

# ROAD SAFETY AUDIT

Randolph Street and Richard A. Fitts Drive (Route 139)  
at Chestnut Street and Old Randolph Street  
Abington, Massachusetts

April 6, 2021

Prepared by Old Colony Planning Council  
Through the Old Colony MPO  
FFY 2021 Unified Planning Work Program:  
Under Contract with MassDOT



# Table of Contents

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## Contents

<b>Background .....</b>	<b>1</b>
<b>Project Data .....</b>	<b>1</b>
<b>Project Location and Description.....</b>	<b>2</b>
<b>Audit Observations and Potential Safety Enhancements.....</b>	<b>4</b>
<b>Summary of Road Safety Audit.....</b>	<b>6</b>

## List of Appendices

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

## List of Figures

Figure 1: Locus Map.....	3
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## List of Tables

Table 1: Participating Audit Team Members.....	2
Table 2: Estimated Time Frame and Costs Breakdown.....	6
Table 3: Potential Safety Enhancement Summary.....	7

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## Background

This Road Safety Audit for Randolph Street (Route 139) at Chestnut Street and Old Randolph Street, was prepared as part of the Old Colony Metropolitan Planning Organization's (MPO) Road Safety Audits at Multiple Locations project in the MPO's FFY 2021 Unified Planning Work Program. It was done in conjunction with another Road Safety Audit for Brockton Avenue (Route 123) at Rockland Street at Elm Street. The objective of the Road Safety Audits at Multiple Locations project is to identify known issues and potential improvements that can be implemented at high crash locations in a continuing effort to achieve safety performance targets for reducing serious injuries and fatalities on the regional highway network. Locations were selected through a data driven process as part of the MPO's Safety Management System and consultation with the communities of the Old Colony MPO.

## Project Data

This Road Safety Audit was conducted on April 6, 2021. Due to the continuing State of Emergency in the Commonwealth of Massachusetts in response to the COVID-19 pandemic, this Road Safety Audit was conducted virtually through a webinar format. Participants were provided crash data and associated analysis (crash characteristics charts, collision diagrams) prior to the Audit for review, and background traffic data (traffic volumes, speeds, heavy vehicle traffic) along with surrounding land use were discussed during the Audit.

During the audit, crash analysis, land use, and traffic data was discussed. Photographs of the intersection from each approach were provided. There was an Old Colony Planning Council staff planner on site at the intersection, providing live video links and commentary for each location, and responding to on-demand inquiries.

Table 1: Participating Audit Team Members

Audit Team Member	Agency/Affiliation
Bill McNulty	Old Colony Planning Council
Ray Guarino	Old Colony Planning Council
Mary Waldron	Old Colony Planning Council
Charles Kilmer, AICP	Old Colony Planning Council
Kyle Mowatt	Old Colony Planning Council
Shawn Bailey	Old Colony Planning Council
John Stone	Abington Department of Public Works
John Nuttall	Abington Fire Department
John Glynn	Abington Fire Department
Scott Lambiase	Abington Town Manager
Bruce Hughes	Abington Planning Board
Curtis Boucher	Office of Representative Alyson Sullivan
Ana Fill	MassDOT Traffic and Safety
Kevin Fitzgerald	MassDOT
Bianca Marshall	MassDOT District 5
David Soares	MassDOT
Jason Walters	MassDOT District 5 Projects
Vivian Ortiz	Massachusetts Safe Routes to School

## Project Location and Description

The intersection of Randolph Street / Richard A Fitts Drive (Route 139) at Chestnut Street and Old Randolph Street is a four-legged, unsignalized intersection located in north central Abington. The intersection has a skewed geometry, with Old Randolph Street arriving at Route 139 slightly to the north of opposing Chestnut Street (see aerial image in Figure 1). The following roadways form the intersection:

- Randolph Street / Richard A. Fitts Drive (Route 139):** Randolph Street is a state numbered, two lane highway under local jurisdiction of the Town of Abington, functionally classified as an Urban Principal Arterial. Randolph Street south of the intersection has sidewalks on both sides of the roadway, while Richard A. Fitts Drive north of the intersection has a sidewalk only on the northbound side of the roadway. There are no marked bicycle accommodations on Route 139 in this area. (The posted speed limit is 35 MPH in each direction in this area.
- Chestnut Street:** Chestnut Street is a functionally classified as an Urban Collector under local jurisdiction of the Town of Abington. There is a sidewalk on the westbound side of the roadway only, and the roadway does not have any marked bicycle accommodations. The posted speed limit is 30 MPH in each direction.

- **Old Randolph Street:** Old Randolph Street is a functionally classified as an Urban Collector under local jurisdiction of the Town of Abington. The roadway has a sidewalk on the northbound side of the roadway only, and there are no marked bicycle accommodations. The posted speed limit is 30 MPH in each direction.

The intersection is controlled by STOP signs on the Chestnut Street and Old Randolph Street approaches. The STOP sign on Chestnut Street has a solar powered, lighted border for heightened visibility.

The intersection was studied in the Old Colony MPO's 2010 Route 139 Corridor Study. That Study recommended signalization of the intersection.



Figure 1: Locus Map

## Audit Observations and Potential Safety Enhancements

The following safety issues along with potential safety enhancements were identified for the intersection of Randolph Street / Richard A. Fitts Drive (Route 139) at Chestnut Street and Old Randolph Street.

**Poor Sight Lines:** Sight lines between the side streets and Route 139, particularly to and from the north of the intersection, are significantly challenged by the horizontal curvature of Route 139; the angle of the approaches; and vegetation and fixed objects along the northwest and southwest corners.

*Potential Safety Enhancements: Assess feasibility of trimming vegetation on corners (identify property lines and extent of right of way; work with property owner; etc.) Squaring off intersection as much as possible with roadway paint may improve visibility somewhat by repositioning approaching and queued vehicles. Consider narrowing the intersection using flex posts (short term), or curbing (medium term). Evaluate feasibility of relocating fence line. Long term reconstruction of the intersection with a roundabout or signalization would mitigate sight line issues.*

**Skewed Alignment:** The intersection has a skewed geometry. Old Randolph Street approaches Route 139 at an angle nearly parallel to Route 139 before flaring right at the intersection, slightly north of opposing Chestnut Street. The skewed geometry creates sight line challenges when combined with the curvature of Route 139, along with contributing to driver confusion. The layout makes it very difficult for drivers to cross between Chestnut Street and Old Randolph Street, and is likely a factor in the number of single vehicle crashes that occur on the southwest corner of the intersection.



**Image 1: Intersection has skewed geometry, with Old Randolph Street coming into intersection north of Chestnut Street.**

*Potential Safety Enhancements: The issue may be able to be mitigated through squaring off the intersection using paint and striping on Chestnut Street. Physical reconstruction of the intersection with the installation of a roundabout could substantially improve safety for motorists, eliminate challenges of left turns and through movements between Chestnut Street and Old Randolph Street' and pedestrians.*

**Left Turns from Route 139 onto Chestnut Street:** Left turns from Route 139 onto Chestnut Street is a heavy movement at the intersection, this movement creates multiple conflict points in the intersection. Drivers approaching from the behind left turning vehicles and attempting to pass on the right creates further conflict, driver confusion, and safety hazard. Several of the crashes studied involved a left turning vehicle from Route 139 northbound either colliding with an

opposing vehicle or losing control and departing the roadway. Several road safety audit participants noted they modify their travel

*Potential Safety Enhancements: Stipe a left turn storage lane. The lane would create greater awareness for drivers making this turn. The presence of an additional lane on the right would heighten driver awareness to be cautious of vehicles passing on the right. It would also create a queue for where drivers should begin their left turn and avoid roadway departure on the southwest corner.*

**Lack of Bicycle Accommodations** There are no bicycle lanes on any of the approaches. Audit participants noted there is significant bible activity in this area.

*Potential Safety Enhancements: Re-stripe Route 139 to add bicycle lanes. Use “sharrows” on Chestnut Street and Old Randolph Street if right of way does not permit room for bicycle lanes.*

**Speeding on Route 139:** Traffic data indicates the recorded 85<sup>th</sup> percentile speed on Randolph Street is 50 miles per hour, substantially above the speed limit of 35 miles per hour.

*Potential Safety Enhancements: Increased speed enforcement by police department. Increased use of speed trailers. Re-striping Route 139 with the addition of bicycle lanes and tightening travel lanes can have traffic calming effect.*

**Lack of ADA Accessibility (Curb Ramps) on Crosswalks** The crosswalks located at the intersection are not ADA compliant, as they do not have curb ramps.

*Potential Safety Enhancements: Reconstruct the crosswalks with the addition of curb ramps and detectible tactile surfaces.*

**Long Crosswalks:** Due to the skewed geometry of the intersection, the crosswalks across Route 139 and Old Randolph Street are very long, increasing exposure for pedestrians in the crosswalk.

*Potential Safety Enhancements: Assess feasibility of relocating crosswalk, or aligning more perpendicularly, to reduce exposure and crossing time. Potentially use curb bump-outs to shorten crossing distance. Given the proximity to an elementary school, high visibility crosswalk treatments should be considered in this area.*

**Lack of Advance Signage:** There are no advance intersection warning signs on either Route 139 approach.



**Image 2: Crosswalks do not have accessible ramps. Crosswalk across Route 139 is long, leaving pedestrians exposed.**

*Potential Safety Enhancements: Install MUTCD compliant intersection warning signs with street name placards on each approach of Randolph Street. Install “STOP Ahead” signage on Chestnut Street and Old Randolph Streets.*

**Nighttime Crashes:** Despite lower traffic volumes, one-third of crashes occur at night.

*Potential Safety Enhancements: Town of Abington is in process of replacing street lighting with LED lights. The installation of LED lights at this location will improve nighttime visibility. Retroreflective roadway striping could also improve nighttime visibility and awareness.*

## Summary of Road Safety Audit

Table 3 lists and summarizes the potential safety enhancements for each identified issue from this Road Safety Audit.

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**

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Poor sight lines	Cut back vegetation to property line, work with property owners beyond property lines. Use flex posts (short term) or curbing (longer term) to narrow intersection. Evaluate moving fence lines.	Medium	Short-Term	Low	Town of Abington
Skewed alignment	Reconstruct intersection with installation of traffic signals or roundabout	High	Long-Term	High	Town of Abington
Left turns from Route 139 onto Chestnut Street	Add left turn lane from Route 139 northbound approach. Long term reconstruct intersection with a roundabout or traffic signal.	Medium	Mid-Term	Low	Town of Abington
Lack of bicycle accommodations	Tighten travel lanes on Route 139 and stripe bicycle lanes. Add sharrows to side streets	High	Mid-Term	Medium	Town of Abington
Speeding on Route 139	Speed Enforcement	High	Near-Term	Low	Town of Abington
Lack of ADA accessibility	Reconstruct crosswalks with ADA accessible ramps and detectable surfaces	Medium	Min-Term	Medium	Town of Abington
Long Crosswalks	Consider relocating crosswalk away from intersection, making more perpendicular and shortening length. Consider high visibility crosswalks.	Medium	Mid-Term	Medium	Town of Abington

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Lack of advance signage	Install MUTC compliant intersection advance warning signs with street name placards on all approaches.	Medium	Short-Term	Low	Town of Abington
Nighttime crashes	Upgrade lighting to LED lights (scheduled to be completed), and use retroreflective roadway markings	High	Mid-Term	Medium	Town of Abington

## Appendix A. RSA Meeting Agenda

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<b>Agenda</b>	<p align="center"><b>Road Safety Audit for Randolph Street (Route 139) at Chestnut Street, and Brockton Avenue (Route 123) at Rockland Street, Abington, MA</b></p> <p align="right"><b>Tuesday, April 6, 2021</b> <b>1:00 PM – 3:00 PM</b></p>
<b>Contact:</b>	Bill McNulty, Old Colony Planning Council (508) 583-1833 ext. 207 wmcnulty@ocpcrpa.org
<b>Attendees:</b>	Invited Participants Include a Multidisciplinary Team including Abington Officials (Chief Elected Officials, DPW, Police, Fire, Administration, Schools), MassDOT, Safe Routes to School, FHWA, Legislative Delegation
<b>Please Bring:</b>	Thoughts and Suggestions
<b>Meeting Location:</b>	<p><b>Virtual Meeting (Zoom):</b>  <a href="https://us02web.zoom.us/j/81764518613?pwd=QjZJWG9BeGFtd0pxYjFuY1ZzYjVSQT09">https://us02web.zoom.us/j/81764518613?pwd=QjZJWG9BeGFtd0pxYjFuY1ZzYjVSQT09</a>  <b>Webinar ID:</b> 817 6451 8613  <b>Password:</b> 372614</p>
<b>1:00 PM</b>	Welcome and Introductions
<b>1:10 PM</b>	<p>Virtual Road Safety Audit of Randolph Street (Route 139) at Chestnut Street and Old Randolph Street</p> <ul style="list-style-type: none"> <li>• Review of Traffic Data</li> <li>• Existing Conditions and Known Challenges</li> <li>• Identification of Potential Safety Improvements</li> </ul>
<b>1:45 PM</b>	<p>Virtual Road Safety Audit of Brockton Avenue (Route 123) at Rockland Street and Elm Street</p> <ul style="list-style-type: none"> <li>• Identify any deficiencies and/or potential improvements at the study area location</li> <li>• OCPC staff will document all observations and comments</li> <li>• Identification of Potential Safety Improvements</li> </ul>
<b>2:30 PM</b>	Wrap-Up Site Audit; Discussion of Next Steps
<b>Instructions For Participants:</b>	
<ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• 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</li> </ul>	

## Appendix B. RSA Audit Team Contact List

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## Participating Audit Team Members

Date: April 6, 2021 Location: Virtual Meeting

<b>Audit Team Members</b>	<b>Agency/Affiliation</b>
Name	Agency
Bill McNulty	Old Colony Planning Council
Ray Guarino	Old Colony Planning Council
Mary Waldron	Old Colony Planning Council
Charles Kilmer, AICP	Old Colony Planning Council
Kyle Mowatt	Old Colony Planning Council
Shawn Bailey	Old Colony Planning Council
John Stone	Abington Department of Public Works
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John Glynn	Abington Fire Department
Scott Lambiase	Abington Town Manager
Bruce Hughes	Abington Planning Board
Curtis Boucher	Office of Representative Alyson Sullivan
Ana Fill	MassDOT Traffic and Safety
Kevin Fitzgerald	MassDOT
Bianca Marshall	MassDOT District 5
David Soares	MassDOT
Jason Walters	MassDOT District 5 Projects
Vivian Ortiz	Massachusetts Safe Routes to School

## Appendix C. Detailed Crash Data

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# Crash Data Summary Table

Randolph Street (Route 139) at Chestnut Street and Old Randolph Street, Abington  
January 2017 through December 2020

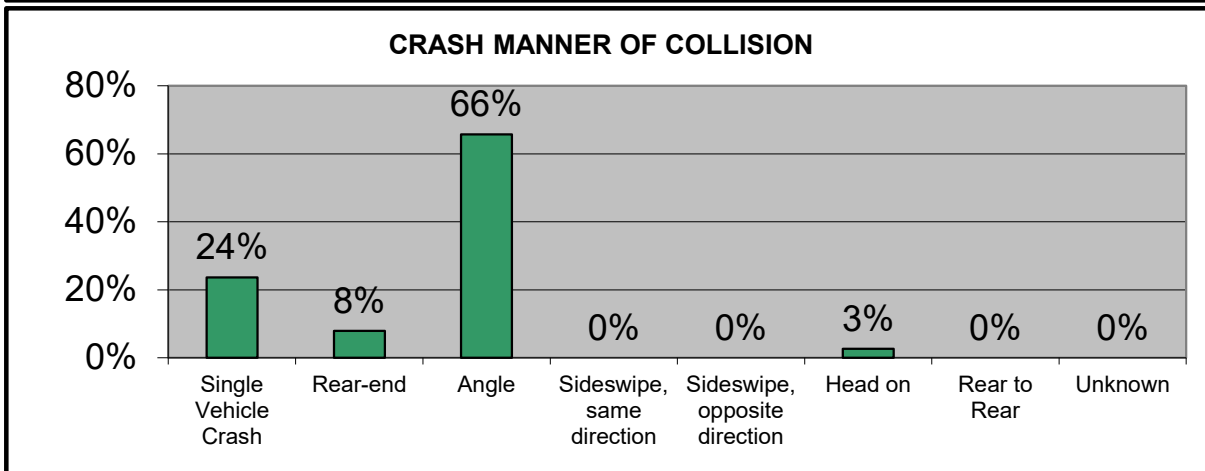
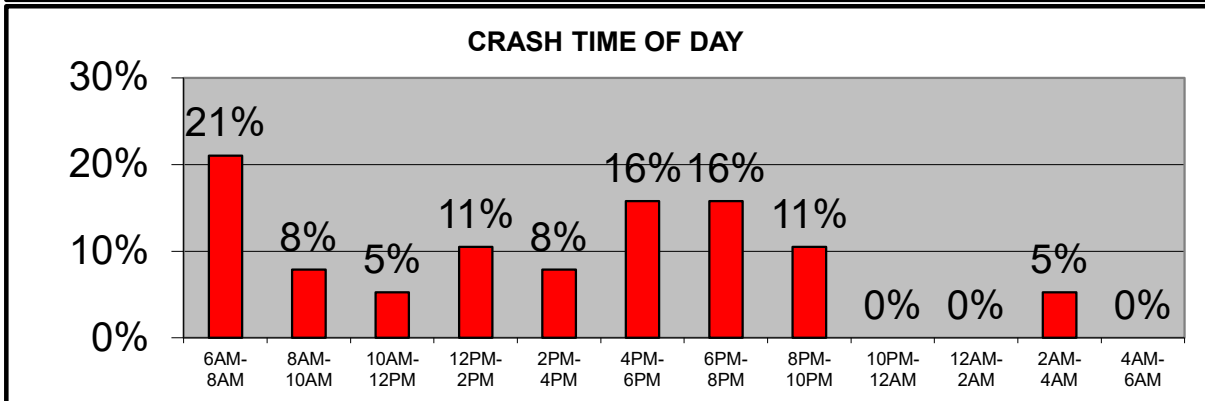
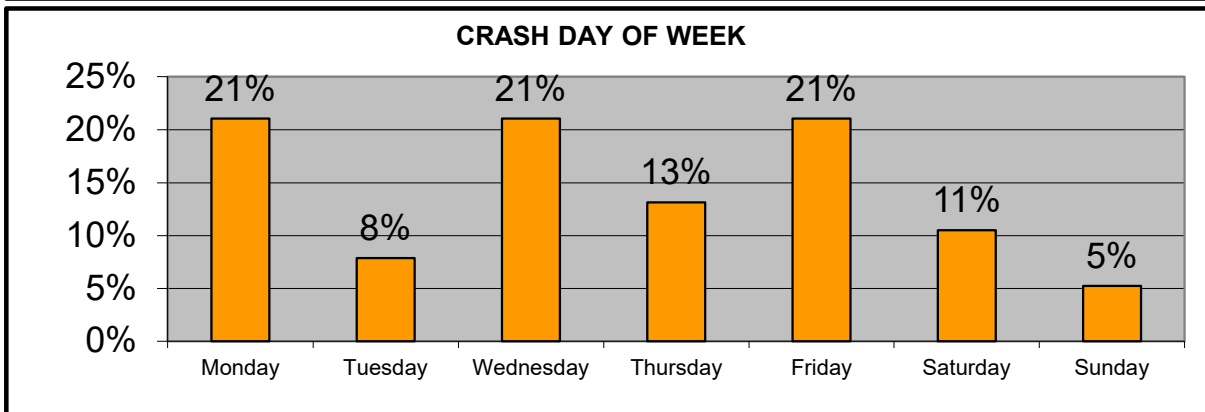
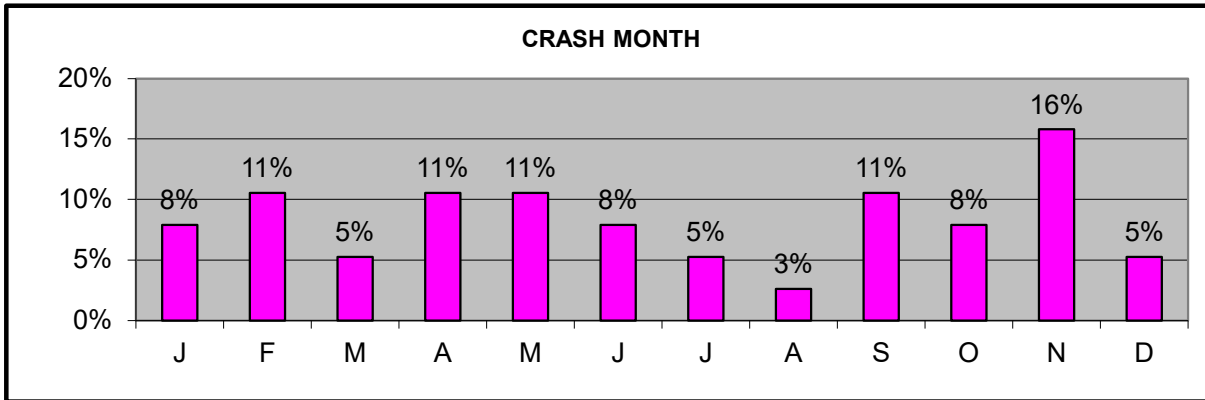
Crash Diagram Ref #	Crash Date m/d/y	Crash Day	Time of Day	Manner of Collision Type	Light Condition Type	Weather Condition Type	Road Surface Type	Driver Contributing Code Type	Ages				Comments
									D1	D2	D3	D4	
1	1/1/17	Sunday	2:30 AM	Single Vehicle Crash	Dark - lighted roadway	Rain	Wet	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	58				
2	1/16/17	Monday	8:06 PM	Single Vehicle Crash	Dark - lighted roadway	Clear	Dry	No Improper Driving	59				Struck a deer
3	1/19/17	Thursday	10:03 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	24	33			
4	2/8/17	Wednesday	5:41 PM	Angle	Dark - lighted roadway	Cloudy	Dry	Inattention	35	23			
5	3/1/17	Wednesday	7:29 PM	Single Vehicle Crash	Dark - lighted roadway	Cloudy	Wet	Failure to keep in proper lane or running off road	70				
6	3/6/17	Monday	6:44 PM	Angle	Dark - lighted roadway	Clear	Dry	Failed to yield right of way	23	33			
7	5/18/17	Thursday	4:35 PM	Angle	Daylight	Clear	Dry	Inattention	77	33			
8	6/7/17	Wednesday	5:47 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	22	27			
9	9/16/17	Saturday	9:34 PM	Single Vehicle Crash	Dark - lighted roadway	Clear	Dry	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	35				
10	10/16/17	Monday	8:59 AM	Angle	Daylight	Cloudy	Dry	Failed to yield right of way	27	43			
11	11/1/17	Wednesday	7:42 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	63	43			
12	11/17/17	Friday	8:38 AM	Single Vehicle Crash	Daylight	Clear	Dry	Unknown	43				
13	12/19/17	Tuesday	4:51 PM	Angle	Dark - lighted roadway	Cloudy	Dry	Failed to yield right of way	36	27			
14	2/1/18	Thursday	3:40 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	37	40			
15	4/16/18	Monday	7:29 AM	Angle	Daylight	Rain	Wet	Failed to yield right of way	48	33			
16	4/30/18	Monday	5:31 PM	Angle	Daylight	Rain	Wet	Failed to yield right of way	16	24			
17	5/2/18	Wednesday	6:52 AM	Rear-end	Daylight	Clear	Dry	No Improper Driving	64	27			
18	7/14/18	Saturday	9:06 PM	Single Vehicle Crash	Dark - lighted roadway	Clear	Dry	Disregarded traffic signs, signals, road markings	49				
19	9/7/18	Friday	7:01 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	33	35			
20	9/26/18	Wednesday	8:41 AM	Angle	Daylight	Cloudy	Dry	Failed to yield right of way	47	20			
21	11/4/18	Sunday	6:36 PM	Angle	Dark - lighted roadway	Clear	Dry	No Improper Driving	61				
22	11/7/18	Wednesday	7:32 AM	Angle	Daylight	Cloudy	Wet	Made an improper turn	61	46			
23	12/21/18	Friday	7:13 AM	Single Vehicle Crash	Daylight	Rain	Wet	No Improper Driving	48				
24	2/22/19	Friday	1:26 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	70	63	16		
25	4/18/19	Thursday	1:25 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	38	70			
26	4/22/19	Monday	6:36 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	23	40			
27	5/4/19	Saturday	9:26 PM	Angle	Dark - lighted roadway	Cloudy	Dry	Inattention	22	36			
28	5/6/19	Monday	11:05 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	59	33	53		
29	6/12/19	Wednesday	7:21 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	30	22			
30	6/15/19	Saturday	1:58 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	38	60	61		
31	7/18/19	Thursday	2:54 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	64	36			
32	11/29/19	Friday	6:50 PM	Single Vehicle Crash	Dark - lighted roadway	Clear	Dry	Inattention	54				
33	2/14/20	Friday	4:39 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	23	29			
34	8/28/20	Friday	1:07 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	31	38			
35	9/1/20	Tuesday	6:54 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	18	63			
36	10/2/20	Friday	2:33 PM	Rear-end	Daylight	Clear	Dry	Failed to yield right of way	42	56			
37	10/27/20	Tuesday	2:52 AM	Single Vehicle Crash	Dark - lighted roadway	Clear	Dry	Disregarded traffic signs, signals, road markings	36				
38	11/9/20	Monday	7:12 PM	Head on	Dark - lighted roadway	Clear	Dry	Failed to yield right of way	45	41			

\*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.



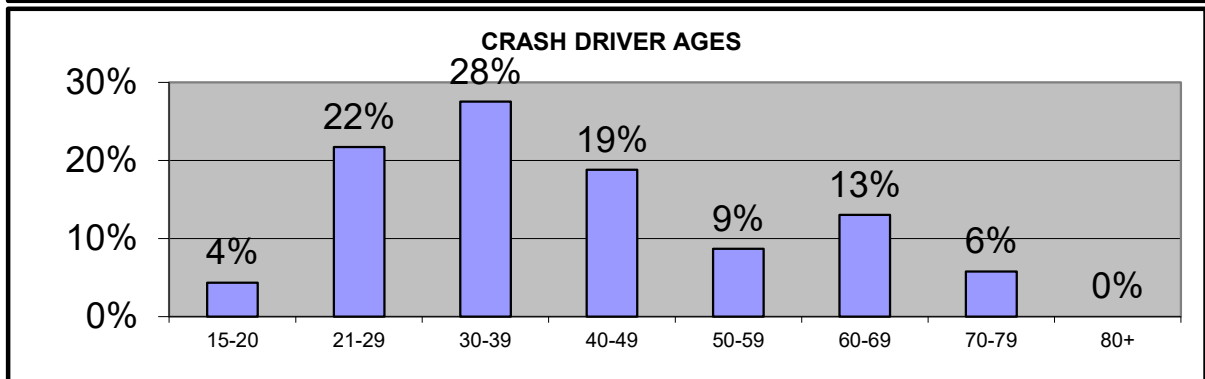
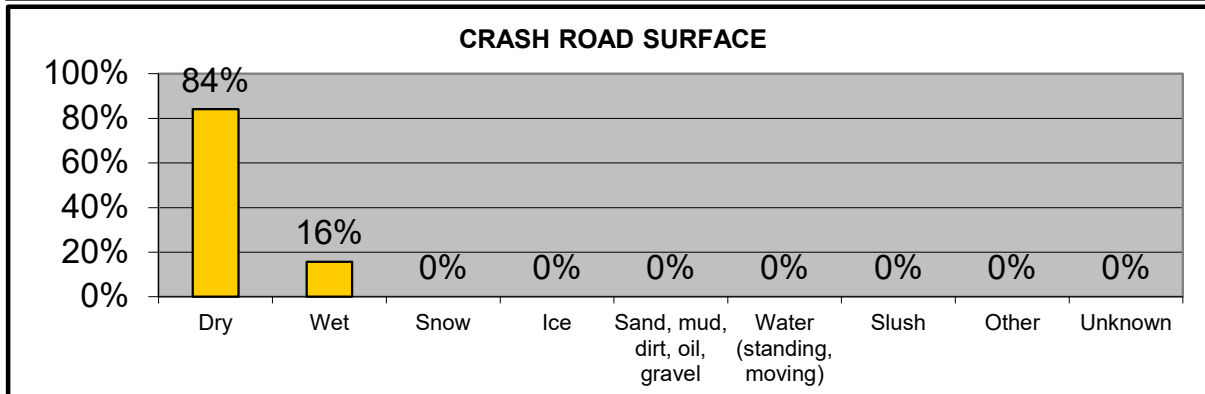
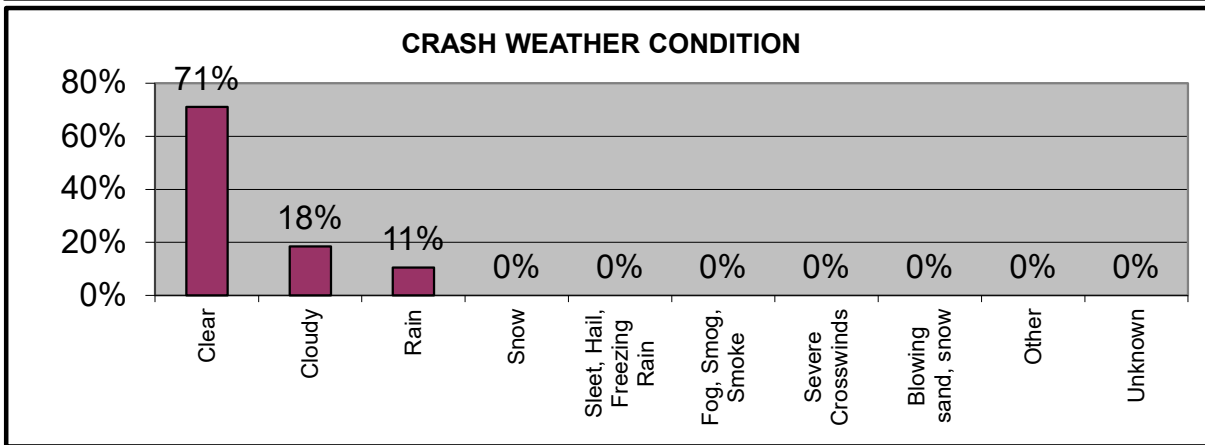
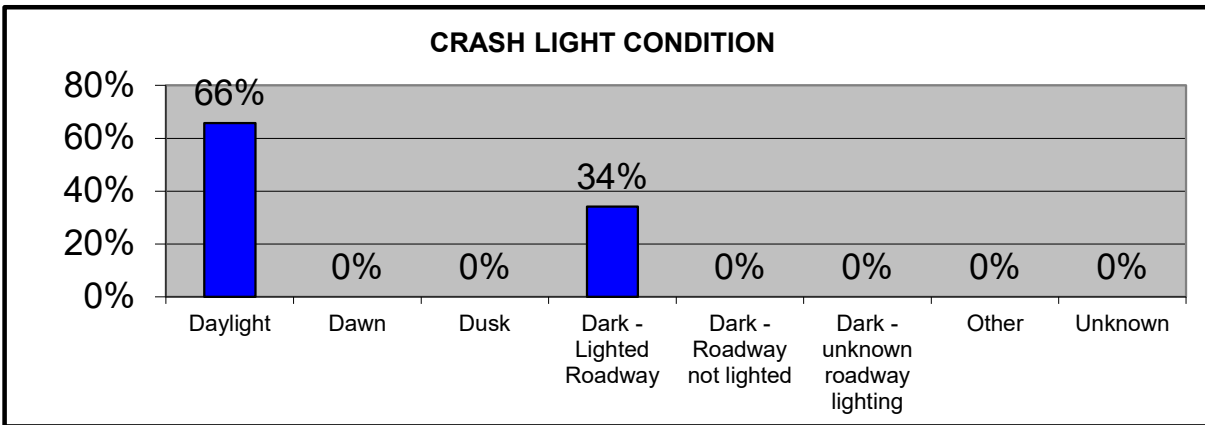
### Crash Data Summary Tables and Charts

Randolph Street (Route 139) at Chestnut Street and Old Randolph Street, Abington



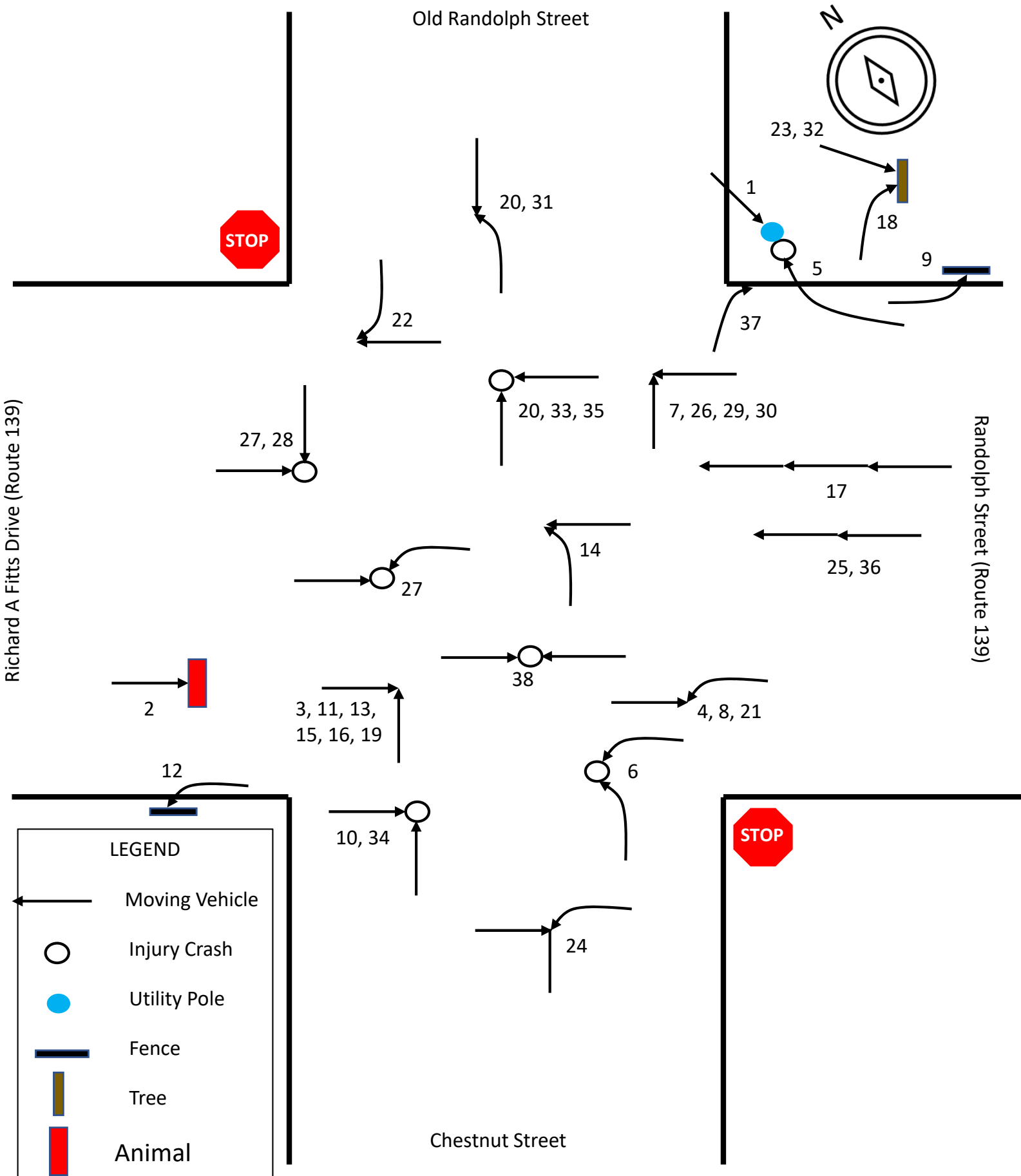
### Crash Data Summary Tables and Charts

Randolph Street (Route 139) at Chestnut Street and Old Randolph Street, Abington



# COLLISION DIAGRAM

## Randolph St (Route 139) & Chestnut/Old Randolph St Collision Diagram for Crashes (2017-2020)



## Appendix D. Additional Information

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## Appendix E. Road Safety Audit References

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## Road Safety Audit References

*FHWA Office of Safety - Proven Safety Countermeasures*, U.S. Department of Transportation, Federal Highway Administration <https://safety.fhwa.dot.gov/provencountermeasures/>.

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

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