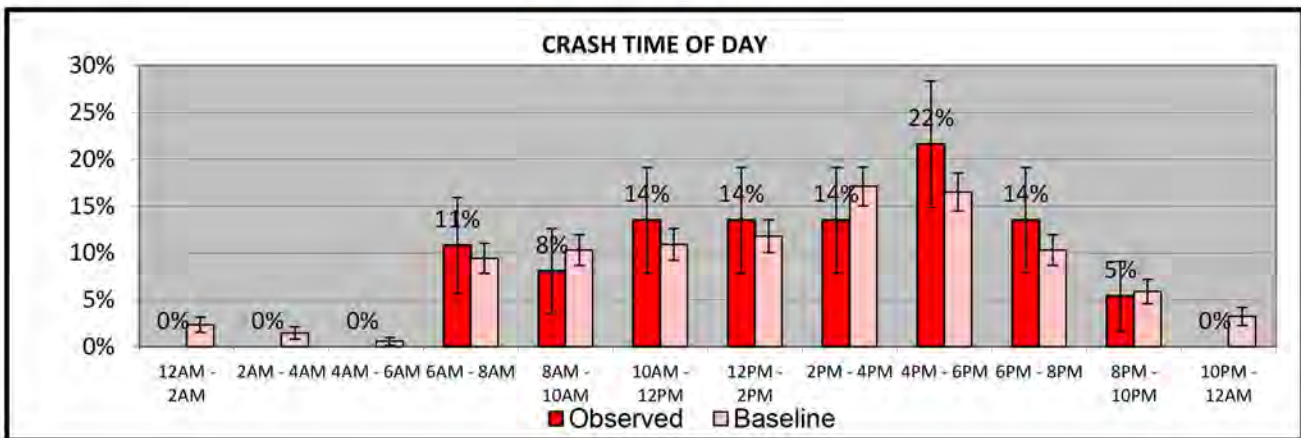
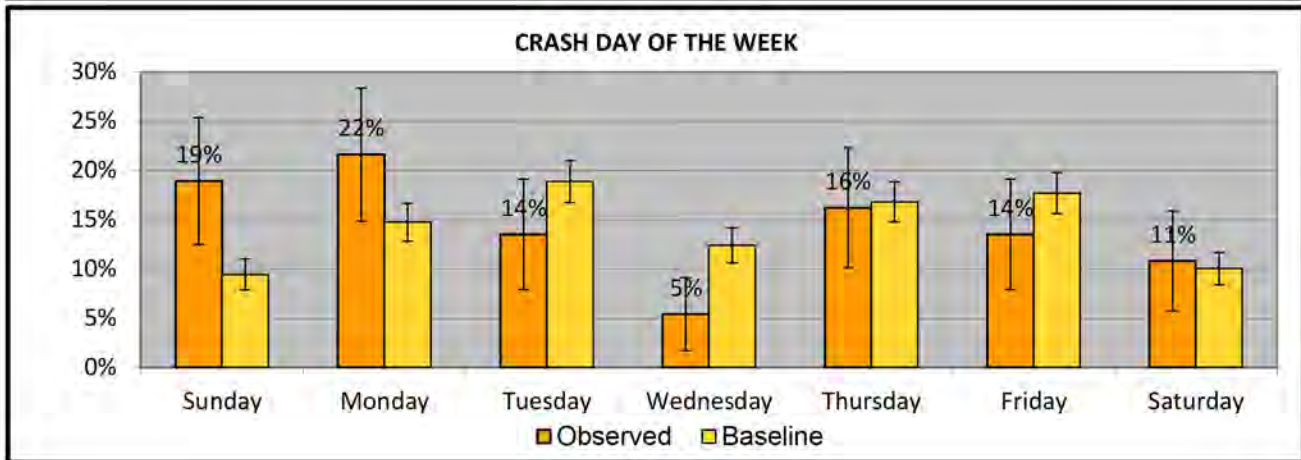
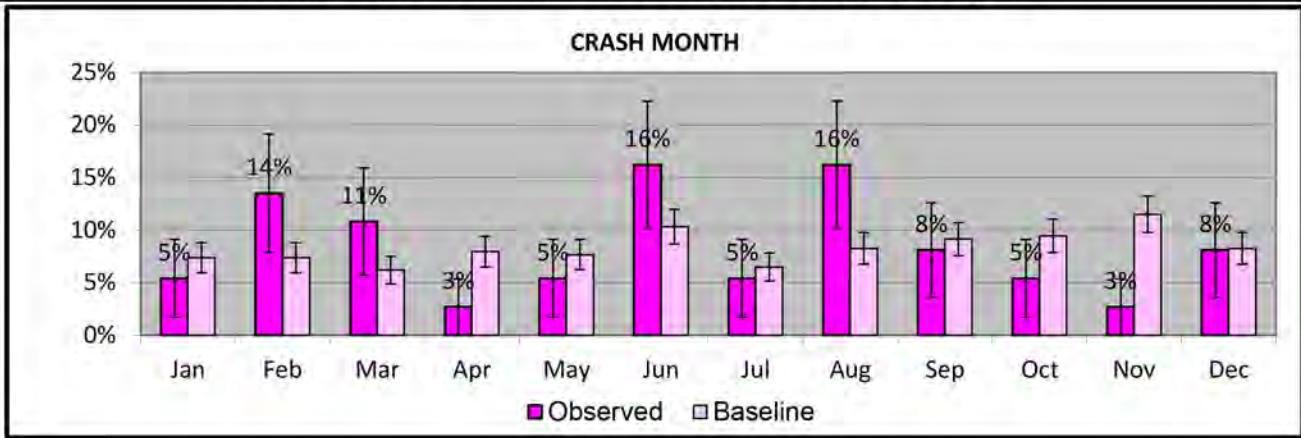
\*Courtesy Crash - A term used to describe a crash that occurs subsequent to a non-involved mainline driver who gives the right of way, contrary to the rules of the road, to another driver.

\*Note that 2016 and 2017 crash data was not officially closed as of 12/14/17

Summaries based on crash reports obtained from the Duxbury Police Department.

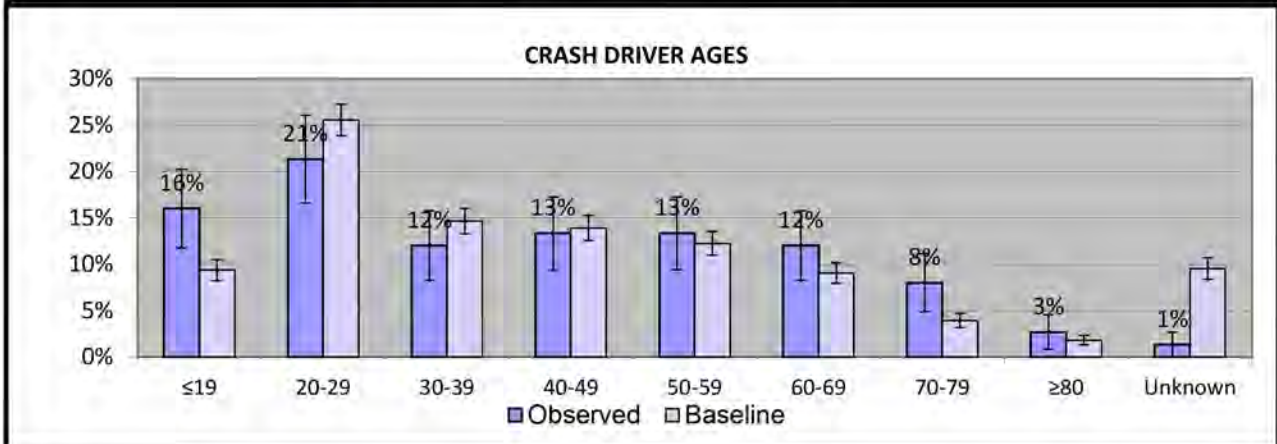
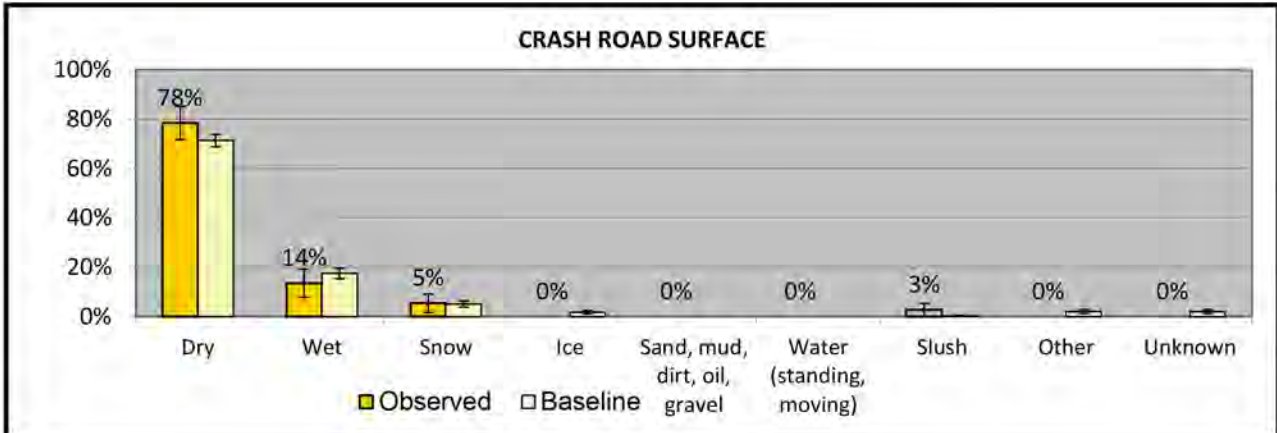
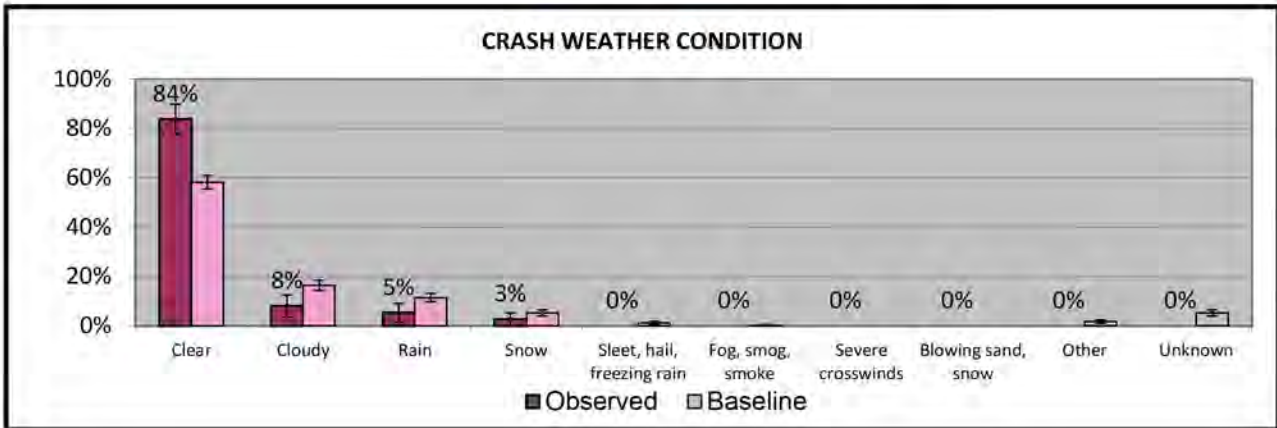
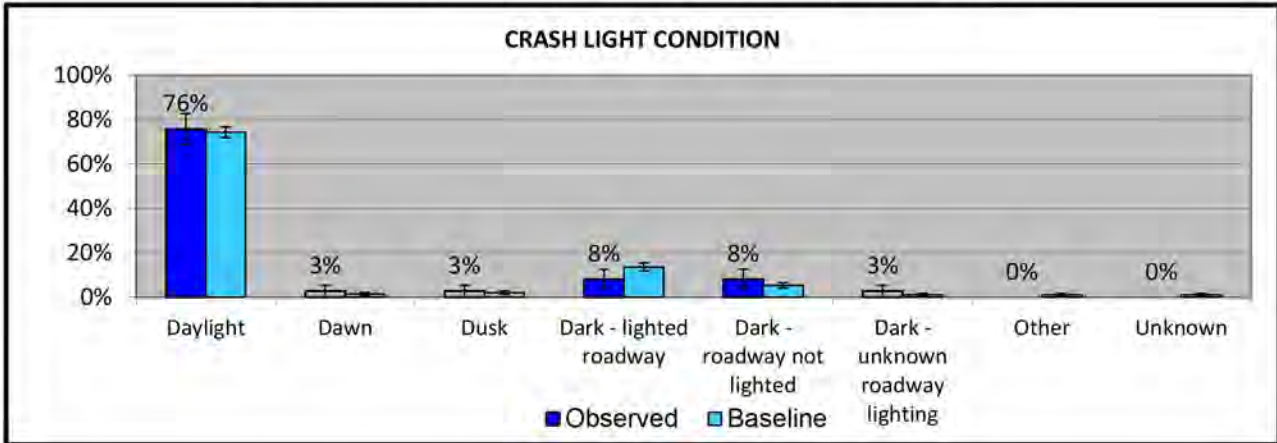
## Crash Data Summary Charts

### Franklin Street at Summer Street (Route 53), Duxbury, MA



## Crash Data Summary Charts

Franklin Street at Summer Street (Route 53), Duxbury, MA





### Crash Data Summary Charts

Franklin Street at Summer Street (Route 53), Duxbury, MA

