2011–2013

Top 100 High Crash Intersections

In the Pioneer Valley Region

Catalyst for Regional Progress
PVPC

Prepared under the direction of the Pioneer Valley MPO by:
Pioneer Valley Planning Commission

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DRAFT

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Cover Page

Background: Springfield – The intersection of Belmont Avenue (Route 83) / Sumner Avenue (Route 83) / Dickinson Street / Ventura Street
Courtesy: Pioneer Valley Planning Commission

Images Starting from Top:

1. Chicopee - Memorial Drive (Route 33) / Grattan Street (Route 141) / Bridge Street (Route 141) / Montgomery Street / Sheridan Street
Courtesy: Pioneer Valley Planning Commission

2. Westfield - East Main Street (Route 20) / Little River Road (Route 187) / Springfield Road (Route 20)
Courtesy: Pioneer Valley Planning Commission

Sources

Massachusetts Department of Transportation (MassDOT) Crash Data

Federal Highway Administration 2010 Highway Statistics Series

Census 2014 Population Projections

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Background

One of the primary objectives of transportation planning is to establish a safe and efficient transportation network throughout the region. It is therefore imperative to reduce the number and severity of all motor vehicle crashes to improve safety for all modes of travel. The Pioneer Valley Planning Commission (PVPC) works in cooperation with the Massachusetts Department of Transportation's (MassDOT) Highway Safety Division to identify locations with safety problems and develop appropriate recommendations to improve them. MassDOT maintains a database of crashes that have occurred throughout the State. The PVPC utilizes this database (and in certain cases local data from police departments if needed) in identifying top crash intersections in the region to assist in the development of safety planning studies and transportation improvement projects.

Third Edition (2011-2013)

This report is the third edition of the Pioneer Valley Planning Commission's (PVPC) Top 100 High Crash Intersections in the Region Report. The first edition was released in 2008 and utilized the crash data for the calendar years of 2003 – 2005. A second update was released in 2013 and utilized crash data for the calendar years of 2007 – 2009 while adding information on the top high crash roadway segments.

This third edition continues to build on the previous two reports through the addition of top high bicycle and pedestrian crash clusters in the region. This report is based on crash data for the calendar years of 2011 to 2013. The current update for the first time utilizes a uniform method for analyzing the entire region and all of its communities. In the past, some of the communities were under represented in the MassDOT database and therefore PVPC had to obtain local police data for these communities. This data was analyzed separately and converted to match MassDOT data. However as of 2011, the entire region has made tremendous progress in their crash data collection and reporting. As a result, all the communities are now accurately represented in the MassDOT data. This helps in establishing a uniform system for ranking the high crash locations and thereby sets a benchmark to monitor the effectiveness of transportation improvement projects on improving safety in the Pioneer Valley region.

Bicycle and Pedestrian (Bike/Ped) Crash Clusters

In addition to the top 100 high crash intersections, the current update also provides detailed information on bicycle and pedestrian crashes in the region. This category broadly includes all the crashes where a motor vehicle collides with a non-motorist (bicyclist, pedal cyclist, unicyclist, tricyclist, pedestrian, wheelchair, skater, etc). Due to the lower number of crashes involving non-motorists it was necessary to use a larger analysis period. As a result, a ten year time period from 2003 to 2013 was utilized to identify locations with a high occurrence of non-motorized crashes.

Objective

The objective of this report is to help local, regional and MassDOT officials to identify and update the inventory of high crash locations and help them plan for future transportation improvement projects in the Pioneer Valley region. This report also helps to identify locations in the region with a history of safety problems. There are several short and long term improvement measures that are proven to enhance safety at any location with a history of safety issues. Some examples of improvement measures are shown in the following table:

Table 1: Short and Long Term Safety Improvement Measures

No.	Short Term Improvement Measures	Long Term Improvement Measures
1	Updated signage	Installation of new traffic signal (if warranted)
2	Repainting Pavement Markings	Installing additional turn lanes or storage lanes
3	Maintaining and trimming vegetation to improve sight distance	Geometric changes to a roadway segment or intersection
4	Installing additional warning signs	Increasing capacity of turn lanes or storage lanes

Short term improvement measures are generally lower cost and can be implemented immediately. Short term measures like repainting pavement markings and maintaining vegetation must be performed regularly to have maximum effectiveness. Long term improvement measures are higher in cost and typically require an engineering study and design to implement. It is important to ensure that the improvement is warranted for the location.

TOP 100 HIGH CRASH INTERSECTIONS

Methodology

PVPC utilized MassDOT crash data for the calendar years of 2011 to 2013 to compile the top 100 high crash intersections list. The MassDOT Highway Division obtains crash data from the Massachusetts Registry of Motor Vehicles (RMV) on a regular basis. The State and local police departments and motor vehicle operators (motorists) who are involved in crashes are required to submit detailed crash reports to the RMV. The RMV Crash Records Section maintains a crash records database which is ultimately the source of the MassDOT Highway Division crash data.

MassDOT has developed an automated procedure for matching and aggregating the crash data by geographic location using Geographic Information System (GIS) tools and procedures. This results in the successful geo-coding of more than 90% of all crashes. PVPC staff reviewed this data to ensure consistency between the assigned location and information related to each crash. Using GIS tools, crashes attributed to each intersection were identified based on a 200 foot radius around each intersection. This ensured the process was consistent with the one adopted in previous reports. For some intersections in the region where more than four approaches merged, the buffer was redefined to ensure that no intersection crashes were omitted.

Crashes occurring at the nine major rotaries in the region are summarized in a separate table. Also crashes occurring at highway interchanges are included only when the exact crash location is able to be determined from the crash data.

Ranking

The Equivalent Property Damage Only (EPDO) method was used to rank the top 100 high crash intersections. This method takes into account the total number of crashes at an intersection and the severity of each crash. Additional weight is applied to crashes in which an injury or a fatality occurs. Using the EPDO method, ten points are applied to each crash in which a fatality occurs, five points are applied to each crash in which one or more personal injuries occur, and one point is applied to each crash which consists solely of property damage. Crashes with a severity of “Unknown” or “Not Reported” are assumed to have a severity of “Property Damage Only”.

Communities with High Crash Intersections

A total of 14 communities are represented in the top 100 list of high crash intersections in the region. The City of Springfield has the most intersections on the list followed by Holyoke and Chicopee. Hadley and Amherst are the two new communities in the updated top 100 list with one intersection each.

Table 2: Communities with Top 100 High Crash Intersections

Community	Number of Intersections in Top 100
Springfield	55
Holyoke	12
Chicopee	12
Westfield	5
West Springfield	4
East Longmeadow	2
Northampton	2
Ludlow	2
Palmer	1
Agawam	1
Amherst	1
Granby	1
Hadley	1
Wilbraham	1
Total	100

Source: PVPC

The location of all of the top 100 high crash intersections is shown on the following figure. More specific information on the number, severity, and EPDO score is provided in the following tables. Each of the intersections are ranked from highest to lowest based on their calculated EPDO score.

Status

This column provides information on the recent status of transportation improvements that may enhance the safety of the intersection. The status is broadly classified into four categories. At some intersections, a transportation improvement project has recently been completed to improve safety ($). Other intersections may be waiting for funding through the Transportation Improvement Program (TIP) to construct planned

improvements (#). PVPC also conducts transportation planning studies as a part of its annual work program to develop recommendations to improve safety (@). A (%) is used to designate intersections with no identified improvements.

Observations

A total of 4,433 crashes occurred at the top 100 intersections between 2011 to 2013. This number is slightly higher than 4,275 crashes reported in the previous report. The average EPDO also increased by 10 points from 97.5 to 107.5 as injury crashes increased from 1,359 to 1,566 and fatal crashes increased from 3 to 6. However, the number property damage crashes slightly reduced from 2913 to 2861. These trends are discussed in more detail later in the report.

A number of intersections that appear in the top 100 list have had transportation improvements projects completed recently which may have resulted in improved safety. These locations still appear in the top 100 list because the crash data was collected before the improvements were completed. Many intersections along State Street corridor in Springfield appear in the top 100 list. This corridor recently received a number of transportation improvements. The impacts of these improvements on safety will be assessed using future crash data. The ranking of each intersection from the previous report is also included for comparison purposes. This is useful as locations with a lower rank than in previous report may have benefitted from recent improvements. Similarly locations appearing on the list for the first time may require additional assessment to identify appropriate safety improvements.

Figure 1: Top 100 High Crash Intersections in Pioneer Valley

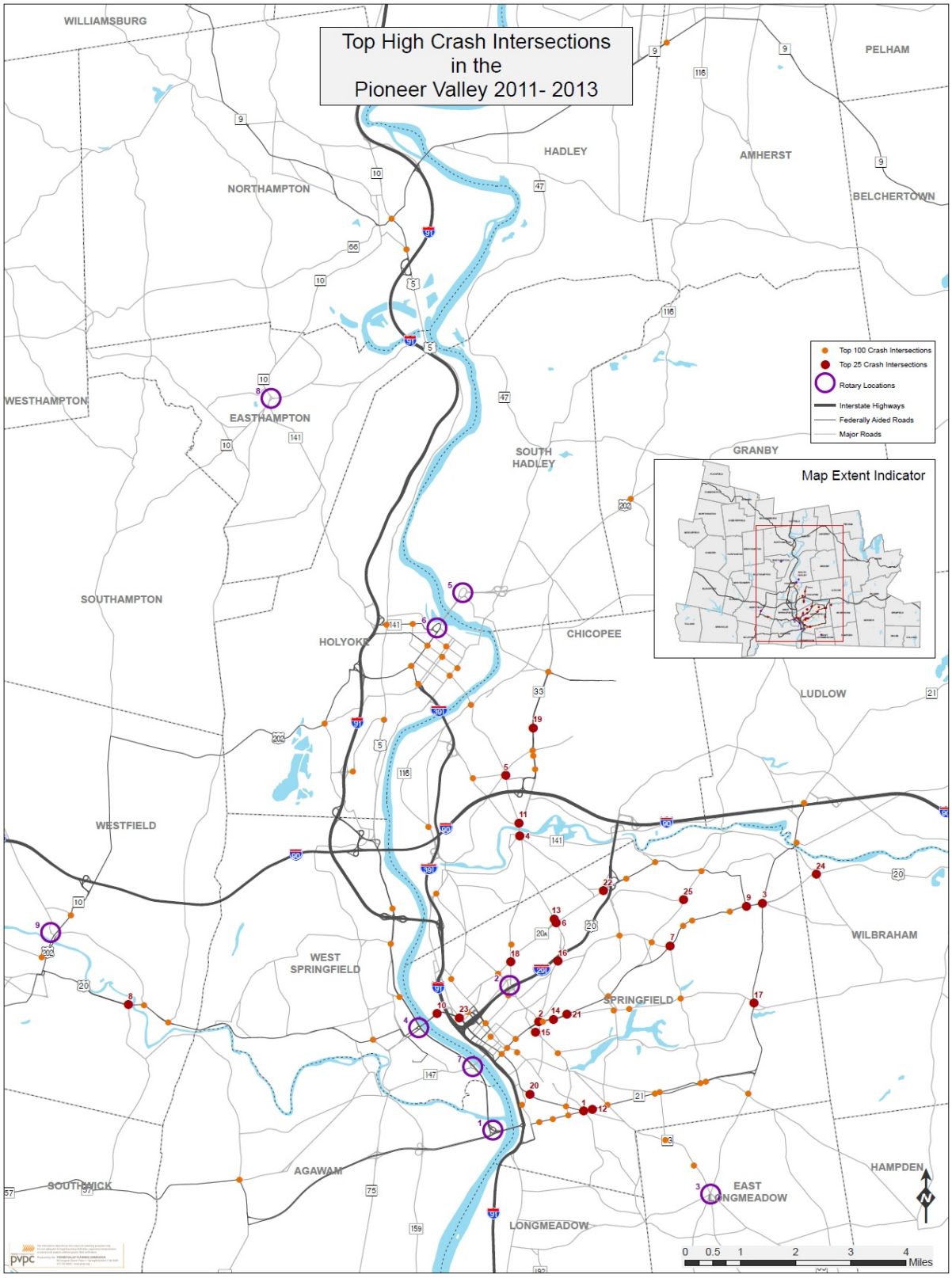

Table 3: Top 100 High Crash Intersections in the Pioneer Valley

Rank (2011-2013)	Community	Intersection	Total Crashes	EPDO*	Injury Crashes	Fatal Crashes	Property Damage Only	Previous Rank (2007-2009)	Previous EPDO (2007-2009)	Status
1	SPRINGFIELD	BELMONT AVENUE (ROUTE 83) / SUMNER AVENUE (ROUTE 83) / DICKINSON STREET / VENTURA STREET	122	282	40	0	82	***16***	***123***	#
2	SPRINGFIELD	STATE STREET / BAY STREET / OAK STREET / ST JAMES AVENUE / MAGAZINE STREET	91	276	44	1	46	-	-	$
3	SPRINGFIELD	BOSTON ROAD (ROUTE 20) / PARKER STREET	76	204	32	0	44	***1***	***195***	$
4	CHICOPEE	BRIDGE STREET (ROUTE 141) / EAST MAIN STREET (ROUTE 141) / BROADWAY / MAIN STREET / CHURCH STREET	81	181	25	0	56	***2***	***177***	$
5	CHICOPEE	GRANBY ROAD / MCKINSTRY AVENUE / MONTGOMERY STREET	93	177	21	0	72	***64***	***82***	@
6	SPRINGFIELD	ST JAMES BOULEVARD (ROUTE 20A) / ST JAMES AVENUE	61	165	26	0	35	***29***	***107***	@
7	SPRINGFIELD	BOSTON ROAD / BAY STREET / BRECKWOOD BOULEVARD	57	162	24	1	32	***36***	***102***	$
8	WESTFIELD	EAST MAIN STREET (ROUTE 20) / LITTLE RIVER ROAD (ROUTE 187) / SPRINGFIELD ROAD (ROUTE 20)	57	161	26	0	31	***6***	***149***	%
9	SPRINGFIELD	BOSTON ROAD (ROUTE 20) / PASCO ROAD (ROUTE 20) / MERRILL ROAD / WRENTHAM ROAD	53	149	24	0	29	***4***	***159***	$
10	SPRINGFIELD	WEST STREET (ROUTE 20) / PLAINFIELD STREET / AVOCADO STREET	56	148	23	0	33	***54***	***90***	@
11	CHICOPEE	MEMORIAL DRIVE (ROUTE 33) / GRATTAN STREET (ROUTE 141) / BRIDGE STREET (ROUTE 141) / MONTGOMERY STREET / SHERIDAN STREET	71	147	19	0	52	***3***	***169***	$
12	SPRINGFIELD	SUMNER AVENUE (ROUTE 83) / ORMOND STREET / POMONA STREET / SORRENTO STREET	54	146	23	0	31	-	-	#
13	SPRINGFIELD	ST JAMES AVENUE / CAREW STREET / BEAVEN STREET / DETROIT STREET	50	143	21	1	28	***32***	***105***	@
14	SPRINGFIELD	STATE STREET / HANCOCK STREET / THOMPSON STREET	46	142	24	0	22	***39***	***102***	$
15	SPRINGFIELD	WALNUT STREET / UNION STREET	42	142	25	0	17	***87***	***70***	@
16	SPRINGFIELD	ST JAMES AVENUE / TAPLEY STREET	61	141	20	0	41	***30***	***106***	@

*EPDO - Equivalent Property Damage Only
Status - $ Transportation Improvement Project Completed,
Project on Transportation Improvement Program/Proposed Local Project,
@ Planning Study Completed,
% No Planned Improvements

Rank (2011-2013)	Community	Intersection	Total Crashes	EPDO*	Injury Crashes	Fatal Crashes	Property Damage Only	Previous Rank (2007-2009)	Previous EPDO (2007-2009)	Status
17	SPRINGFIELD	PARKER STREET / WILBRAHAM ROAD	56	140	21	0	35	***44***	***97***	%
18	SPRINGFIELD	CAREW STREET (ROUTE 20A) / LIBERTY STREET / BANBURY STREET / KENDALL STREET / PENACOOK STREET	55	139	21	0	34	***88***	***70***	%
19	CHICOPEE	MEMORIAL DRIVE (ROUTE 33) / PENDLETON AVENUE	60	136	19	0	41	***11***	***142***	#
20	SPRINGFIELD	BELMONT AVENUE / LOCUST STREET / FORT PLEASANT AVENUE / MILL STREET	53	133	20	0	33	-	-	@
21	SPRINGFIELD	STATE STREET / WILBRAHAM ROAD / CATHERINE STREET / EASTERN AVENUE	49	133	21	0	28	***28***	***108***	$
22	SPRINGFIELD	PAGE BOULEVARD / ROOSEVELT AVENUE / PAGE BOULEVARD (ROUTE 20A) / ROSE STREET	43	131	22	0	21	***27***	***108***	$
23	SPRINGFIELD	PLAINFIELD STREET (ROUTE 20A) / MAIN STREET / CAREW STREET (ROUTE 20A) / ST GEORGE STREET	54	130	19	0	35	***19***	***120***	$
24	WILBRAHAM	BOSTON ROAD (ROUTE 20) / STONY HILL ROAD	80	128	12	0	68	***13***	***131***	%
25	SPRINGFIELD	BERKSHIRE AVENUE / COTTAGE STREET / BABBIN STREET	35	128	21	1	13	***73***	***77***	#
26	CHICOPEE	MEMORIAL DRIVE (ROUTE 33) / LAUZIER TERRACE / CURRY HONDA DRIVEWAY	44	124	20	0	24	-	-	#
27	CHICOPEE	MEMORIAL DRIVE (ROUTE 33) / STOP AND SHOP DRIVEWAY / HOME DEPOT DRIVEWAY	67	123	14	0	53	***7***	***145***	#
28	SPRINGFIELD	STATE STREET / CHESTNUT STREET / MAPLE STREET	46	122	19	0	27	-	-	$
29	SPRINGFIELD	ROOSEVELT AVENUE / BAY STREET	44	120	19	0	25	***37***	***102***	$
30	SPRINGFIELD	STATE STREET / BENTON STREET / GAUCHER STREET	40	120	20	0	20	-	-	$
31	HOLYOKE	MAPLE STREET / RESNIC BOULEVARD	47	119	18	0	29	***47***	***91***	#
32	HOLYOKE	MAIN STREET (ROUTE 116 AND ROUTE 141) / CABOT STREET (ROUTE 116 AND ROUTE 141) / MAIN STREET / CABOT STREET	58	118	15	0	43	***10***	***142***	%
33	SPRINGFIELD	STATE STREET / ORLEANS STREET	37	117	20	0	17	-	-	$

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34	SPRINGFIELD	BOSTON ROAD / ARNOLD AVENUE / COVINGTON STREET	40	116	19	0	21	-	-	%
35	GRANBY	WEST STATE STREET (ROUTE 202) / PLEASANT STREET / AMHERST STREET	66	114	12	0	54	***57***	***88***	$
36	SPRINGFIELD	PAGE BOULEVARD (ROUTE 20) / CADWELL DRIVE / ROBBINS ROAD	49	113	16	0	33	***12***	***135***	@
37	SPRINGFIELD	MAPLE STREET / UNION STREET / E PARK STREET	40	112	18	0	22	***67***	***81***	%
38	SPRINGFIELD	PAGE BOULEVARD (ROUTE 20) / BERKSHIRE AVENUE / SENECA STREET	42	110	17	0	25	***55***	***90***	%
39	CHICOPEE	GRATTAN STREET (ROUTE 141) / MCKINSTRY AVENUE / DALE STREET	38	110	18	0	20	***58***	***87***	$
40	SPRINGFIELD	LIBERTY STREET / GENESSEE STREET	30	110	20	0	10	-	-	%
41	CHICOPEE	CENTER STREET (ROUTE 116) / WEST STREET / HAMPDEN STREET	56	108	13	0	43	***40***	***100***	%
42	NORTHAMPTON	PLEASANT STREET (ROUTE 5) / CONZ STREET	51	107	14	0	37	***51***	***90***	$
43	SPRINGFIELD	ALLEN STREET / COOLEY STREET	51	107	14	0	37	***5***	***150***	@
44	HOLYOKE	LOWER WESTFIELD ROAD / HOLYOKE STREET / WHITING FARMS ROAD	50	106	14	0	36	***31***	***105***	%
45	SPRINGFIELD	CAREW STREET (ALT ROUTE 20) / ARMORY STREET	34	106	18	0	16	-	-	%
46	SPRINGFIELD	SUMNER AVENUE / ALLEN STREET / HARKNESS AVENUE / ABBOTT STREET	37	105	17	0	20	***33***	***104***	$
47	HOLYOKE	HOMESTEAD AVENUE (ROUTE 202) / WESTFIELD ROAD (ROUTE 202) / HOMESTEAD AVENUE / WESTFIELD ROAD	56	104	12	0	44	***50***	***90***	$
48	NORTHAMPTON	NORTH KING STREET (ROUTE 5 AND ROUTE 10) / KING STREET (ROUTE 5 AND ROUTE 10) / BRIDGE ROAD / DAMON ROAD	49	101	13	0	36	***23***	***113***	#
49	AMHERST	NORTHAMTPON ROAD (ROUTE 9 AND ROUTE 116) / UNIVERSITY DRIVE / SNELL STREET	32	100	17	0	15	-	-	#
50	HADLEY	RUSSELL STREET (ROUTE 9) / N MAPLE STREET / S MAPLE STREET	51	99	12	0	39	-	-	#

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51	HOLYOKE	DWIGHT STREET / MAPLE STREET	46	98	13	0	33	-	-	#
52	SPRINGFIELD	SUMNER AVENUE / WHITE STREET	38	98	15	0	23	***91***	***68***	#
53	SPRINGFIELD	BELMONT AVENUE / OAKLAND STREET	37	97	15	0	22	-	-	#
54	EAST LONGMEADOW	NORTH MAIN STREET (ROUTE 83) / MAPLESHADE AVENUE / WESTWOOD AVENUE	67	95	7	0	60	***25***	***109***	%
55	SPRINGFIELD	BRADLEY ROAD / BRECKWOOD BOULEVARD / WILBRAHAM ROAD	34	94	15	0	19	***17***	***122***	%
56	LUDLOW	CENTER STREET (ROUTE 21) / LUDLOW AVENUE (ROUTE 21) / EAST STREET / PARK PLACE	41	93	13	0	28	-	-	%
57	HOLYOKE	BEECH STREET (ROUTE 202) / RESNIC BOULEVARD / WEST FRANKLIN STREET	56	92	9	0	47	***49***	***90***	%
58	SPRINGFIELD	ALDEN STREET / WALNUT STREET / HANCOCK STREET / ASHLEY STREET	43	91	12	0	31	***45***	***93***	#
59	SPRINGFIELD	MAIN STREET / LONGHILL STREET	35	91	14	0	21	-	-	@
60	SPRINGFIELD	STATE STREET / SCHOOL STREET / SPRING STREET	34	90	14	0	20	-	-	$
61	SPRINGFIELD	BOSTON ROAD / HARVEY STREET	37	89	13	0	24	-	-	%
62	SPRINGFIELD	SUMNER AVENUE / ALLEN STREET / CLEMENT STREET / POWELL AVENUE	33	89	14	0	19	-	-	$
63	SPRINGFIELD	CAREW STREET (ROUTE 20A) / DWIGHT STREET	29	89	15	0	14	***38***	***102***	%
64	SPRINGFIELD	SUMNER AVENUE (ROUTE 83) / OAKLAND STREET	25	89	16	0	9	-	-	#
65	WEST SPRINGFIELD	RIVERDALE STREET (ROUTE 5) / MORGAN ROAD / DAGGETT DRIVE	56	88	8	0	48	***9***	***143***	$
66	SPRINGFIELD	MAIN STREET / STATE STREET	38	86	12	0	26	***86***	***70***	$
67	WESTFIELD	SPRINGFIELD ROAD (ROUTE 20) / E MOUNTAIN ROAD	29	86	12	1	16	-	-	%

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68	LUDLOW	CENTER STREET (ROUTE 21) / CHERRY STREET	48	84	9	0	39	***62***	***83***	#
69	WEST SPRINGFIELD	RIVERDALE STREET (ROUTE 5) / EAST ELM STREET	28	84	14	0	14	***79***	***73***	#
70	SPRINGFIELD	SUMNER AVENUE (ROUTE 83) / FOREST PARK AVENUE	28	84	14	0	14	-	-	%
71	SPRINGFIELD	BOSTON ROAD / WALMART SUPER CENTER DRIVEWAY	37	81	11	0	26	***52***	***90***	%
72	CHICOPEE	MEMORIAL DRIVE (ROUTE 33) / JAMES STREET	33	81	12	0	21	***66***	***81***	%
73	SPRINGFIELD	WILBRAHAM ROAD / ALDEN STREET / INSURANCE ROAD	36	80	11	0	25	***53***	***90***	%
74	HOLYOKE	NORTHAMPTON STREET (ROUTE 5) / WHITING FARMS ROAD	32	80	12	0	20	-	-	%
75	WEST SPRINGFIELD	RIVERDALE STREET (ROUTE 5) / ASHLEY AVENUE	32	80	12	0	20	***56***	***89***	#
76	SPRINGFIELD	CHESTNUT STREET / CUMBERLAND STREET / BAYSTATE HOSPITAL DRIVEWAY	28	80	13	0	15	-	-	$
77	SPRINGFIELD	ROOSEVELT AVENUE / WILBRAHAM ROAD	27	79	13	0	14	***68***	***81***	%
78	SPRINGFIELD	DWIGHT STREET / WORTHINGTON STREET	30	78	12	0	18	***61***	***85***	@
79	WESTFIELD	FRANKLIN STREET (ROUTE 20) / MAPLE STREET / SUMNER STREET	30	78	12	0	18	-	-	$
80	SPRINGFIELD	LIBERTY STREET / NEWBURY STREET / ROY STREET / TACOMA STREET	26	78	13	0	13	-	-	%
81	EAST LONGMEADOW	NORTH MAIN STREET (ROUTE 83) / HARKNESS AVENUE	48	76	7	0	41	***21***	***115***	%
82	HOLYOKE	MAIN STREET (ROUTE 141) / APPLETON STREET / CRESCENT STREET	32	76	11	0	21	-	-	%
83	HOLYOKE	BEECH STREET (ROUTE 202) / APPLETON STREET	30	74	11	0	19	-	-	%
84	CHICOPEE	CHICOPEE STREET (ROUTE 116) / CHESTER STREET / MEADOW STREET / WILSON AVENUE	30	74	11	0	19	-	-	%

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85	SPRINGFIELD	BAY STREET / BERKSHIRE AVENUE	33	73	10	0	23	***71***	***79***	#
86	SPRINGFIELD	SUMNER AVENUE (ROUTE 83) / BEECHWOOD AVENUE / FORT PLEASANT AVENUE	25	73	12	0	13	-	-	%
87	HOLYOKE	APPLETON STREET / HIGH STREET	32	72	10	0	22	-	-	#
88	CHICOPEE	CHICOPEE STREET (ROUTE 116) / PROSPECT STREET / ERLINE STREET	39	71	8	0	31	***83***	***72***	%
89	HOLYOKE	NORTHAMPTON STREET (ROUTE 5) / HAMPDEN STREET (ROUTE 141)	27	71	11	0	16	***24***	***109***	%
90	PALMER	THORNDIKE STREET (ROUTE 32) / WARE STREET (ROUTE 32) / HIGH STREET	29	70	8	1	20	-	-	%
91	WESTFIELD	EAST MAIN STREET (ROUTE 20) / SPRINGFIELD ROAD (ROUTE 20) / UNION STREET	29	69	10	0	19	***99***	***66***	%
92	SPRINGFIELD	ALLEN STREET / BRIDLE PATH ROAD / NEW HOUSE STREET	24	68	11	0	13	-	-	%
93	CHICOPEE	MEMORIAL DRIVE (ROUTE 33) / GRANBY ROAD / WESTOVER ROAD	47	67	5	0	42	***77***	***74***	#
94	SPRINGFIELD	PAGE BOULEVARD (ROUTE 20) / BIRCHAM STREET / CARLOS STREET	19	67	12	0	7	-	-	%
95	AGAWAM	NORTH WESTFIELD STREET (ROUTE 187) / SOUTH WESTFIELD STREET (ROUTE 187 AND ROUTE 57) / SPRINGFIELD STREET (ROUTE 147) / SOUTHWICK STREET (ROUTE 57)	42	66	6	0	36	***82***	***72***	#
96	WESTFIELD	NORTH ELM STREET (ROUTE 10 AND ROUTE 202) / NOTRE DAME STREET	38	66	7	0	31	-	-	$
97	WEST SPRINGFIELD	WESTFIELD STREET (ROUTE 20) / NORTH BOULEVARD / SOUTH BOULEVARD	30	66	9	0	21	***70***	***79***	$
98	SPRINGFIELD	ALLEN STREET / BRADLEY ROAD	26	66	10	0	16	-	-	%
99	HOLYOKE	HAMPDEN STREET (ROUTE 141) / PLEASANT STREET	22	66	11	0	11	-	-	%
100	SPRINGFIELD	CHESTNUT STREET / LIBERTY STREET	27	63	9	0	18	-	-	%

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@ Planning Study Completed,
% No Planned Improvements

ROTARIES

There are a total of nine rotaries in the Pioneer Valley region. A rotary is defined as an intersection where traffic flows in a circular pattern around a large center island. The diameter of the center island is usually much bigger than the diameter of a similar type of intersection called a roundabout. The larger diameter allows for higher speeds while traversing the rotary. The traffic approaching the weaving section traditionally yields to the existing traffic in the circular path. A combination of high traffic volumes, confusing layout and high travel speeds contribute to congestion and safety problems at many existing rotaries. The nine rotaries have been separated from the top high crash intersections list due to their different operational characteristics and in some cases high crash and equivalent property damage totals.

The Agawam Route 5 / Route 57 rotary ranks as the top high crash rotary as a result of a high EPDO score of 413 (2011-2013 Total Crashes – 249). The Armory Street rotary in Springfield had almost half the number of crashes however the EPDO score was nearly equivalent as a result of a high number of personal injury crashes. The complex intersection of the seven roadways that comprise the East Longmeadow rotary had the third highest EPDO score for rotaries in the Pioneer Valley.

MassDOT installed new pavement markings and warning signs along the approaches and weaving sections of the Agawam Route 5 / Route 57 rotary in August 2012. These measures were expected to improve safety at this location. The current analysis period covers the time before the installation, during the installation and after the new pavement markings were installed, therefore the exact impact of the new pavement markings cannot be determined based on this analysis. However, it is worth noting that even though there isn't much difference in the total number of crashes at this location from the previous version of the report (2007- 2009 Crashes 250, EPDO 490), the EPDO number has been reduced significantly, which indicates that the severity of the crashes has been reduced.

Table 4: Crashes at the Rotaries in the Pioneer Valley Region (2011 – 2013)

RANK	COMMUNITY	LOCATION	EPDO*	TOTAL CRASHES	Previous Rank	Previous EPDO	2011			2012			2013		
							Fatal	Injury	Property Damage	Fatal	Injury	Property Damage	Fatal	Injury	Property Damage
1	AGAWAM	SOUTH END BRIDGE (ROUTE 5) / HENRY E BODURTHA HIGHWAY (ROUTE 57) / ROUTE 5 / MEADOW STREET	413	249	1	490	0	13	74	0	13	49	0	15	85
2	SPRINGFIELD	ARMORY STREET / LIBERTY STREET / STAFFORD STREET	410	140	3	350	1	21	31	0	22	28	0	22	16
3	EAST LONGMEADOW	NORTH MAIN STREET (ROUTE 83) / SOMERS ROAD (ROUTE 83) / SHAKER ROAD (ROUTE 220) / PROSPECT STREET (ROUTE 186) / MAPLE STREET / PLEASANT STREET / ELM STREET	244	164	4	194	0	5	51	0	5	47	0	10	46
4	WEST SPRINGFIELD	RIVERDALE STREET (ROUTE 5) / PARK AVENUE (ROUTE 20) / PARK STREET (ROUTE 20)	163	103	2	350	0	5	26	0	4	27	0	6	35
5	SOUTH HADLEY	PURPLE HEART DRIVE (ROUTE 202) / NORTH MAIN STREET	76	40	7	70	0	5	16	0	0	0	0	4	15
6	HOLYOKE	BEECH STREET (ROUTE 202) / MUELLER BRIDGE (ROUTE 202) / LYMAN STREET / HAMPDEN STREET	62	34	6	139	0	1	11	0	5	6	0	1	10
7	WEST SPRINGFIELD	RIVERDALE STREET (ROUTE 5) / MEMORIAL AVENUE (ROUTE 147)	61	41	5	178	0	2	17	0	2	11	0	1	8
8	EASTHAMPTON	MAIN STREET (ROUTE 10) / NORTHAMPTON STREET (ROUTE 10) / PLEASANT STREET	31	19	8	33	0	0	8	0	2	5	0	1	3
9	WESTFIELD	MONTGOMERY STREET / POCHASSIC STREET / PARKER AVENUE	11	3	9	2	0	0	1	0	0	0	0	2	0

*EPDO Equivalent Property Damage Only (Fatal Crash = 10, Injury Crash = 5, Property Damage Crash = 1)

Source: PVPC

THE TOP 10 BICYCLE AND PEDESTRIAN CRASH CLUSTERS

The Pioneer Valley Planning Commission has undertaken various projects to promote alternative modes of transportation and support sustainability and livability in the region. The transportation safety and security of non-motorists is one of the primary concerns for planners and policy makers alike. Crashes of motor vehicles with bicyclists, pedestrians, and other non-motorists create unsafe travelling conditions for people utilizing these modes of transportation and can impact one's decision to travel via an alternate mode. To identify locations in the region where there is an increased prevalence of these types of crashes, PVPC has analyzed the top 10 bicycle and pedestrian (bike/ped) crash clusters in the region. These crashes also include modes like wheelchairs, skaters, pedal cyclists and any other form of non-motorized transportation. MassDOT data categorizes bicycle crashes under the title of 'Pedalcyclist', which includes all types of unicycles, bicycles, tricycles, and pedal cars.

To produce the top 10 bike/ped crash clusters, crash data for 10 years (2003-2013) was utilized because of the lower number of these crashes. GIS tools were also used to develop a cluster analysis method similar to MassDOT's method. The clusters are based on the 2003-2013 geocoded crashes.

Methodology

As described by MassDOT, the cluster analysis method is based on a 25 meter fixed search radius around each crash. This radius controls how far the application will search for adjacent crashes. Using a 25 meter radius, the analysis method found nearby crashes and merged their areas together into clusters. If two distinct clusters are found to share a common crash, the two clusters are merged into a single cluster. This method of search-and-merge results in a set of many distinct clusters of different sizes. The application then stores these clusters to a GIS output file, along with a count of crashes and all the other information related to individual crashes within each cluster.

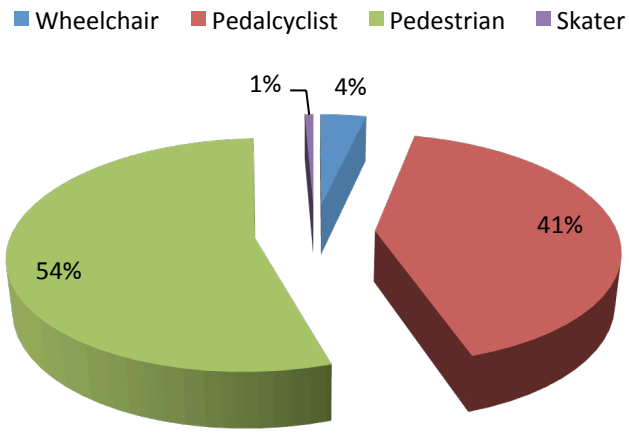
Ranking

The top 10 clusters were listed by their calculated Equivalent Property Damage Only (EPDO) score within their boundaries. These clusters were found to be of varying lengths with a different number of travel lanes and sometimes comprising different roadways at an intersection. The idea was to identify a generalized location that could have a higher potential for conflict between motor vehicles and non-motorists.

Statistics

From 2003 -2013 there were over three thousand crashes (3,343) in the Pioneer Valley that involved non-motorists. Pedestrians and Pedalcyclists constitute an overwhelming majority of those crashes. The City of Springfield had more than 700 hundred crashes, followed by Holyoke and Chicopee.

Figure 2: Non-Motorized Crashes in the Pioneer Valley



Source: MassDOT Crash Portal

Elm Street in Northampton, in the vicinity of Smith College and the intersection of Route 9 with Route 10, is the top non-motorized crash cluster in the region. The City of Westfield has 5 bike/ped crash clusters and Northampton has 2 in the top 10 listing. The Elm Street – Main Street corridor in Northampton and Elm Street Corridor in the vicinity of center in Westfield are also listed among the top Bicycle crash clusters in the State. A combination of several factors such as the total number of pedestrians, bicycle users, severity of crashes, vehicle travel speeds, and crosswalk locations contributes towards the total non-motorized crashes along these roads.

Transportation improvements have been implemented at 8 of the 10 bike/ped crash clusters. All 5 crash clusters in the City of Westfield will benefit from a recently completed transportation improvement project along Main Street, Broad Street and Elm Street. Northampton has completed one project and has another included as part of the Transportation Improvement Program (TIP) that will improve safety. Similarly, a recently completed improvement project for the State Street corridor improved the area in the vicinity of State Street, Oak Street, and Magazine Street. A roadway safety audit was recently conducted for the intersection of Mill Street with Locust Street and developed a series of recommendations to improve safety.

Figure 3: Top 10 Bike/Ped Crash Clusters in the Pioneer Valley Region

Table 5: Top 10 Non-Motorized Crash Clusters in the Pioneer Valley (2003 – 2013)

Rank	Community	Roadway	Total Crashes	Total EPDO#	Severity			Type of Non-Motorist				Status^
					Injury	Fatality	Property Damage	Pedestrian	Pedalcyclist*	Wheelchair	Skater	
1	Northampton	Elm Street and New South Street - in the vicinity of the Academy of Music and bus stop	23	120	22	1	0	16	7			$,#
2	Westfield	Main Street - in the vicinity of its intersections with Free Street and Mechanic Street	20	88	17	0	3	9	11			$
3	Westfield	Elm Street and Arnold Street - in the vicinity of its intersections with Church Street, Thomas Street, Chapel Street and Deweys Court	18	82	16	0	2	7	11			$
4	Springfield	Mill Street and Locust Street - in the vicinity of their intersection with Fort Pleasant Avenue	14	70	14	0	0	3	11			@
5	Northampton	Main Street and Pleasant Street - in the vicinity of King Street (Route 5) and Gothic Street	14	67	11	1	2	1	13			#
6	Holyoke	Main Street - in the vicinity of its intersection with Cabot Street	11	56	9	1	1	10	1			$
7	Springfield	Saint James Avenue - in the vicinity of its intersections with State Street, Bay Street, Oak Street, and Magazine Street	11	51	10	0	1	7	4			$
8	Westfield	Elm Street - in the vicinity of its intersection with Orange Street	10	46	9	0	1	7	2	1		$
9	Westfield	Franklin Street - in the vicinity of its intersection with Summer Street and Maple Street	10	46	9	0	1	5	5			$
10	Westfield	Elm Street - in the vicinity of intersections with Franklin Street and Bartlett Street	13	45	8	0	5	7	5		1	$

*Pedalcyclist - Bicycle, tricycle, Unicycle, Pedal Car # EPDO - Equivalent Property Damage Only (Fatality -10, Injury - 5, Property Damage - 1)

^Status - $ Transportation Improvement Project Completed, # Project on Transportation Improvement Program/Proposed Local Project, @ - Planning Study Completed

Table 6: Yearly Number of Crashes within Top Non-Motorized Crash Clusters

Rank	Community	Roadway	Total Crashes	Crashes per Year										
				2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Northampton	Elm Street and New South Street - in the Vicinity of the Academy of Music and bus stop	**23**	2	3	2	4	2	3	2	1	0	2	2
2	Westfield	Main Street - in the vicinity of Intersections with Free Street and Mechanic Street	**20**	1	3	3	1	1	2	4	2	0	1	2
3	Westfield	Elm Street and Arnold Street - in the vicinity of intersections with Church Street, Thomas Street, Chapel Street and Deweys Court	**18**	1	3	1	4	2	2	0	3	1	1	0
4	Springfield*	Mill Street and Locust Street - in the Vicinity of the intersection with Fort Pleasant Street	**14**	0	0	0	0	1	0	0	0	2	6	5
5	Northampton	Main Street and Pleasant Street - in the vicinity of Intersections with King Street (Route 5) and Gothic Street	**14**	0	1	2	0	2	2	1	0	1	3	2
6	Holyoke	Main Street - in the vicinity of the intersection with Cabot Street	**11**	1	0	1	0	1	0	2	0	3	2	1
7	Springfield*	Oak Street - in the vicinity of intersections with State Street, Bay Street and Magazine Street	**11**	0	0	0	0	0	0	0	0	5	2	4
8	Westfield	Elm Street - in the vicinity of the intersection with Orange Street	**10**	2	2	1	1	0	2	0	0	1	1	0
9	Westfield	Franklin Street - in the vicinity of intersections with Summer Street and Maple Street	**10**	1	1	1	0	1	1	0	0	1	3	1
10	Westfield	Elm Street - in the vicinity of intersections with Franklin Street and Bartlett Street	**13**	3	1	4	0	0	0	0	1	2	1	1

* Crash Data for the City of Springfield was under reported until the year 2011

Table 7: Total Non-Motorized Crashes by Communities

No.	Community	Total Crashes	Total Non-Motorized Fatal Crashes	2014 Population Total	Crashes per 1,000/population	Fatalities per 10,000/population
1	AGAWAM	125	2	28,728	4.35	0.07
2	AMHERST	127	4	39,826	3.19	0.10
3	BELCHERTOWN	19	1	14,858	1.28	0.07
4	BLANDFORD	4	0	1,256	3.18	0
5	BRIMFIELD	2	0	3,723	0.54	0
6	CHESTER	2	0	1,365	1.47	0
7	CHESTERFIELD	1	0	1,249	0.80	0
8	CHICOPEE	430	6	56,545	7.60	0.11
9	CUMMINGTON	0	0	873	0	0
10	EAST LONGMEADOW	96	2	16,119	5.96	0.12
11	EASTHAMPTON	55	0	16,054	3.43	0
12	GOSHEN	1	0	1,070	0.93	0.00
13	GRANBY	18	1	6,339	2.84	0.16
14	GRANVILLE	0	0	1,620	0	0
15	HADLEY	55	3	5,340	10.30	0.56
16	HAMPDEN	6	0	5,197	1.15	0.00
17	HATFIELD	1	0	3,293	0.30	0
18	HOLLAND	1	0	2,502	0.40	0
19	HOLYOKE	493	3	40,660	12.12	0.07
20	HUNTINGTON	2	0	2,181	0.92	0
21	LONGMEADOW	51	2	15,877	3.21	0.13
22	LUDLOW	91	2	21,395	4.25	0.09
23	MIDDLEFIELD	0	0	529	0	0
24	MONSON	12	2	8,754	1.37	0.23
25	MONTGOMERY	3	0	860	3.49	0
26	NORTHAMPTON	297	6	28,535	10.41	0.21
27	PALMER	78	4	12,180	6.40	0.33
28	PELHAM	1	0	1,328	0.75	0
29	PLAINFIELD	0	0	650	0	0
30	RUSSELL	1	0	1,787	0.56	0
31	SOUTH HADLEY	58	1	17,721	3.27	0.06
32	SOUTHAMPTON	9	0	6,082	1.48	0
33	SOUTHWICK	26	0	9,690	2.68	0.00
34	SPRINGFIELD	743	37	154,204	4.82	0.24
35	TOLLAND	0	0	492	0	0
36	WALES	4	2	1,878	2.13	1.06
37	WARE	51	0	9,888	5.16	0
38	WEST SPRINGFIELD	104	9	28,624	3.63	0.31
39	WESTFIELD	325	10	41,608	7.81	0.24
40	WESTHAMPTON	1	0	1,636	0.61	0
41	WILBRAHAM	46	1	14,502	3.17	0.07
42	WILLIAMSBURG	4	0	2,474	1.62	0
43	WORTHINGTON	0	0	1,180	0	0

Source: MassDOT Crash Portal, 2014 Census Population Projections

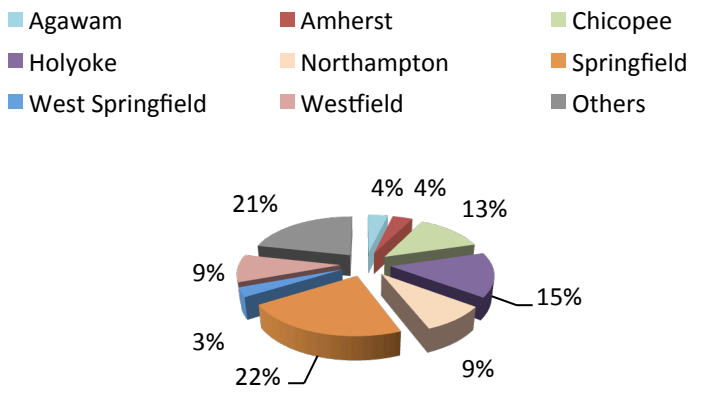
Non-Motorized Crashes within Communities

The City of Springfield experienced the greatest number of non-motorized crashes within the region (743, 22% of total crashes in the region). However, when population is factored in to compare the number of non-motorized crashes and fatalities per 1,000 people, Springfield has the ninth highest rate of non-motorized crashes per 1,000 people and is tied with the City of Westfield for the fifth highest rate of non-motorized fatalities per 10,000 people.

Holyoke, Northampton, Hadley, Westfield, and Chicopee are the top five communities in the Pioneer Valley with highest number of crashes per 1000 people. Wales, Hadley, Palmer, West Springfield, Westfield, and Springfield are the top five communities with highest number of fatalities per 10,000 people.

The Town of Wales stands out as a unique case of a rural community with a high rate of non-motorized fatalities per 10,000 people. Hadley, Palmer, and Ware are three other rural communities with higher non-motorized crash frequency based on their population.

Figure 4: Percentage Distribution of Non-Motorized Crashes within Pioneer Valley Communities

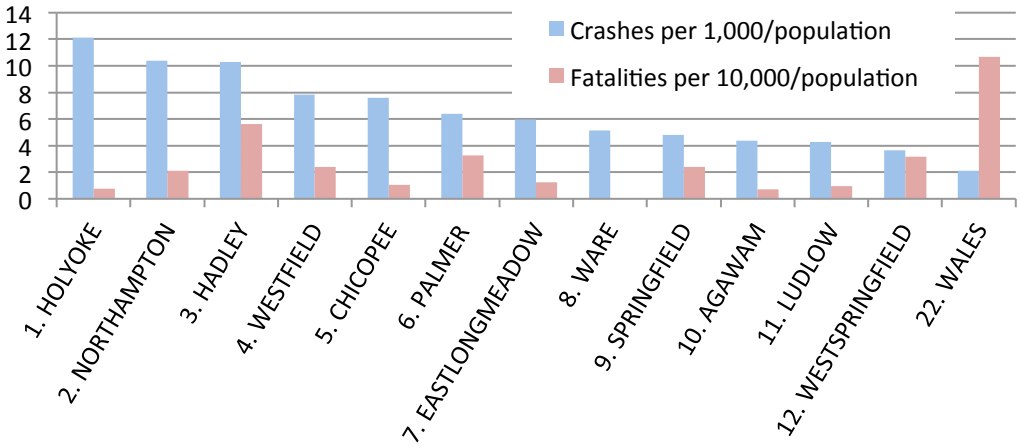


Source: MassDOT Crash Portal, PVPC

Non-Motorized Fatalities

A total of 98 crashes involving non-motorists resulted in a fatality during the analysis period. The most fatal crashes occurred in the City of Springfield followed by the City of Westfield. Out of the 43 communities in the region, 19 communities have experienced fatal non-motorized crashes within the analysis period.

Figure 5: Comparing population and frequency of non-motorized crashes and fatalities



Source: MassDOT Crash Portal, PVPC

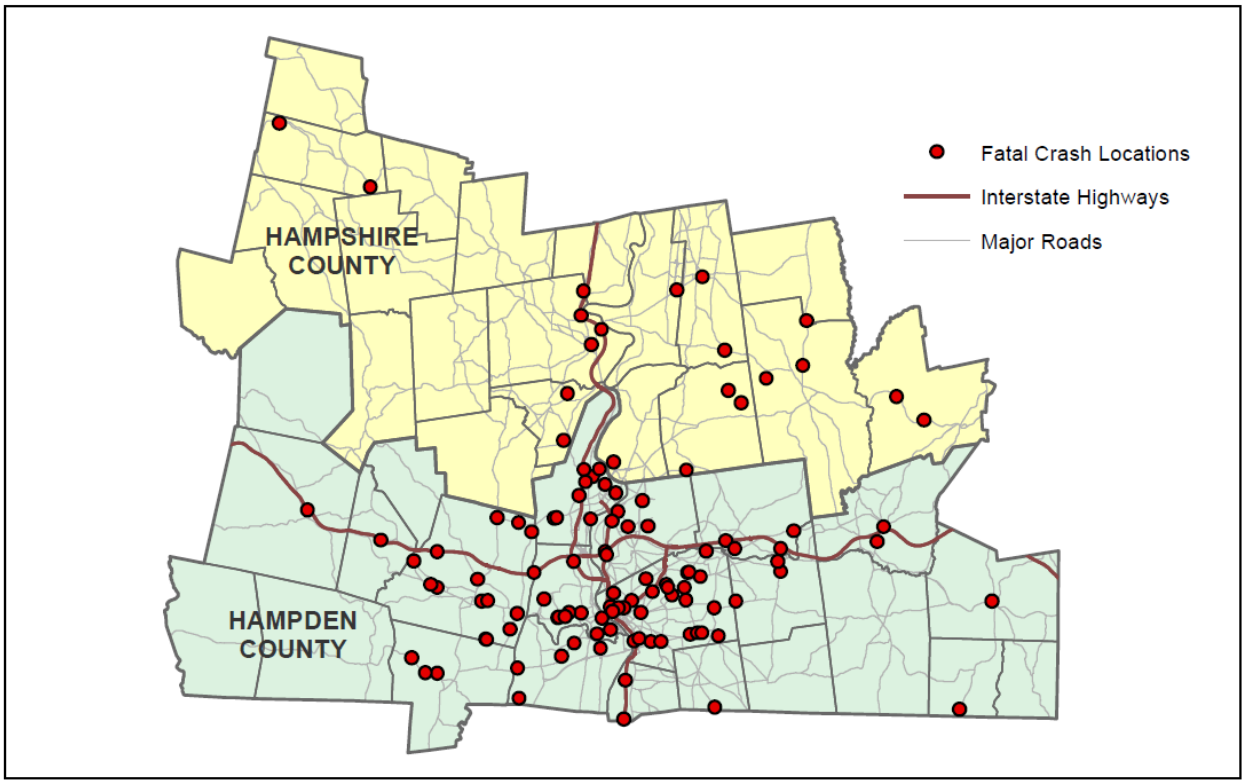
Table 8: Number of Non-Motorized Fatal Crashes in the Region

No.	Community	Total Fatal Crashes (2003 - 2013)
1	SPRINGFIELD	37
2	WESTFIELD	10
3	WEST SPRINGFIELD	9
4	NORTHAMPTON	6
5	CHICOPEE	6
6	PALMER	4
7	AMHERST	4
8	HADLEY	3
9	HOLYOKE	3
10	WALES	2
11	EAST LONGMEADOW	2
12	MONSON	2
13	AGAWAM	2
14	LONGMEADOW	2
15	LUDLOW	2
16	WILBRAHAM	1
17	GRANBY	1
18	BELCHERTOWN	1
19	SOUTH HADLEY	1
	TOTAL	**98**

Source: MassDOT Crash Portal, PVPC

Fatal Crashes

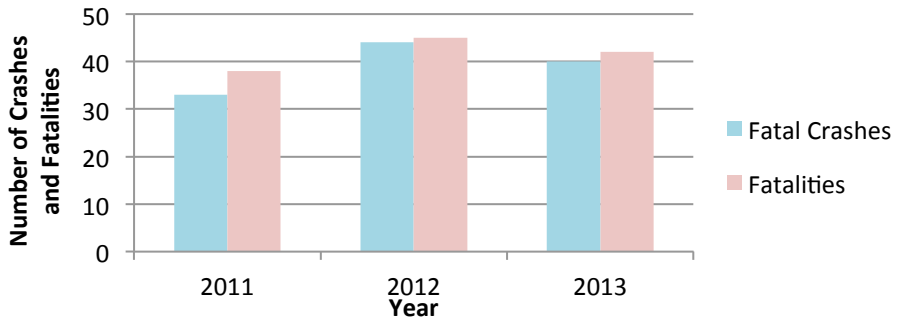
Figure 6: Fatal Crashes in the Pioneer Valley



Source: MassDOT Crash Portal, PVPC

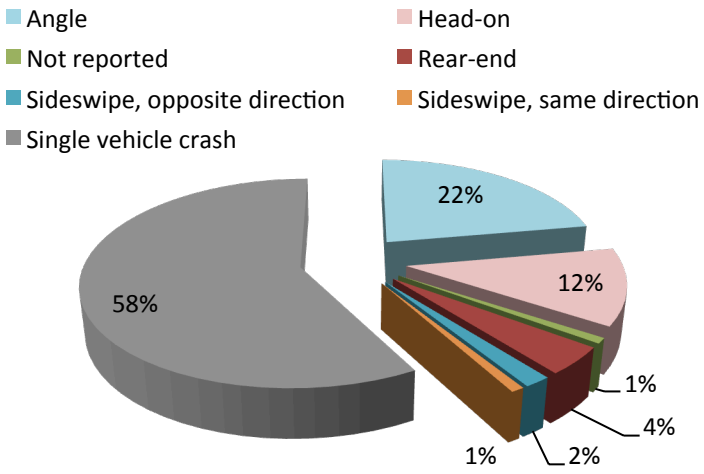
A total of 117 fatal crashes occurred in the Pioneer Valley during the calendar years of 2011, 2012, and 2013 resulting in 125 fatalities. Nearly 60% (68 out of 117) of these crashes were single vehicle crashes. A majority of fatal crashes occurred within the urban core in Hampden County.

Figure 7: Yearly Fatal Crashes and Fatalities in the Pioneer Valley



Source: MassDOT Crash Portal, PVPC

Figure 8: Manner of Collision of Fatal Crashes



Source: MassDOT Crash Portal, PVPC

Statewide Trends

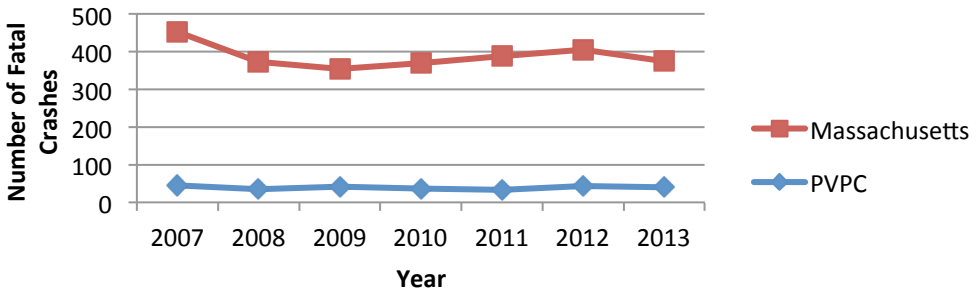
The rate of fatal crashes in the region has remained fairly steady even though the number of fatal crashes within the State has declined significantly since 2007. Fatal crashes have decreased by 18% statewide since 2007 but only by 11% in the Pioneer Valley region.

Table 9: Fatal Crashes over the Years

	Number of Fatal Crashes						
Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
PVPC	45	35	41	37	33	44	40
Massachusetts	408	338	313	333	356	362	334

Source: MassDOT Crash Portal

Figure 9: Fatal Crash Trends



Source: MassDOT Crash Portal, PVPC

Fatal Crashes within each Community

As mentioned earlier, cities within the urban core experienced the highest number of fatal crashes. The total fatal crashes by each community that experienced a fatal crash from 2011-2013 are shown in Table 9. The continuing steady trend of fatal crashes in the region is an area of concern. The PVPC will continue to work closely with MassDOT and local communities to identify potential safety countermeasures to reduce fatal and serious injury crashes in the region.

Table 10: Fatal Crashes within Pioneer Valley Communities

		Year			Total Fatal Crashes
No.	Community	2011	2012	2013	
1	AGAWAM	3	1	1	5
2	AMHERST	1		1	2
3	BELCHERTOWN	1	1		2
4	BLANDFORD			1	1
5	BRIMFIELD			1	1
6	CHICOPEE		5	2	7
7	CUMMINGTON			2	2
8	EAST LONGMEADOW		1		1
9	EASTHAMPTON	1		1	2
10	GRANBY	1	1	1	3
11	HADLEY		1		1
12	HOLYOKE	3	2	5	10
13	LONGMEADOW			2	2
14	LUDLOW		2	2	4
15	MONSON	1			1
16	NORTHAMPTON	1	4	1	6
17	PALMER	1	1		2
18	PELHAM		1		1
19	RUSSELL			1	1
20	SOUTH HADLEY		1		1
21	SOUTHWICK	1	1	1	3
22	SPRINGFIELD	8	9	10	27
23	WALES		1		1
24	WARE	1		1	2
25	WEST SPRINGFIELD	6	4	2	12
26	WESTFIELD	4	5	5	14
27	WILBRAHAM		3		3
	PVPC Region	**33**	**44**	**40**	**117**

Source: MassDOT Crash Portal

Crash Severity and Driver Age

Nearly 30% of all the crashes in the region resulted in an injury or a fatality from 2011-2013. The quality of reported data on crash severity has greatly improved since the release of PVPC's 2013 Top 100report and the number of "Not Reported" or "Unknown" severity crashes has decreased from 8.24% to 6.2%.

Table 11: Crash Severity Break-up

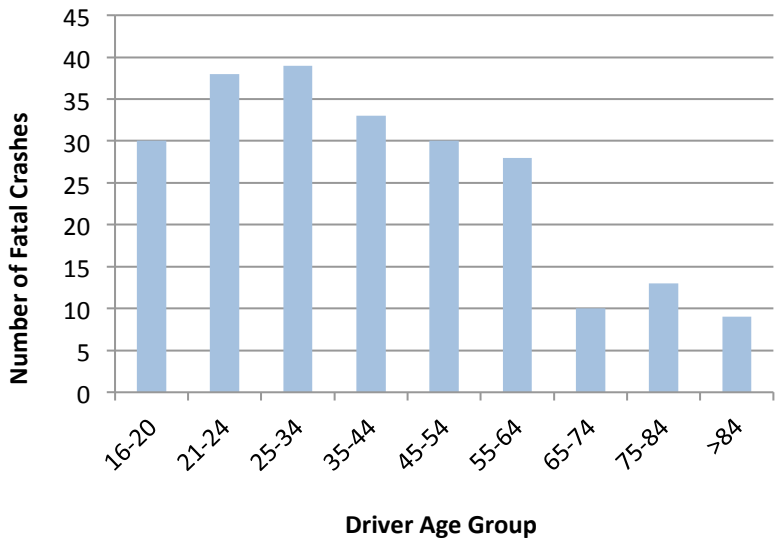
	2011	2012	2013	Total	Percentage
Fatal injury	33	44	40	117	0.27%
Non-fatal injury	4,545	4,279	4,049	12,873	29.22%
Property Damage	10,075	9,177	9,048	28,300	64.24%
Unknown	966	1,004	794	2,764	6.27%
Total	**15,619**	**14,504**	**13,931**	**44,054**	

Source: MassDOT Crash Portal

PVPC obtained information on crash severity and driver age using the MassDOT crash data portal. The youngest known driver age and the oldest known drive age were both combined to obtain the total number of drivers involved in crashes within each age group.

Young drivers between the ages of 21 to 34 years old were found to be involved in the highest number of fatal crashes. Older drivers (>65) were comparatively less involved in crashes leading to fatalities. Similar trends were observed in non-fatal crashes where drivers between the ages of 25 to 34 years old experienced the most crashes resulting in an injury or property damage.

Figure 10: Drivers Involved in Fatal Crashes 2011-2013



Source: MassDOT Crash Portal, PVPC

Figure 11: Drivers Involved in Non-Fatal Crashes 2011-2013

Source: MassDOT Crash Portal, PVPC

Crash Scores by Driver Age Group

Young drivers between the ages of 16 to 24 years old were found to be involved in the most crashes in the Pioneer Valley. This information is expressed by the frequency or number of crashes and does not take into account the number of licensed drivers in that respective age group. The possibility of a driver belonging to a particular age group getting involved in a crash is affected by the total number of drivers in that age group.

PVPC developed a "Crash Score" for each age group to reflect the probability of a driver from a specific age group having a crash in the Pioneer Valley. This crash score is the weighted average of the number of crashes per age group and the approximate number of drivers in that age group.

Table 12: Crash Score by Driver Age Group

Age Group	Crash Frequency	2014 Population*		Licensed Massachusetts Drivers**	Approximate Number of Drivers in Pioneer Valley	Crash Score by Age Group
		Massachusetts	Pioneer Valley			
16-24	21,011	866,385	104,977	549,529	66,585	0.316
25-34	17,464	866,385	104,977	549,529	66,585	0.262
35-44	13,187	930,402	75,804	849,660	69,226	0.190
45-54	13,464	837,732	69,664	794,775	66,092	0.204
55-64	9,493	986,611	85,974	930,716	81,103	0.117
65-74	4,632	885,298	83,497	813,932	76,766	0.060
75-84	2,390	562,796	52,639	503,033	47,049	0.051
>84	918	165,604	15,018	137,383	12,459	0.074

*Source: * Population Estimates 2014*

*** Federal Highway Administration 2014 Highway Statistics Series*

The information regarding the number of drivers in Hampshire and Hamden Counties was derived based on the number of licensed drivers in the State. Proportional distribution was assumed and numbers for each age group were derived based on the 2014 Census estimates of population for the Pioneer Valley.

Figure 12: Crash Frequency by Driver Age Group

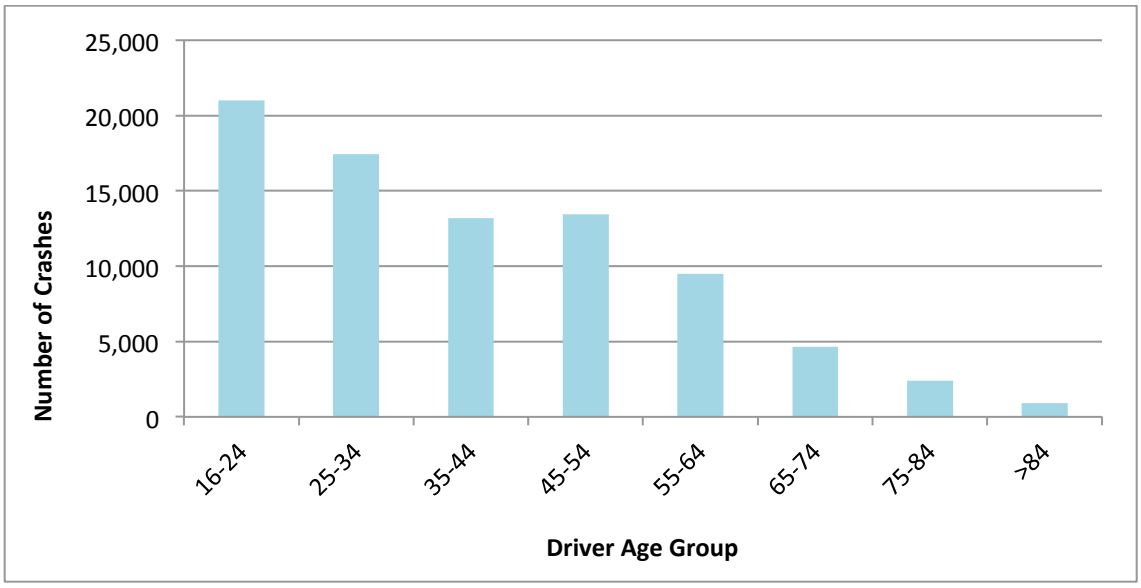
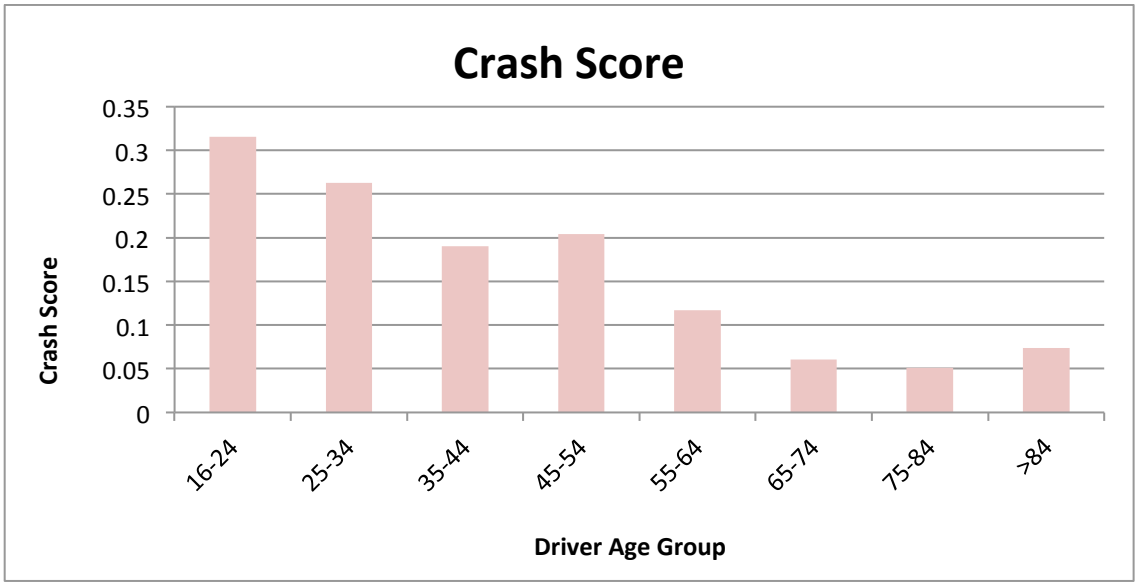


Figure 13: Crash Score by Driver Age Group



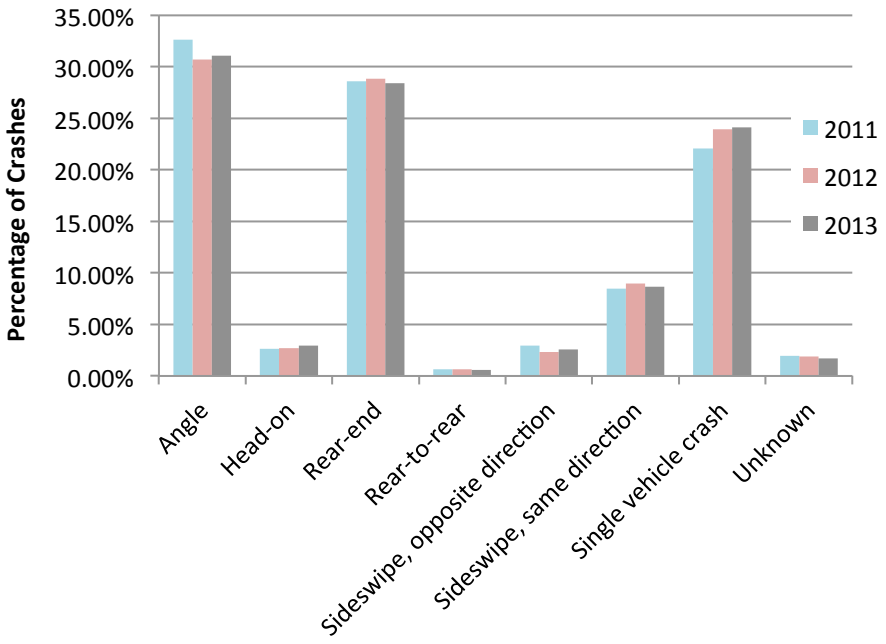
Source: MassDOT Crash Portal, Federal Highway Administration, PVPC

A graphical comparison of the frequency of crashes to the crash score by driver age group shows a similar trend. The only difference is the higher crash score for drivers older than 84 years old as the number of crashes for this age group is higher considering the approximate number of drivers belonging to this age group.

Manner of Collision

PVPC summarized the manner of collision, weather condition and road condition data for all reported crashes in the Pioneer Valley region in the MassDOT database from 2011-2013. The majority of all reported crashes were angle collisions (more than 30%). Rear-end crashes were a close second (more than 28%), followed by single vehicle crashes (nearly 24% for each year). There was not a significant disparity in the manner of collision between each of the calendar years.

Figure 14: Manner of Collision

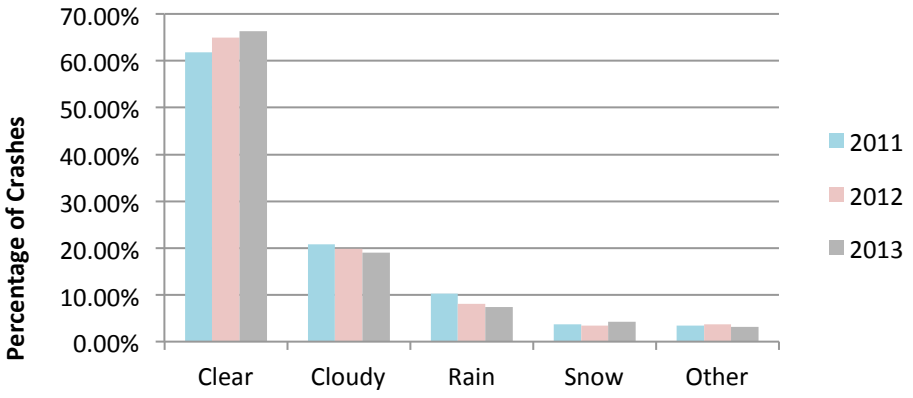


Source: MassDOT Crash Portal, PVPC

Weather and Road Condition

MassDOT data shows that more than 60% of crashes in the region occurred during clear weather and dry road conditions. Less than 14% of all crashes occurred during rainy and snowy conditions. In short, extreme weather and roadway conditions have not had a significant impact on the number of crashes.

Figure 15: Weather Condition



Source: MassDOT Crash Portal, PVPC

Table 13: Road Condition

Road Condition	Percentage of Crashes per Year		
	2011	2012	2013
Dry	64.73%	74.79%	73.02%
Wet	22.64%	17.68%	17.23%
Ice	3.96%	1.67%	2.41%
Snow	6.25%	3.87%	5.07%
Slush	0.78%	0.55%	0.54%
Other	1.64%	1.44%	1.73%

Source: MassDOT Crash Portal, PVPC

Less than 10% of crashes occurred along icy, snowy or slush impacted pavement. The roadway conditions table similarly indicates that a majority of crashes were not impacted by the condition of the road.

COMMENTS ON THE DRAFT REPORT

NO.	COMMENT	ENTITY	ACTION
1.	Document the change in number of non-motorist crashes along the top bike/ped crash clusters over the years	Joint Transportation Committee (JTC)	Added a table of yearly breakdown of crash data
2.	Add status column to Bike/Ped crash clusters table	Joint Transportation Committee (JTC)	Changes made to the table and additional text added to the description
3.	Top crash cluster in the Bike/Ped crash cluster column needs two symbols to depict the status	Planning Department, City of Northampton	Changes made to the table
4.	Miscellaneous remarks/questions from other communities that do not appear in the list about their crash data and transportation safety within their respective communities	Miscellaneous Community Representatives and Joint Transportation Committee (JTC) members	New project included in the work program to help identify high crash intersections within other communities outside the urban core
5.	Change in the status of top high crash intersection number 79. in Westfield was requested to reflect the recently completed project	Department of Public Works (DPW), Westfield	Changes made to the table
6.	Change in the status of 11 intersections in the City of Springfield was requested. The ranks of those intersections were 7,10,12,16,20,52,53,58,62,64, and 85	Department of Public Works (DPW), Springfield	Changes made to the table