

Traffic and Transportation Study
at the Intersection of
Page Boulevard (Route 20) and Bircham Street
in the City of Springfield, MA

June 2022



**PREPARED UNDER THE DIRECTION OF THE PIONEER VALLEY MPO BY:
THE PIONEER VALLEY PLANNING COMMISSION**

In Cooperation with The City of Springfield

Prepared in cooperation with the Massachusetts Department of Transportation and the U.S. Department of Transportation. The views and opinions of the Pioneer Valley Planning Commission expressed herein do not necessarily state or reflect those of the Massachusetts Department of Transportation or the U.S. Department of Transportation.

Cover Pictures: May 19th, 2022

Top: Guardrail along northwest corner of the intersection, to the west of Bircham Street

Middle: Bircham Street approach from Page Boulevard westbound

Bottom: Chevrons and Curve Ahead signs along Page Boulevard eastbound approach

If information is needed in another language, please contact the PVPC Title VI Specialist by phone at (413) 781-6045.

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Contents

Study Area	3
Existing Conditions	5
Transportation Infrastructure	5
Pavement	5
Curbing, Sidewalks, and Guardrail	5
Regulatory and Warning Signs	5
Average Daily Traffic	5
Speed	6
Peak Hour Volume and Turning Movement Counts	7
Congestion and Level of Service	9
Crash Data Analysis	10
Signal Warrants	12
Crash Data Analysis and Crash Warrant	13
Results and Interpretation	13
Recommendations to Improve Transportation Conditions	14
Issues and Alternate Mitigation Measures	15
Issue 1: Congestion and Delay	15
Page Boulevard	15
Bircham Street	16
Issue 2: Traffic Safety and Travel Speeds	17
 Figure 1: Aerial View of the Intersection from Google Maps	3
Figure 2: Guard Rail and Damaged Fence along Northwest corner of the Intersection.....	4
Figure 3: Chevron Signs along Northern Side of Page Boulevard	4
Figure 4: Travel Speed in Percentage of Vehicles Along Westbound Approach of Page Boulevard	6
Figure 5: Travel Speed in Percentage of Vehicles along Eastbound Approach of Page Boulevard	7
Figure 6: Peak Hour Turning Movement Counts	8
Figure 7: Crash Type.....	11

Table 1: LOS Designations	9
Table 2: Existing LOS at the Intersection of Page Boulevard and Bircham Street	10
Table 3: Crash Data Classification	11
Table 4: Crash Severity	11
Table 5: Summary of Driver Contribution Codes	12
Table 6: First Harmful Event Summary	12
Table 7: Signal Warrant Analysis Results	13

Appendix 1: Traffic Volumes

Appendix 2: Traffic Speeds

Appendix 3: Special Speed Regulation Report No. 680-E

Appendix 4: Turning Movement Counts

Appendix 5: Crash Data

Appendix 6: Signal Warrant Analysis Results

Safety Study and Signal Warrant Analysis at the Intersection of Page Boulevard (Route 20) and Bircham Street in the City of Springfield, MA

The City of Springfield requested the Pioneer Valley Planning Commission (PVPC) to conduct an assessment of existing safety and operational characteristics at the intersection of Page Boulevard and Bircham Street as a part of the Unified Planning Work Program 2022. This analysis also includes a review of existing traffic volumes to determine if the minimum required thresholds for the installation of a traffic signal are met. The following sections provide an overview of the study area, an assessment of existing conditions and a series of recommendation to improve traffic flow and safety.

Study Area

The intersection of Page Boulevard and Bircham Street is a three-legged unsignalized intersection located in the northern part of Springfield, east of Interstate 291 along one of the important east-west transportation corridors, Route 20. The Bircham Street approach to this intersection is controlled by a 'Stop' sign. Land uses in the vicinity of the intersection are predominantly residential, however Page Boulevard serves a mix of residential and commercial development.

Figure 1: Aerial View of the Intersection from Google Maps



Bircham Street intersects Page Boulevard along a horizontal curve. Multiple post mounted, double sided chevron signs are installed along the curve on Page Boulevard. A post mounted solar powered speed feedback sign is located along the Page Boulevard eastbound approach to the intersection. Streetlights

are installed along both sides of Page Boulevard in the vicinity of the intersection. Sidewalks are provided on both sides of Page Boulevard and granite curbing is provided in the vicinity of the intersection. A double line crosswalk is located across the Bircham Street approach to the intersection. A guard rail is provided along the northwest corner of the intersection which extends down the west side of Bircham Street. A white wooden fence behind this guard rail was damaged at the time of the field inventory.

Figure 2: Guard Rail and Damaged Fence along Northwest corner of the Intersection



Page Boulevard (Route 20) is a four-lane undivided highway classified as urban principal arterial which is aligned in the northeast-southwest directions in the vicinity of the study area. The speed limit along a major section of Page Boulevard is 40 mph for traffic moving in both directions which is reduced to 35 mph in the immediate vicinity of the intersection. No shoulders are provided on either side of the road and many areas were noted to have drainage issues, pavement deterioration and overgrown vegetation.

Figure 3: Chevron Signs along Northern Side of Page Boulevard



Bircham Street is a local residential street approximately 30 feet wide with one travel lane in each direction and no marked shoulders. It connects Page Boulevard to Worcester Street (Route 141) and Cadwell Drive to the north. The layout of Bircham Street makes it an ideal cut-through route for traffic to avoid Berkshire Avenue and Caldwell Drive.

Existing Conditions

This section provides a technical evaluation of the transportation components for the intersection. It includes a presentation of the data collected, analysis of traffic operations, and a series of observations and conclusions derived from the analysis.

Transportation Infrastructure

Pavement

Overall, the pavement at the intersection is in Fair to poor condition with scattered cracks, pot holes, and rutting along Page Boulevard. Bircham Street is in fair condition. No remarkable drainage issues were observed during the data collection however the lack of shoulders could result in ponding in the travel lanes during heavy rain events. Pavement markings have moderately faded along Page Boulevard and crosswalk markings along Bircham Street are faded at several locations. The stop line at Bircham Street is in fair to good condition. The retro reflectivity of the pavement markings at night is good.

Curbing, Sidewalks, and Guardrail

The granite curbing along the intersection was mostly intact and sidewalks are raised and separated from the pavement by a grass strip along Page Boulevard. The sidewalks have overgrown vegetation and dirt accumulation at several locations. The guard rail along the northwest corner is in good condition but the fence for the private residence immediately behind the guardrail is broken, which indicates it could have been hit by a vehicle or vehicles in past.

Regulatory and Warning Signs

Post mounted Chevron signs along northern side of the curve on Page Boulevard are not visible to the vehicles travelling in the far-right lane along eastbound approach if there are larger vehicles in the adjacent inside/left lane travelling in the same direction. It was also noted that the chevrons are beginning to fade and may not have a high level of reflectivity at night. The speed limit sign for the eastbound approach is in good condition. No advance warning signs about the approaching intersection were observed along either side of Page Boulevard.

Average Daily Traffic

The Pioneer Valley Planning Commission (PVPC) collected daily traffic counts and speed data along all three approaches of the intersection midweek in October 2021. The volumes obtained from the counts have not been adjusted with seasonal adjustment factors for the purpose of analyses in this report. It is possible that some of the results in the warrant analysis or level of service analysis might change if these factors were applied. [Appendix 1](#) summarizes the traffic counts along each approach separated by direction of travel. The Average Daily Traffic (ADT) on Bircham Street is 3,110 vehicles. The ADT for Page Boulevard is 18,740 vehicles in the westbound direction and 16,979 vehicles in the eastbound direction.

Speed

Appendix 2 depicts the travel speed of vehicles in the vicinity of the intersection separated by direction of travel. The speed limit along a major section of Page Boulevard is 40 mph for traffic moving in both directions which is reduced to 35 mph in the immediate vicinity of the intersection. There is a regulatory speed limit sign informing drivers to reduce their speeds to 35 mph in the vicinity of the intersection for the eastbound approach. It is verified from the Special Speed Regulation (The City of Springfield, No. 680-E, October 23rd, 1985) data obtained from MassDOT (Appendix 3) that the speed limit for westbound traffic is also reduced to 35 mph in the vicinity of the intersection; however, no speed limit regulatory sign is currently provided for this direction. Bircham Street is a local residential street and there is not speed limit sign posted in either direction of travel.

The average speed of vehicles travelling along Bircham Street is 28 mph with an 85th percentile speed of 31.9 mph for both directions of travel. Similarly, the average speed along Page Boulevard (both approaches combined) is 38.7 mph with an 85th percentile speed of 44.5 mph. The 85th percentile speed is the speed at which 85% of all traffic is travelling at or below.

Speeds for the study area were further classified into 5 mph ranges to identify the percentage of traffic in each range. This information is presented in Figures 4 and 5. It is observed that more than 80% of vehicles along the eastbound approach are travelling above the posted speed limit. This percentage is reduced slightly to almost 70% in the westbound direction. Nearly 20% of vehicles are travelling over 45 mph in the eastbound direction as they approach the intersection.

Figure 4: Travel Speed in Percentage of Vehicles Along Westbound Approach of Page Boulevard

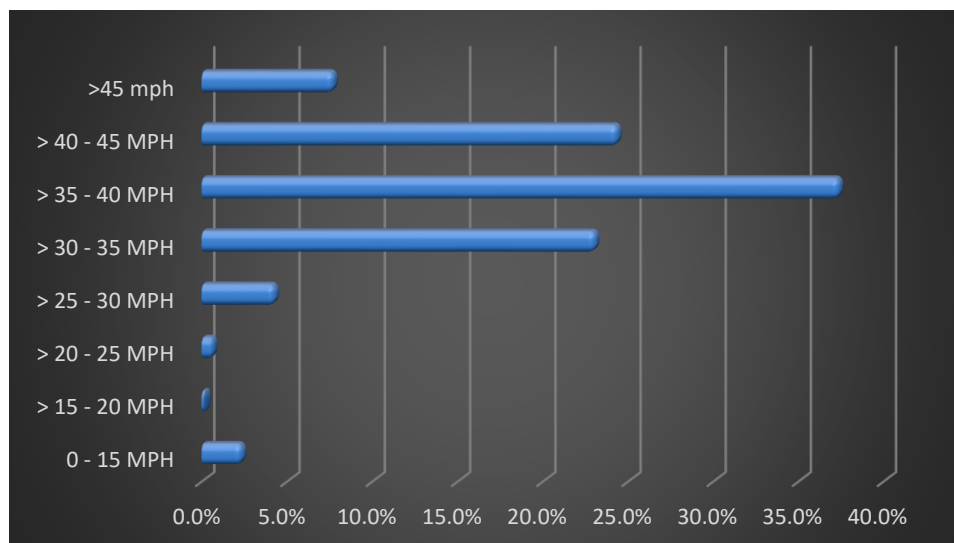
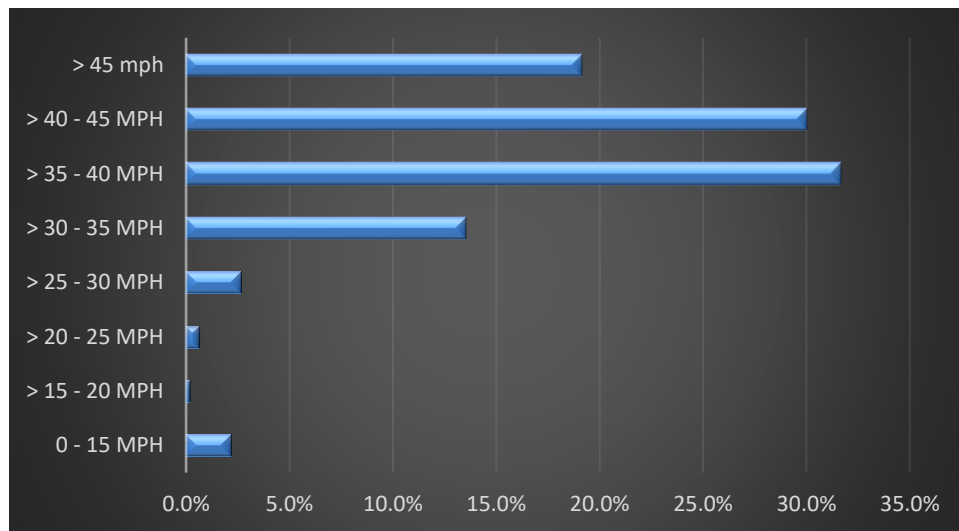


Figure 5: Travel Speed in Percentage of Vehicles along Eastbound Approach of Page Boulevard



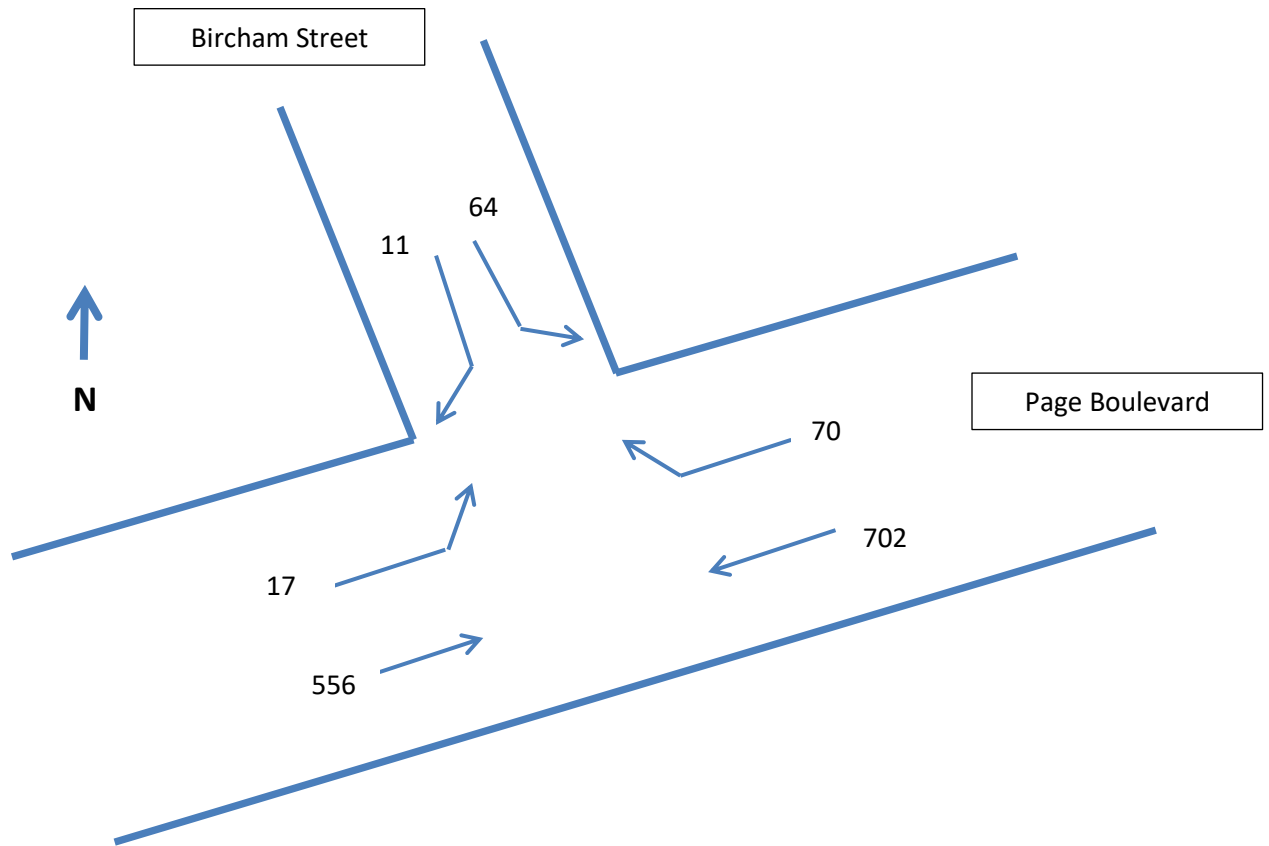
Peak Hour Volume and Turning Movement Counts

Turning Movement Counts (TMCs) were conducted for the intersection during the peak commuter periods. The weekday peak commuter period occurs during the morning hours of 7:00 AM to 9:00 AM and the afternoon hours of 2:00 PM to 6:00 PM. The TMC's were conducted to identify the peak four consecutive 15-minute periods of traffic through the intersection. These consecutive peaks 15-minute periods constitute a location's Peak Hour Volume. The peak hour of traffic volume represents the most critical period for operations and will be the focus for some of the analysis conducted in this study.

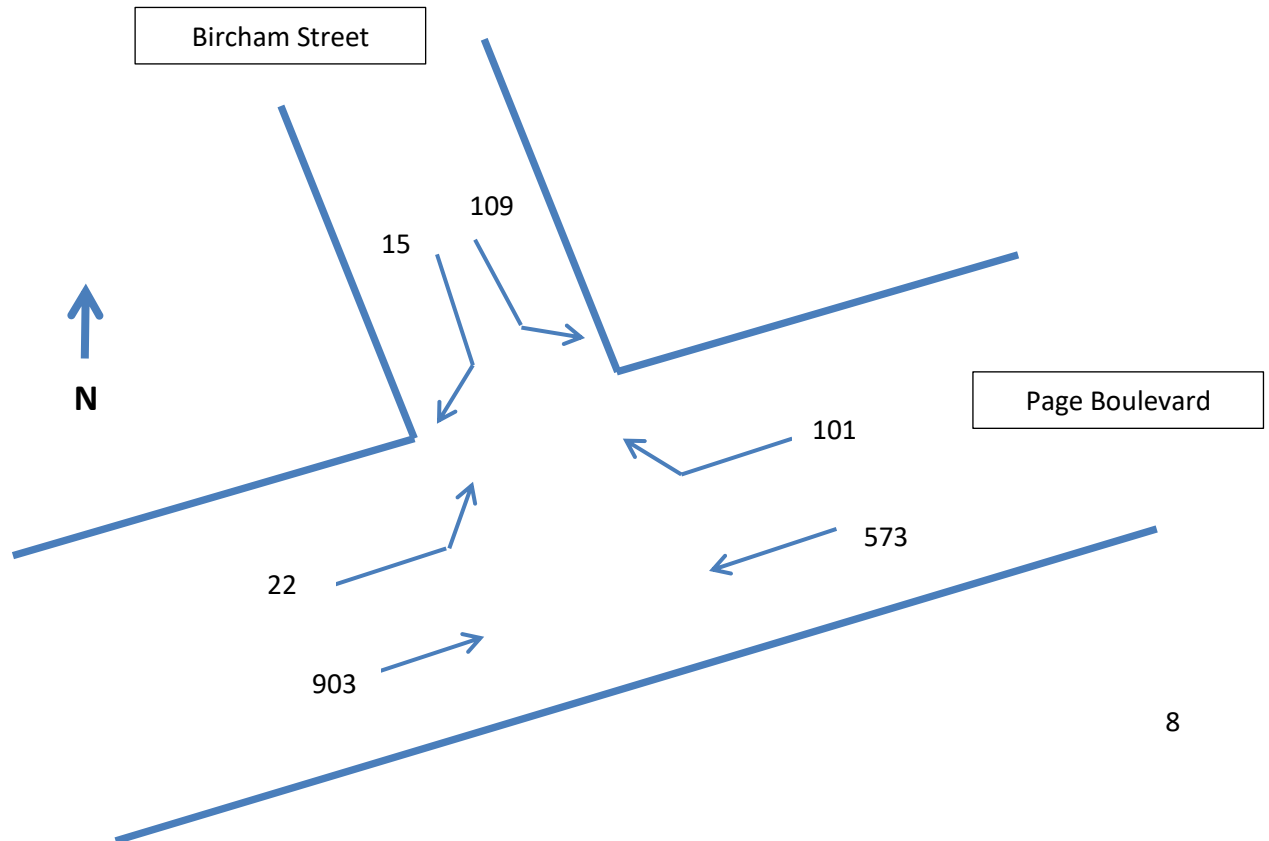
The TMC data also identifies the number of heavy vehicles on the roadway. Heavy vehicles include trucks, recreational vehicles and buses. Appendix 4 represents the data and volume by movement along each approach broken by these 15-minute intervals. Figure 6 depicts the peak hour interval and volumes at the intersection. The percentage of heavy vehicles in the traffic flow is an important component in calculating the serviceability of a corridor or intersection. Trucks impact traffic flow because they occupy more roadway space than passenger cars and have poorer operating capabilities with respect to acceleration, deceleration and maneuverability. The impact of these factors is utilized as an input to obtain the level of service along the intersection. The TMC data was obtained during weekday peak periods.

Figure 6: Peak Hour Turning Movement Counts

Morning Peak Hour Turning Movement Counts (7:15 am to 8:15 am)



Afternoon Peak Hour Turning Movement Counts (4:00 pm to 5:00 pm)



A vast majority of vehicles exiting Bircham Street turn left onto Page Boulevard during both the morning and afternoon peak hours. It was observed during data collection and multiple field visits that at certain intervals there were queues of more than six vehicles waiting to exit Bircham Street. Bircham Street is likely utilized as a cut through route to travel between Worcester Street and Page Boulevard.

The volume of vehicles currently turning left from Page Boulevard onto Bircham Street is low during both the morning and afternoon peak hours. This is a movement of concern because of the higher potential for conflict with the high volume of through traffic in the opposite direction. Left turning traffic from Page Boulevard onto Bircham Street was not observed to create queues during data collection.

Congestion and Level of Service

The intersection was examined regarding capacity and delay characteristics to determine the existing Level of Service (LOS). LOS is an indicator of the operating conditions which occur on a roadway under different volumes of traffic and is defined in the Highway Capacity Manual by six levels, 'A' through 'F'. Several operational factors can influence the LOS including geometry, travel speeds, delay, and the number of pedestrians. Depending on the time of day and year, a roadway may operate at varying levels. Level of Service 'A' represents the best operating conditions and is an indicator of ideal travel conditions with vehicles operating at or above posted speed limits with little or no delays. Conversely, LOS 'F', or failure, generally indicates forced flow conditions illustrated by long delays and vehicle queues. Level of Service 'C' indicates a condition of stable flow and is generally considered satisfactory in rural areas. Under LOS 'D' conditions, delays are considerably longer than under LOS 'C' but are considered acceptable in urban areas. At LOS 'E' the roadway begins to operate at unstable flow conditions as the facility is operating at or near its capacity. Table 1 depicts the delay and LOS designations along unsignalized intersections as per Highway Capacity Manual. Table 2 depicts the results of PVPC's LOS Analysis.

Based on the results of the capacity analysis, Page Boulevard left turning vehicles experienced minimal delay. As noted above, the low volume of vehicles making this turn results in minimal congestion along this approach and a lower potential for conflict. Vehicles travelling along Bircham Street were calculated to operate at Level of Service 'D' in the morning peak hour which is acceptable along urban roadways. (Table 3) The level of service however deteriorated to 'F' in the afternoon. The longer delays in the afternoon correspond with the conditions required to consider traffic signal warrants, which is discussed later in the report. The higher volume of left turning vehicles from Bircham Street contribute to the longer delays and congestion issues at this intersection.

Table 1: LOS Designations

Level of Service	Expected Delay to Minor Street	Average Control Delay (s/veh)
A	Little or no delay	0.0 to 10.0
B	Short Traffic Delays	>10.0 to 15.0
C	Average Traffic Delays	>15.0 to 25.0
D	Long Traffic Delays	>25.0 to 35.0
E	Very Long Delays	>35.0 to 50.0
F	Extreme Delays	>50.0

Table 2: Existing LOS at the Intersection of Page Boulevard and Bircham Street

Street	Approach	Movement	AM Peak Hour		PM Peak Hour	
			Delay in seconds	LOS	Delay in seconds	LOS
Page Boulevard	Eastbound	Left	0.02	A	0.3	A
		Through	0.24	A	0.3	A
	Westbound	Through	0.3	A	0.24	A
		Right	0.19	A	0.19	A
Bircham Street	Southbound	Left/Right	33.9	D	66.2	F

Crash Data Analysis

Crash data was obtained from MassDOT’s IMPACT crash portal utilizing the spatial query for the five-year period between calendar years 2017 to 2021. A total of 38 crashes were reported in the study area at the intersection within this time period. Table 3 represents the classification of these crashes and circumstances and conditions under which these crashes were reported to have occurred. A vast majority of crashes occurred during daylight hours, under clear weather and dry road conditions. Figure 7 depicts the manner of collisions or crash type. A majority of crashes were angle type collisions, followed by single vehicle crashes.

Table 4 depicts the crash severity reported for these crashes. Almost half of the crashes were non-injury crashes resulting in property damage only. There were no fatalities or incapacitating injuries reported during the analysis period of 5 years. Table 5 depicts the driver contribution codes for each crash. The driver contribution code provides a detailed outlook of the different factors that lead to the crash. There can be more than one contributing code for each crash. The most cited or observed cause of crashes was ‘Failure to Yield Right of Way’. This could be a result of the heavy left turning traffic volume from Bircham Street that conflicts with four lanes of through traffic along Page Boulevard. Speeding was recorded as a contributing factor for 6 crashes at the intersection.

Table 3: Crash Data Classification

Year	Total	Manner of Collision		Severity		Weather Condition		Road Condition		Light Condition	
2017	9	Angle	4	No injury	2	Blowing sand, snow/Cloudy	1	Dry	6	Dark - lighted roadway	2
		Rear-end	1	Non-fatal injury - Non-incapacitating	2	Clear	6	Snow	1	Dark - roadway not lighted	1
		Sideswipe, same direction	1	Non-fatal injury - Possible	4	Rain	2	Wet	2	Dawn	1
		Single vehicle crash	2	Unknown	1			Dry	9	Daylight	5
		Unknown	1					Ice	1		
2018	11	Angle	7	No injury	8	Clear	10	Dry	9	Dark - lighted roadway	2
		Rear-end	1	Non-fatal injury - Non-incapacitating	1	Cloudy/Rain	1	Ice	1	Daylight	9
		Sideswipe, same direction	1	Non-fatal injury - Possible	2			Wet	1		
		Single vehicle crash	2								
2019	8	Angle	4	No injury	4	Clear	5	Dry	6	Dark - lighted roadway	3
		Single vehicle crash	4	Non-fatal injury - Non-incapacitating	1	Clear/Unknown	1	Snow	1	Daylight	5
				Non-fatal injury - Possible	3	Rain	1	Wet	1		
						Snow	1				
2020	4	Angle	1	No Apparent Injury (O)	2	Clear	2	Dry	1	Dark - lighted roadway	1
		Sideswipe, same direction	1	No injury	1	Rain	1	Slush	1	Daylight	3
		Single vehicle crash	2	Non-fatal injury - Possible	1	Snow/Rain	1	Wet	2		
2021	6	Angle	4	No Apparent Injury (O)	3	Clear	4	Dry	5	Dark - lighted roadway	2
		Single vehicle crash	2	Suspected Minor Injury (B)	2	Cloudy	1	Snow	1	Daylight	4
				Suspected Serious Injury (A)	1	Snow	1				

Figure 7: Crash Type

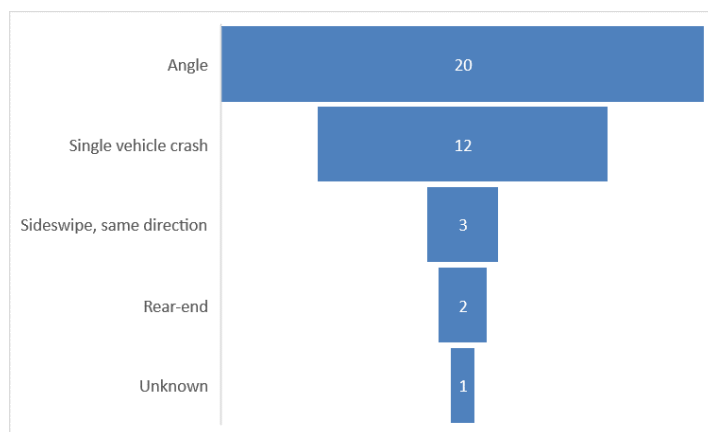


Table 4: Crash Severity

No injury	15
Non-fatal injury - Possible	10
No Apparent Injury (O)	5
Non-fatal injury - Non-incapacitating	4
Suspected Minor Injury (B)	2
Suspected Serious Injury (A)	1
Unknown	1

Table 5: Summary of Driver Contribution Codes

Failed to yield right of way	11
No improper driving	10
Inattention	7
Failure to keep in proper lane or running off road	6
Speeding	6
Disregarded traffic signs, signals, road markings	3
Swerving or avoiding vehicle, object, non-motorist in roadway, etc.	3
Unknown	3
Other improper action	2
Over-correcting	1

A total of 9 collisions were reported to have occurred when a motor vehicle crashed into a guardrail (Table 6). Seven of these nine crashes occurred with vehicle travelling in the westbound direction on Page Boulevard. Five occurred during wet conditions and five during hours of darkness. This category follows the 'Collision with motor vehicle in traffic' as the second most occurring event which resulted in a crash. As mentioned in the Study Area section, the fence behind guardrail along the northwest corner of the intersection is damaged and it can be concluded that it has been hit by vehicles possibly more than once. The high speed of vehicles along Page Boulevard and the curve along the roadway could be the contributing factor behind these crashes. It was also observed during the field inventory that the guardrail can be difficult to see due to overgrown vegetation that may interfere with reflectors on the guardrail. The westbound approach Page Boulevard may also benefit from enhanced pavement markings to guide vehicles through the curve in the vicinity of the intersection.

Table 6: First Harmful Event Summary

Collision with motor vehicle in traffic	24
Collision with guardrail	9
Collision with curb	2
Collision with other light pole or other post/support	1
Collision with tree	1
Other non-collision	1

Signal Warrants

The Manual on Uniform Traffic Control Devices (MUTCD) identifies eight different warrants to evaluate if an intersection meets the minimum requirements for signalization. One or more warrants must be satisfied to justify the installation of a traffic signal; however, engineering judgment ultimately dictates if an intersection warrants the installation of a signal. The installation of a traffic signal must also improve

the safety and operation of the location under study. Table 7 presents the results of the signal warrant analysis (SWA). Of the eight total warrants for the installation of a traffic signal, Warrant1 – Eight Hour Vehicular Volume is generally considered the most important as it requires minimum volumes to be met on both the major and minor streets for at least eight hours. Warrant 2 – Four Hour Vehicular Volume and Warrant 3 – Peak Hour Volume also require minimum volumes to be met but over shorter timeframes. Warrant 7 – Crash Experience requires 80% of the volume requirements of Warrant 1 to be satisfied and at least 5 crashes of a type correctable through traffic signalization to have occurred over the last year. This warrant also requires that less restrictive remedies such as improved signage and pavement markings be tried and have failed to reduce crashes before a signal can be installed.

Crash Data Analysis and Crash Warrant

Crash data obtained from MassDOT’s IMPACT portal depicted a total of 20 angle type collisions within the five-year period between 2017 – 2021. This number is less than the required average of five annual crashes which can potentially be prevented by the installation of a signal. Angle collisions are considered the one type which qualifies as potentially preventable through the installation of a traffic signal. Based on MassDOT data, the Crash Warrant is not satisfied under current conditions. Crash Data obtained from IMPACT is attached in [Appendix 5](#).

Results and Interpretation

Table 7 represents the results of the SWA conducted utilizing Highway Capacity Software (HCS) 2022. The intersection meets volume requirements for the first three warrants as specified by the MUTCD. The detailed analyses sheets from HCS are presented in Appendix 6.

Table 7: Signal Warrant Analysis Results

	Description	Result
Warrant 1	Eight – Hour Vehicular Volume	Satisfied
Warrant 2	Four- Hour Volume	Satisfied
Warrant 3	Peak Hour Volume	Satisfied
Warrant 4	Pedestrian Volume	Not Satisfied
Warrant 5	School Crossing	N/A
Warrant 6	Coordinated Signal System	N/A
Warrant 7	Crash Experience	Not Satisfied
Warrant 8	Road Network	N/A
Warrant 9	Intersection Near a Grade Crossing	N/A

Warrant 1 is satisfied under condition B which accounts for the *Interruption of Continuous Traffic* along the major street. Condition B is intended for application at locations where traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. Bircham Street does experience longer delays during the afternoon peak hour however, based on field observations and data collected by the PVPC the delays are not as

significant during other periods of the day. Warrants 2 and 3 are also satisfied by the volume of traffic and delay along Bircham Street.

The MUTCD guidelines specify that in addition to meeting a Signal Warrant, engineering judgement and justification of proper measures to improve existing traffic conditions should be considered in making decisions regarding new signal installation. Alternate measures to mitigate traffic problems along the intersection should be considered simultaneously while examining the potential effectiveness of the signal in alleviating those issues. Under the current circumstances, it is recommended that the City of Springfield consider other alternative measures to improve conditions at this location before considering a traffic signal. The installation of a signal might potentially decrease delay and queueing along the Bircham Street approach; however, the traffic on Page Boulevard would experience higher congestion and delays. Further, a traffic signal could encourage more traffic to turn left from Page Boulevard onto Bircham Street resulting in higher traffic volumes and travel speeds on Bircham Street. The installation of a signal could assist in reducing the current number of angle collisions at the intersection but there is a possibility that rear end collisions could increase in number due to longer queues of vehicles and the existing curvature of Page Boulevard.

It is also worthy to note that this analysis is based upon actual, unadjusted traffic volumes collected at the intersection. Traffic volumes tend to fluctuate by day of the week and time of the year. Information on seasonal traffic volume fluctuation from MassDOT shows that traffic volumes in the month of October are typically 6% higher than average conditions. PVPC chose not to adjust the traffic data collected for this study as the regional travel patterns and traffic volumes were heavily impacted by the Covid-19 Pandemic. Traffic Volumes and conditions have still not returned to the pre-pandemic levels and additional data is necessary to understand the true long-term impact of the pandemic on regional traffic. Therefore, it is recommended that this location get revisited in the next 3-5 years to observe if the recommendations outlined in this report have had a positive impact on traffic congestion and safety in the vicinity of the intersection. Should the intersection show a lack of improvement, it is recommended that another traffic signal warrant analysis be considered for this intersection.

Recommendations to Improve Transportation Conditions

The following recommendations are presented for the City of Springfield to consider to improve traffic safety and travel conditions in the vicinity of the intersection of Page Boulevard with Bircham Street. These recommendations are considered short term recommendations that could be implemented over the next 3 years.

1. It is recommended that the City consider improving the pavement condition and repainting pavement markings with high retro reflective paint to ensure proper visibility and compliance. The City could also consider painting speed limit markings within the travel lanes along Page Boulevard to improve compliance with the posted speed limits. Wider edge lines in the vicinity of the intersection would enhance the visibility of the edge of the pavement and granite curb particularly through the existing curve. Guidance from the Federal Highway Administration indicates that edge lines can be up to 6 inches wide.

2. The current Speed Feedback sign along eastbound approach of Page Boulevard is located right at the intersection. The City of Springfield could consider moving this sign farther to the west of the intersection to encourage vehicles to slow down in advance of approaching this intersection. The use of flashing yellow warning beacons could improve the visibility of this speed limit sign.
3. Overgrown vegetation along the westbound approach of Page Boulevard makes visibility of warning signs and regulatory signs difficult. It is suggested that the City consider trimming and maintaining the vegetation along this section of roadway on regular basis.
4. Currently there are curve warning signs along the roadway however there are no advance warning signs to alert drivers about the potential for entering traffic as they approach the intersection. It is recommended that the City of Springfield consider installing appropriate supplemental 'Intersection Ahead' warning signs along both approaches of Page Boulevard.
5. Based on information received from MassDOT, the existing 35 mph Speed Limit sign for the westbound approach of Page Boulevard is missing. This speed regulation information is included in the appendix to this document. It is recommended that the City review this information and coordinate with MassDOT to identify where a new 35 mph speed limit sign should be located. It is also recommended that a Reduced Speed Limit Ahead warning sign be considered for the westbound approach of Page Boulevard to alert drivers of the reduction in the posted speed limit from 40 mph to 35 mph in advance of the intersection and curve.
6. The post mounted chevron signs need to be updated and mounted higher according to the guidelines of the Manual of Uniform Traffic Control Devices. (MUTCD). New signs will improve the visibility and help define the curve along Page Boulevard in the vicinity of the intersection.
7. The guardrail along the northwest corner of the intersection does not have reflective chevrons. It is recommended that reflective high visibility chevrons get installed along the guardrail to improve visibility and reduce possibility of vehicles crashing into it. Removal of the overgrown vegetation in the vicinity of the guardrail will also assist in improving the visibility of this guardrail.

Issues and Alternate Mitigation Measures

In addition to regular infrastructure improvements and maintenance in the vicinity of this location, potential Traffic Calming measures can help to reduce travel speeds which in turn can reduce the potential for crashes as well as reduce the severity of crashes. Appropriate regulatory measures can also help to better guide traffic flow and reduce congestion along Bircham Street.

Issue 1: Congestion and Delay

Page Boulevard

Left Turns from the eastbound approach of Page Boulevard do not experience significant delays under current conditions. As can be seen from the turning movement counts, the volume of left turning vehicles during both peak hours is significantly lower than through traffic.

Bircham Street

Bircham Street experiences longer delays during the afternoon peak hour due to a higher volume of left turning traffic. The installation of a signal is not recommended at this time. Alternative lower cost, short term recommendations may result in improvements to travel speeds and safety. The following alternative mitigation strategies could be considered by the City.

Alternate Mitigation Strategies

Regulatory and traffic flow design measures can be undertaken at this intersection to alleviate congestion. Some major cities in the region like Northampton and Westfield have experimented with temporary infrastructure installation along roadway to implement and try new traffic flow patterns and get public input while observing the new operations and examining their effectiveness. The City of Springfield could consider undertaking the following traffic flow changes at the intersection of Page Boulevard with Bircham Street.

- (i) **One-Way Designation**
Bircham Street could be designated as ONE-WAY enter only (northbound) at this intersection. This will eliminate delays at the intersection as there would no longer be any exiting traffic onto Page Boulevard. Exiting traffic from Bircham Street could be diverted to 2nd Street to the west and Fiberloid Street to the east via Worcester Street (Route 141). This measure could also reduce the volume of cut through traffic using Bircham Street. This improvement will result in an inconvenience for the residents that live on and immediately off Bircham Street. Another potential negative feature of this change is that travel speeds along Bircham Street could increase as vehicles have more freedom to maneuver under one way traffic flow. This change would require advance communication with local residents and emergency responders to ensure they have the opportunity to identify any concerns they may have with this change.
- (ii) **Restricting Left Turns out of Bircham Street by installing a Regulatory Sign**
As can be observed by the Turning Movement Counts, an overwhelming majority of vehicles at Bircham Street make a left turn from Bircham Street onto Page Boulevard. If this movement is restricted by installing regulatory signs there is a possibility that left turning vehicles could be diverted to Cadwell Drive and Route 141. The potential problem with this measure is that in absence of a median barrier it will be difficult to enforce this restriction.
- (iii) **Median Barrier and Restricting Left Turns (for both Page Boulevard and Bircham Street)**
Installing a median barrier between the four lanes of Page Boulevard will restrict the left turns from Bircham Street and left turns from Page Boulevard. Vehicles along Page Boulevard can utilize 2nd Street and Rio Vista Street to access Bircham Street. The City of Springfield could consider temporary barriers to observe the impact of such a change before installing permanent median or guardrail, however the lack of shoulders in this area may create the opportunity for more collisions with the temporary barriers. The large negative impact of this improvement is the need to widen Page Boulevard to safely accommodate a

median. This would have a higher implementation cost and could require the acquisition of private property if there is not sufficient right-of-way on Page Boulevard.

Issue 2: Traffic Safety and Travel Speeds

This location does not satisfy the crash warrant based on the average number of angle type crashes; however, there is a concern that higher percentage of angle crashes could contribute to more severe crashes at this intersection. MUTCD guidelines indicate that other adequate and alternative improvement measures should be considered with satisfactory observance and enforcement before installation of a signal for the sole purpose of reducing crash occurrence.

Intersection sight distance for the intersection could be improved through the maintenance of existing vegetation along Page Boulevard. The existing speed limits on Page Boulevard vary along the roadway. Improved visibility and advance communication of the posted speed limits would help to improve driver compliance.

Mitigation Strategies

(i) Traffic Speed Regulation/Enforcement

The 85th percentile speeds along Page Boulevard in both directions were recorded to exceed the posted speed limits. Based on speed regulation information received from MassDOT, it appears that a 35-mph speed limit sign is missing for westbound traffic on Page Boulevard approaching the intersection. It is recommended that the City review this information and coordinate with MassDOT to identify where a new 35 mph speed limit sign should be located. Enhanced enforcement of the existing speed limit will also help to increase awareness and compliance of the posted speeds.

(ii) Advance Warning and Regulatory Signs

Installation of additional high visibility Speed Limit signs accompanied by appropriate advance warning signs of 'Approaching Intersection' could help in alerting drivers the intersection with Bircham Street. It is also recommended that advance warning signs for the curve be installed at appropriate locations along both approaches of Page Boulevard. The MUTCD provides design guidelines for high visibility regulatory signs (e.g., solar flashing LED signs) to ensure the compliance along four lane higher speed roadways. Finally, a Reduced Speed Limit Ahead warning sign for the westbound approach of Page Boulevard will alert drivers of the reduction in the posted speed limit from 40 mph to 35 mph in the vicinity of the intersection.

(iii) Speed Feed Back Signs

Mobile Speed feedback signs are most effective in regulating speed limits along transportation corridors. Placing these units along both directions could greatly help in reducing the speed of vehicles which decreases the potential for traffic conflicts and crashes. There is already an existing speed transition zone in the vicinity of this intersection

where travel speeds along both directions of Page Boulevard are reduced to 35 mph from 40 mph. To reduce the severity of crashes, the City of Springfield could consider an engineering study to examine the feasibility of reducing the speed limit to 30 mph in the vicinity of the intersection.

(iv) Enhanced pavement markings and signs

Additional pavement markings and well maintained highly visible lane markings play a large role in reducing traffic speeds along roadways. These measures can also help focus drivers' attention on their speed and make them aware to comply by regulations. Similarly, wider roadway lane lines and edge lines can help to keep drivers in the proper travel lane. New regulatory and warning signs have higher visibility and reflectivity and could assist in defining the existing curve in the vicinity of the intersection.

(v) Road Diet

The City of Springfield could undertake a larger corridor wide study to examine the possibility of reducing the number of travel lanes along Page Boulevard. The two most widely used measures are the installation of center two way left turn lanes or transitions to exclusive left turn lanes for select intersections. This would require a study of longer sections of Page Boulevard and that considers the long-term impacts of such a change.

APPENDIX 1

TRAFFIC VOLUMES

60 Congress Street
Springfield, MA 01104
(413) 781-6045 www.pvpc.org

Location : Springfield
Operator : AK
Counter # : 2070
Road Class : U Local

Site Code: 10037
Station ID:
Location 1: Bircham St.
Location 2: N/O Page Blvd.

10/11/2021		10/11/2021		10/12/2021		10/13/2021		10/14/2021		10/15/2021		Weekday Average		10/16/2021		10/17/2021	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
12:00 AM	*	*	*	*	*	*	8	15	12	10	10	12	*	*	*	*	
1:00	*	*	*	*	*	*	13	7	5	9	9	8	*	*	*	*	
2:00	*	*	*	*	*	*	8	7	8	12	8	10	*	*	*	*	
3:00	*	*	*	*	*	*	8	9	15	6	12	8	*	*	*	*	
4:00	*	*	*	*	*	*	15	19	17	19	16	19	*	*	*	*	
5:00	*	*	*	*	*	*	47	33	49	33	48	33	*	*	*	*	
6:00	*	*	*	*	*	*	110	59	97	59	104	59	*	*	*	*	
7:00	*	*	*	*	*	*	100	74	110	90	105	82	*	*	*	*	
8:00	*	*	*	*	*	*	99	84	89	75	94	80	*	*	*	*	
9:00	*	*	*	*	*	*	85	81	89	95	87	88	*	*	*	*	
10:00	*	*	*	*	12	21	75	78	67	91	51	63	*	*	*	*	
11:00	*	*	*	*	70	70	89	89	*	*	80	80	*	*	*	*	
12:00 PM	*	*	*	*	106	77	83	90	*	*	94	84	*	*	*	*	
1:00	*	*	*	*	95	103	107	88	*	*	101	96	*	*	*	*	
2:00	*	*	*	*	108	104	105	102	*	*	106	103	*	*	*	*	
3:00	*	*	*	*	112	123	100	120	*	*	106	122	*	*	*	*	
4:00	*	*	*	*	130	119	152	131	*	*	141	125	*	*	*	*	
5:00	*	*	*	*	125	107	120	118	*	*	122	112	*	*	*	*	
6:00	*	*	*	*	76	78	95	104	*	*	86	91	*	*	*	*	
7:00	*	*	*	*	63	82	84	72	*	*	74	77	*	*	*	*	
8:00	*	*	*	*	46	55	50	74	*	*	48	64	*	*	*	*	
9:00	*	*	*	*	39	43	46	52	*	*	42	48	*	*	*	*	
10:00	*	*	*	*	22	33	28	31	*	*	25	32	*	*	*	*	
11:00	*	*	*	*	14	32	12	31	*	*	13	32	*	*	*	*	
Total	0	0	0	0	1018	1047	1639	1568	558	499	1582	1528	0	0	0	0	
Day	0		0		2065		3207		1057		3110		0		0		
AM Peak					11:00	11:00	6:00	11:00	7:00	9:00	7:00	9:00					
Volume					70	70	110	89	110	95	105	88					
PM Peak					4:00	3:00	4:00	4:00			4:00	4:00					
Volume					130	123	152	131			141	125					
Comb Total	0		0		2065		3207		1057		3110		0		0		
ADT	ADT: 2,110		AADT: 2,110														

60 Congress Street
Springfield, MA 01104
(413) 781-6045 www.pvpc.org

Location : Springfield
Operator : AK/JM
Counter # : 2078
Road Class : U3

Site Code: 10035
Station ID:
Page Blvd
E/O Bircham Street

11/1/2021		11/1/2021		11/2/2021		11/3/2021		11/4/2021		11/5/2021		Weekday Average		11/6/2021		11/7/2021	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
12:00 AM	*	*	118	75	109	74	*	*	*	*	114	74	*	*	*	*	
1:00	*	*	59	73	69	68	*	*	*	*	64	70	*	*	*	*	
2:00	*	*	57	72	64	78	*	*	*	*	60	75	*	*	*	*	
3:00	*	*	81	68	85	67	*	*	*	*	83	68	*	*	*	*	
4:00	*	*	112	136	111	148	*	*	*	*	112	142	*	*	*	*	
5:00	*	*	181	241	212	257	*	*	*	*	196	249	*	*	*	*	
6:00	*	*	337	466	382	494	*	*	*	*	360	480	*	*	*	*	
7:00	*	*	485	607	581	706	*	*	*	*	533	656	*	*	*	*	
8:00	*	*	508	537	630	587	*	*	*	*	569	562	*	*	*	*	
9:00	*	*	512	492	578	531	*	*	*	*	545	512	*	*	*	*	
10:00	435	353	572	453	190	191	*	*	*	*	399	332	*	*	*	*	
11:00	577	507	590	460	*	*	*	*	*	*	584	484	*	*	*	*	
12:00 PM	600	508	596	498	*	*	*	*	*	*	598	503	*	*	*	*	
1:00	604	596	614	544	*	*	*	*	*	*	609	570	*	*	*	*	
2:00	746	619	705	588	*	*	*	*	*	*	726	604	*	*	*	*	
3:00	769	640	793	611	*	*	*	*	*	*	781	626	*	*	*	*	
4:00	754	573	918	527	*	*	*	*	*	*	836	550	*	*	*	*	
5:00	850	513	770	537	*	*	*	*	*	*	810	525	*	*	*	*	
6:00	575	455	572	466	*	*	*	*	*	*	574	460	*	*	*	*	
7:00	448	330	460	328	*	*	*	*	*	*	454	329	*	*	*	*	
8:00	338	263	353	276	*	*	*	*	*	*	346	270	*	*	*	*	
9:00	282	190	293	214	*	*	*	*	*	*	288	202	*	*	*	*	
10:00	225	185	239	202	*	*	*	*	*	*	232	194	*	*	*	*	
11:00	180	134	187	158	*	*	*	*	*	*	184	146	*	*	*	*	
Total	7383	5866	10112	8629	3011	3201	0	0	0	0	10057	8683	0	0	0	0	
Day	13249		18741		6212		0		0		18740		0		0		
AM Peak	11:00	11:00	11:00	7:00	8:00	7:00					11:00	7:00					
Volume	577	507	590	607	630	706					584	656					
PM Peak	5:00	3:00	4:00	3:00							4:00	3:00					
Volume	850	640	918	611							836	626					
Comb Total	13249		18741		6212		0		0		18740		0		0		
ADT	ADT: 12,734		AADT: 12,734														

Pioneer Valley Planning Commision

60 Congress Street
Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location : Springfield

Operator : AK/JM

Counter # : 2074

Road Class : U3

Site Code: 10036

Station ID:

Page Blvd

W/O Bircham Street

11/1/2021	11/1/2021		11/2/2021		11/3/2021		11/4/2021		11/5/2021		Weekday Average		11/6/2021		11/7/2021	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	99	71	100	72	*	*	*	*	100	72	*	*	*	*
1:00	*	*	55	68	70	60	*	*	*	*	62	64	*	*	*	*
2:00	*	*	53	68	57	74	*	*	*	*	55	71	*	*	*	*
3:00	*	*	74	62	81	64	*	*	*	*	78	63	*	*	*	*
4:00	*	*	100	117	101	127	*	*	*	*	100	122	*	*	*	*
5:00	*	*	175	223	184	226	*	*	*	*	180	224	*	*	*	*
6:00	*	*	325	402	381	440	*	*	*	*	353	421	*	*	*	*
7:00	*	*	418	561	557	619	*	*	*	*	488	590	*	*	*	*
8:00	*	*	512	509	562	512	*	*	*	*	537	510	*	*	*	*
9:00	360	287	457	455	526	483	*	*	*	*	448	408	*	*	*	*
10:00	498	417	568	397	141	125	*	*	*	*	402	313	*	*	*	*
11:00	546	455	531	425	*	*	*	*	*	*	538	440	*	*	*	*
12:00 PM	592	459	552	479	*	*	*	*	*	*	572	469	*	*	*	*
1:00	548	517	558	480	*	*	*	*	*	*	553	498	*	*	*	*
2:00	669	591	636	557	*	*	*	*	*	*	652	574	*	*	*	*
3:00	666	630	710	534	*	*	*	*	*	*	688	582	*	*	*	*
4:00	629	529	838	415	*	*	*	*	*	*	734	472	*	*	*	*
5:00	753	466	727	456	*	*	*	*	*	*	740	461	*	*	*	*
6:00	524	415	525	423	*	*	*	*	*	*	524	419	*	*	*	*
7:00	399	293	409	300	*	*	*	*	*	*	404	296	*	*	*	*
8:00	298	253	330	245	*	*	*	*	*	*	314	249	*	*	*	*
9:00	260	173	278	188	*	*	*	*	*	*	269	180	*	*	*	*
10:00	205	173	214	182	*	*	*	*	*	*	210	178	*	*	*	*
11:00	163	128	169	144	*	*	*	*	*	*	166	136	*	*	*	*
Total Day	7110	5786	9313	7761	2760	2802	0	0	0	0	9167	7812	0	0	0	0
AM Peak Volume	11:00 546	11:00 455	10:00 568	7:00 561	8:00 562	7:00 619					11:00 538	7:00 590				
PM Peak Volume	5:00 753	3:00 630	4:00 838	2:00 557							5:00 740	3:00 582				
Comb Total ADT	12896		17074		5562		0		0		16979		0		0	

APPENDIX 2

TRAFFIC SPEEDS

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2070

Road Class: Local

Direction: B

Site Code: 10037

Station ID:

Bircham St

O Page Blvd

10 13 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00	0	1	7	4	0	0	0	0	0	0	0	0	0	12
11:00	0	0	12	37	18	3	0	0	0	0	0	0	0	70
12:00 PM	0	0	19	51	32	4	0	0	0	0	0	0	0	106
1:00	2	2	15	54	21	0	1	0	0	0	0	0	0	95
2:00	1	3	18	52	33	0	1	0	0	0	0	0	0	108
3:00	0	4	15	63	28	2	0	0	0	0	0	0	0	112
4:00	0	5	13	68	38	5	1	0	0	0	0	0	0	130
5:00	1	0	16	62	40	6	0	0	0	0	0	0	0	125
6:00	0	1	11	51	12	1	0	0	0	0	0	0	0	76
7:00	0	2	7	40	14	0	0	0	0	0	0	0	0	63
8:00	0	1	7	30	8	0	0	0	0	0	0	0	0	46
9:00	0	0	6	23	6	3	0	1	0	0	0	0	0	39
10:00	0	0	0	14	7	1	0	0	0	0	0	0	0	22
11:00	0	0	1	5	7	1	0	0	0	0	0	0	0	14
Total	4	19	147	554	264	26	3	1	0	0	0	0	0	1018

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2070

Road Class: Local

Direction: B

Site Code: 10037

Station ID:

Bircham St

O Page Blvd

10 14 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	2	5	0	1	0	0	0	0	0	0	0	8
1:00	0	0	4	4	4	0	1	0	0	0	0	0	0	13
2:00	0	0	4	4	0	0	0	0	0	0	0	0	0	8
3:00	0	0	2	5	1	0	0	0	0	0	0	0	0	8
4:00	0	1	2	2	9	1	0	0	0	0	0	0	0	15
5:00	1	0	11	21	14	0	0	0	0	0	0	0	0	47
6:00	0	2	21	50	34	3	0	0	0	0	0	0	0	110
7:00	0	3	14	42	36	4	0	1	0	0	0	0	0	100
8:00	0	4	8	47	37	2	0	1	0	0	0	0	0	99
9:00	0	2	9	51	19	4	0	0	0	0	0	0	0	85
10:00	0	3	10	37	21	3	1	0	0	0	0	0	0	75
11:00	0	1	14	50	21	3	0	0	0	0	0	0	0	89
12:00 PM	0	2	11	36	26	7	1	0	0	0	0	0	0	83
1:00	0	1	9	59	35	3	0	0	0	0	0	0	0	107
2:00	2	2	18	45	35	3	0	0	0	0	0	0	0	105
3:00	4	1	19	52	21	3	0	0	0	0	0	0	0	100
4:00	0	1	27	83	38	3	0	0	0	0	0	0	0	152
5:00	0	5	24	57	29	4	1	0	0	0	0	0	0	120
6:00	0	1	20	45	24	4	1	0	0	0	0	0	0	95
7:00	0	3	11	40	28	2	0	0	0	0	0	0	0	84
8:00	0	0	9	22	16	3	0	0	0	0	0	0	0	50
9:00	2	2	9	23	8	2	0	0	0	0	0	0	0	46
10:00	0	0	2	12	12	2	0	0	0	0	0	0	0	28
11:00	0	1	3	4	3	1	0	0	0	0	0	0	0	12
Total	9	35	263	796	471	58	5	2	0	0	0	0	0	1639

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield
Operator: A JM
Counter : 2070
Road Class: Local
Direction: B

Site Code: 10037
Station ID:
Bircham St
O Page Blvd

10 15 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	1	3	0	5	3	0	0	0	0	0	0	0	0	12
1:00	0	0	0	4	0	1	0	0	0	0	0	0	0	5
2:00	0	4	0	3	1	0	0	0	0	0	0	0	0	8
3:00	0	2	3	4	3	3	0	0	0	0	0	0	0	15
4:00	0	0	2	6	6	3	0	0	0	0	0	0	0	17
5:00	0	1	6	24	15	2	1	0	0	0	0	0	0	49
6:00	1	3	15	46	27	5	0	0	0	0	0	0	0	97
7:00	0	1	12	56	39	2	0	0	0	0	0	0	0	110
8:00	0	3	6	43	33	4	0	0	0	0	0	0	0	89
9:00	0	1	21	43	20	4	0	0	0	0	0	0	0	89
10:00	1	0	16	37	10	3	0	0	0	0	0	0	0	67
11:00														0
12:00 PM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00														0
11:00														0
Total	3	18	81	271	157	27	1	0	0	0	0	0	0	558
Grand Total	16	72	491	1621	892	111	9	3	0	0	0	0	0	3215
Stats			Percentile	15th	50th	85th	95th							
			Speed	24.5	28.1	31.8	34.4							
Mean Speed (Average)				28.3										
10 MPH Pace Speed				25-34										
umber in Pace				2505										
Percent in Pace				77.9										
umber 45 MPH				3										
Percent 45 MPH				0.1										

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2070

Road Class: Local

Direction: SB

Site Code: 10037

Station ID:

Bircham St

O Page Blvd

10 13 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00	2	1	6	10	2	0	0	0	0	0	0	0	0	21
11:00	0	2	9	40	17	2	0	0	0	0	0	0	0	70
12:00 PM	2	2	13	25	32	3	0	0	0	0	0	0	0	77
1:00	0	3	21	50	26	3	0	0	0	0	0	0	0	103
2:00	1	5	32	42	21	3	0	0	0	0	0	0	0	104
3:00	4	3	28	52	35	1	0	0	0	0	0	0	0	123
4:00	8	10	21	46	31	3	0	0	0	0	0	0	0	119
5:00	0	5	17	46	36	2	1	0	0	0	0	0	0	107
6:00	0	1	18	30	25	4	0	0	0	0	0	0	0	78
7:00	0	6	14	36	23	2	1	0	0	0	0	0	0	82
8:00	0	1	11	28	13	1	1	0	0	0	0	0	0	55
9:00	0	0	11	19	11	1	1	0	0	0	0	0	0	43
10:00	0	0	6	14	10	2	1	0	0	0	0	0	0	33
11:00	0	1	4	17	8	2	0	0	0	0	0	0	0	32
Total	17	40	211	455	290	29	5	0	0	0	0	0	0	1047

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2070

Road Class: Local

Direction: SB

Site Code: 10037

Station ID:

Bircham St

O Page Blvd

10 14 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	2	5	6	2	0	0	0	0	0	0	0	15
1:00	0	0	2	3	1	1	0	0	0	0	0	0	0	7
2:00	1	1	1	2	2	0	0	0	0	0	0	0	0	7
3:00	0	0	4	1	3	1	0	0	0	0	0	0	0	9
4:00	0	1	4	7	6	0	1	0	0	0	0	0	0	19
5:00	0	2	2	20	7	1	1	0	0	0	0	0	0	33
6:00	0	1	10	23	19	6	0	0	0	0	0	0	0	59
7:00	0	0	19	28	21	6	0	0	0	0	0	0	0	74
8:00	0	2	9	39	27	6	1	0	0	0	0	0	0	84
9:00	1	4	13	40	18	5	0	0	0	0	0	0	0	81
10:00	0	0	8	36	29	5	0	0	0	0	0	0	0	78
11:00	2	3	14	41	24	5	0	0	0	0	0	0	0	89
12:00 PM	0	1	20	45	20	4	0	0	0	0	0	0	0	90
1:00	0	3	10	37	30	8	0	0	0	0	0	0	0	88
2:00	9	5	20	44	20	4	0	0	0	0	0	0	0	102
3:00	4	14	27	45	25	3	2	0	0	0	0	0	0	120
4:00	2	11	22	57	37	2	0	0	0	0	0	0	0	131
5:00	0	4	25	55	30	4	0	0	0	0	0	0	0	118
6:00	0	3	23	55	21	2	0	0	0	0	0	0	0	104
7:00	0	3	19	30	16	4	0	0	0	0	0	0	0	72
8:00	0	1	20	34	16	3	0	0	0	0	0	0	0	74
9:00	0	1	11	27	11	2	0	0	0	0	0	0	0	52
10:00	0	3	7	13	5	3	0	0	0	0	0	0	0	31
11:00	0	0	5	13	12	1	0	0	0	0	0	0	0	31
Total	19	63	297	700	406	78	5	0	0	0	0	0	0	1568

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield
Operator: A JM
Counter : 2070
Road Class: Local
Direction: SB

Site Code: 10037
Station ID:
Bircham St
O Page Blvd

10 15 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	Total
12:00 AM	0	0	1	6	2	1	0	0	0	0	0	0	0	10
1:00	0	0	2	3	4	0	0	0	0	0	0	0	0	9
2:00	0	1	5	2	4	0	0	0	0	0	0	0	0	12
3:00	0	0	3	2	1	0	0	0	0	0	0	0	0	6
4:00	0	1	5	7	4	2	0	0	0	0	0	0	0	19
5:00	1	1	5	16	7	3	0	0	0	0	0	0	0	33
6:00	0	3	9	29	15	3	0	0	0	0	0	0	0	59
7:00	3	2	16	32	32	5	0	0	0	0	0	0	0	90
8:00	0	4	17	32	22	0	0	0	0	0	0	0	0	75
9:00	1	1	17	43	27	5	1	0	0	0	0	0	0	95
10:00	3	3	14	46	23	2	0	0	0	0	0	0	0	91
11:00														0
12:00 PM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00														0
11:00														0
Total	8	16	94	218	141	21	1	0	0	0	0	0	0	499
Grand Total	44	119	602	1373	837	128	11	0	0	0	0	0	0	3114
Stats														
	Percentile			15th	50th	85th	95th							
	Speed			23.2	27.9	32.1	34.7							
	Mean Speed (Average)			27.7										
	10 MPH Pace Speed			25-34										
	umber in Pace			2205										
	Percent in Pace			70.8										
	umber 45 MPH			0										
	Percent 45 MPH			0.0										

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2070

Road Class: Local

Direction: Combined

Site Code: 10037

Station ID:

Bircham St

O Page Blvd

10 13 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00	2	2	13	14	2	0	0	0	0	0	0	0	0	33
11:00	0	2	21	77	35	5	0	0	0	0	0	0	0	140
12:00 PM	2	2	32	76	64	7	0	0	0	0	0	0	0	183
1:00	2	5	36	104	47	3	1	0	0	0	0	0	0	198
2:00	2	8	50	94	54	3	1	0	0	0	0	0	0	212
3:00	4	7	43	115	63	3	0	0	0	0	0	0	0	235
4:00	8	15	34	114	69	8	1	0	0	0	0	0	0	249
5:00	1	5	33	108	76	8	1	0	0	0	0	0	0	232
6:00	0	2	29	81	37	5	0	0	0	0	0	0	0	154
7:00	0	8	21	76	37	2	1	0	0	0	0	0	0	145
8:00	0	2	18	58	21	1	1	0	0	0	0	0	0	101
9:00	0	0	17	42	17	4	1	1	0	0	0	0	0	82
10:00	0	0	6	28	17	3	1	0	0	0	0	0	0	55
11:00	0	1	5	22	15	3	0	0	0	0	0	0	0	46
Total	21	59	358	1009	554	55	8	1	0	0	0	0	0	2065

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield
Operator: A JM
Counter : 2070
Road Class: Local
Direction: Combined

Site Code: 10037
Station ID:
Bircham St
O Page Blvd

10 14 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	4	10	6	3	0	0	0	0	0	0	0	23
1:00	0	0	6	7	5	1	1	0	0	0	0	0	0	20
2:00	1	1	5	6	2	0	0	0	0	0	0	0	0	15
3:00	0	0	6	6	4	1	0	0	0	0	0	0	0	17
4:00	0	2	6	9	15	1	1	0	0	0	0	0	0	34
5:00	1	2	13	41	21	1	1	0	0	0	0	0	0	80
6:00	0	3	31	73	53	9	0	0	0	0	0	0	0	169
7:00	0	3	33	70	57	10	0	1	0	0	0	0	0	174
8:00	0	6	17	86	64	8	1	1	0	0	0	0	0	183
9:00	1	6	22	91	37	9	0	0	0	0	0	0	0	166
10:00	0	3	18	73	50	8	1	0	0	0	0	0	0	153
11:00	2	4	28	91	45	8	0	0	0	0	0	0	0	178
12:00 PM	0	3	31	81	46	11	1	0	0	0	0	0	0	173
1:00	0	4	19	96	65	11	0	0	0	0	0	0	0	195
2:00	11	7	38	89	55	7	0	0	0	0	0	0	0	207
3:00	8	15	46	97	46	6	2	0	0	0	0	0	0	220
4:00	2	12	49	140	75	5	0	0	0	0	0	0	0	283
5:00	0	9	49	112	59	8	1	0	0	0	0	0	0	238
6:00	0	4	43	100	45	6	1	0	0	0	0	0	0	199
7:00	0	6	30	70	44	6	0	0	0	0	0	0	0	156
8:00	0	1	29	56	32	6	0	0	0	0	0	0	0	124
9:00	2	3	20	50	19	4	0	0	0	0	0	0	0	98
10:00	0	3	9	25	17	5	0	0	0	0	0	0	0	59
11:00	0	1	8	17	15	2	0	0	0	0	0	0	0	43
Total	28	98	560	1496	877	136	10	2	0	0	0	0	0	3207

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield
Operator: A JM
Counter : 2070
Road Class: Local
Direction: Combined

Site Code: 10037
Station ID:
Bircham St
O Page Blvd

10 15 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	1	3	1	11	5	1	0	0	0	0	0	0	0	22
1:00	0	0	2	7	4	1	0	0	0	0	0	0	0	14
2:00	0	5	5	5	5	0	0	0	0	0	0	0	0	20
3:00	0	2	6	6	4	3	0	0	0	0	0	0	0	21
4:00	0	1	7	13	10	5	0	0	0	0	0	0	0	36
5:00	1	2	11	40	22	5	1	0	0	0	0	0	0	82
6:00	1	6	24	75	42	8	0	0	0	0	0	0	0	156
7:00	3	3	28	88	71	7	0	0	0	0	0	0	0	200
8:00	0	7	23	75	55	4	0	0	0	0	0	0	0	164
9:00	1	2	38	86	47	9	1	0	0	0	0	0	0	184
10:00	4	3	30	83	33	5	0	0	0	0	0	0	0	158
11:00														0
12:00 PM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00														0
11:00														0
Total	11	34	175	489	298	48	2	0	0	0	0	0	0	1057
Grand Total	60	191	1093	2994	1729	239	20	3	0	0	0	0	0	6329

Stats	Percentile	15th	50th	85th	95th
Speed		23.9	28	31.9	34.6
Mean Speed (Average)		28.0			
10 MPH Pace Speed		25-34			
umber in Pace		4710			
Percent in Pace		74.4			
umber 45 MPH		3			
Percent 45 MPH		0.0			

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2078

Road Class: 3

Direction: EB

Site Code: 10035

Station ID:

Page Blvd

E O Bircham St

11 1 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00	4	1	0	9	85	163	120	40	8	5	0	0	0	435
11:00	10	1	1	7	53	187	204	89	18	6	0	1	0	577
12:00 PM	22	1	0	3	54	194	230	75	13	7	1	0	0	600
1:00	18	0	1	6	49	216	223	73	13	4	0	1	0	604
2:00	25	0	2	13	77	287	253	72	13	2	2	0	0	746
3:00	31	2	3	14	62	269	265	91	26	4	0	2	0	769
4:00	22	0	3	17	117	274	233	73	10	4	1	0	0	754
5:00	24	2	1	13	86	377	248	79	13	7	0	0	0	850
6:00	11	1	1	7	82	236	153	60	19	3	1	1	0	575
7:00	3	1	2	5	61	187	122	50	14	3	0	0	0	448
8:00	2	0	0	3	30	123	121	39	15	4	1	0	0	338
9:00	0	0	0	5	44	87	88	41	13	2	1	0	1	282
10:00	1	0	0	2	29	60	79	35	15	3	1	0	0	225
11:00	1	0	0	4	20	56	59	26	12	1	1	0	0	180
Total	174	9	14	108	849	2716	2398	843	202	55	9	5	1	7383

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2078

Road Class: 3

Direction: EB

Site Code: 10035

Station ID:

Page Blvd

E O Bircham St

11 2 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	1	2	10	49	38	15	3	0	0	0	0	118
1:00	0	1	0	0	10	17	15	10	5	1	0	0	0	59
2:00	0	1	0	3	6	18	19	6	4	0	0	0	0	57
3:00	0	0	0	3	12	24	27	10	2	2	1	0	0	81
4:00	1	0	0	4	13	28	43	19	2	1	1	0	0	112
5:00	3	0	0	1	27	60	56	24	8	2	0	0	0	181
6:00	4	0	2	6	39	98	126	54	6	2	0	0	0	337
7:00	17	2	0	6	61	165	149	65	14	2	1	3	0	485
8:00	10	1	0	7	62	160	169	80	16	3	0	0	0	508
9:00	8	0	1	14	71	174	180	50	13	1	0	0	0	512
10:00	13	2	1	11	79	214	174	64	13	1	0	0	0	572
11:00	17	0	3	14	105	221	167	56	7	0	0	0	0	590
12:00 PM	11	0	2	12	75	238	182	60	12	4	0	0	0	596
1:00	8	0	0	10	77	212	219	69	13	6	0	0	0	614
2:00	30	1	4	6	97	251	237	64	13	2	0	0	0	705
3:00	21	2	0	13	90	305	243	94	18	6	1	0	0	793
4:00	22	1	0	10	130	371	277	85	18	2	0	0	2	918
5:00	15	0	0	13	93	309	241	86	11	2	0	0	0	770
6:00	8	0	1	10	91	207	184	49	16	5	1	0	0	572
7:00	2	0	2	7	52	149	161	64	14	6	2	0	1	460
8:00	3	0	0	2	31	123	127	51	10	3	2	1	0	353
9:00	3	0	0	8	36	71	115	46	11	2	1	0	0	293
10:00	1	0	0	3	30	76	67	42	14	4	1	1	0	239
11:00	0	0	0	2	30	55	55	34	8	1	1	1	0	187
Total	197	11	17	167	1327	3595	3271	1197	251	58	12	6	3	10112

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2078

Road Class: 3

Direction: EB

Site Code: 10035

Station ID:

Page Blvd

E O Bircham St

11/3/2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	0	2	7	45	32	16	7	0	0	0	0	109
1:00	0	0	0	1	10	29	17	10	1	1	0	0	0	69
2:00	1	1	0	1	9	19	18	13	2	0	0	0	0	64
3:00	0	1	0	4	19	22	27	10	2	0	0	0	0	85
4:00	0	0	2	2	24	30	28	22	3	0	0	0	0	111
5:00	1	0	1	5	24	69	68	31	11	2	0	0	0	212
6:00	8	0	1	5	35	121	116	68	20	8	0	0	0	382
7:00	19	0	0	12	58	188	185	94	18	6	1	0	0	581
8:00	12	0	1	15	89	198	216	82	16	1	0	0	0	630
9:00	13	0	0	7	66	182	206	85	15	3	1	0	0	578
10:00	0	0	1	5	24	49	78	26	5	1	0	0	1	190
11:00														0
12:00 PM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00														0
11:00														0
Total	54	2	6	59	365	952	991	457	100	22	2	0	1	3011
Grand Total	425	22	37	334	2541	7263	6660	2497	553	135	23	11	5	20506
Stats			Percentile	15th	50th	85th	95th							
			Speed	34.6	39.7	45.1	48.7							
Mean Speed (Average)				39.6										
10 MPH Pace Speed				35-44										
umber in Pace				13841										
Percent in Pace				67.5										
umber 45 MPH				3224										
Percent 45 MPH				15.7										

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2078

Road Class: 3

Direction: WB

Site Code: 10035

Station ID:

Page Blvd

E O Bircham St

11 1 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00	2	0	3	12	83	138	94	19	2	0	0	0	0	353
11:00	12	2	3	14	106	218	109	35	7	1	0	0	0	507
12:00 PM	28	0	4	25	106	199	104	37	4	1	0	0	0	508
1:00	15	0	2	14	148	221	145	43	6	2	0	0	0	596
2:00	25	5	9	31	139	220	159	24	5	1	1	0	0	619
3:00	24	1	3	17	132	249	166	43	4	1	0	0	0	640
4:00	20	1	6	35	150	204	126	25	5	1	0	0	0	573
5:00	16	0	4	20	133	175	143	19	3	0	0	0	0	513
6:00	11	0	7	29	150	141	87	22	6	0	1	0	1	455
7:00	4	1	3	14	106	119	73	9	1	0	0	0	0	330
8:00	3	0	0	16	69	95	58	14	7	1	0	0	0	263
9:00	1	0	0	5	48	81	36	14	3	1	1	0	0	190
10:00	3	0	2	6	38	65	44	24	2	1	0	0	0	185
11:00	1	0	2	6	24	49	37	10	5	0	0	0	0	134
Total	165	10	48	244	1432	2174	1381	338	60	10	3	0	1	5866

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2078

Road Class: 3

Direction: WB

Site Code: 10035

Station ID:

Page Blvd

E O Bircham St

11 2 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	1	5	23	29	14	2	0	0	0	1	0	75
1:00	0	0	1	3	17	25	20	5	2	0	0	0	0	73
2:00	0	1	0	5	23	25	15	1	1	1	0	0	0	72
3:00	0	0	1	7	16	21	18	4	1	0	0	0	0	68
4:00	0	1	0	6	32	47	31	15	4	0	0	0	0	136
5:00	0	0	0	11	47	88	71	20	4	0	0	0	0	241
6:00	5	2	5	20	98	183	111	37	4	1	0	0	0	466
7:00	7	0	1	24	129	227	165	49	5	0	0	0	0	607
8:00	5	1	2	13	116	197	144	50	5	2	1	1	0	537
9:00	4	0	0	23	113	190	124	32	4	2	0	0	0	492
10:00	17	2	1	11	93	188	107	29	5	0	0	0	0	453
11:00	15	1	6	27	110	173	103	20	4	0	0	0	1	460
12:00 PM	18	2	5	18	117	179	121	32	6	0	0	0	0	498
1:00	12	0	2	28	130	208	136	24	2	2	0	0	0	544
2:00	20	0	3	18	134	238	136	28	5	4	1	1	0	588
3:00	26	1	0	15	117	213	176	58	5	0	0	0	0	611
4:00	28	0	3	20	135	189	112	33	5	1	1	0	0	527
5:00	25	0	5	22	133	196	128	25	3	0	0	0	0	537
6:00	11	0	4	33	140	159	95	21	2	1	0	0	0	466
7:00	2	0	4	14	88	124	66	23	5	2	0	0	0	328
8:00	1	1	1	12	64	105	65	23	3	1	0	0	0	276
9:00	2	0	2	9	48	93	45	14	1	0	0	0	0	214
10:00	2	0	1	9	40	79	50	18	3	0	0	0	0	202
11:00	1	0	1	6	39	54	41	14	2	0	0	0	0	158
Total	201	12	49	359	2002	3230	2094	577	81	17	3	3	1	8629

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2078

Road Class: 3

Direction: WB

Site Code: 10035

Station ID:

Page Blvd

E O Bircham St

11 3 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	1	3	24	32	11	3	0	0	0	0	0	74
1:00	0	0	0	0	21	21	22	2	2	0	0	0	0	68
2:00	0	0	2	7	13	25	20	11	0	0	0	0	0	78
3:00	0	0	0	5	22	22	15	3	0	0	0	0	0	67
4:00	0	0	1	8	30	52	41	12	4	0	0	0	0	148
5:00	3	0	0	12	61	96	53	28	4	0	0	0	0	257
6:00	9	5	6	38	104	177	123	28	3	1	0	0	0	494
7:00	10	3	4	27	137	275	192	55	3	0	0	0	0	706
8:00	16	0	1	27	96	197	182	55	11	1	0	1	0	587
9:00	7	0	1	24	101	224	137	32	5	0	0	0	0	531
10:00	6	0	2	3	39	91	42	7	1	0	0	0	0	191
11:00														0
12:00 PM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00														0
11:00														0
Total	51	8	18	154	648	1212	838	236	33	2	0	1	0	3201
Grand Total	417	30	115	757	4082	6616	4313	1151	174	29	6	4	2	17696

Stats	Percentile	15th	50th	85th	95th
Speed		32.3	37.4	42.8	46.2
Mean Speed (Average)		37.2			
10 MPH Pace Speed		35-44			
umber in Pace		10924			
Percent in Pace		61.7			
umber 45 MPH		1366			
Percent 45 MPH		7.7			

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2078

Road Class: 3

Direction: Combined

Site Code: 10035

Station ID:

Page Blvd

E O Bircham St

11 1 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00	6	1	3	21	168	301	214	59	10	5	0	0	0	788
11:00	22	3	4	21	159	405	313	124	25	7	0	1	0	1084
12:00 PM	50	1	4	28	160	393	334	112	17	8	1	0	0	1108
1:00	33	0	3	20	197	437	368	116	19	6	0	1	0	1200
2:00	50	5	11	44	216	507	412	96	18	3	3	0	0	1365
3:00	55	3	6	31	194	518	431	134	30	5	0	2	0	1409
4:00	42	1	9	52	267	478	359	98	15	5	1	0	0	1327
5:00	40	2	5	33	219	552	391	98	16	7	0	0	0	1363
6:00	22	1	8	36	232	377	240	82	25	3	2	1	1	1030
7:00	7	2	5	19	167	306	195	59	15	3	0	0	0	778
8:00	5	0	0	19	99	218	179	53	22	5	1	0	0	601
9:00	1	0	0	10	92	168	124	55	16	3	2	0	1	472
10:00	4	0	2	8	67	125	123	59	17	4	1	0	0	410
11:00	2	0	2	10	44	105	96	36	17	1	1	0	0	314
Total	339	19	62	352	2281	4890	3779	1181	262	65	12	5	2	13249

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2078

Road Class: 3

Direction: Combined

Site Code: 10035

Station ID:

Page Blvd

E O Bircham St

11 2 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	2	7	33	78	52	17	3	0	0	1	0	193
1:00	0	1	1	3	27	42	35	15	7	1	0	0	0	132
2:00	0	2	0	8	29	43	34	7	5	1	0	0	0	129
3:00	0	0	1	10	28	45	45	14	3	2	1	0	0	149
4:00	1	1	0	10	45	75	74	34	6	1	1	0	0	248
5:00	3	0	0	12	74	148	127	44	12	2	0	0	0	422
6:00	9	2	7	26	137	281	237	91	10	3	0	0	0	803
7:00	24	2	1	30	190	392	314	114	19	2	1	3	0	1092
8:00	15	2	2	20	178	357	313	130	21	5	1	1	0	1045
9:00	12	0	1	37	184	364	304	82	17	3	0	0	0	1004
10:00	30	4	2	22	172	402	281	93	18	1	0	0	0	1025
11:00	32	1	9	41	215	394	270	76	11	0	0	0	1	1050
12:00 PM	29	2	7	30	192	417	303	92	18	4	0	0	0	1094
1:00	20	0	2	38	207	420	355	93	15	8	0	0	0	1158
2:00	50	1	7	24	231	489	373	92	18	6	1	1	0	1293
3:00	47	3	0	28	207	518	419	152	23	6	1	0	0	1404
4:00	50	1	3	30	265	560	389	118	23	3	1	0	2	1445
5:00	40	0	5	35	226	505	369	111	14	2	0	0	0	1307
6:00	19	0	5	43	231	366	279	70	18	6	1	0	0	1038
7:00	4	0	6	21	140	273	227	87	19	8	2	0	1	788
8:00	4	1	1	14	95	228	192	74	13	4	2	1	0	629
9:00	5	0	2	17	84	164	160	60	12	2	1	0	0	507
10:00	3	0	1	12	70	155	117	60	17	4	1	1	0	441
11:00	1	0	1	8	69	109	96	48	10	1	1	1	0	345
Total	398	23	66	526	3329	6825	5365	1774	332	75	15	9	4	18741

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2078

Road Class: 3

Direction: Combined

Site Code: 10035

Station ID:

Page Blvd

E O Bircham St

11 3 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	1	5	31	77	43	19	7	0	0	0	0	183
1:00	0	0	0	1	31	50	39	12	3	1	0	0	0	137
2:00	1	1	2	8	22	44	38	24	2	0	0	0	0	142
3:00	0	1	0	9	41	44	42	13	2	0	0	0	0	152
4:00	0	0	3	10	54	82	69	34	7	0	0	0	0	259
5:00	4	0	1	17	85	165	121	59	15	2	0	0	0	469
6:00	17	5	7	43	139	298	239	96	23	9	0	0	0	876
7:00	29	3	4	39	195	463	377	149	21	6	1	0	0	1287
8:00	28	0	2	42	185	395	398	137	27	2	0	1	0	1217
9:00	20	0	1	31	167	406	343	117	20	3	1	0	0	1109
10:00	6	0	3	8	63	140	120	33	6	1	0	0	1	381
11:00														0
12:00 PM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00														0
11:00														0
Total	105	10	24	213	1013	2164	1829	693	133	24	2	1	1	6212
Grand Total	842	52	152	1091	6623	13879	10973	3648	727	164	29	15	7	38202

Stats	Percentile	15th	50th	85th	95th
Speed		33.4	38.7	44.1	47.6
Mean Speed (Average)		38.5			
10 MPH Pace Speed		35-44			
umber in Pace		24765			
Percent in Pace		64.8			
umber 45 MPH		4590			
Percent 45 MPH		12.0			

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2074

Road Class: 3

Direction: EB

Site Code: 10036

Station ID:

Page Blvd

W O Bircham St

11 1 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00	4	0	0	9	59	114	101	49	21	0	1	2	0	360
10:00	11	0	1	9	86	166	130	72	18	3	2	0	0	498
11:00	16	3	1	8	47	162	173	94	31	7	2	0	2	546
12:00 PM	11	0	0	8	67	176	194	101	28	7	0	0	0	592
1:00	21	1	4	9	47	184	174	80	19	6	2	0	1	548
2:00	19	0	7	17	123	241	186	64	9	2	1	0	0	669
3:00	12	2	7	28	103	186	196	94	31	6	0	1	0	666
4:00	16	3	2	18	97	196	195	77	21	2	2	0	0	629
5:00	21	4	5	27	116	284	198	75	14	9	0	0	0	753
6:00	10	1	4	16	74	165	147	76	26	4	1	0	0	524
7:00	2	1	4	7	47	144	122	53	16	3	0	0	0	399
8:00	2	1	1	3	33	95	91	52	12	7	0	0	1	298
9:00	0	0	1	7	23	81	77	47	19	3	1	1	0	260
10:00	2	0	0	3	20	57	68	27	21	5	0	1	1	205
11:00	0	0	2	4	19	37	55	31	10	4	1	0	0	163
Total	147	16	39	173	961	2288	2107	992	296	68	13	5	5	7110

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2074

Road Class: 3

Direction: EB

Site Code: 10036

Station ID:

Page Blvd

W O Bircham St

11 2 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	1	0	10	37	31	15	5	0	0	0	0	99
1:00	0	0	0	0	6	15	17	10	6	0	1	0	0	55
2:00	0	0	0	1	3	15	22	9	1	1	1	0	0	53
3:00	0	0	1	2	8	17	24	13	5	3	1	0	0	74
4:00	0	0	0	2	8	22	40	20	7	0	1	0	0	100
5:00	0	0	2	7	24	50	54	26	9	3	0	0	0	175
6:00	7	2	5	13	46	88	101	52	8	3	0	0	0	325
7:00	14	1	5	10	63	119	122	59	14	7	2	2	0	418
8:00	8	1	2	14	69	159	141	81	32	4	0	0	1	512
9:00	6	0	1	16	69	150	144	56	13	2	0	0	0	457
10:00	7	0	6	16	83	194	177	65	17	3	0	0	0	568
11:00	11	0	2	17	83	195	151	56	14	2	0	0	0	531
12:00 PM	5	0	5	18	84	200	144	73	17	4	2	0	0	552
1:00	13	0	4	10	76	182	171	77	21	3	1	0	0	558
2:00	25	2	6	15	80	206	214	71	16	1	0	0	0	636
3:00	15	2	1	11	113	225	211	94	28	8	1	0	1	710
4:00	40	5	9	22	131	313	219	76	18	5	0	0	0	838
5:00	27	1	2	21	95	256	223	84	13	5	0	0	0	727
6:00	5	1	6	14	87	175	150	63	17	6	1	0	0	525
7:00	1	0	2	14	47	126	124	61	25	7	1	0	1	409
8:00	6	0	1	8	28	93	116	55	14	5	3	1	0	330
9:00	0	0	1	4	28	80	100	51	9	3	2	0	0	278
10:00	0	0	0	0	25	65	61	41	12	8	1	0	1	214
11:00	1	0	0	2	16	46	58	33	7	4	1	0	1	169
Total	191	15	62	237	1282	3028	2815	1241	328	87	19	3	5	9313

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2074

Road Class: 3

Direction: EB

Site Code: 10036

Station ID:

Page Blvd

W O Bircham St

11/3/2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	0	0	8	34	35	15	7	1	0	0	0	100
1:00	0	0	0	1	12	23	19	12	1	1	1	0	0	70
2:00	0	0	0	0	9	11	21	14	1	1	0	0	0	57
3:00	0	0	0	2	19	21	21	12	5	1	0	0	0	81
4:00	0	0	0	3	10	25	31	18	12	2	0	0	0	101
5:00	2	0	2	7	21	52	51	34	11	3	1	0	0	184
6:00	3	4	9	27	40	108	101	63	19	5	2	0	0	381
7:00	38	1	3	19	69	143	173	75	27	7	2	0	0	557
8:00	16	2	5	13	81	148	182	88	24	3	0	0	0	562
9:00	14	1	1	19	65	147	163	91	20	5	0	0	0	526
10:00	2	0	0	3	22	43	41	26	4	0	0	0	0	141
11:00														0
12:00 PM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00														0
11:00														0
Total	75	8	20	94	356	755	838	448	131	29	6	0	0	2760
Grand Total	413	39	121	504	2599	6071	5760	2681	755	184	38	8	10	19183

Stats	Percentile	15th	50th	85th	95th
Speed		34	39.8	45.9	50.1
Mean Speed (Average)		39.6			
10 MPH Pace Speed		35-44			
umber in Pace		11768			
Percent in Pace		61.3			
umber 45 MPH		3676			
Percent 45 MPH		19.2			

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield
Operator: A JM
Counter : 2074
Road Class: 3
Direction: WB

Site Code: 10036
Staion ID:
Page Blvd
W O Bircham St

11 1 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00	2	0	0	10	46	119	84	22	3	1	0	0	0	287
10:00	11	0	4	13	64	175	115	35	0	0	0	0	0	417
11:00	10	0	3	11	60	180	127	52	10	2	0	0	0	455
12:00 PM	9	1	1	11	72	192	127	43	3	0	0	0	0	459
1:00	15	0	4	13	75	200	166	39	4	1	0	0	0	517
2:00	27	1	13	29	124	228	136	27	4	1	1	0	0	591
3:00	27	0	1	19	94	242	183	55	8	1	0	0	0	630
4:00	31	2	2	24	117	204	119	26	4	0	0	0	0	529
5:00	26	1	3	20	75	171	139	30	1	0	0	0	0	466
6:00	10	3	2	13	99	146	112	27	2	1	0	0	0	415
7:00	0	0	2	14	67	123	67	16	3	1	0	0	0	293
8:00	3	0	4	12	40	104	62	23	3	2	0	0	0	253
9:00	1	1	2	9	24	72	41	16	6	0	1	0	0	173
10:00	3	0	1	8	26	60	50	21	3	1	0	0	0	173
11:00	1	0	1	6	16	48	40	11	4	1	0	0	0	128
Total	176	9	43	212	999	2264	1568	443	58	12	2	0	0	5786

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

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Location: Springfield

Operator: A JM

Counter : 2074

Road Class: 3

Direction: WB

Site Code: 10036

Station ID:

Page Blvd

W O Bircham St

11 2 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	1	1	2	21	26	14	3	1	2	0	0	0	71
1:00	0	0	0	1	10	27	19	9	2	0	0	0	0	68
2:00	0	0	1	4	17	25	15	4	1	0	1	0	0	68
3:00	0	0	0	1	14	18	23	4	2	0	0	0	0	62
4:00	1	0	0	3	21	36	36	17	3	0	0	0	0	117
5:00	0	1	3	10	30	82	66	25	4	2	0	0	0	223
6:00	9	0	4	11	62	147	126	38	5	0	0	0	0	402
7:00	7	0	4	14	69	225	186	49	7	0	0	0	0	561
8:00	9	0	4	18	54	180	166	70	6	2	0	0	0	509
9:00	8	1	4	15	80	155	145	42	3	2	0	0	0	455
10:00	4	1	3	21	59	148	123	32	4	1	1	0	0	397
11:00	18	0	2	25	66	169	110	28	5	2	0	0	0	425
12:00 PM	11	0	7	19	84	193	119	38	7	1	0	0	0	479
1:00	9	1	2	16	94	180	138	37	2	1	0	0	0	480
2:00	24	0	3	12	98	213	150	41	11	3	1	1	0	557
3:00	11	1	5	16	85	184	169	55	7	1	0	0	0	534
4:00	22	1	4	17	55	172	111	26	5	1	0	0	1	415
5:00	17	3	4	18	88	171	126	25	4	0	0	0	0	456
6:00	4	0	0	26	99	160	105	24	5	0	0	0	0	423
7:00	6	0	2	17	44	123	74	27	5	1	1	0	0	300
8:00	5	0	3	5	48	79	84	18	2	1	0	0	0	245
9:00	0	0	3	9	33	79	50	11	3	0	0	0	0	188
10:00	3	0	0	9	31	64	51	20	3	1	0	0	0	182
11:00	1	0	2	3	22	66	35	13	2	0	0	0	0	144
Total	169	10	61	292	1284	2922	2241	656	99	21	4	1	1	7761

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2074

Road Class: 3

Direction: WB

Site Code: 10036

Station ID:

Page Blvd

W O Bircham St

11/3/2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	Total
12:00 AM	0	0	1	4	14	27	23	3	0	0	0	0	0	72
1:00	0	0	0	0	14	20	19	6	1	0	0	0	0	60
2:00	0	0	0	4	14	24	20	10	2	0	0	0	0	74
3:00	0	0	1	2	15	22	16	8	0	0	0	0	0	64
4:00	0	0	1	5	18	45	39	14	5	0	0	0	0	127
5:00	5	0	3	10	37	69	69	27	5	1	0	0	0	226
6:00	5	2	6	31	77	168	120	25	4	1	1	0	0	440
7:00	16	1	2	17	77	220	207	69	10	0	0	0	0	619
8:00	11	0	2	18	57	155	200	58	9	2	0	0	0	512
9:00	12	0	4	7	55	198	165	37	5	0	0	0	0	483
10:00	2	0	1	6	21	43	43	8	1	0	0	0	0	125
11:00														0
12:00 PM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00														0
11:00														0
Total	51	3	21	104	399	991	921	265	42	4	1	0	0	2802
Grand Total	396	22	125	608	2682	6177	4730	1364	199	37	7	1	1	16349
Stats														
	Percentile			15th	50th	85th	95th							
	Speed			33.1	38.5	43.6	46.7							
	Mean Speed (Average)			38.0										
	10 MPH Pace Speed			35-44										
	Number in Pace			10866										
	Percent in Pace			66.5										
	Number 45 MPH			1609										
	Percent 45 MPH			9.8										

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2074

Road Class: 3

Direction: Combined

Site Code: 10036

Station ID:

Page Blvd

W O Bircham St

11 1 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00	6	0	0	19	105	233	185	71	24	1	1	2	0	647
10:00	22	0	5	22	150	341	245	107	18	3	2	0	0	915
11:00	26	3	4	19	107	342	300	146	41	9	2	0	2	1001
12:00 PM	20	1	1	19	139	368	321	144	31	7	0	0	0	1051
1:00	36	1	8	22	122	384	340	119	23	7	2	0	1	1065
2:00	46	1	20	46	247	469	322	91	13	3	2	0	0	1260
3:00	39	2	8	47	197	428	379	149	39	7	0	1	0	1296
4:00	47	5	4	42	214	400	314	103	25	2	2	0	0	1158
5:00	47	5	8	47	191	455	337	105	15	9	0	0	0	1219
6:00	20	4	6	29	173	311	259	103	28	5	1	0	0	939
7:00	2	1	6	21	114	267	189	69	19	4	0	0	0	692
8:00	5	1	5	15	73	199	153	75	15	9	0	0	1	551
9:00	1	1	3	16	47	153	118	63	25	3	2	1	0	433
10:00	5	0	1	11	46	117	118	48	24	6	0	1	1	378
11:00	1	0	3	10	35	85	95	42	14	5	1	0	0	291
Total	323	25	82	385	1960	4552	3675	1435	354	80	15	5	5	12896

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

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Location: Springfield

Operator: A JM

Counter : 2074

Road Class: 3

Direction: Combined

Site Code: 10036

Station ID:

Page Blvd

W O Bircham St

11 2 2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	1	2	2	31	63	45	18	6	2	0	0	0	170
1:00	0	0	0	1	16	42	36	19	8	0	1	0	0	123
2:00	0	0	1	5	20	40	37	13	2	1	2	0	0	121
3:00	0	0	1	3	22	35	47	17	7	3	1	0	0	136
4:00	1	0	0	5	29	58	76	37	10	0	1	0	0	217
5:00	0	1	5	17	54	132	120	51	13	5	0	0	0	398
6:00	16	2	9	24	108	235	227	90	13	3	0	0	0	727
7:00	21	1	9	24	132	344	308	108	21	7	2	2	0	979
8:00	17	1	6	32	123	339	307	151	38	6	0	0	1	1021
9:00	14	1	5	31	149	305	289	98	16	4	0	0	0	912
10:00	11	1	9	37	142	342	300	97	21	4	1	0	0	965
11:00	29	0	4	42	149	364	261	84	19	4	0	0	0	956
12:00 PM	16	0	12	37	168	393	263	111	24	5	2	0	0	1031
1:00	22	1	6	26	170	362	309	114	23	4	1	0	0	1038
2:00	49	2	9	27	178	419	364	112	27	4	1	1	0	1193
3:00	26	3	6	27	198	409	380	149	35	9	1	0	1	1244
4:00	62	6	13	39	186	485	330	102	23	6	0	0	1	1253
5:00	44	4	6	39	183	427	349	109	17	5	0	0	0	1183
6:00	9	1	6	40	186	335	255	87	22	6	1	0	0	948
7:00	7	0	4	31	91	249	198	88	30	8	2	0	1	709
8:00	11	0	4	13	76	172	200	73	16	6	3	1	0	575
9:00	0	0	4	13	61	159	150	62	12	3	2	0	0	466
10:00	3	0	0	9	56	129	112	61	15	9	1	0	1	396
11:00	2	0	2	5	38	112	93	46	9	4	1	0	1	313
Total	360	25	123	529	2566	5950	5056	1897	427	108	23	4	6	17074

Pionner Valley Planning Commission

60 Congress Street

Springfield, MA 01104

(413) 781-6045 www.pvpc.org

Location: Springfield

Operator: A JM

Counter : 2074

Road Class: 3

Direction: Combined

Site Code: 10036

Station ID:

Page Blvd

W O Bircham St

11/3/2021	0 - 15	15 -	20 -	25 -	30 -	35 -	40 -	45 -	50 -	55 -	60 -	65 -	70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	1	4	22	61	58	18	7	1	0	0	0	172
1:00	0	0	0	1	26	43	38	18	2	1	1	0	0	130
2:00	0	0	0	4	23	35	41	24	3	1	0	0	0	131
3:00	0	0	1	4	34	43	37	20	5	1	0	0	0	145
4:00	0	0	1	8	28	70	70	32	17	2	0	0	0	228
5:00	7	0	5	17	58	121	120	61	16	4	1	0	0	410
6:00	8	6	15	58	117	276	221	88	23	6	3	0	0	821
7:00	54	2	5	36	146	363	380	144	37	7	2	0	0	1176
8:00	27	2	7	31	138	303	382	146	33	5	0	0	0	1074
9:00	26	1	5	26	120	345	328	128	25	5	0	0	0	1009
10:00	4	0	1	9	43	86	84	34	5	0	0	0	0	266
11:00														0
12:00 PM														0
1:00														0
2:00														0
3:00														0
4:00														0
5:00														0
6:00														0
7:00														0
8:00														0
9:00														0
10:00														0
11:00														0
Total	126	11	41	198	755	1746	1759	713	173	33	7	0	0	5562
Grand Total	809	61	246	1112	5281	12248	10490	4045	954	221	45	9	11	35532

Stats	Percentile	15th	50th	85th	95th
Speed		33.6	39.1	44.9	48.7
Mean Speed (Average)		38.9			
10 MPH Pace Speed		35-44			
umber in Pace		22634			
Percent in Pace		63.7			
umber 45 MPH		5285			
Percent 45 MPH		14.9			

APPENDIX 3

SPECIAL SPEED REGULATION

REPORT 680-E

OCT 23 1985

CITY OF SPRINGFIELD
SPECIAL SPEED REGULATION NO. 680-E

Highway Location: SPRINGFIELD
Authority in Control: CITY OF SPRINGFIELD
Name of Highway: CAREW ST., SAINT JAMES BLVD.,
PAGE BLVD., & PASCO RD. RTES 20-20A.

In accordance with the provisions of Chapter 90, Section 18, of the General Laws (Ter, Ed.) as amended, the following Special Speed Regulation is

hereby Adopted
by the City of Council
of the City of Springfield

Special Speed Regulation No. 680 dated January 25, 1973 is hereby amended by striking out all clauses referring to Routes 20-20A and Special Speed Regulation No. 680B dated August 24, 1977 is hereby amended by striking out the Regulation in its entirety and inserting in place thereof the following revision and addenda.

That the following speed limits are established at which motor vehicles may be operated in the areas described:

CAREW ST., SAINT JAMES BLVD., PAGE BLVD. (ROUTE 20A)-EASTBOUND

Beginning at Main Street
Thence easterly on Carew Street, Saint James Blvd. Page Blvd. (Route 20A)
0.58 miles at 30 miles per hour
1.51 " " 35 " " "
0.50 " " 30 " " "
0.90 " " 35 " " " ending at the beginning
of State Highway; the total distance being 3.49 miles.

Beginning at the end of State Highway
Thence easterly on Page Blvd., Pasco Road (Route 20)
0.18 miles at 30 miles per hour
0.40 " " 40 " " "
0.30 " " 35 " " "
0.44 " " 40 " " "
0.84 " " 30 " " "
0.16 " " 25 " " "
0.48 " " 40 " " " ending at Boston Road;
the total distance being 2.80 miles.

PASCO ROAD, PAGE BLVD. (ROUTE 20)-WESTBOUND

Beginning at Boston Post Road
Thence westerly on Pasco Road and Page Blvd. (Route 20).

0.48 miles at 40 miles per hour

0.16 " " 25 " " "

0.84 " " 30 " " "

0.44 " " 40 " " "

0.30 " " 35 " " "

0.40 " " 40 " " "

0.18 " " 30 " " " ending at the beginning of
State Highway; the total distance being 2.80 miles.

PAGE BLVD., SAINT JAMES BLVD., & CAREW STREET (ROUTE 20A)-WESTBOUND

Beginning at the end of State Highway
Thence westerly on Page Blvd., Saint James Blvd., Carew Street (Route 20A)

0.90 miles at 35 miles per hour

0.50 " " 30 " " "

1.51 " " 35 " " "

0.58 " " 30 " " " ending at Main Street;
the total distance being 3.49 miles.

Operation of a motor vehicle at a rate of speed in excess of
these limits shall be prima facie evidence that such speed is greater
than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate
in any sense Chapter 90, Section 14, of the General Laws (Ter. Ed).

Date of Passage 9-16-85

Wm. J. Jones

Wm. J. Jones

Wm. J. Jones

Wm. J. Jones

Wm. J. Jones

Wm. J. Jones

Attest Wm. J. Jones
City Clerk

Wm. J. Jones
Wm. J. Jones
Wm. J. Jones
Wm. J. Jones

City Council

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 680-E

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly, do hereby certify that this regulation is consistent with the public interests.

Standard signs must be erected at the beginning of each zone.

DATE:

OCT 23 1985

FOR THE DEPARTMENT OF PUBLIC WORKS

BY:

Michael D. Meyer
Director of BTP&D

George H. Hooley
Chief Deputy Registrar

APPENDIX 4

TURNING MOVEMENT COUNTS AND PEAK HOUR VOLUMES

Location : Springfield
Counter # : TU-0452
Operator : KP
Fun. Class: U3

File Name : 5685 AM
Site Code : 00005685
Start Date : 1/25/2022
Page No : 1

Groups Printed- Unshifted														
Bircham Street					Page Blvd				Page Blvd					
Start Time	Left	Right	Trucks	App. Total	Thru	Right	Trucks	App. Total	Left	Thru	Trucks	App. Total	Int. Total	
07:00 AM	17	3	0	20	149	18	23	190	3	111	14	128	338	
07:15 AM	19	1	0	20	187	17	11	215	2	117	12	131	366	
07:30 AM	17	0	2	19	207	16	12	235	3	139	10	152	406	
07:45 AM	12	3	0	15	161	20	8	189	8	148	14	170	374	
Total	65	7	2	74	704	71	54	829	16	515	50	581	1484	
08:00 AM	16	7	3	26	147	17	12	176	4	152	16	172	374	
08:15 AM	7	4	0	11	143	18	13	174	2	149	16	167	352	
08:30 AM	10	5	1	16	139	17	8	164	5	149	15	169	349	
08:45 AM	21	7	0	28	124	10	12	146	7	131	24	162	336	
Total	54	23	4	81	553	62	45	660	18	581	71	670	1411	
Grand Total	119	30	6	155	1257	133	99	1489	34	1096	121	1251	2895	
Apprch %	76.8	19.4	3.9		84.4	8.9	6.6		2.7	87.6	9.7			
Total %	4.1	1	0.2	5.4	43.4	4.6	3.4	51.4	1.2	37.9	4.2	43.2		

Groups Printed- Unshifted														
Bircham Street					Page Blvd				Page Blvd					
Start Time	Left	Right	Trucks	App. Total	Thru	Right	Trucks	App. Total	Left	Thru	Trucks	App. Total	Int. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 07:15 AM														
07:15 AM	19	1	0	20	187	17	11	215	2	117	12	131	366	
07:30 AM	17	0	2	19	207	16	12	235	3	139	10	152	406	
07:45 AM	12	3	0	15	161	20	8	189	8	148	14	170	374	
08:00 AM	16	7	3	26	147	17	12	176	4	152	16	172	374	
Total Volume	64	11	5	80	702	70	43	815	17	556	52	625	1520	
% App. Total	80	13.8	6.2		86.1	8.6	5.3		2.7	89	8.3			
PHF	.842	.393	.417	.769	.848	.875	.896	.867	.531	.914	.813	.908	.936	

Location : Springfield
Counter # : TU-0452
Operator : KP
Fun. Class: U3

File Name : 5685 PM
Site Code : 00005685
Start Date : 1/24/2022
Page No : 1

Groups Printed- Unshifted														
Bircham Street					Page Blvd				Page Blvd					
Start Time	Left	Right	Trucks	App. Total	Thru	Right	Trucks	App. Total	Left	Thru	Trucks	App. Total	Int. Total	
04:00 PM	30	2	3	35	153	22	9	184	8	220	12	240	459	
04:15 PM	25	6	1	32	146	27	8	181	9	222	10	241	454	
04:30 PM	25	2	0	27	139	29	5	173	2	240	2	244	444	
04:45 PM	29	5	1	35	135	23	4	162	3	221	11	235	432	
Total	109	15	5	129	573	101	26	700	22	903	35	960	1789	
05:00 PM	27	3	0	30	138	21	12	171	5	193	5	203	404	
05:15 PM	33	0	1	34	142	21	8	171	4	201	4	209	414	
05:30 PM	25	3	0	28	97	31	4	132	4	151	10	165	325	
05:45 PM	27	1	1	29	100	16	6	122	2	153	6	161	312	
Total	112	7	2	121	477	89	30	596	15	698	25	738	1455	
Grand Total	221	22	7	250	1050	190	56	1296	37	1601	60	1698	3244	
Apprch %	88.4	8.8	2.8		81	14.7	4.3		2.2	94.3	3.5			
Total %	6.8	0.7	0.2	7.7	32.4	5.9	1.7	40	1.1	49.4	1.8	52.3		

Groups Printed- Unshifted														
Bircham Street					Page Blvd				Page Blvd					
Start Time	Left	Right	Trucks	App. Total	Thru	Right	Trucks	App. Total	Left	Thru	Trucks	App. Total	Int. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:00 PM														
04:00 PM	30	2	3	35	153	22	9	184	8	220	12	240	459	
04:15 PM	25	6	1	32	146	27	8	181	9	222	10	241	454	
04:30 PM	25	2	0	27	139	29	5	173	2	240	2	244	444	
04:45 PM	29	5	1	35	135	23	4	162	3	221	11	235	432	
Total Volume	109	15	5	129	573	101	26	700	22	903	35	960	1789	
% App. Total	84.5	11.6	3.9		81.9	14.4	3.7		2.3	94.1	3.6			
PHF	.908	.625	.417	.921	.936	.871	.722	.951	.611	.941	.729	.984	.974	

APPENDIX 5

CRASH DATA

Sr. Number	Crash Number	City Town Name	Crash Date	Crash Severity	Crash Status	Crash Time	Crash Year	Max Injury Sev	Number of Veh
1	4365237	SPRINGFIELD	05/06/2017	Non-fatal injury	Closed	3:49 PM	2017	Non-fatal injury	2
2	4367986	SPRINGFIELD	05/20/2017	Non-fatal injury	Closed	10:00 AM	2017	Non-fatal injury	2
3	4384516	SPRINGFIELD	06/23/2017	Non-fatal injury	Closed	3:24 PM	2017	Non-fatal injury	2
4	4384621	SPRINGFIELD	06/24/2017	Non-fatal injury	Closed	12:33 AM	2017	Non-fatal injury	1
5	4413950	SPRINGFIELD	08/09/2017	Non-fatal injury	Closed	8:20 AM	2017	Non-fatal injury	2
6	4445010	SPRINGFIELD	10/26/2017	Property damage only (none inju	Closed	2:05 AM	2017	No injury	2
7	4445113	SPRINGFIELD	10/22/2017	Property damage only (none inju	Closed	12:22 PM	2017	No injury	2
8	4455778	SPRINGFIELD	11/11/2017	Non-fatal injury	Closed	3:16 AM	2017	Non-fatal injury	1
9	4468374	SPRINGFIELD	12/09/2017	Not Reported	Closed	4:15 PM	2017	Unknown	1
10	4501843	SPRINGFIELD	02/05/2018	Property damage only (none inju	Closed	6:21 AM	2018	No injury	1
11	4521115	SPRINGFIELD	03/20/2018	Non-fatal injury	Closed	7:48 AM	2018	Non-fatal injury	2
12	4534232	SPRINGFIELD	04/14/2018	Property damage only (none inju	Closed	5:30 PM	2018	No injury	2
13	4539954	SPRINGFIELD	05/14/2018	Property damage only (none inju	Closed	1:31 PM	2018	No injury	2
14	4573291	SPRINGFIELD	07/20/2018	Property damage only (none inju	Closed	5:43 PM	2018	No injury	2
15	4583626	SPRINGFIELD	07/29/2018	Property damage only (none inju	Closed	7:32 PM	2018	No injury	2
16	4597152	SPRINGFIELD	09/07/2018	Property damage only (none inju	Closed	5:38 PM	2018	No injury	2
17	4607421	SPRINGFIELD	10/05/2018	Property damage only (none inju	Closed	1:31 PM	2018	No injury	3
18	4622626	SPRINGFIELD	10/25/2018	Non-fatal injury	Closed	7:13 PM	2018	Non-fatal injury	2
19	4622665	SPRINGFIELD	10/27/2018	Non-fatal injury	Closed	3:21 PM	2018	Non-fatal injury	1
20	4622706	SPRINGFIELD	10/30/2018	Property damage only (none inju	Closed	6:09 PM	2018	No injury	2
21	4664845	SPRINGFIELD	02/13/2019	Non-fatal injury	Closed	4:22 PM	2019	Non-fatal injury	2
22	4681837	SPRINGFIELD	03/04/2019	Property damage only (none inju	Closed	5:06 AM	2019	No injury	1
23	4681855	SPRINGFIELD	03/05/2019	Property damage only (none inju	Closed	10:27 AM	2019	No injury	3
24	4699387	SPRINGFIELD	04/17/2019	Non-fatal injury	Closed	1:49 PM	2019	Non-fatal injury	2
25	4763588	SPRINGFIELD	09/20/2019	Non-fatal injury	Closed	1:25 PM	2019	Non-fatal injury	1
26	4763690	SPRINGFIELD	10/03/2019	Property damage only (none inju	Closed	5:19 PM	2019	No injury	3
27	4764417	SPRINGFIELD	10/20/2019	Non-fatal injury	Closed	2:07 AM	2019	Non-fatal injury	1
28	4793371	SPRINGFIELD	12/24/2019	Property damage only (none inju	Closed	11:32 PM	2019	No injury	1
29	4855870	SPRINGFIELD	06/11/2020	Non-fatal injury	Open	3:44 PM	2020	Non-fatal injury	1
30	4891827	SPRINGFIELD	10/11/2020	Property damage only (none inju	Open	7:51 PM	2020	No Apparent In	2
31	4894128	SPRINGFIELD	10/30/2020	Property damage only (none inju	Open	3:49 PM	2020	No injury	2
32	4906330	SPRINGFIELD	12/01/2020	Property damage only (none inju	Open	7:16 AM	2020	No Apparent In	1
33	4916256	SPRINGFIELD	01/03/2021	Property damage only (none inju	Open	7:36 PM	2021	No Apparent In	2
34	4948512	SPRINGFIELD	04/03/2021	Property damage only (none inju	Open	2:43 AM	2021	No Apparent In	1
35	4950407	SPRINGFIELD	04/08/2021	Property damage only (none inju	Open	3:34 PM	2021	No Apparent In	2
36	4950412	SPRINGFIELD	04/08/2021	Non-fatal injury	Open	6:41 PM	2021	Suspected Minc	2
37	4962632	SPRINGFIELD	05/14/2021	Non-fatal injury	Open	6:16 PM	2021	Suspected Seric	1
38	4974450	SPRINGFIELD	06/21/2021	Non-fatal injury	Open	2:41 PM	2021	Suspected Minc	2

Sr. Number	Police Agency 1sptroop	Age of Driver -	Age of Driver -	Age of Non-Mc	Age of Non-Mc	Crash Hour	Driver Contrib	Driver Distract	First Harmful E	Is Geocoded	Light Condition
1	Local police	18-20	65-74			03:00PM to 03: D1: (Failed to y	D1: Not Distrac	Collision with r	r Yes		Daylight
2	Local police	25-34	65-74			10:00AM to 10: D1: (Inattentior	D1: Not Distrac	Collision with r	r Yes		Daylight
3	Local police	45-54	55-64			03:00PM to 03: D1: (Failed to y	D1: Not Distrac	Collision with r	r Yes		Daylight
4	Local police	25-34	25-34			12:00AM to 12: D1: (Inattentior		Collision with c	Yes		Dark - roadway
5	Local police	21-24	65-74			08:00AM to 08: D1: (No improp	D1: Not Distrac	Collision with r	r Yes		Daylight
6	Local police	45-54	55-64			02:00AM to 02: D1: (Swerving c		Collision with r	r Yes		Dark - lighted r
7	Local police	35-44	45-54			12:00PM to 12: D1: (Failed to y		Collision with r	r Yes		Daylight
8	Local police	25-34	25-34			03:00AM to 03: D1: (Inattentior		Collision with g	Yes		Dark - lighted r
9	Local police					04:00PM to 04: D1: (Unknown)		Collision with g	Yes		Dawn
10	Local police	55-64	55-64			06:00AM to 06: D1: (Driving toc	D1: Not Distrac	Collision with o	Yes		Daylight
11	Local police	55-64	55-64			07:00AM to 07: D1: (No improp	D1: Not Distrac	Collision with r	r Yes		Daylight
12	Local police	18-20	55-64			05:00PM to 05: D1: (No improp	D1: Not Distrac	Collision with r	r Yes		Daylight
13	Local police	35-44	55-64			01:00PM to 01: D1: (No improp		Collision with r	r Yes		Daylight
14	Local police	25-34	75-84			05:00PM to 05: D1: (Unknown)	D2: Not Distrac	Collision with r	r Yes		Daylight
15	Local police	35-44	35-44			07:00PM to 07: D1: (No improp	D1: Not Distrac	Collision with r	r Yes		Daylight
16	Local police	35-44	45-54			05:00PM to 05: D1: (Inattentior	D1: External dis	Collision with r	r Yes		Daylight
17	Local police	21-24	75-84			01:00PM to 01: D1: (Failed to y	D1: Not Distrac	Collision with r	r Yes		Daylight
18	Local police	18-20	25-34			07:00PM to 07: D1: (Other impi	D1: Not Distrac	Collision with r	r Yes		Dark - lighted r
19	Local police	18-20	18-20			03:00PM to 03: D1: (Driving toc	D1: Not Distrac	Collision with g	Yes		Daylight
20	Local police	21-24	55-64			06:00PM to 06: D1: (Unknown)	D1: Not Distrac	Collision with r	r Yes		Dark - lighted r
21	Local police	18-20	55-64			04:00PM to 04: D1: (Disregarde	D1: Not Distrac	Collision with r	r Yes		Daylight
22	Local police	25-34	25-34			05:00AM to 05: D1: (Inattentior	D1: Not Distrac	Collision with g	Yes		Dark - lighted r
23	Local police	35-44	65-74			10:00AM to 10: D1: (No improp	D1: Not Distrac	Other non-coll	Yes		Daylight
24	Local police	55-64	55-64			01:00PM to 01: D1: (No improp	D1: Not Distrac	Collision with r	r Yes		Daylight
25	Local police	25-34	25-34			01:00PM to 01: D1: (Swerving c	D1: Not Distrac	Collision with g	Yes		Daylight
26	Local police	21-24	55-64			05:00PM to 05: D1: (Disregarde	D1: Not Distrac	Collision with r	r Yes		Daylight
27	Local police	35-44	35-44			02:00AM to 02: D1: (Exceeded ;	D1: External dis	Collision with c	Yes		Dark - lighted r
28	Local police	45-54	45-54			11:00PM to 11: D1: (Failure to l		Collision with g	Yes		Dark - lighted r
29	Local police	18-20	18-20			03:00PM to 03: D1: (Failure to l		Collision with g	Yes		Daylight
30	Local police	21-24	21-24			07:00PM to 07: D1: (No improp	D1: Not Distrac	Collision with r	r Yes		Dark - lighted r
31	Local police	25-34	55-64			03:00PM to 03: D1: (Failed to y	D2: Not Distrac	Collision with r	r Yes		Daylight
32	Local police	25-34	25-34			07:00AM to 07: D1: (Driving toc		Collision with g	Yes		Daylight
33	Local police	21-24	21-24			07:00PM to 07: D1: (No improp	D1: Not Distrac	Collision with r	r Yes		Dark - lighted r
34	Local police	25-34	25-34			02:00AM to 02: D1: (Failure to l	D1: Not Distrac	Collision with g	Yes		Dark - lighted r
35	Local police	18-20	25-34			03:00PM to 03: D1: (No improp	D1: Not Distrac	Collision with r	r Yes		Daylight
36	Local police	35-44	35-44			06:00PM to 06: D1: (Failure to l	D1: Not Distrac	Collision with r	r Yes		Daylight
37	Local police	25-34	25-34			06:00PM to 06: D1: (Over-corre		Collision with tr	Yes		Daylight
38	Local police	18-20	55-64			02:00PM to 02: D1: (Failed to y	D1: Not Distrac	Collision with r	r Yes		Daylight

Sr. Number	Manner of Coll	MassDOT Distr	Non-Motorist / Non-Motorist I	Non-Motorist I	RMV Documen	Road Surface	C Roadway Junct	RPA Abbreviati	Total Fatalities	Total Non-Fata	Traffic Control
1	Angle	2			PW201713901	Dry	T-intersection	PVPC	0	2	Stop signs
2	Rear-end	2			PW201714603	Dry	T-intersection	PVPC	0	1	Stop signs
3	Angle	2			PW201718105	Dry	T-intersection	PVPC	0	1	Stop signs
4	Single vehicle c	2			PW201718105	Wet	T-intersection	PVPC	0	1	No controls
5	Angle	2			PW201724202	Dry	T-intersection	PVPC	0	1	Stop signs
6	Sideswipe, sam	2			PW201730302	Wet	T-intersection	PVPC	0	0	No controls
7	Angle	2			PW201730302	Dry	T-intersection	PVPC	0	0	Stop signs
8	Single vehicle c	2			PW201732501	Dry	T-intersection	PVPC	0	2	No controls
9	Unknown	2			PW201734901	Snow	T-intersection	PVPC	0	0	No controls
10	Single vehicle c	2			PW201805000	Ice	Not at junction	PVPC	0	0	No controls
11	Angle	2			PW201809200	Dry	T-intersection	PVPC	0	1	No controls
12	Rear-end	2			PW201812700	Dry	T-intersection	PVPC	0	0	No controls
13	Angle	2			PW201814101	Dry	T-intersection	PVPC	0	0	Stop signs
14	Angle	2			PW201821100	Dry	T-intersection	PVPC	0	0	Stop signs
15	Sideswipe, sam	2			PW201823400	Dry	T-intersection	PVPC	0	0	No controls
16	Angle	2			PW201826400	Dry	T-intersection	PVPC	0	0	Stop signs
17	Angle	2			PW201828501	Dry	Not at junction	PVPC	0	0	Stop signs
18	Angle	2			PW201832000	Dry	T-intersection	PVPC	0	1	Stop signs
19	Single vehicle c	2			PW201832000	Wet	Not at junction	PVPC	0	1	No controls
20	Angle	2			PW201832000	Dry	Y-intersection	PVPC	0	0	Stop signs
21	Angle	2			PW201904901	Dry	T-intersection	PVPC	0	2	Stop signs
22	Single vehicle c	2			PW201908701	Snow	T-intersection	PVPC	0	0	No controls
23	Angle	2			PW201908701	Dry	T-intersection	PVPC	0	0	Stop signs
24	Angle	2			PW201913300	Dry	T-intersection	PVPC	0	2	Stop signs
25	Single vehicle c	2			PW201929500	Dry	T-intersection	PVPC	0	1	Stop signs
26	Angle	2			PW201929501	Wet	T-intersection	PVPC	0	0	Stop signs
27	Single vehicle c	2			PW201929600	Dry	Not at junction	PVPC	0	1	No controls
28	Single vehicle c	2			PW201936000	Dry	T-intersection	PVPC	0	0	No controls
29	Single vehicle c	2			PW202018501	Wet	T-intersection	PVPC	0	2	No controls
30	Angle	2			PW202030700	Dry	T-intersection	PVPC	0	0	Stop signs
31	Sideswipe, sam	2			PW202031100	Slush	T-intersection	PVPC	0	0	No controls
32	Single vehicle c	2			PW202034500	Wet	T-intersection	PVPC	0	0	No controls
33	Angle	2			PW202100600	Snow	T-intersection	PVPC	0	0	No controls
34	Single vehicle c	2			PW202109700	Dry	Not at junction	PVPC	0	0	No controls
35	Angle	2			PW202110400	Dry	T-intersection	PVPC	0	0	Stop signs
36	Angle	2			PW202110400	Dry	T-intersection	PVPC	0	0	No controls
37	Single vehicle c	2			PW202114000	Dry	T-intersection	PVPC	0	0	No controls
38	Angle	2			PW202117500	Dry	T-intersection	PVPC	0	0	Stop signs

Sr. Number	Trafficway Des	Vehicle Actions	Vehicle Config	Vehicle Emerg	Vehicle Towed	Vehicle Travel	Weather Condi	County Name	Crash Report #	FMCSA Report	FMCSA Report	First Harmful E
1	Two-way, not d	V1: Entering tra	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: S / V2: W	Clear	HAMPDEN	17-1757-AC			Roadway
2	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) / V2:(N	V1:(No) / V2:(N	V1: S / V2: S	Clear	HAMPDEN	17-1964-AC			Roadway
3	Two-way, not d	V1: Entering tra	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: S / V2: W	Clear	HAMPDEN	17-2467-AC			Roadway
4	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W		Rain	HAMPDEN	17-2476-AC			Roadway
5	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: W / V2: S	Clear	HAMPDEN	17-3100-AC			Roadway
6	Two-way, not d	V1: Overtaking	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: W / V2: W	Rain	HAMPDEN	17-4171-AC			Roadway
7	Two-way, not d	V1: Entering tra	V1:(Passenger c	V1:(No) / V2:(N	V1:(No) / V2:(N	V1: E / V2: E	Clear	HAMPDEN	17-4109-AC			Roadway
8	Two-way, divid	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: E		Clear	HAMPDEN	17-4421-AC			Roadside
9	Two-way, not d	V1: Unknown	V1:(Unknown)	V1:(No) V1: Not Report			Blowing sand, s	HAMPDEN	17-4836-AC			Outside roadwa
10	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: N		Clear	HAMPDEN	18-552-AC			Roadway
11	Two-way, divid	V1: Travelling s	V1:(Tractor/ser	V1:(No) V1:(Yes, vehicle	V1: W / V2: E		Clear	HAMPDEN	18-1138-AC	V1:(Yes, federa	Yes, federally re	Roadway
12	Two-way, not d	V1: Slowing or	V1:(Passenger c	V1:(No) / V2:(N	V1:(No) / V2:(N	V1: W / V2: W	Clear	HAMPDEN	18-1506-AC			Roadway
13	Two-way, not d	V1: Turning left	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: N / V2: S	Clear	HAMPDEN	18-1943-AC			Roadway
14	Two-way, divid	V1: Travelling s	V1:(Passenger c	V1:(No) / V2:(N	V1:(No) / V2:(Y	V1: W / V2: S	Clear	HAMPDEN	18-2951-AC			Roadway
15	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) / V2:(N	V1:(No) / V2:(N	V1: W / V2: S	Clear	HAMPDEN	18-3068-AC			Roadway
16	Two-way, divid	V1: Entering tra	V1:(Passenger c	V1:(No) / V2:(N	V1:(No) / V2:(Y	V1: W / V2: W	Clear	HAMPDEN	18-3686-AC			Roadway
17	Two-way, not d	V1: Entering tra	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: S / V2: W	Clear	HAMPDEN	18-4105-AC			Roadway
18	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: W / V2: S	Clear	HAMPDEN	18-4442-AC			Roadway
19	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W		Cloudy/Rain	HAMPDEN	18-4486-AC			Outside roadwa
20	Two-way, divid	V1: Turning left	V1:(Passenger c	V1:(No) / V2:(N	V1:(No) / V2:(N	V1: S / V2: E	Clear	HAMPDEN	18-4532-AC			Roadway
21	Two-way, not d	V1: Turning left	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: S / V2: W	Clear	HAMPDEN	19-621-AC			Roadway
22	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W		Snow	HAMPDEN	19-928-AC			Outside roadwa
23	Two-way, not d	V1: Travelling s	V1:(Tractor/ser	V1:(No) / V2:(N	V1:(No) / V2:(N	V1: W / V2: W	Clear	HAMPDEN	19-950-AC	V1:(No, not fed	No, not federal	Roadway
24	Two-way, divid	V1: Travelling s	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: W / V2: S	Clear/Unknowr	HAMPDEN	19-1520-AC			Roadway
25	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W		Clear	HAMPDEN	19-3752-AC			Outside roadwa
26	Two-way, not d	V1: Turning left	V1:(Passenger c	V1:(No) / V2:(N	V1:(No) / V3:(Y	V1: S / V3: W	Rain	HAMPDEN	19-3943-AC	V2:(No, not fed	No, not federal	Roadway
27	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W		Clear	HAMPDEN	19-4197-AC			Roadway
28	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W		Clear	HAMPDEN	19-5248-AC			Shoulder - pave
29	Two-way, divid	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W		Rain	HAMPDEN	20-1745-AC			Roadway
30	Two-way, divid	V1: Entering tra	V1:(Passenger c	V1:(No) V1:(No) / V2:(N	V1: E / V2: W		Clear	HAMPDEN	20-3432-AC			Roadway
31	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) / V2:(N	V1:(No) / V2:(N	V1: S / V2: S	Snow/Rain	HAMPDEN	20-3703-AC			Roadway
32	Two-way, divid	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W		Clear	HAMPDEN	20-4121-AC			Roadside
33	Two-way, divid	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W / V2: E		Snow	HAMPDEN	21-27-AC			Roadway
34	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) V1:(Yes, vehicle	V1: W		Clear	HAMPDEN	21-1157-AC			Outside roadwa
35	Two-way, not d	V1: Travelling s	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: W / V2: S	Clear	HAMPDEN	21-1230-AC			Roadway
36	Two-way, not d	V1: Travelling s	V1:(MOPED) / \	V1:(No) / V2:(N	V1:(No) / V2:(N	V1: E / V2: W	Clear	HAMPDEN	21-1235-AC			Roadway
37	Two-way, divid	V1: Travelling s	V1:(Motorcycle	V1:(No) V1:(Yes, vehicle	V1: W		Cloudy	HAMPDEN	21-1744-AC			Outside roadwa
38	Two-way, not d	V1: Turning left	V1:(Passenger c	V1:(No) / V2:(N	V1:(Yes, vehicle	V1: S / V2: W	Clear	HAMPDEN	21-2318-AC			Roadway

Sr. Number	Geocoding Me	Hit and Run	Locality	Most Harmful I	Road Contribut	School Bus Rel	Speed Limit	Traffic Control	Vehicle Sequer	Work Zone Rel	X	Y
1	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	40	Yes, device fun	V1:(Collision w	No	114560.453	878444
2	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	No, device not	V1:(Collision w	No	114560.453	878444
3	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus		Yes, device fun	V1:(Collision w	No	114560.453	878444
4	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus		Not reported	V1:(Collision w	No	114560.453	878444
5	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Yes, device fun	V1:(Collision w	No	114560.453	878444
6	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus		Not reported	V1:(Collision w	No	114560.453	878444
7	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus		Yes, device fun	V1:(Collision w	No	114560.453	878444
8	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Not reported	V1:(Collision w	No	114560.453	878444
9	At Intersection	Yes, hit and run		V1:(Collision wi	Road surface cc	No, school bus		Not reported	V1:(Collision w	No	114560.453	878444
10	At Intersection	No hit and run		V1:(Collision wi	Road surface cc	No, school bus		Not reported	V1:(Collision w	No	114560.453	878444
11	At Intersection	Yes, hit and run		V1:(Collision wi	None	No, school bus		Not reported	V1:(Collision w	No	114560.453	878444
12	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus		No, device not	V1:(Collision w	No	114560.453	878444
13	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus		Yes, device fun	V1:(Collision w	No	114560.453	878444
14	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Yes, device fun	V1:(Collision w	No	114560.453	878444
15	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	30	No, device not	V1:(Collision w	No	114560.453	878444
16	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Yes, device fun	V1:(Collision w	No	114560.453	878444
17	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Yes, device fun	V1:(Collision w	No	114560.453	878444
18	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	30	Yes, device fun	V1:(Collision w	No	114560.453	878444
19	At Address	No hit and run		V1:(Collision wi	Road surface cc	No, school bus	35	Not reported	V1:(Collision w	No	114554.4542	878440.3996
20	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Yes, device fun	V1:(Collision w	No	114560.453	878444
21	At Intersection	No hit and run		V1:(Collision wi		No, school bus		Yes, device fun	V1:(Collision w	No	114560.453	878444
22	At Intersection	No hit and run		V1:(Collision wi		No, school bus		Not reported	V1:(Collision w	No	114560.453	878444
23	At Intersection	No hit and run		V1:(Other non-i	None	No, school bus		Yes, device fun	V1:(Other non-	No	114560.453	878444
24	At Intersection	No hit and run		V1:(Collision wi		No, school bus		Yes, device fun	V1:(Collision w	No	114560.453	878444
25	At Address	No hit and run		V1:(Collision wi	None	No, school bus		Yes, device fun	V1:(Collision w	No	114554.4541	878440.3997
26	At Intersection	No hit and run		V1:(Collision wi	Road surface cc	No, school bus		Yes, device fun	V1:(Collision w	No	114560.4531	878444.0001
27	Off Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Not reported	V1:(Ran off roa	No	114560.4531	878444.0001
28	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Not reported	V1:(Collision w	No	114560.4531	878444.0001
29	At Intersection	No hit and run		V1:(Collision wi	Road surface cc	No, school bus	30	Not reported	V1:(Collision w	No	114560.4531	878444.0001
30	At Intersection	Yes, hit and run		V1:(Collision wi	None	No, school bus	30	Yes, device fun	V1:(Collision w	No	114560.4531	878444.0001
31	Off Intersection	No hit and run		V1:(Collision wi	None	No, school bus	25	Not reported	V1:(Collision w	No	114560.4531	878444.0001
32	At Intersection	No hit and run		V1:(Collision wi	Road surface cc	No, school bus	30	No, device not	V1:(Collision w	No	114560.4531	878444.0001
33	At Intersection	Yes, hit and run		V1:(Collision wi	Road surface cc	No, school bus	30	Not reported	V1:(Collision w	No	114560.4531	878444.0001
34	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	25	Not reported	V1:(Collision w	No	114560.4531	878444.0001
35	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	No, device not	V1:(Collision w	No	114560.4531	878444.0001
36	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Not reported	V1:(Cross medi	No	114560.4531	878444.0001
37	At Address	No hit and run		V1:(Collision wi	None	No, school bus	35	Not reported	V1:(Ran off roa	No	114574.4178	878452.2756
38	At Intersection	No hit and run		V1:(Collision wi	None	No, school bus	35	Yes, device fun	V1:(Collision w	No	114560.4531	878444.0001

Sr. Number	Latitude	Longitude
1	42.1517672	-72.53377334
2	42.1517672	-72.53377334
3	42.1517672	-72.53377334
4	42.1517672	-72.53377334
5	42.1517672	-72.53377334
6	42.1517672	-72.53377334
7	42.1517672	-72.53377334
8	42.1517672	-72.53377334
9	42.1517672	-72.53377334
10	42.15176725	-72.53376786
11	42.15176725	-72.53376786
12	42.15176725	-72.53376786
13	42.15176725	-72.53376786
14	42.15176725	-72.53376786
15	42.15176725	-72.53376786
16	42.15176725	-72.53376786
17	42.15176725	-72.53376786
18	42.15176725	-72.53376786
19	42.15173418	-72.53383991
20	42.15176725	-72.53376786
21	42.15176725	-72.53376786
22	42.15176725	-72.53376786
23	42.15176725	-72.53376786
24	42.15176725	-72.53376786
25	42.15173418	-72.53383991
26	42.15176725	-72.53376786
27	42.15176725	-72.53376786
28	42.15176725	-72.53376786
29	42.15176725	-72.53376786
30	42.15176725	-72.53376786
31	42.15176725	-72.53376786
32	42.15176725	-72.53376786
33	42.15176725	-72.53376786
34	42.15176725	-72.53376786
35	42.15176725	-72.53376786
36	42.15176725	-72.53376786
37	42.15184327	-72.53360013
38	42.15176725	-72.53376786

APPENDIX 6

SIGNAL WARRANT ANALYSIS

HCS Warrants Report

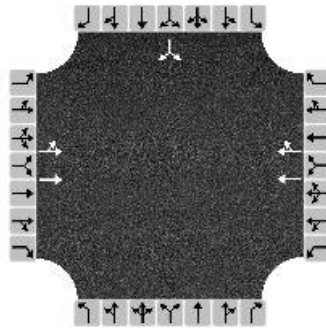
Project Information

Analyst	Khyati	Date	4/11/2022
Agency	PVPC	Analysis Year	2022
Jurisdiction		Time Period Analyzed	
Project Description	SWA Page/Bircham Springfield		

General

Major Street Direction	East-West	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	4
Major Street Speed (mi/h)	45	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	0		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	2	0	0	2	0	0	0	0	0	0	0
Lane Usage		LT			TR						LR	
Vehicle Volumes Averages (veh/h)	0	532	0	0	573	0	0	0	0	93	0	0
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.1			0.0			16.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)	-	Tractor-Trailer Trucks (%)	10

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (56%)	4A (70%)	4B (56%)
07 - 08	1144	82	1226	0	0	No	No	Yes	Yes	Yes	No	No	No	No
08 - 09	1099	80	1179	0	0	No	No	Yes	Yes	Yes	No	No	No	No
09 - 10	960	88	1048	0	0	No	Yes	Yes	Yes	Yes	No	No	No	No
10 - 11	734	63	797	0	0	No	No	Yes	Yes	No	No	No	No	No
11 - 12	1022	80	1102	0	0	No	No	Yes	Yes	Yes	No	No	No	No
12 - 13	1075	84	1159	0	0	No	Yes	Yes	Yes	Yes	No	No	No	No
13 - 14	1123	96	1219	0	0	No	Yes	Yes	Yes	Yes	No	Yes	No	No
14 - 15	1256	103	1359	0	0	No	Yes	Yes	Yes	Yes	No	Yes	No	No
15 - 16	1314	122	1436	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
16 - 17	1284	125	1409	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
17 - 18	1265	112	1377	0	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
18 - 19	984	91	1075	0	0	No	Yes	Yes	Yes	Yes	No	No	No	No
Total	13260	1126	14386	0	0	3	8	12	12	11	0	5	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	✓
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	✓
56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	✓
Warrant 2: Four-Hour Vehicular Volume	✓
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	✓
Warrant 3: Peak Hour	✓
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	✓
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	✓
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	