



Catalyst for Regional Progress

PVPC

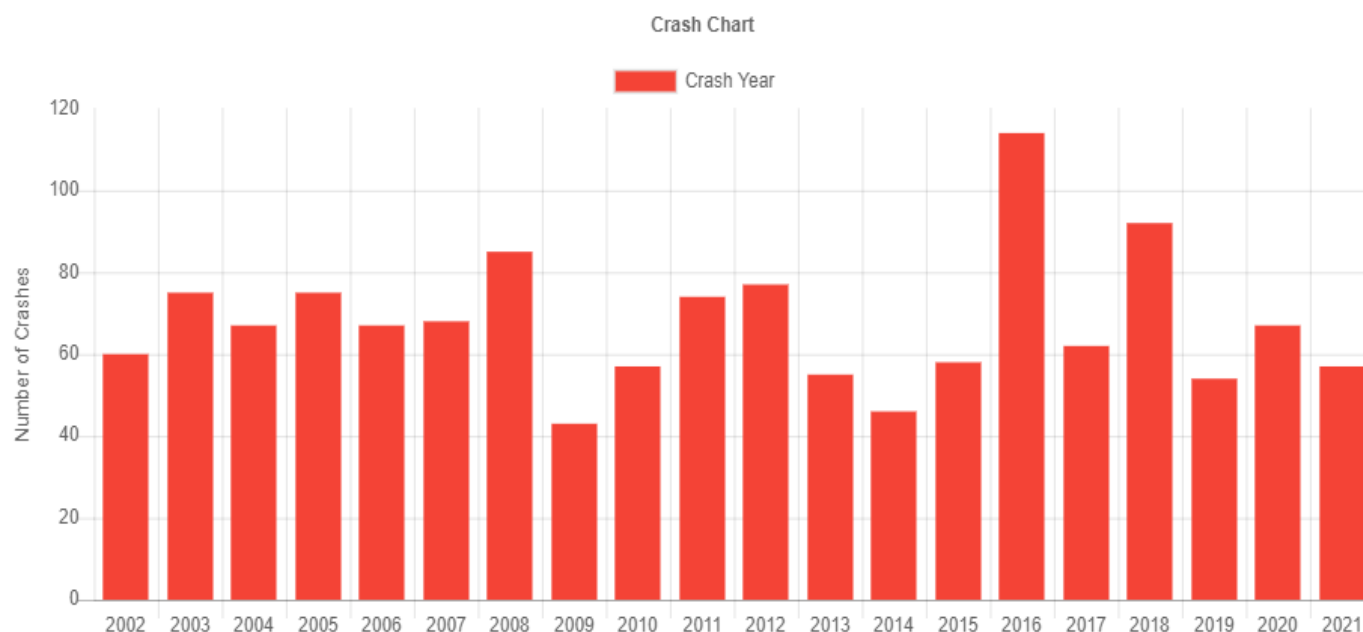
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CRASH AUTHENTICATION ANALYSES (BRIMFIELD AND LONGMEADOW)

During the development of the Pioneer Valley *SafetyCompass* Report in 2019 it was observed that the communities of Brimfield and Longmeadow had a statistically significant variation in the number of total annual crashes. Annual crashes in Brimfield increased by 96.55% (almost double) for the year 2016 and the total number of total annual crashes in Longmeadow increased by 115% (more than double) for the year 2017. PVPC (Pioneer Valley Planning Commission) decided to investigate these anomalies within the Traffic Safety task of the 2022 [Unified Planning Work Program](#). In this memo the historic crash data along with the most recent available traffic collision trends obtained from the MassDOT [IMPACT Web Portal](#) have been compiled and compared. Townwide GIS (Geographic Information Systems) analyses were also performed to further investigate whether the locations of crash increases presented any significant spatial pattern.

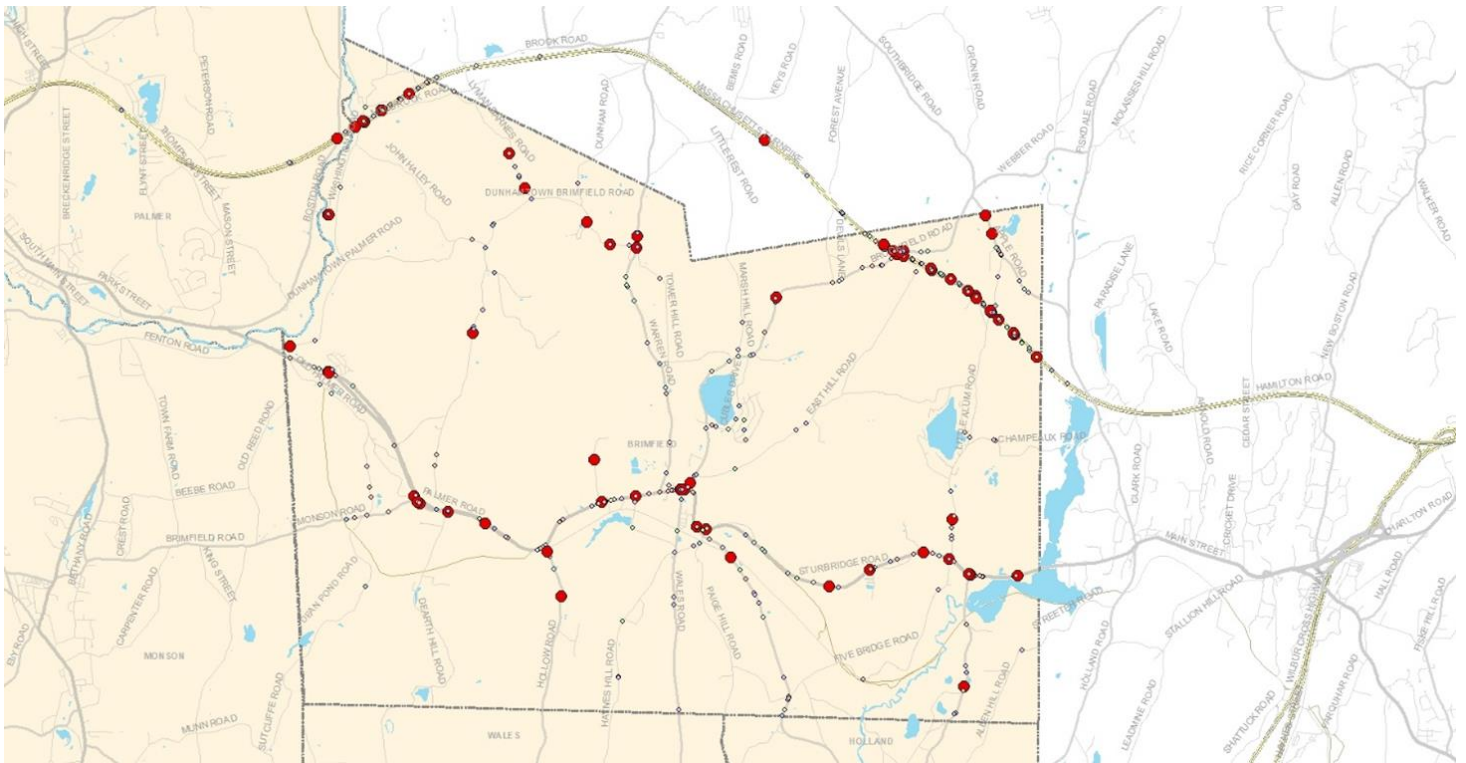
BRIMFIELD

The number of total annual crashes reported in Brimfield almost doubled in the year 2016. Crashes returned to normal levels in 2017 before spiking again in 2018. Historically, there have been significant variations in the crash total since 2002 (2002 is the oldest year for which crash information is available through IMPACT Portal).

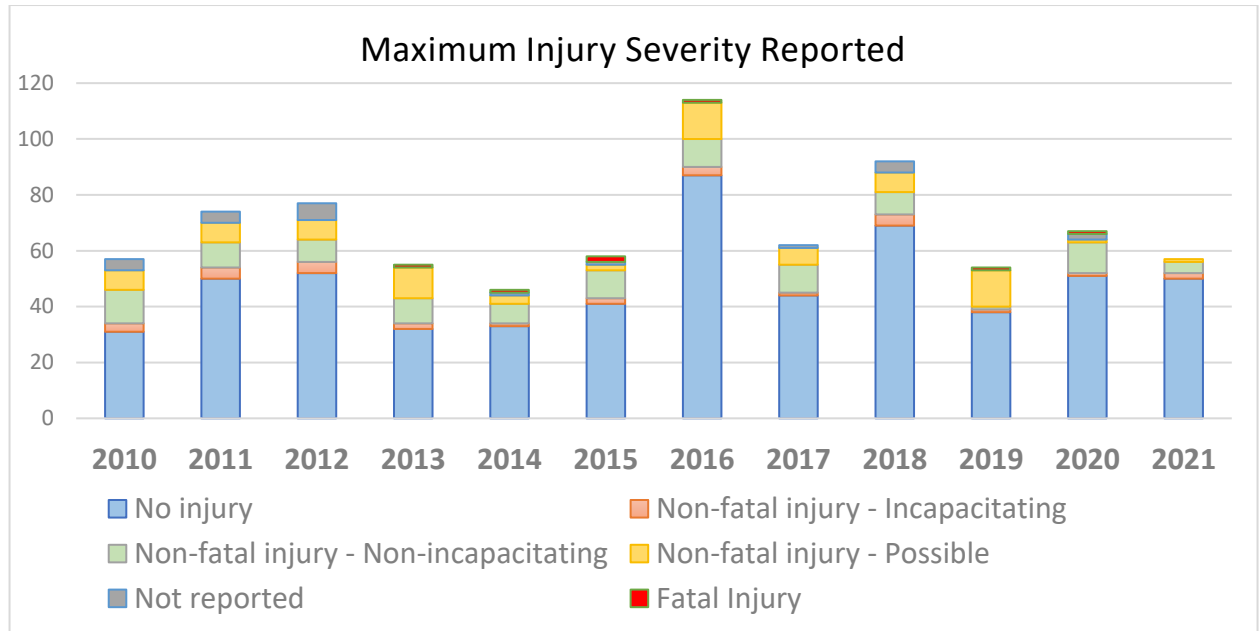


Year	Annual Crashes	Change in Percentage
2010	57	
2011	74	29.82%
2012	77	4.05%
2013	55	-28.57%
2014	46	-16.36%
2015	58	26.09%
2016	114	96.55%
2017	62	-45.61%
2018	92	48.39%
2019	54	-41.30%
2020	67	24.07%
2021	57	-14.93%

The crash data for the calendar years of 2010 to 2021 was analyzed spatially using ArcMap to observe if there were any major increases that can be attributed to specific locations, intersections, or roadway segments. In the figure below the crashes in 2016 have been plotted in larger circles in red while crashes for other years are represented as smaller circles in pastel colors. It can be observed that the surge in crashes was townwide. This analysis showed that no remarkable spatial pattern or individual location was related to the 2016 increase in crashes.



The severity of the crashes in 2016 was proportional to the severity for other years in the past decade. The data obtained from MassDOT was analyzed in a similar method in terms of Manner of Collision, First Harmful Event, and Roadway Classification to examine whether a substantial proportion of the increased crashes were of a single type or attributed to the Massachusetts Turnpike (I-90). However, all these analyses depicted comparable results with proportional collisions along all functional classes of roadways. Crashes were further investigated based on the reporting police agency (State and Local) to examine the possibility of reporting errors. Once again this was not the case, both state and local police reported proportionally higher crashes in the year 2016.

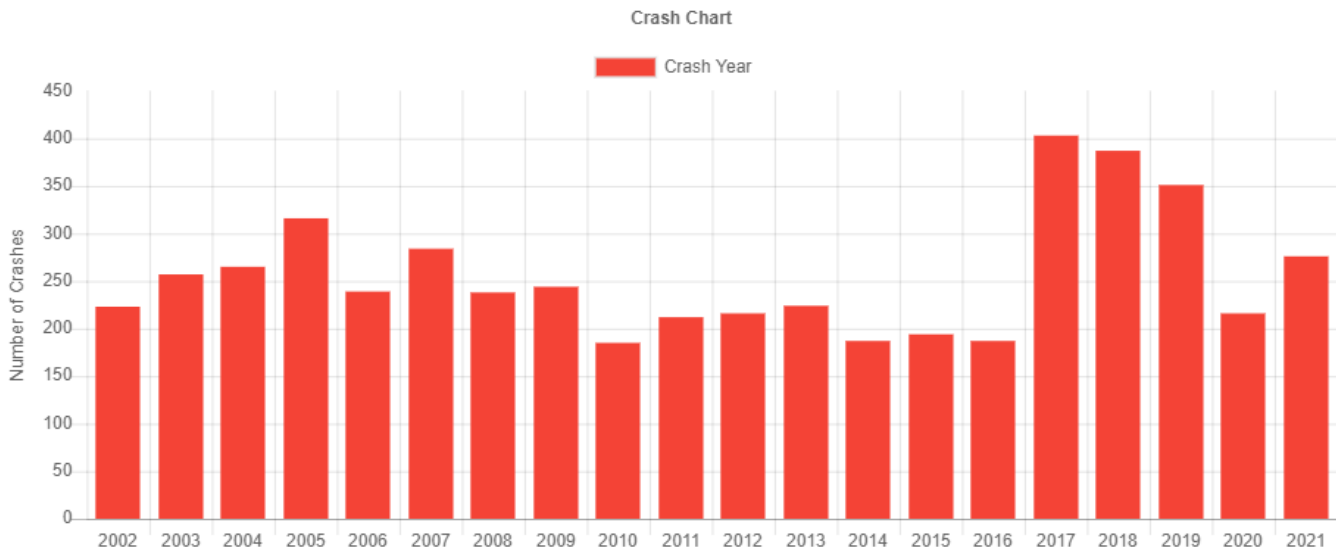


Conclusion

It is not possible to isolate any single factor or combination of factors that caused this significant increase in the total number of crashes for the year 2016. Brimfield has reported sporadically higher crashes over the past two decades. The high crash rate in 2016 is not attributed to inaccurate data and the spike mirrors a prior history (2016 the not only year with above average crashes). The PVPC will continue to observe the crash data in Brimfield in future to monitor the trends and report any significant observations.

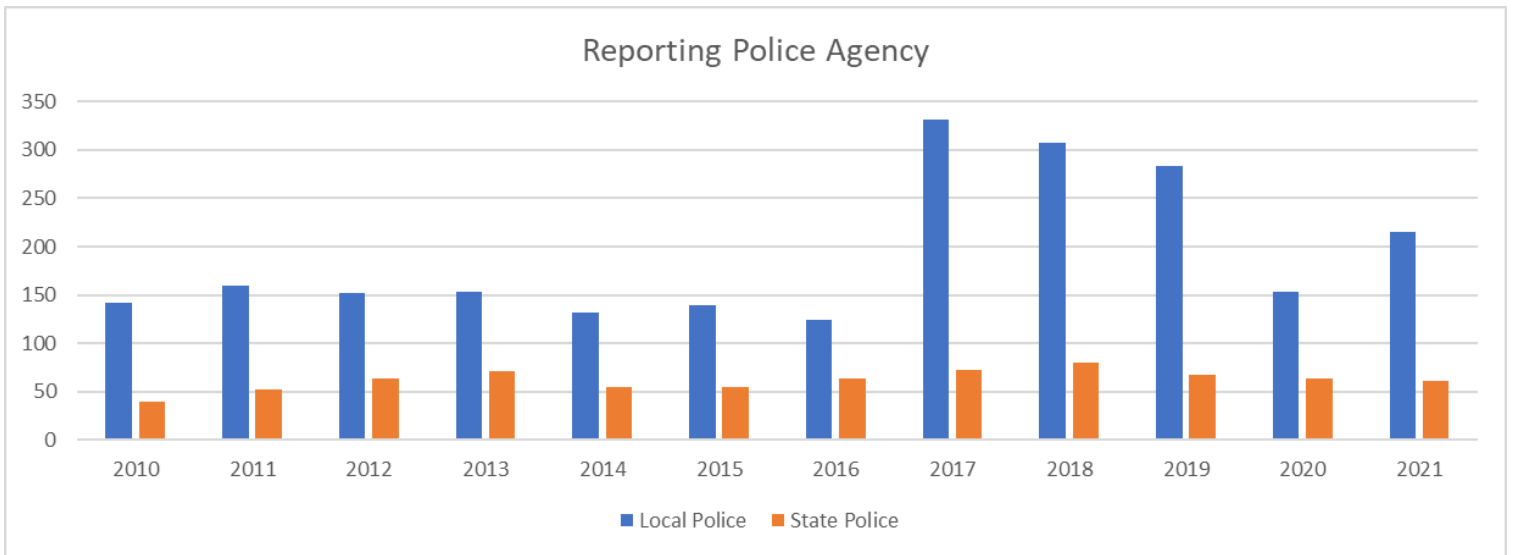
LONGMEADOW

The number of total annual crashes reported in Longmeadow more than doubled in the year 2017; however, unlike Brimfield, a higher number of total crashes were reported for 2 more years. The crashes were reduced again in the years 2020 and 2021 but that reduction could have been influenced by the reduction in overall traffic because of the Covid-19 pandemic. The historic crash data obtained from the [MassDOT IMPACT Portal](#) was analyzed in terms of Manner of Collision, First Harmful Event, and Roadway Classification to examine whether a substantial proportion of the increased crashes were of a single type or along the Interstate. All these analyses depicted that there was consistency and proportional increase in all manner of collisions along all major roadways in the Town. The number of crashes along the Interstate I-91 did not increase significantly.



Year	Annual Crashes	Change in Percentage
2010	185	
2011	212	14.59%
2012	216	1.89%
2013	224	3.70%
2014	187	-16.52%
2015	194	3.74%
2016	187	-3.61%
2017	403	115.51%
2018	387	-3.97%
2019	351	-9.30%
2020	216	-38.46%
2021	276	27.78%

The number of reported crashes were further divided by the reporting police agency. This assessment depicted that almost all the increased crashes were reported by the local police department. This finding is consistent with the results obtained from spatial analyses which depicted increase in non-Interstate crashes.



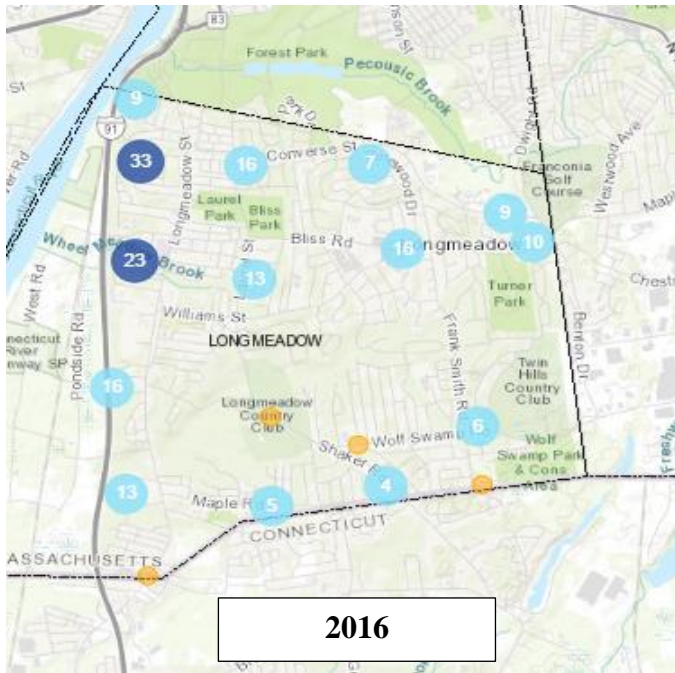
Conclusion

The crash clusters provided by the [MassDOT IMPACT Portal](#) for the year 2016 – 2018 are depicted on the following page. It can be observed that there is a significant increase in the number of crashes along the clusters identified in the vicinity of 3 intersections in the Town:

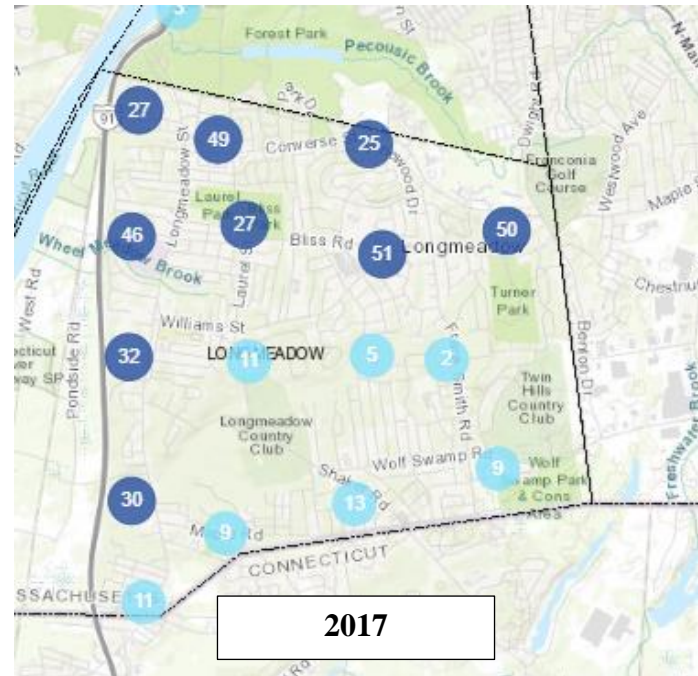
- 1) Dwight Road / Converse Street
- 2) Dwight Road / Williams Street / Maple Street
- 3) Williams Street / Redfern Drive / Frank Smith Road

The number of crashes in clusters along these locations significantly increased in 2017 from 2016 and this number remained high in the years 2018 and 2019.

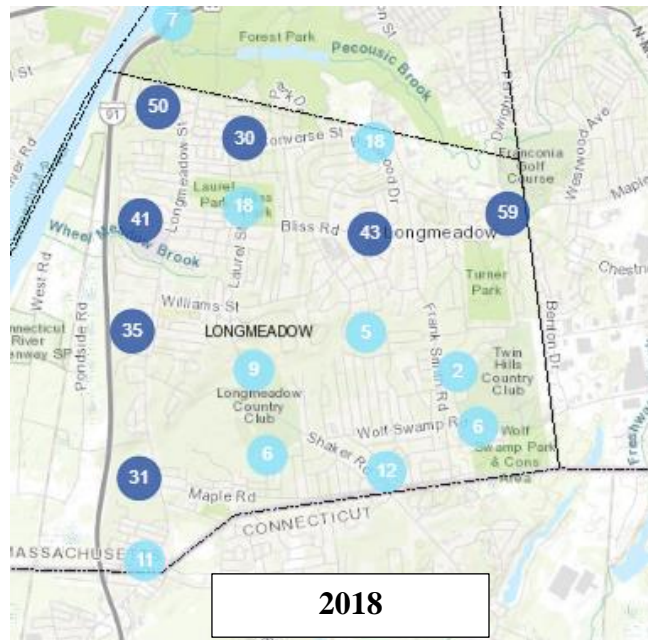
The intersection of Dwight Street and Converse Street was recently upgraded in the year 2019-20 after a major commercial facility was developed in the vicinity of this location. These improvements would help in reducing the crashes at this location in future. The PVPC will observe the future trends at this location to monitor the changes and impacts of new signal and other transportation infrastructure enhancements. The PVPC further plans to propose transportation safety studies at 2 other locations identified above after consulting with the Town of Longmeadow. A traffic safety study can help in understanding the factors leading to higher crashes at these locations based on which recommendations for transportation improvements can be developed.



2016



2017



2018