



Top 100 High Crash Intersections in the Pioneer Valley Region

2015-2017



DRAFT



Prepared under the direction of the
Pioneer Valley MPO by:
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Introduction

This report is the **Fourth Edition** of the Pioneer Valley Planning Commission's (PVPC) Top 100 High Crash Intersections in the Pioneer Valley. 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. Third edition of the report utilized the crash data for the calendar years of 2011 - 2013 and was finalized in October 2016.

This report is based on crash data for the calendar years of 2015 to 2017. It utilizes a new method to calculate the Equivalent Property Damage Only (EPDO) criterion as adopted by the Massachusetts Department of Transportation (MassDOT). PVPC has also adopted MassDOT's guidelines in identifying intersection crashes and ranking top locations.

Methodology

PVPC utilized crash data downloaded from the Impact Crash Data Portal (<https://apps.impact.dot.state.ma.us/cdv/>) developed by MassDOT. MassDOT designed a comprehensive intersection crash cluster analysis method utilizing geographical information system (GIS) tools and a weighted average point system based on severity which is referred to as EPDO.

The spatial analysis in this system creates a standard 25 meter or 82 foot search distance or buffer around each geocoded crash. This radius controls how far the GIS application will search for adjacent crashes. All the crashes that are found within this proximity radius of each other are merged using their buffer areas, thus creating clusters. If two distinct clusters are found to share a common crash, the two clusters are merged into a single cluster.

In the past, utilizing this methodology has resulted in clusters at intersection locations as well as longer clusters along roadway segments. MassDOT recently changed this approach in order to prioritize actual intersections with safety issues over roadway segments. For its latest top 200 crash locations report, MassDOT included only the crashes specified as occurring at one of the following junction types: Four way intersection, T-intersection, Y-intersection, or five points or more. PVPC utilized the same method to identify intersection crashes in the region and then subsequently developed clusters as described above.

Some locations have multiple intersections listed because the intersecting streets create more than one junction in too close **of a proximity to each other**. During the spatial analyses, such locations are merged into a single large cluster.

Weighted Average Point System by Severity

The clusters identified were then ranked by the number of EPDO crashes contained within their boundaries. Previously, fatal crashes were weighted by 10, injury crashes were weighted by 5 and property damage only or non-reported severity crashes were weighted by 1. For this report, the crash weighting was aligned with the updated MassDOT guidelines which utilize a 2017 FHWA report, "Crash Costs for Highway Safety Analyses" <https://safety.fhwa.dot.gov/hsip/docs/fhwas17071.pdf>

Accordingly, all of the fatal and injury crashes are weighted the same in this system (including fatal, incapacitating, non-incapacitating and possible) numerically as 21 while a property damage only crash is weighted as 1. This scoring places an emphasis on developing countermeasures to reduce the number of fatal and serious injury crashes in the region. The sum of the EPDO for all crashes contained in a cluster was utilized to rank the top locations in descending order.

Nomenclature

The crash clusters were named based on the highest functional classification roadway within the cluster, followed by the roadway with the second highest functional classification. In instances where there were two roadways with the identical classification, the first street name was selected in alphabetical order.

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 Table 1.

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.

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

Source: PVPC

Communities with High Crash Intersections

There are 101 intersections in this report as there is tie at number 100. A total of 10 communities are represented in the top 100 list for the region. The City of Springfield has the most intersections on the list followed by Chicopee and Holyoke.

Table 2: Communities with High Crash Intersections

No.	Community	Number of Intersections in Top 100
1	Springfield	63
2	Chicopee	17
3	Holyoke	11
4	Westfield	4
5	Granby	1
6	Hadley	1
7	Northampton	1
8	South Hadley	1
9	West Springfield	1
10	Wilbraham	1
	Total	101

Source: PVPC

Table 3 summarized all of the top 100 high crash intersections. This table includes detailed information about each location such as recent or planned improvements (IMP) for the location and whether or not it is represented in the current Transportation Improvement Program (TIP) for the region. 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 a 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 depicts all the top high crash intersections on a map of the region.

Observations

A total of 3,207 crashes occurred at the top intersections between 2015 and 2017. This number is lower than the 4,433 crashes reported from 2011 to 2013 and 4,275 crashes reported from 2007-2009. It should be noted however that the EPDO ranking system to identify these locations was different for previous reports. The average EPDO under the new method (282) is almost triple the average EPDO score for previous top 100 listings (107.5 (2011-2013) and 97.5 (2007-2009)). In the latest summary there are 46 new intersections that did not appear on the list previously.

The number 1 ranked high crash location in the region is the intersection of Sumner Avenue with Belmont Avenue, commonly referred to as ‘the X’, in the City of Springfield. This remains unchanged from the previous report... A total of 28 intersections dropped in rank from the previous report however further study is required to determine if this was because of recent transportation improvements or as a result of the change in EPDO methodology. Twenty three intersections experienced an increase in EPDO and moved up the list in ranking. One notable shift was observed at the intersection of Prospect Street, Buckley Boulevard, and Yelle Street in Chicopee which increased by 78 spots to rank number 10 overall in this report. At first glance this appears to be the impact of new EPDO system. A detailed study at this intersection is recommended.. Four locations had no change in rank from the previous report.

A total of 25 intersections that appear in the top 100 list have had transportation improvements projects completed recently which may have resulted in improvements to safety. These locations still appear in the top 100 list because the crash data was collected before the improvements were completed. Eleven intersections in the list appear on the region’s Transportation Improvement Program (TIP) for planned improvements in future. A Roadway Safety Audit has been completed for 41 intersections that appear on the Top 100 List.

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

Rank	Intersection/s	City/Town	Total Number of Intersection Crashes between 2015-2017	New EPDO* (1 or 21)	Total Number of Intersection Crashes involving Non Motorists	Planned or Completed Improvements	Comments	Rank (2011-2013)	Crashes/EPDO (2011-2013)	Rank (2007-2009)	EPDO (2007-2009)
1	Belmont Avenue (Route 83) / Sumner Avenue (Route 83) / Dickinson Street / Commonwealth Avenue / Lenox Street / Trenton Street / Ventura Street	Springfield	88	668	1	TIP# 2024		1	122/282	16	123
2	Plainfield Street (Route 20A) / Main Street (Route116) / Carew Street (Route 20A) / Church Street / Saint George Road	Springfield	54	614	6	IMP^ 2011		23	54/130	19	120
3	High Street / Cabot Street	Holyoke	61	541	1	TIP# 2022					
4	Granby Road / McKinstry Avenue / Montgomery Street	Chicopee	96	496	1	Future TIP#	Roundabout Concept	5	93/177	64	82
5	Carew Street (Route 20A) / Liberty Street / Banbury Street / Grover Street / Kendall Street / Libcar Street / Penacook Street / Stockman Street	Springfield	50	490				18	55/139	88	70
6	Saint James Avenue / Tapley Street / Martone Place	Springfield	44	484	2	TIP# 2023	Roadway Safety Audit Completed	16	61/141	30	106
7	Bridge Street / Grattan Street (Route 141) / Memorial Drive (Route 33) / Montgomery Street / Sheridan Avenue / Wells Avenue	Chicopee	75	475	2	IMP^ 2014		11	71/147	3	169
8	Saint James Avenue / Saint James Boulevard (Route 20A)	Springfield	40	460	1	TIP# 2023		6	61/165		
9	East Columbus Avenue / Longhill Street / Main Street	Springfield	34	434	2			59	35/91		
10	Buckley Boulevard / Chicopee Street (Route 116) / Prospect Street / Yelle Street / Montgomery Street / North Chicopee Street	Chicopee	64	424	1			88	39/71	83	72
11	Holyoke Road / Springdale Road	Westfield	41	421							
12	Boston Road / Bay Street / Breckwood Boulevard / Harding Street	Springfield	35	395	1			7	57/162	36	102
13	Magazine Street / Lincoln Street	Springfield	32	392	3						
14	Memorial Drive (Route 33) / BJ's Shopping Plaza and Stop and Shop Driveway / Home Depot Driveway	Chicopee	52	372	1			27	67/123	7	145
15	Memorial Drive (Route 33) / Pendleton Avenue / Falmouth Road	Chicopee	48	368	1	IMP^ 2019		19	60/136	11	142

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16	State Street / Chestnut Street / Dwight Street / Maple Street / Willow Street	Springfield	39	359	7	IMP^ 2008		28	46/122		
17	East State Street (Route 202) / School Street	Granby	36	356		TIP# 2023					
18	Grattan Street (Route 141) / McKinstry Avenue / Dale Street	Chicopee	38	338	1			39	38/110	58	87
19	Boston Road (Route 20) / Pasco Road (Route 20) / Lucerne Road / Merrill Road / Wrentham Road	Springfield	36	336		IMP^ 2015		9	53/149	4	159
20	Boston Road (Route 20) / Parker Street	Springfield	33	333		IMP^ 2015		3	76/204	1	195
21	Maple Street / Union Street	Springfield	30	330	3			37	40/112	67	81
22	State Street / Wilbraham Road / Eastern Avenue / Catharine Street	Springfield	27	327	3	IMP^ 2008		21	49/133	28	108
23	Page Boulevard (Route 20) / Roosevelt Avenue	Springfield	45	325	1	IMP^ 2008		22	43/131	27	108
24	Main Street / Central Street / Fremont Street / Adams Street / Lombard Street / Loring Street / Saratoga Street	Springfield	24	324	5		Main Street had recent IMP^rovements				
25	Riverdale Street (Route 5) /Morgan Road / Dagget Drive	West Springfield	50	310	2			55	66/88	9	143
26	State Street / Austin Street / Colonial Avenue / Cortland Street / Dresden Street	Springfield	26	306	1						
27	East Columbus Avenue / Boland Way	Springfield	38	298	1						
27	Sumner Avenue (Route 83) / White Street / Whittier Street	Springfield	38	298	3			52	38/98	91	68
29	Boston Road / Arnold Avenue / Covington Street / Horne Street / Shopping Plaza Driveway	Springfield	32	292	2			34	40/116		
29	Walnut Street / Union Street	Springfield	32	292	1			15	42/142	87	70

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31	Maple Street / Hampshire Street / Chestnut Street	Holyoke	26	286	1	TIP# 2022	Part of intersection included				
32	Carew Street (Route 20A) / Armory Street	Springfield	22	282	1			45	34/106		
33	Carew Street (Route 20A) / Dwight Street	Springfield	19	279				63	29/89	38	102
34	Bridge Street (Route 141) / Broadway Street / Church Street / Main Street / East Main Street (Route 141)	Chicopee	58	278	2	IMP^ 2014	Project recently completed	4	81/181	2	177
35	Roosevelt Avenue / Bay Street	Springfield	38	278	1	IMP^ 2007		29	44/120	37	102
35	Roosevelt Avenue / Wilbraham Road	Springfield	38	278				77	27/79	68	81
37	Oakland Street / Orange Street	Springfield	18	278	2						
38	Cabot Street (Route 116 and Route 141) / Main Street (Route 116 and Route 141)	Holyoke	37	277	1			32	58/118	10	142
39	Russell Street (Route 9) / West Street	Hadley	33	273		IMP^ 2004					
40	Beech Street (Route 202) / Resnic Boulevard / West Franklin Street	Holyoke	48	268				57	56/92	49	90
41	Bay Street / Berkshire Avenue	Springfield	24	264	2	IMP^ 2019		85	33/73	71	79
41	Dickinson Street /Oakland Street /Bloomfield Street /Johnson Street / Lansing Place	Springfield	24	264	2						
43	Northampton Street (Route 5) / Whiting Farms Road	Holyoke	23	263	1			74	32/80		
44	Walnut Street / Cedar Street / Lebanon Street	Springfield	20	260							
45	Memorial Drive (Route 33) / Interstate 90 Approach Road	Chicopee	58	258	1						

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46	Pine Street / Cedar Street / Ashley Street	Springfield	17	257							
47	Boston Road (Route 20) / Stony Hill Road	Wilbraham	33	253	1			24	80/128	13	131
48	North King Street (Route 5 and Route 10) / King Street (Route 5 and Route 10) / Bridge Road / Damon Road	Northampton	32	252		TIP# 2020	Construction scheduled to begin soon	48	49/101	23	113
49	Memorial Drive (Route 33) / Irene Street / Jamrog Drive	Chicopee	30	250	2	IMP^ 2019					
49	Saint James Avenue / State Street / Oak Street	Springfield	30	250	2			2	91/276		
51	Berkshire Avenue / Cottage Street / Babbin Street	Springfield	29	249		IMP^ 2020		25	35/128	73	77
52	Broadway Street / Saint James Avenue / Beauchamp Terrace	Chicopee	28	248							
53	West Street (Route 20) / Plainfield Street / Avocado Street	Springfield	46	246	1			10	56/148	54	90
54	Main Street / Hampden Street / Gridiron Street / Lyman Street / Worthington Street / Taylor Street / Fort Street	Springfield	25	245	2		Main Street had recent IMP^rovements				
54	State Street / Benton Street / Gaucher Street	Springfield	25	245		IMP^ 2008		30	40/120		
54	State Street / Federal Street / Walnut Street	Springfield	25	245	4	IMP^ 2008					
57	King Street / Wilbraham Avenue	Springfield	24	244	1						
58	Grattan Street (Route 141) / Granby Road	Chicopee	23	243							
59	Jackson Street / Main Street	Holyoke	22	242	1						
59	Page Boulevard (Route 20) / Brookdale Drive	Springfield	22	242							

Rank	Intersection/s	City/Town	Total Number of Intersection Crashes between 2015-2017	New EPDO* (1 or 21)	Total Number of Intersection Crashes involving Non Motorists	Planned or Completed Improvements	Comments	Rank (2011-2013)	Crashes/EPDO (2011-2013)	Rank (2007-2009)	EPDO (2007-2009)
61	Liberty Street / Springfield Plaza Driveway	Springfield	21	241	1						
62	East Main Street (Route 141) / American Legion Memorial Bridge	Chicopee	20	240							
63	Main Street / Broad Street / Elmwood Street / Marble Street / Norwood Street / Rutledge Avenue / Wendell Place / York Street	Springfield	19	239	1		Main Street had recent IMP^rovements				
64	Page Boulevard (Route 20) / Bircham Street	Springfield	18	238	1			94	19/67		
64	Mill Street / West Silver Street	Westfield	18	238							
66	Boston Road / Jasper Street / Boyer Street / Preston Street	Springfield	17	237	1						
67	Fuller Road / Sheridan Street	Chicopee	34	234		IMP^ 2020					
68	Grattan Street / Meadow Street	Chicopee	33	233	2						
69	Beech Street (Route202) / Cherry Street (Route 202) / Northampton Street (Route 5)	Holyoke	31	231							
70	Main Street / State Street / Bliss Street/ Stockbridge Street	Springfield	29	229	4	IMP^ 2008		66	38/86	86	70
70	Page Boulevard / Haumont Terrace / Santa Barbara Street	Springfield	29	229	1						
72	Memorial Drive (Route 33) / James Street	Chicopee	28	228		TIP# 2020	New adaptive control signals being installed on Memorial Drive	72	33/81	66	81
73	Boland Way / Hall of Fame Avenue / Memorial Bridge / West Columbus Avenue	Springfield	27	227	2						
74	State Street / Spring Street / School Street	Springfield	26	226		IMP^ 2008		60	34/90		
75	Chicopee Street (Route 116) / Springfield Street (Route 116) / Granby Road	Chicopee	24	224							

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76	Sumner Avenue (Route 83) / Oakland Street	Springfield	23	223	2			64	25/89		
77	Fuller Road / American Legion Memorial Bridge / Interstate 291 Approach Road	Chicopee	42	222		TIP# 2020					
78	Dickinson Street / Hancock Street / Mill Street / Orange Street	Springfield	21	221	5						
79	Main Street / Liberty Street	Springfield	19	219	3		Current IMP^rovements				
80	State Street / Concord Terrace / Hunter Place / Montrose Street	Springfield	15	215	1						
81	Chestnut Street / Noble Street / Eagle Street / Interstate 91 Approach Road	Springfield	13	213							
82	Belmont Avenue / Locust Street / Fort Pleasant Avenue / Mill Street	Springfield	30	210	3			20	53/133		
83	Allen Street / Allen Street Connector / Sumner Avenue / Abbot Street / Harkness Avenue	Springfield	28	208	1	IMP^ 2013		46	37/105	33	104
83	Sumner Avenue / Dorset Street / Eckington Street / Perkins Street / Spencer Court	Springfield	28	208							
85	Appleton Street (Route 141) / Dwight Street (Route141) / Pleasant Street	Holyoke	27	207	2						
86	Bradley Road / Plumtree Road	Springfield	26	206							
87	Carew Street / Saint James Avenue / Detroit Street	Springfield	24	204	2			13	50/143	32	105
87	Page Boulevard (Route 20) / Cadwell Drive / Robbins Road	Springfield	24	204				36	49/113	12	135
89	Springfield Road (Route 20) / East Mountain Road	Westfield	23	203				67	29/86		
90	Beech Street (Route 202) / Appleton Street (Route 141)	Holyoke	22	202	3			83	30/74		

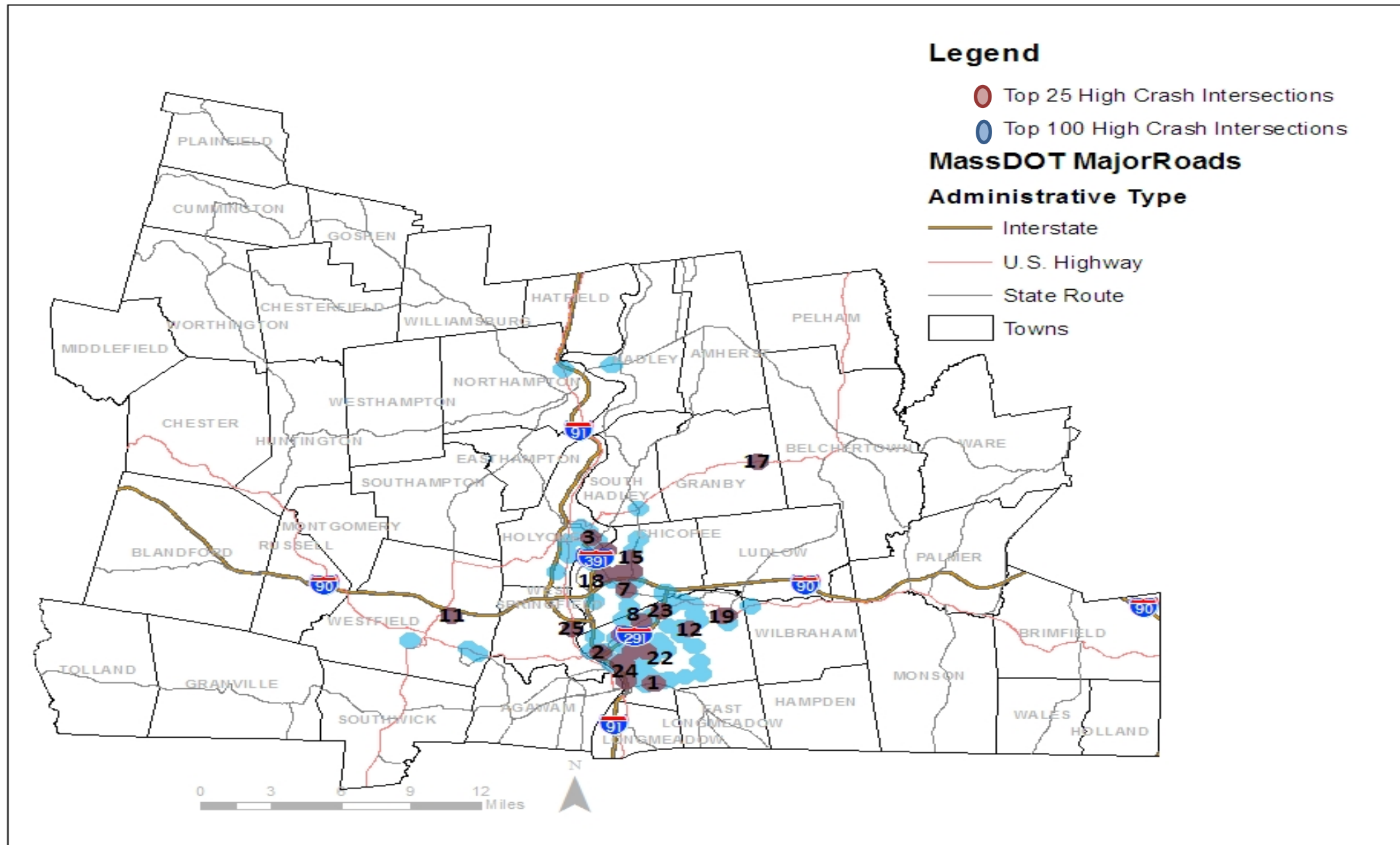
Rank	Intersection/s	City/Town	Total Number of Intersection Crashes between 2015-2017	New EPDO* (1 or 21)	Total Number of Intersection Crashes involving Non Motorists	Planned or Completed Improvements	Comments	Rank (2011-2013)	Crashes/EPDO (2011-2013)	Rank (2007-2009)	EPDO (2007-2009)
91	Alden Street / Walnut Street / Hancock Street Rotary	Springfield	21	201			New roundabout recently constructed	58	43/91	45	93
91	State Street / Harvey Street	Springfield	21	201							
91	East Main Street (Route 20) / Springfield Road (Route 20) / Union Street	Westfield	21	201			Was part of the bridge replacement in early 2000s	91	29/69	99	66
94	Allen Street / Bradley Road	Springfield	18	198				98	26/66		
95	Liberty Street / Genesee Street	Springfield	17	197	3			40	30/110		
95	Wilbraham Road / Bradley Road / Breckwood Boulevard	Springfield	17	197				55	34/94	17	132
97	Beech Street (Route 202) / Hampshire Street	Holyoke	16	196							
97	Lower Westfield Road / Whiting Farms Road / Holyoke Street	Holyoke	36	196				44	50/106	31	105
97	Granby Road (Route 202) / Lyman Street (Route 33) / Willimanset Street (Route 33)	South Hadley	36	196	1	IMP^ 2016	Recent IMP^rovements completed by MassDOT				
100	Parker Street / North Branch Parkway / Hermitage Drive	Springfield	15	195							
100	Roosevelt Avenue / Roosevelt Terrace	Springfield	15	195							

EPDO* Equivalent Property Damage Only - All Injury and Fatal crashes 21, Property Damage Crashes 1

TIP# Transportation Improvement Program Project

IMP^ Planned or Completed Transportation Improvements

Figure 1: Top 100 High Crash Intersections in the Pioneer Valley



An online interactive map showing all the top high crash intersections from all three reports is available at <https://pvpc.maps.arcgis.com/apps/webappviewer/index.html?id=1880ab8ae8064921b7374b617b259b7d>

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.

Table 4: Rotary Crashes in the Pioneer Valley

RANK	COMMUNITY	LOCATION	EPDO*	TOTAL CRASHES (2015-2017)	Crashes (2011-2013)	Crashes (2007-2009)	2015			2016			2017		
							Fatal	Injury	Property Damage	Fatal	Injury	Property Damage	Fatal	Injury	Property Damage
1	SPRINGFIELD	ARMORY STREET / LIBERTY STREET / STAFFORD STREET	1841	181	140	350	0	25	31	0	37	32	0	21	35
2	AGAWAM	SOUTH END BRIDGE (ROUTE 5) / HENRY E BODURTHA HIGHWAY (ROUTE 57) / ROUTE 5 / MEADOW STREET	1527	307	249	250	0	17	78	0	15	90	0	29	78
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	580	180	164	194	0	6	52	0	6	48	0	8	60
4	WEST SPRINGFIELD	RIVERDALE STREET (ROUTE 5) / PARK AVENUE (ROUTE 20) / PARK STREET (ROUTE 20)	522	82	103	350	0	6	18	0	4	16	0	12	26
5	SOUTH HADLEY	PURPLE HEART DRIVE (ROUTE 202) / NORTH MAIN STREET	365	65	40	70	0	6	15	0	2	17	0	7	18
6	HOLYOKE	BEECH STREET (ROUTE 202) / MUELLER BRIDGE (ROUTE 202) / LYMAN STREET / HAMPDEN STREET	328	48	34	139	6	2	11	0	3	8	0	3	15
7	WEST SPRINGFIELD	RIVERDALE STREET (ROUTE 5) / MEMORIAL AVENUE (ROUTE 147)	268	48	41	178	0	4	18	0	3	6	0	4	13
8	EASTHAMPTON	MAIN STREET (ROUTE 10) / NORTHAMPTON STREET (ROUTE 10) / PLEASANT STREET	142	22	19	33	0	4	6	0	2	4	0	0	6
9	WESTFIELD	MONTGOMERY STREET / POCHASSIC STREET / PARKER AVENUE	2	2	3	2	0	0	0	0	0	0	0	0	2

Source: PVPC

Bicycle and Pedestrian Crashes

Between the calendar years of 2015 and 2017, a total of 1,368 crashes that involved non-motorists (bicyclists, pedestrians, wheelchairs, skaters) were reported. Table 5 summarizes the communities with these crashes and severity of the crashes. Thirty two fatal crashes in the region involved a non-motorist colliding with motor vehicles.

Table 5: Bicycle/Pedestrian Crashes by Community and Severity

Community	Fatal Injury	Non-fatal Injury	Property Damage Only	Not Reported	Total
Springfield	11	529	76	3	619
Chicopee	2	124	23		149
Holyoke	3	108	26	1	138
Northampton	2	69	5		76
Amherst	1	59	12		72
Westfield		47	11		58
West Springfield		39	17		56
Agawam	1	14	9	1	25
Palmer	3	12	3		18
South Hadley	1	14	3		18
Hadley		16	1		17
East Longmeadow	1	11	4		16
Longmeadow	1	13	2		16
Ware	1	8	6		15
Ludlow		9	4		13
Easthampton		10	1		11
Wilbraham		10			10
Southwick		8			8
Belchertown	2	4			6
Granby		4	1		5
Russell		3	2		5
Brimfield	1	1	1		3
Chester			2	1	3
Blandford	1	1			2
Hampden		2			2
Huntington		1			1
Monson		1			1
Montgomery			1		1
Pelham			1		1
Plainfield	1				1
Westhampton			1		1
Williamsburg		1			1
Total	32	1118	212	6	1368

Source: PVPC

Almost 60% of non-motorist crashes involved pedestrians. Springfield reported the most crashes and fatalities totaling almost 4 times the number reported in Chicopee. Figure 2 depicts the type of non-motorist involved in crashes and Figure 3 depicts percent distribution of non-motorist crashes by community.

Figure 2: Type of Non-motorist involved in crashes

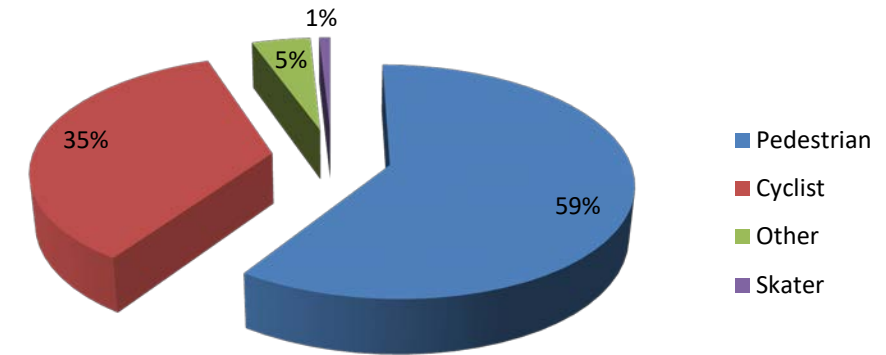


Figure 3: Percentage Distribution of Non-Motorized Crashes within Pioneer Valley Communities

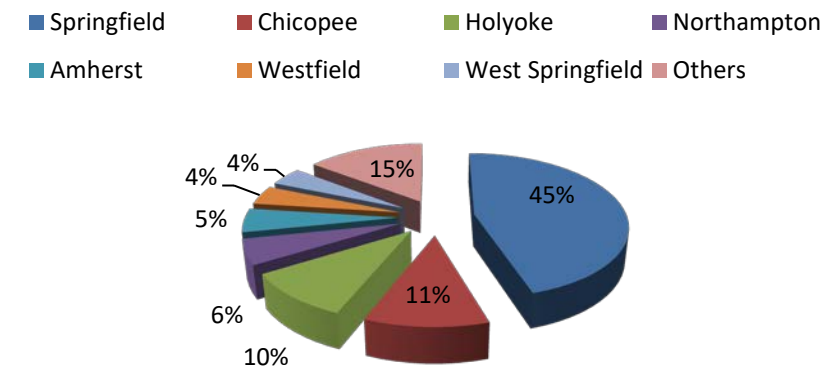
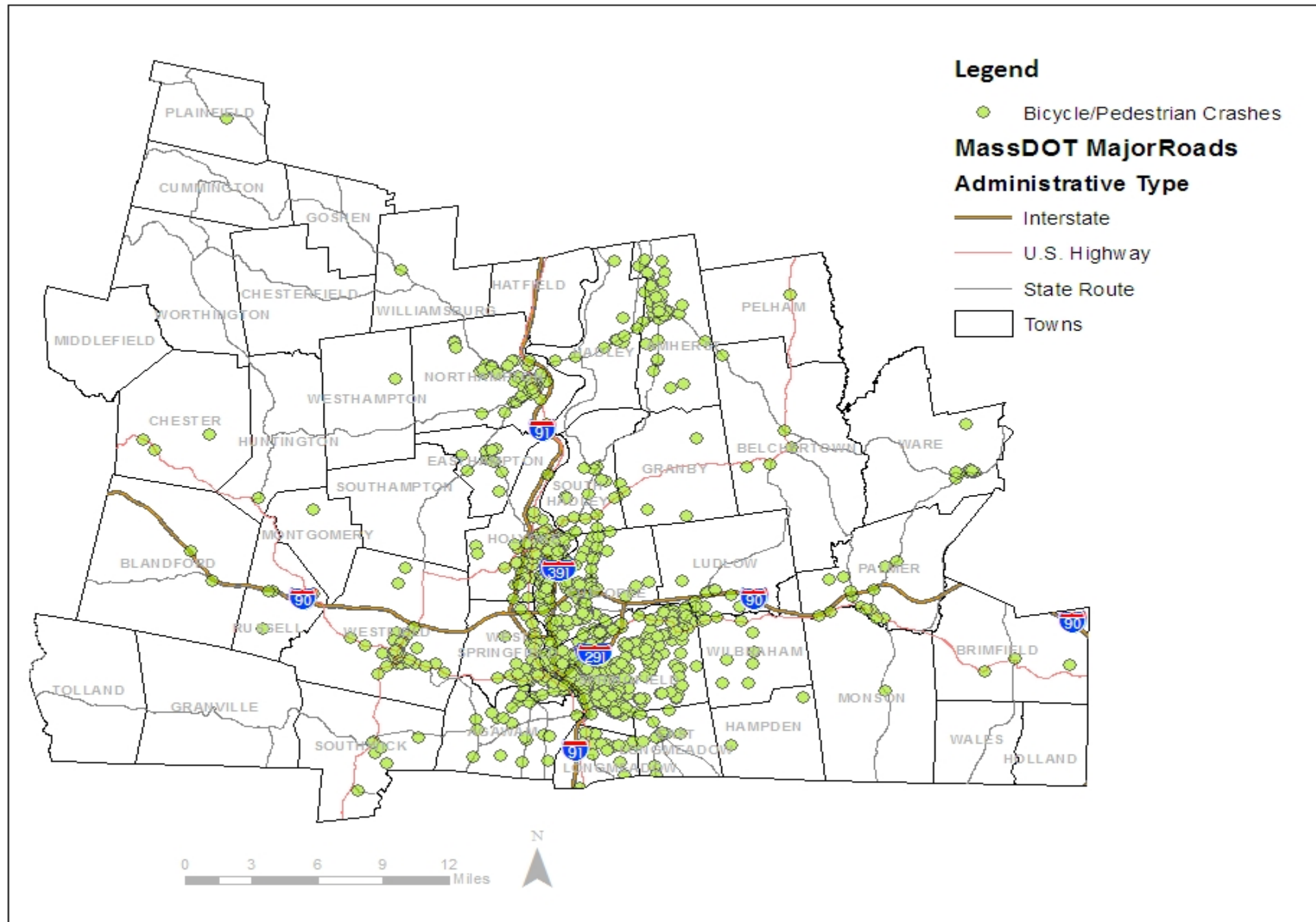


Figure 4: Non-Motorist Crashes in the Pioneer Valley



Fatal Crashes

A total of 118 fatal crashes were reported in the Pioneer Valley from 2015 - 2017. More than 30% of all fatal crashes occurred in Springfield and 28 communities reported at least one fatal crash. Table 6 summarizes the number of fatal crashes by community.

Table 6: Fatal Crashes by Community

No.	Community	Total Fatal Crashes
1	Springfield	31
2	Chicopee	12
3	Westfield	9
4	Holyoke	7
5	West Springfield	7
6	Agawam	5
7	Palmer	5
8	Ludlow	4
9	Northampton	4
10	Amherst	3
11	Belchertown	3
12	Blandford	3
13	Brimfield	3
14	South Hadley	3
15	Southwick	3
16	East Longmeadow	2
17	Ware	2
18	Westhampton	2
19	Cummington	1
20	Granby	1
21	Granville	1
22	Hampden	1
23	Hatfield	1
24	Huntington	1
25	Longmeadow	1
26	Plainfield	1
27	Russell	1
28	Southampton	1
Total		118

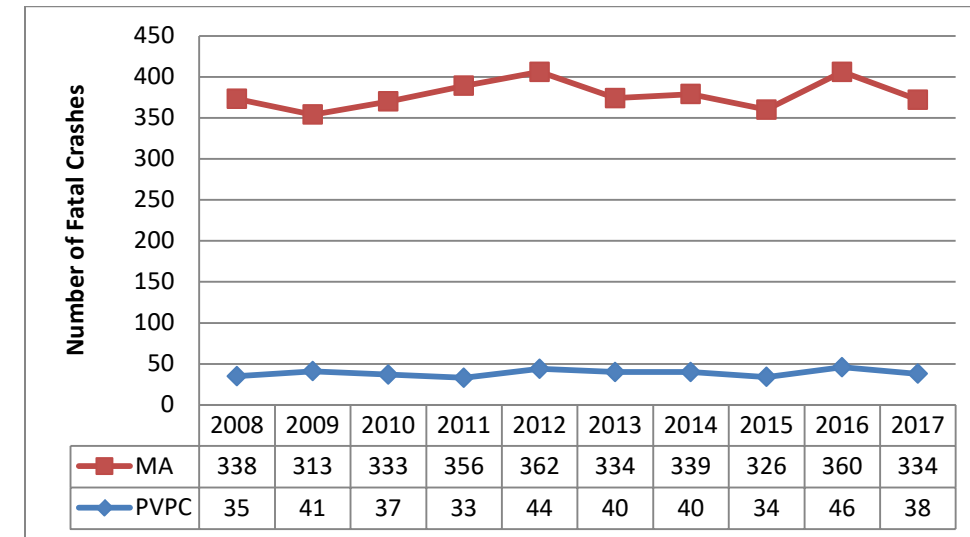
Source: Impact Crash Portal

Statewide Trends

The number of fatal crashes in the region and the state has remained steady over the past decade. It is noteworthy that fatal crashes were reduced by 7% in the state from 2016 to 2017 and by 17% in the region

during the same time period. Figure 5 depicts trends in yearly fatal crashes within the state and the region over the past decade.

Figure 5: Yearly Fatal Crashes



Manner of Collision for Fatal Crashes

The majority of fatal crashes in the region were single vehicle crashes followed by head-on crashes and angle collisions. Figure 6 depicts the manner of collision for fatal crashes. The location of each fatal crash from 2015 to 2017 is shown on a map of the region in Figure 7.

Figure 6: Manner of Collision for Fatal Crashes

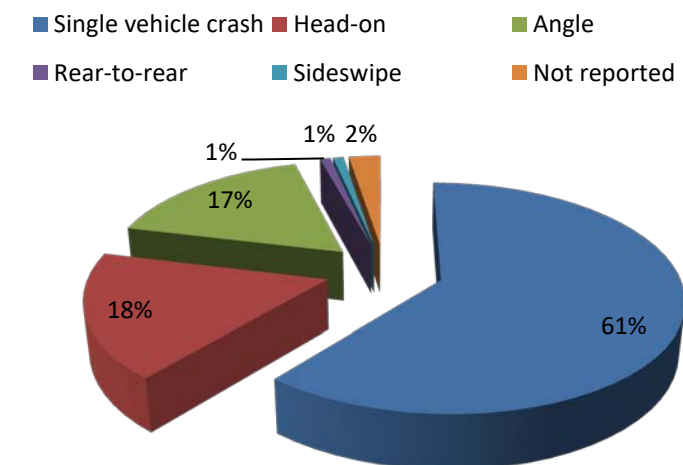
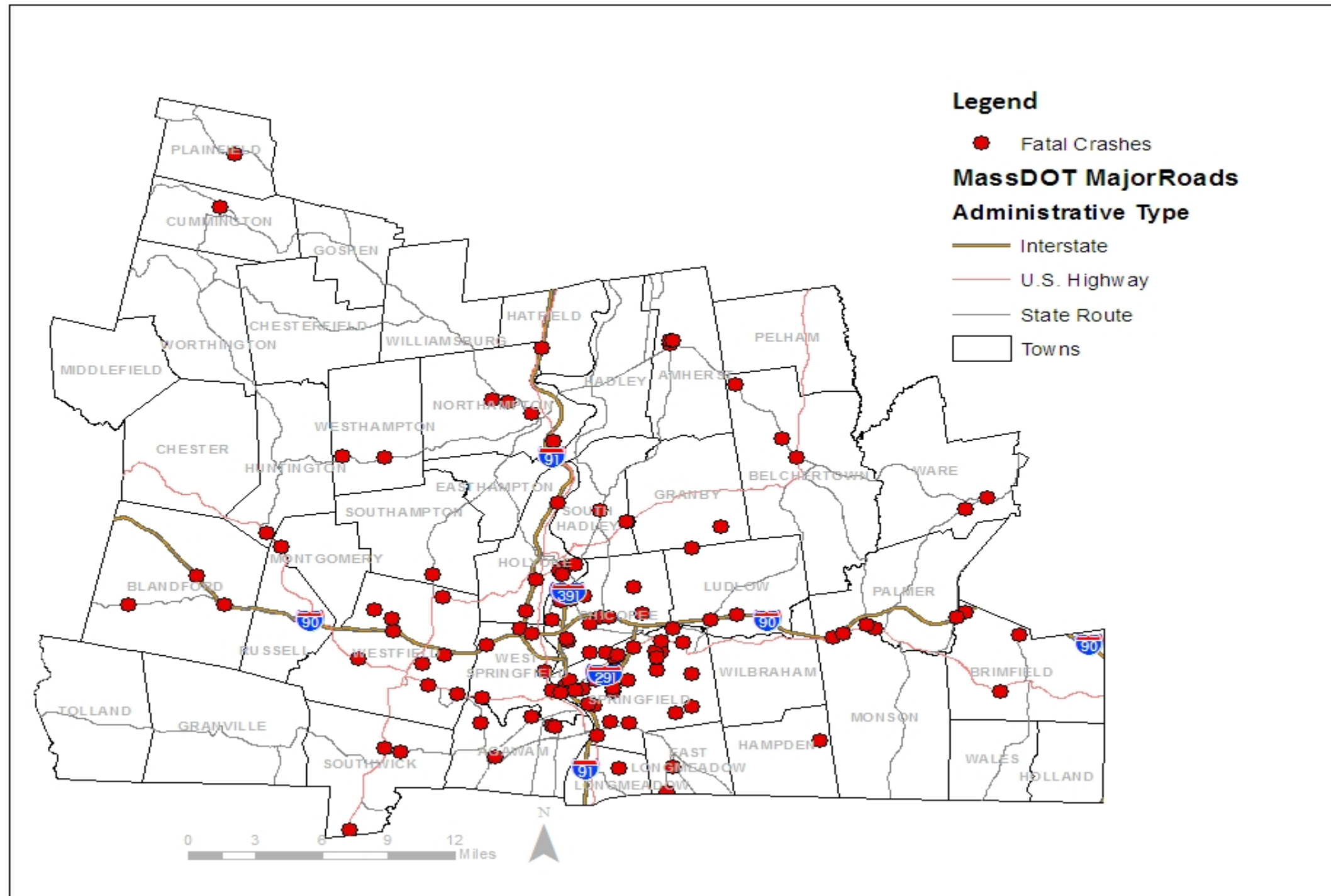


Figure 7: Fatal Crashes in the Pioneer Valley



Select Intersections: Observations and Traffic Flow

The PVPC conducted field visits at 6 of the high crash intersections that have appeared in the top 100 list since 2007. A synopsis of existing conditions and factors that contribute to traffic safety issues was developed for each location. This information is also available at the following link: <http://pvmpo.pvpc.org/top-100-high-crash-intersections/>

Six Corners Roundabout, Hancock Street/Walnut Street/Ashley Street/
Alden Street, Springfield



Beech Street (Route 202) / Cherry Street (Route 202) / Northampton Street
(Route 5)



- Bike Share rental station is located along southeast corner of the intersection. Bike lanes are located to the north of the intersection along Northampton Road (Route 5) however there are no bike provisions at the intersection or along other approaches.
- The signal head back plates are old and need new retroreflective stripes.
- Pedestrian signal heads are dated and do not provide countdown.
- All approaches do not have enough signal heads per lane
- Left turn yield on green warning sign is needed for Northampton Street (Route 5) southbound approach
- Pavement markings along several locations at this intersection were observed to be faded
- Northampton Street northbound approach has exclusive left turn lane but does not have a separate signal head or phase dedicated to left turning traffic
- The turn lanes and shared lanes are not marked by appropriate pavement markings



Buckley Boulevard / Chicopee Street (Route 116) / Prospect Street / Yelle Street / Montgomery Street / North Chicopee Street



- Heavy Congestion, difficult geometry, restricted right of way, low height railroad underpass, old equipment, and lack of proper coordination between the signals could be some of the factors contributing to higher crashes at this location
- This location needs detailed study to examine proper improvement measures; short and long term. Any such proposed study needs to include all three intersections and advance warning signs along the roadways
- Require advance warning signs for low clearance railroad underpass along the all roadways
- Observed red light running from Prospect Street westbound right turn lane

Carew Street (Route 20A) / Liberty Street / Banbury Street / Grover Street / Kendall Street / Libcar Street / Penacook Street / Stockman Street



- Unusual geometry, close proximity of the streets, high traffic volumes, acute angle of approaches, and outdated equipment are some of the factors that possibly contribute to higher crashes along this location
- Pedestrian signal head for crosswalk across Liberty Street southbound approach was not aligned along with the crosswalk markings.
- Signal Heads do not have back plates
- Overgrown Landscaping along the northeast corner of the intersection of Carew Street with Liberty Street obstructs visibility for the drivers along the Liberty Street southbound approach
- Left Turn Only sign for Carew Street southwest bound approach is not clearly visible because of trees and their shade in the vicinity of the mast arm
- The Cumberland Farms driveway in the northeast corner of the intersection of Liberty Street and Carew Street has two curb cuts which could be examined for Enter Only / Exit Only flow to reduce conflicts in the vicinity of the intersection.
- Advance information /warning signs along Carew Street northeast bound approach and Liberty Street northbound approach to help drivers navigate through Libcar Street will help in reducing sudden maneuvers by drivers to make those movements after they get too close to the intersection
- Few trash barrels were observed to be too close to the travel lanes
- Crosswalk ramps along the intersections are not ADA compliant
- Travel Lanes are narrow
- Exclusive turning lanes do not have advance lane use signs
- Carew Street northeastbound approach did not have separate signal head for exclusive left turn lane which resulted in red light running and driver confusion during overlap
- Long queues along Liberty Street north bound approach block Libcar Street
- This location would greatly benefit by a detailed engineering study or a Roadway Safety Audit

Riverdale Street (Route 5) / Morgan Road / Dagget Drive



- Aggressive driving, speeding, heavy congestion, and high volumes of commercial vehicle traffic with tight turning radii are some of the factors that could lead to higher probability of crashes along these intersections.
- Several sign posts along the medians seem damaged by collision with motor vehicles
- Dual left turn lanes from the Riverdale Shopping Plaza driveway into Riverdale Street (Route 5) do not have pavement markings through the intersection to guide the vehicles in proper lanes. This created increased possibility of sideswipe crashes
- Red Light running was observed along Riverdale Street (Route 5) northbound approach at the intersection with Morgan Road. Optically programming the two signals could help in addressing this aggressive driving and speeding problem.
- Right turning traffic from Riverdale Street (Route 5) southbound approach into Morgan Road gets backed up behind commercial vehicles entering Agrimark
- Dagget Drive intersection traffic gets backed up all the way to Morgan Road intersection and vice versa
- Lack of optical programming along signals



Boston Road (Route 20) / Stony Hill Road



- Heavy congestion, long delays during peak hours, aggressive driving, following too closely, potential red light running, and weather conditions could be some of the factors contributing to higher crashes at this intersection.
- The low clearance underpass located to the north of the intersection along Stony Hill Road has narrow travel lanes
- The left turn lane along Boston Road (Route 20) eastbound approach is short and vehicles have to often cross double yellow center line because of tight turning radii
- Residents along Stony Hill Road get their driveways blocked by heavy traffic queues during peak hours
- The curb openings for the Big Y Express gas station are too close to the intersection
- Faded Pavement Markings



PVPC also recorded traffic flow at these intersections utilizing a drone mounted camera to better understand the conditions and visualize the traffic patterns at each of these locations. Video is available through the following hyperlinks for each location.

1. Six Corners Roundabout, Springfield

https://www.youtube.com/watch?v=AD_VPbqY4u0

2. Russell Street (Route 9) / West Street, Hadley

<https://www.youtube.com/watch?v=g3yiYZbRdwo&list=PLEy9fMJsc-2zlgvmRyA8mrwrfN-XwYUpb&index=5>

3. Carew Street / Liberty Street, Springfield

<https://www.youtube.com/watch?v=rGYG-hoZv5Y&feature=youtu.be>

4. Hancock Street / Mill Street / Orange Street / Dickinson Street, Springfield

<https://www.youtube.com/watch?v=vA7ZFPsqDww&list=PLEy9fMJsc-2zlgvmRyA8mrwrfN-XwYUpb&index=7>

5. Prospect Street / Buckley Boulevard / Yelle Street, Chicopee <https://www.youtube.com/watch?v=WdML-8W-kks>

6. Riverdale Street / Morgan Street / Dagget Drive

<https://www.youtube.com/watch?v=Kwg4MlgPxIM&list=PLEy9fMJsc-2zlgvmRyA8mrwrfN-XwYUpb&index=6>

7. Chicopee Street / Prospect Street, Chicopee

<https://www.youtube.com/watch?v=fnluuihxmU&list=PLEy9fMJsc-2zlgvmRyA8mrwrfN-XwYUpb&index=2>