CITY OF SHELBYVILLE, INDIANA

SAFE STREETS AND ROADS FOR ALL COMPREHENSIVE SAFETY ACTION PLAN

DATE SUBMITTED: APRIL 17, 2024

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ACKNOWLEDGEMENTS

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The City of Shelbyville is dedicated to enhancing safety and reducing traffic fatalities and injuries by enacting the Safe Streets and Roads for All Comprehensive Safety Action Plan (CSAP). This multifaceted plan is meticulously crafted to engage the community, pinpoint hotspot intersections and high-injury networks, institute systemic safety improvements, and prioritize safety projects.

Aligned with Shelbyville's Vision Zero goal of achieving a 100% reduction in fatal and injury crashes by 2045, the CSAP represents a decisive step toward creating a safer and more inclusive transportation system for all residents.

Embracing the Safe System approach, we recognize that severe crashes are intolerable and preventable through the implementation of redundant systems that minimize risk, acknowledging that mistakes are inevitable. Furthermore, we affirm that we possess the tools and knowledge to be proactive in averting tragedies, and we share responsibility with the public, private sector, and external partners to ensure that when crashes do occur, they do not result in devastating outcomes. Our CSAP emerges as a response to the strong and clear call to action from our residents and our commitment to guaranteeing a transportation system and city that prioritizes safety for all.

Through the diligent implementation of the CSAP, Shelbyville will steadily advance toward its safety objectives while simultaneously nurturing a transportation network that is safe, accessible, and equitable for all residents. By placing safety and collaboration at the forefront, Shelbyville is poised to effect enduring positive change within its community and safeguard the well-being of all road users.

The City of Shelbyville CSAP encompasses a structured approach, beginning with providing the composition of a ***task force*** responsible for overseeing the action plan's development and guiding its future implementation. This is followed by reviewing and summarizing existing crash data, establishing a ***High-Injury Network (HIN)***, and identifying ***hotspot locations***, thus laying the groundwork for targeted interventions. **Public outreach** efforts are detailed, outlining the relevance of public input to the planning process.

Furthermore, the plan demonstrates its ***commitment to equity*** by analyzing underserved populations and their relationship to severe crashes. Evaluations of the city's current plans and policies identify opportunities for improvement in roadway safety. A framework is established for recommending and prioritizing safety projects, considering the HIN, equity analysis, and public feedback. Additionally, non-project ***strategic improvements*** are recommended, and responsible stakeholders for implementation are identified.

Lastly, the plan details future updates, how the city's effectiveness will be measured, and how these efforts will be communicated to the public and stakeholders, ensuring ***transparency*** and accountability in achieving safety goals.

As we embark on this journey, we remain dedicated to engaging with our community, leveraging data-driven insights, and continually refining our strategies to ensure that Shelbyville remains at the forefront of innovation and progress in traffic safety. Together, we can build a future where every journey is a safe one.

2. INTRODUCTION

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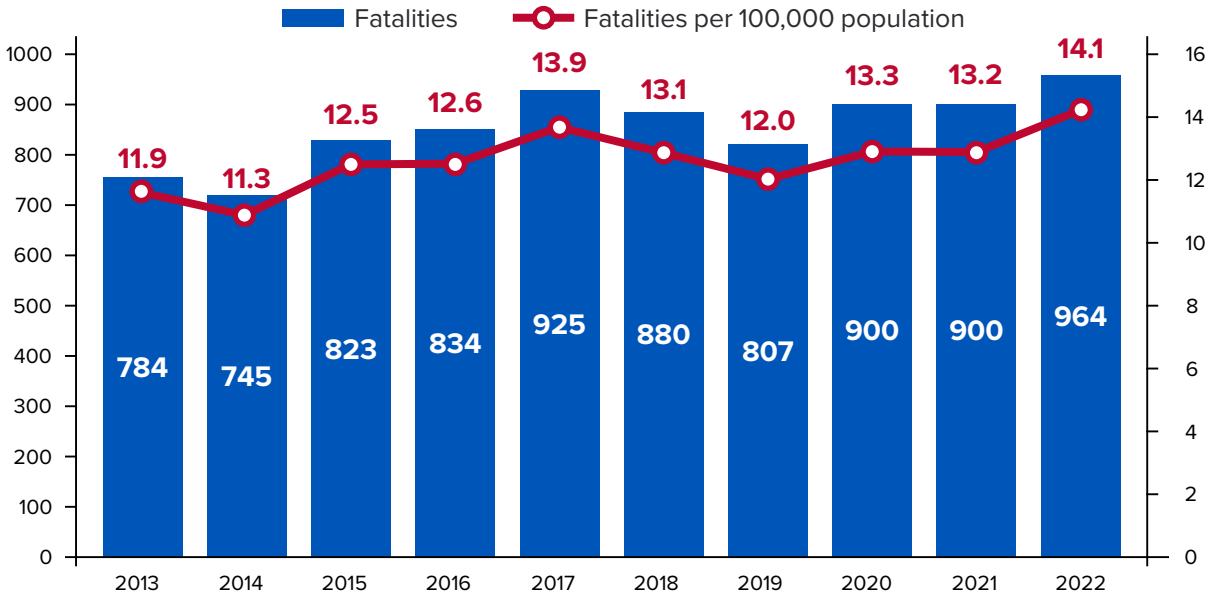
According to the Indiana University Public Policy Institute, in partnership with the Indiana Criminal Justice Institute, Indiana, recent years have witnessed an alarming rise in traffic fatality rates. In Indiana, there were 964 traffic fatalities in 2022, up from 900 in 2021. Traffic fatalities have risen in recent years to 14.1 per 100,000 of the state's population – marking a 10-year high. As shown in Figure 1, over the last few years, the fatality rates have increased steadily since reaching a five-year low of 12.0 per 100,000 population in 2019.[1]

Figure 1: Total Fatalities and Fatality Rate in Indiana, 2013-2022



Sources: Analysis provided by the Indiana Univeristy Public Policy Institute using data from Indiana State Police, Automoated Reporting Information Exchange System (ARIES), downloaded January 25, 2023; and U.S. Census Bureau, 2022 county population estimates.

Some evidence-based practices and policies can help reverse course. To do so, however, we will need to comprehensively approach traffic fatalities and social factors, built environment, street designs, vehicle standards, and technologies that underlie the worsening traffic safety crisis in the state and the country.

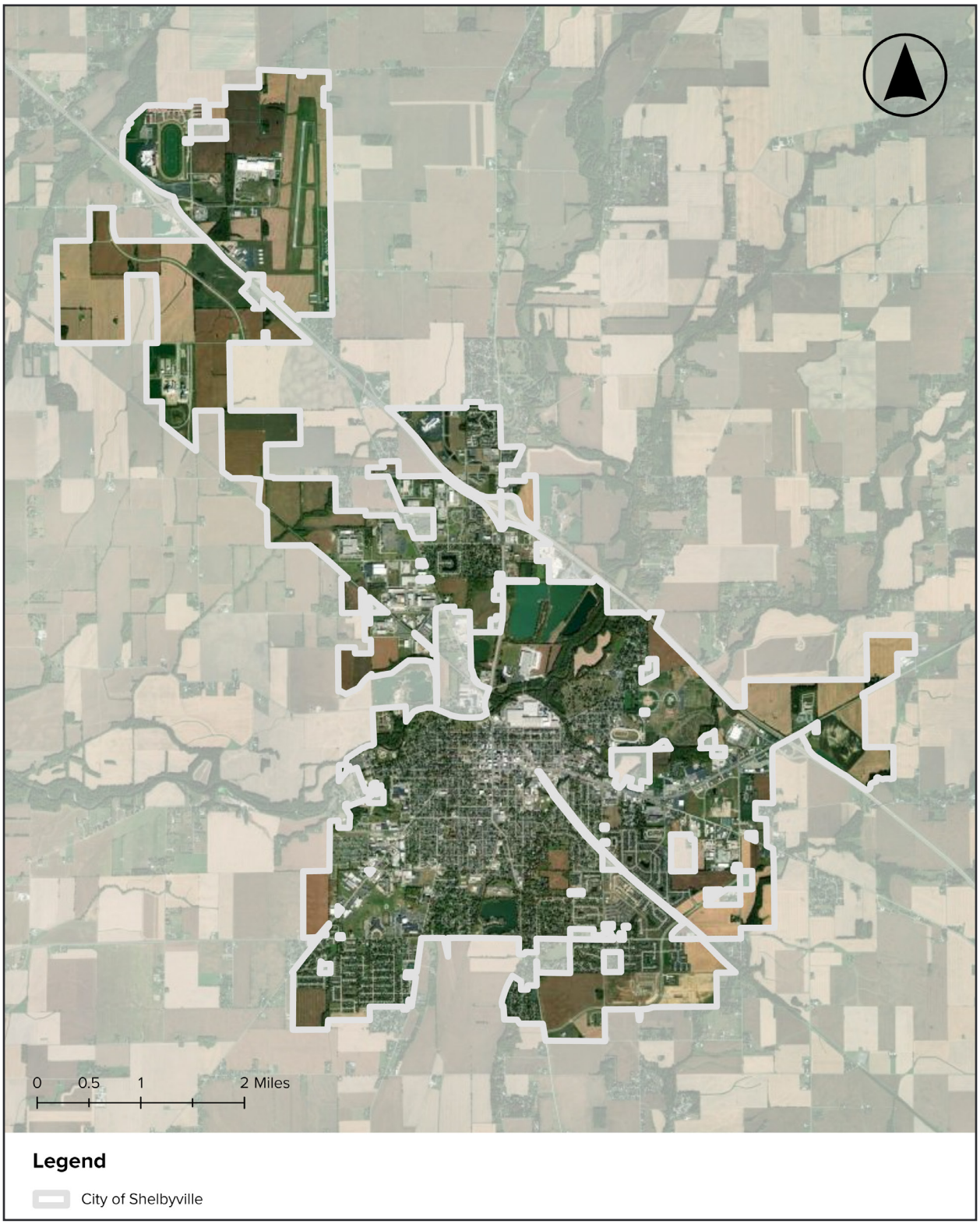
2.1 ABOUT THE CITY OF SHELBYVILLE

Shelbyville is located in Shelby County, only 26 miles southeast of Indianapolis, the state capital. Over the past decade, its population has steadily increased, reaching 20,067 people in 2020 from 19,191 in 2010. Approximately 2,500 residents commute to the city daily to work. By highway, Shelbyville is 217 miles from Chicago; 83 miles from Cincinnati; 273 miles from Detroit; and 268 miles from St. Louis. Two state highways, one U.S. highway, and one Interstate highway, plus several good county roads, converging on Shelbyville, make this attractive shopping center easily accessible to all parts of the county and draw regular customers from adjoining counties.

Figure 2 represents the boundary limits of the city of Shelbyville.

[1] Source: 2022 Indiana Crash Fact Book

Figure 2: City of Shelbyville – City Boundary



2.2 SAFE STREETS AND ROADS FOR ALL AND VISION ZERO

When the federal government passed the Bipartisan Infrastructure Law (BIL) in late 2021, one of the most notable new programs was Safe Streets and Roads for All—commonly abbreviated as "SS4A." SS4A commits large amounts of federal funding toward transforming the safety of corridors, municipalities, and regions through a series of planning and implementation grants. A fundamental component of SS4A is its alignment with a Vision Zero approach to safety. Vision Zero is based on the principle that it is not acceptable that people are killed or seriously injured when moving throughout the transportation network. Simply put, Vision Zero is a commitment to move toward zero deaths. This initiative recognizes that the responsibility for a safe transportation network is shared between users and transportation system designers and that behavioral and design issues are both important to understand and address. The city of Shelbyville strongly supports a Vision Zero approach to safety.

Communities seeking SS4A funding must have a compliant Safety Action Plan. A significant portion of the overall SS4A program is devoted to funding Action Plans. The city of Shelbyville was awarded the FY 22 SS4A Planning grant to create a comprehensive safety action plan. The city engaged American Structurepoint Inc. to create an action plan in accordance with all required and suggested SS4A Action Plan components.

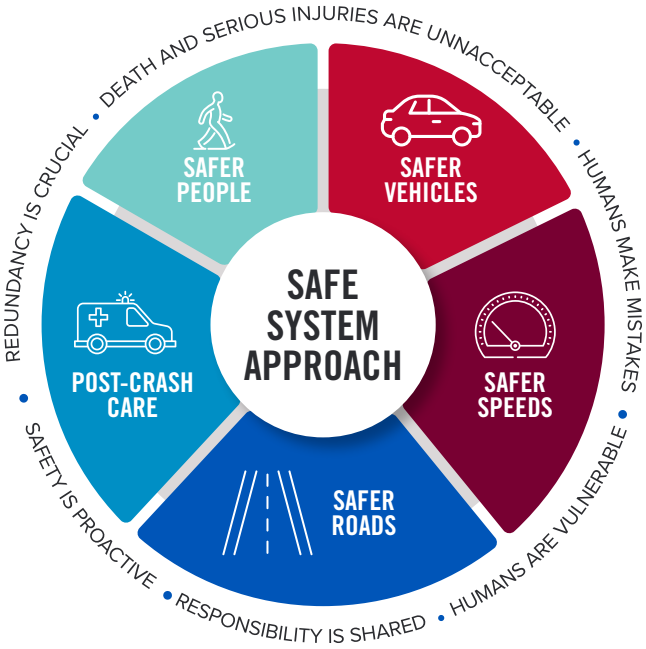
With this plan's completion, the city may decide to pursue SS4A Demonstration and Implementation Grants. This grant can fund a large variety of safety projects and strategies identified in this Action Plan that address roadway safety problems. This plan will also identify the tools and policy changes needed to achieve the Vision Zero goal.

2.2.1 THE SAFE SYSTEM APPROACH

Shelbyville's response to address traffic safety concerns will incorporate the Safe System Approach embraced by the U.S. Department of Transportation (DOT). The Safe System Approach focuses on human mistakes and vulnerability, incorporating redundancies to prevent crashes and minimize harm. The U.S. DOT's National Roadway Safety Strategy and ongoing safety programs are aligned with the goal of achieving zero roadway fatalities and serious injuries. These programs target various aspects, including infrastructure, human behavior, responsible vehicle and transportation industry oversight, and emergency response, to create a comprehensive framework for making roadways safer.

The principles and elements of a safe system, presented in ***Figure 3***, summarizes the city's approach to creating safe streets for all moving forward.

Figure 3: Safe System Principles and Elements



2.3 A COMPREHENSIVE SAFETY PLAN

The key components of the Comprehensive Safety Action Plan as outlined in the SS4A Notice of Funding Opportunity (NOFO) are detailed in the following sections.

- **Section 3:** Provides the composition of the task force that will be overseeing the action plan development and guide future implementation.
- **Section 4:** Reviews and summarizes existing crash data, where fatality crashes occur, the population involved, and behavioral characteristics of crashes. Additionally, establishes a High-Injury Network (HIN) and hotspot locations methodology that evaluates the city's roadway segments and intersections with a higher number of severe crashes.
- **Section 5:** Summarizes the results of public outreach efforts and the relevance of public input to the planning process.
- **Section 6:** Demonstrates the safety action plan's efforts to consider equity as part of the planning process by analyzing the underserved populations and understanding the relationship between severe crashes and underserved population communities.
- **Section 7:** Reviews the city's current plans and policies to identify opportunities for improvements concerning traffic safety.
- **Section 8:** Establishes a framework to recommend and prioritize a list of potential safety projects by considering the existing HIN/hotspot intersections, equity analysis results, and public feedback. Additionally, recommends a variety of other, non-project strategic improvements that improve safety by changing and identifying the responsible stakeholders to implement these efforts.
- **Section 9:** Details how the plan will be updated in the future, how the city's effectiveness at implementing the plan will be measured, and how these efforts will be demonstrated to the public and stakeholders.

2.4 SHELBYVILLE'S COMMITMENT TO SAFE STREETS FOR ALL

The CSAP serves as a detailed roadmap outlining specific strategies, actions, and projects that the city of Shelbyville will implement in the coming years and beyond to enhance safety across the community. In March, 2024, Shelbyville adopted a Vision Zero resolution, aiming to achieve a 100% reduction in fatal and injury crashes by 2045. This resolution underscores the city's dedication to prioritizing safety as a fundamental aspect of urban planning and development. The resolution is included in ***Appendix A*** of this report.

Through the CSAP, the city is not only taking the first step towards addressing current safety concerns but also laying the foundation for a safer and more resilient future. By implementing targeted strategies and initiatives, the city aims to create a transportation system that is safe, accessible, and equitable for all residents, visitors, and road users.

3. COMMITTEE/TASK FORCE

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In response to the pressing need for effective oversight of the development, implementation, and monitoring of the Shelbyville Comprehensive Safety Action Plan, a dynamic and dedicated task force was formed. Comprised of diverse stakeholders and community leaders, this task force will serve as the guiding force behind realizing the collective vision for a safer, more vibrant, and inclusive Shelbyville.

3.1 PROJECT TEAM

The project team, consisting of dedicated city officials, played a pivotal role in guiding and refining the action plan at every stage of its development. Their valuable input and feedback were essential in shaping the direction and effectiveness of the plan. This collaborative effort involved multiple interactions with both the steering committee and the consultant, ensuring comprehensive engagement and alignment of goals throughout the planning process. ***Table 1*** provides a list of project team members.

Table 1: City of Shelbyville CSAP, Project Team Members

NAME	TITLE
John Kuntz, P.E.	City Engineer
Adam Rude, AICP	Planning Director
Jacob Stevenson	Assistant City Engineer

3.2 STEERING COMMITTEE

A multi-disciplinary steering committee team comprising of community members was established to oversee the development of this Comprehensive Safety Action Plan, projects implementation, and monitoring the progress towards achieving the Vision Zero goal. The Steering Committee's input is critically important during the creation of a Comprehensive Safety Action Plan. The committee helped the project team identify unsafe intersections/roadways within Shelbyville during the process. Also, the committee helped identify future infrastructure projects for the city's future.

Throughout the project, multiple steering committee meetings were held to discuss the project's process and to review and present draft materials. Meeting minutes are included in Appendix B for a more detailed explanation of what each steering committee meeting captured. ***Table 2*** provides a list of steering committee members.

Table 2: City of Shelbyville CSAP, Steering Committee Members

NAME	TITLE
John Kuntz, PE	City Engineer, City of Shelbyville
Jacob Stevenson	Assistant City Engineer, City of Shelbyville
Adam Rude, AICP	Planning Director, City of Shelbyville
Bill Dwenger	Police Chief, City of Shelbyville
Doug Lutes	Fire Chief, City of Shelbyville
Betsy Means-Davis	2nd Ward - Council Member, City of Shelbyville
Linda Sanders	Incoming 4th Ward - Council Member, City of Shelbyville
Scott Furgeson	Mayor, City of Shelbyville
Jenna Martin	Director of Public Relations, City of Shelbyville
Buffy Power	Member, Livable Communities Coalition
Jason Abel	Commissioner, Shelby County
Brandy Coomes	Executive Director, Mainstreet Shelbyville, Inc.
Carrie Glisson	Transportation Director, Shelbyville Central Schools
Latisha Idlewine	Executive Director, Major Health Partners Foundation
Laura Slusher	Indiana LTAP, Purdue University
Courtney Chapella	Director of Member Relations, Shelby County Chamber of Commerce

4. SAFETY ANALYSIS

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To identify the factors contributing to an increased likelihood of fatal and incapacitating crashes in the area, we conducted an analysis of crashes reported in the Indiana State Police Automated Reporting Information Exchange System (ARIES) spanning from year 2018 to 2022. These factors included aspects such as road geometry, traffic flow, driver behavior, and environmental conditions.

Following the Safe System Approach, our methodology integrated safety analysis findings with an initial proactive analysis to identify the roadway features that are associated with elevated severe crash risk. By combining these analytical approaches, we identified areas where the city can strategically prioritize its efforts in the forthcoming years to address the predominant types of severe crashes, employing evidenced-based countermeasures.

4.1 HIGH-LEVEL TRENDS

Over the course of five years, Shelbyville averaged 356 reported crashes annually, which included 15% of severe crashes. Although the total crash trends show a decline, the severe (injury and fatal) crashes are continuing to rise steadily. The crash frequency and corresponding year-on-year percentage changes for the past five years are summarized in ***Table 3***.

Table 3: City of Shelbyville, Crash Frequency, 2018-2022

YEAR	TOTAL CRASHES	CHANGE (%)	INJURY AND FATALITY CRASHES	CHANGE (%)
2018	409		53	
2019	351	-14.18	47	-11.32
2020	311	-11.40	45	-4.26
2021	378	21.54	63	40.00
2022	331	-12.43	60	-4.76
Subtotal 2018-2022	1780	-16.47	268	19.66
5-year Average	356		54	

The crash data was further analyzed to determine the crash frequency based on the following categories:

- Manner of collision
- Light conditions
- Roadway surface conditions
- Roadway Class
- Roadway Junction
- Vulnerable Road Users

MANNER OF COLLISON

Analysis of the crash data indicates that the most common crash types include right angle, backing, and rear-end crashes, which collectively account for 58% of all crashes. Right-angle and rear-end crashes are associated with an elevated risk of severity. These crashes combine for 55% of all severe crashes in the five-year period between 2018 and 2022 as shown in ***Table 4***.

When compared to their total share of all crashes, head-on crashes result in a severity ratio* of 1.80, with right-angle crashes also overrepresented with a ratio of 1.71.

Nearly 16% of all crashes reported do not have an associated crash type based on police reports, impairing a more complete analysis.

**The severity ratio is the ratio of the share of severe crashes for a particular crash type to its share of overall crashes. For example, a crash type that represents 5% of severe crashes and 10% of all crashes would have a severity ratio of 0.5 indicating that it was underrepresented in citywide severe crashes.*

Table 4: City of Shelbyville, Crashes by Type, 2018-2022

MANNER OF COLLISION	PDO	SEVERE CRASHES		GRAND TOTAL	PERCENT OF TOTAL CRASHES	PERCENT OF SEVERE CRASHES	SEVERITY RATIO
		INJURY	FATAL				
Right Angle	217	72	1	290	20%	34%	1.71
Backing Crash	281	8	0	289	20%	4%	0.19
Rear End	215	45	0	256	18%	21%	1.19
Same Direction Sideswipe	157	8	0	165	11%	4%	0.33
Left Turn	109	28	0	137	10%	13%	1.39
Ran Off Road	79	14	1	94	7%	7%	1.08
Left/Right Turn	42	8	0	50	3%	4%	1.09
Right Turn	31	6	0	37	3%	3%	1.10
Collision with Object in Road	29	6	0	35	2%	3%	1.16
Head On Between Two Motor Vehicles	25	9	0	34	2%	4%	1.80
Opposite Direction Sideswipe	28	4	0	32	2%	2%	0.85
Collision with Deer	8	0	0	8	1%	0%	0.00
Non-Collision	6	2	0	8	1%	1%	1.70
Collision with Animal Other	1	0	0	1	0%	0%	0.00
All	1228	210	2	1440	100%	100%	1.00

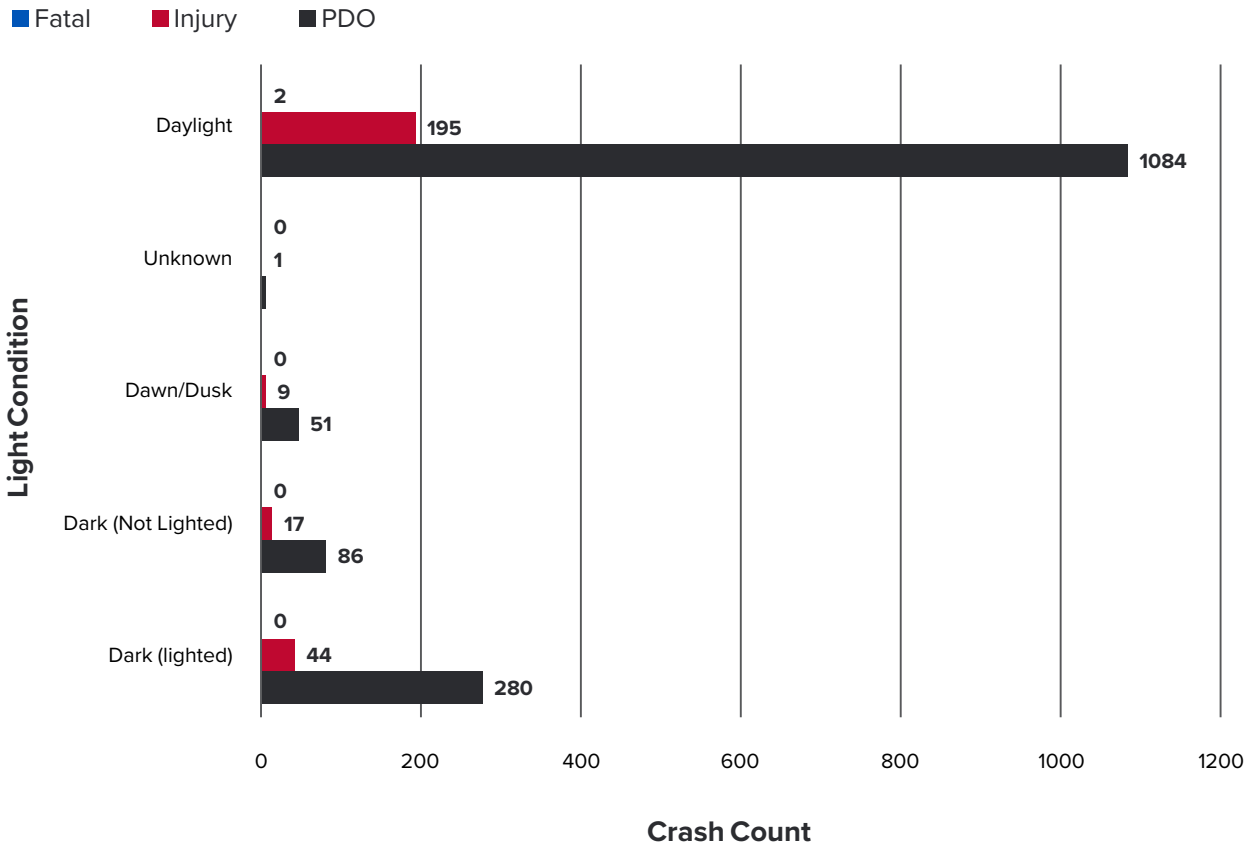
LIGHT CONDITIONS

The crash analysis results indicate that the largest proportion, accounting for 72% of the total, occurred during daylight conditions. Although the two fatal crashes were reported during daylight conditions, severe crashes accounted for only 15% of the total daylight crashes.

Conversely, crashes in Dark (Lighted), Dark (Not Lighted), and Dawn/Dusk exhibit lower overall counts, comprising 27% of the total crashes. There were no fatal crashes reported during these lighting conditions, suggesting a possible correlation between lower traffic volumes and a lower likelihood of severe crashes.

Figure 4 summarizes the crashes by light conditions in Shelbyville during the analysis period.

Figure 4: City of Shelbyville, Crashes by Light Condition, 2018-2022



ROADWAY SURFACE CONDITIONS

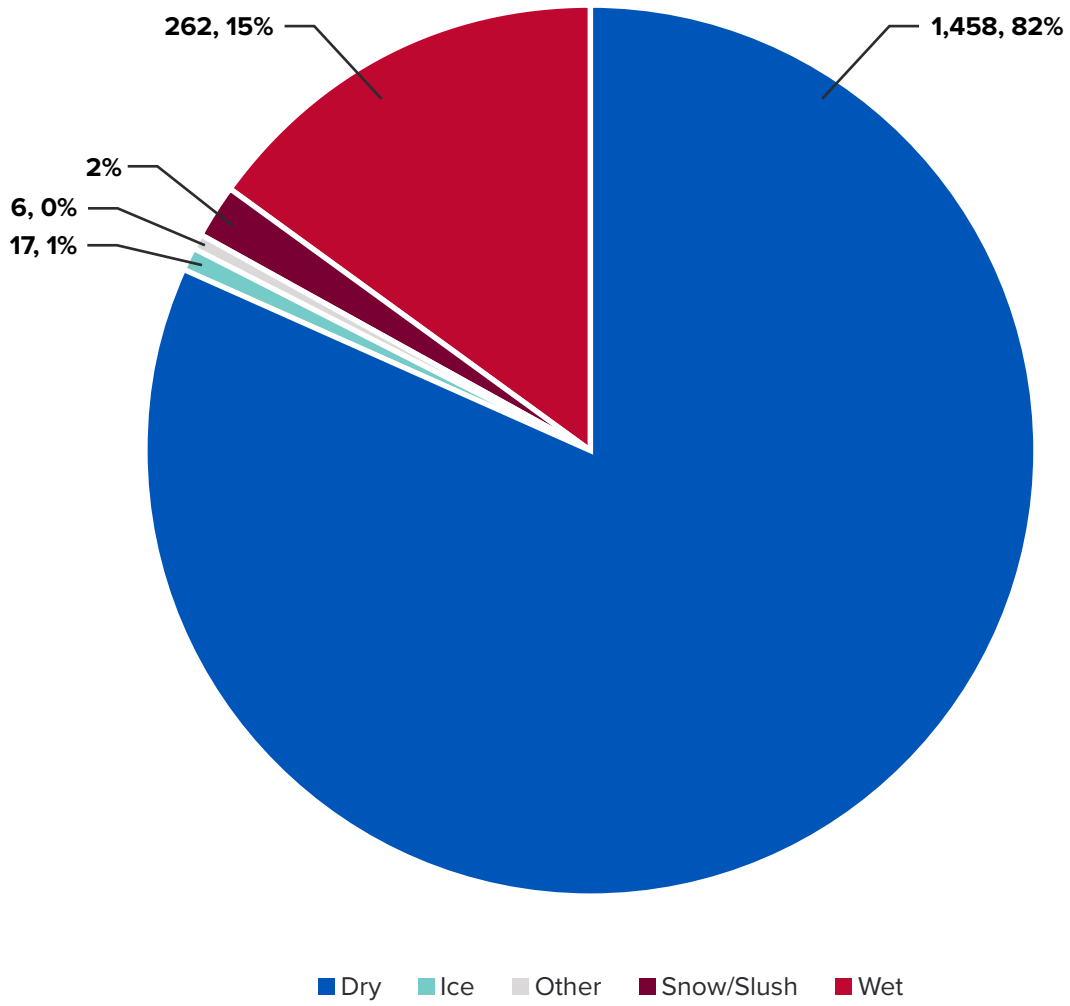
The crash analysis results indicate that the majority of crashes occurred on the roadway during dry conditions, comprising 82% of the total crashes. Although the two fatal crashes were reported during dry conditions, severe crashes accounted for only 16% of the total dry-condition crashes.

Conversely, crashes on wet surface conditions accounted for only 15% of the total crashes. Notably, there were no fatal crashes and only 13% injury crashes were reported on wet surfaces, indicating a potential correlation between reduced traction on wet roads, slower speeds, and a lower likelihood of severe crashes.

Additionally, crashes on snow/slush, ice, water (standing or moving), loose material on the road, and muddy surfaces collectively make up a smaller proportion of the total crashes, comprising only 3% of the total crashes.

Figure 5 summarizes the crashes by roadway surface conditions in Shelbyville during the analysis period.

Figure 5: City of Shelbyville, Crashes by Roadway Surface Conditions, 2018-2022



ROADWAY CLASS

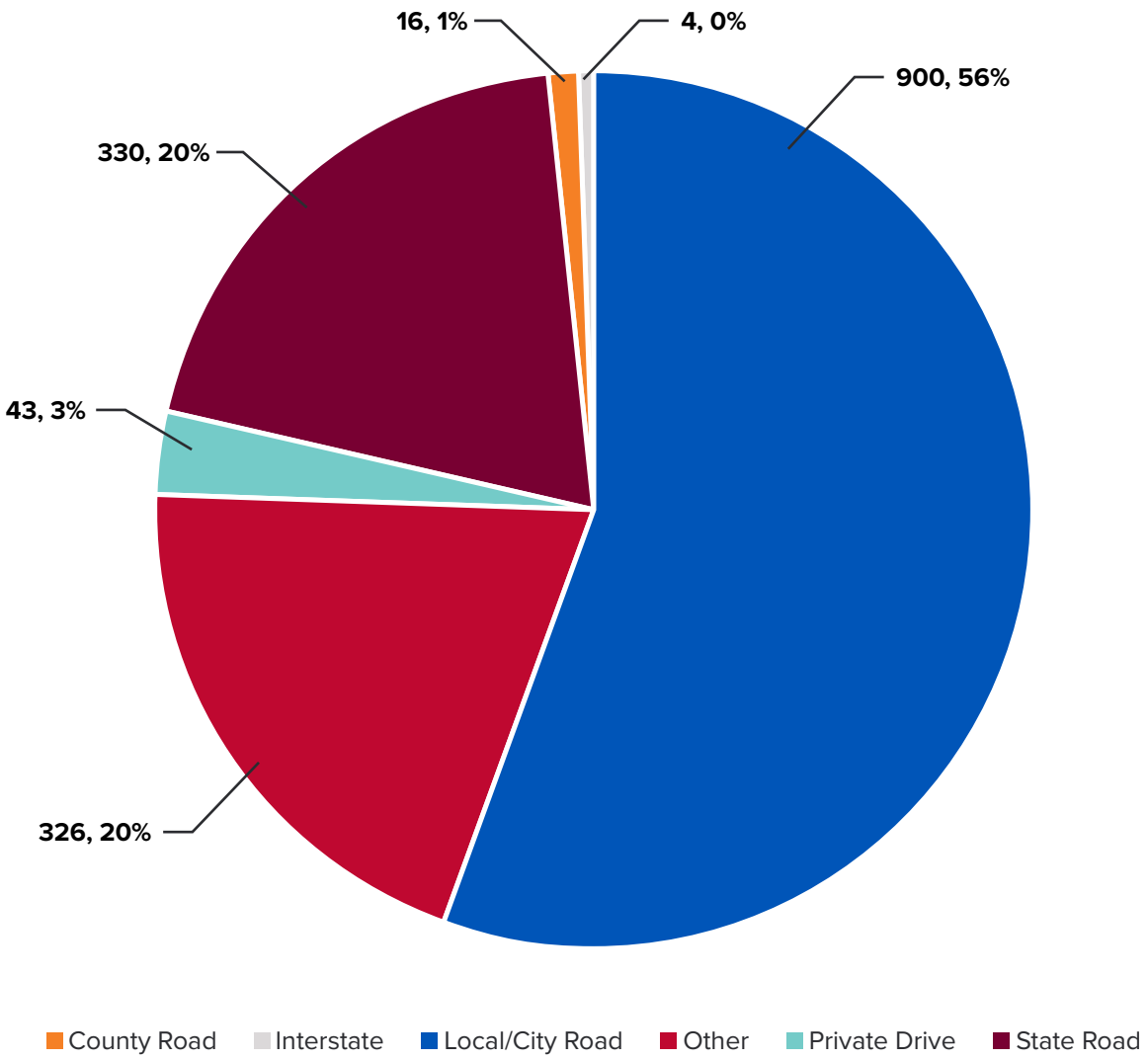
The crash analysis results indicate that the majority of crashes occur on Local/City Roads, comprising 56% of the total crashes. Despite their higher crash frequency, severe crashes only account for 16% of the total crashes on these roads.

State Roads, on the other hand, represent the second-highest number of crashes, accounting for 20% of the total crashes. The severe crashes on State Roads account for 21% of the total crashes, which is higher than that observed on Local/City Roads. This suggests a potential correlation between higher traffic volumes and speeds on state roads and an increased likelihood of severe crashes.

Other roadway classes, including private driveways, County Road, and Interstate, collectively make up the remaining 24% of total crashes.

Figure 6 summarizes the crashes by roadway class in Shelbyville during the analysis period.

Figure 6: City of Shelbyville, Crashes by Roadway Class, 2018-2022



ROADWAY JUNCTION

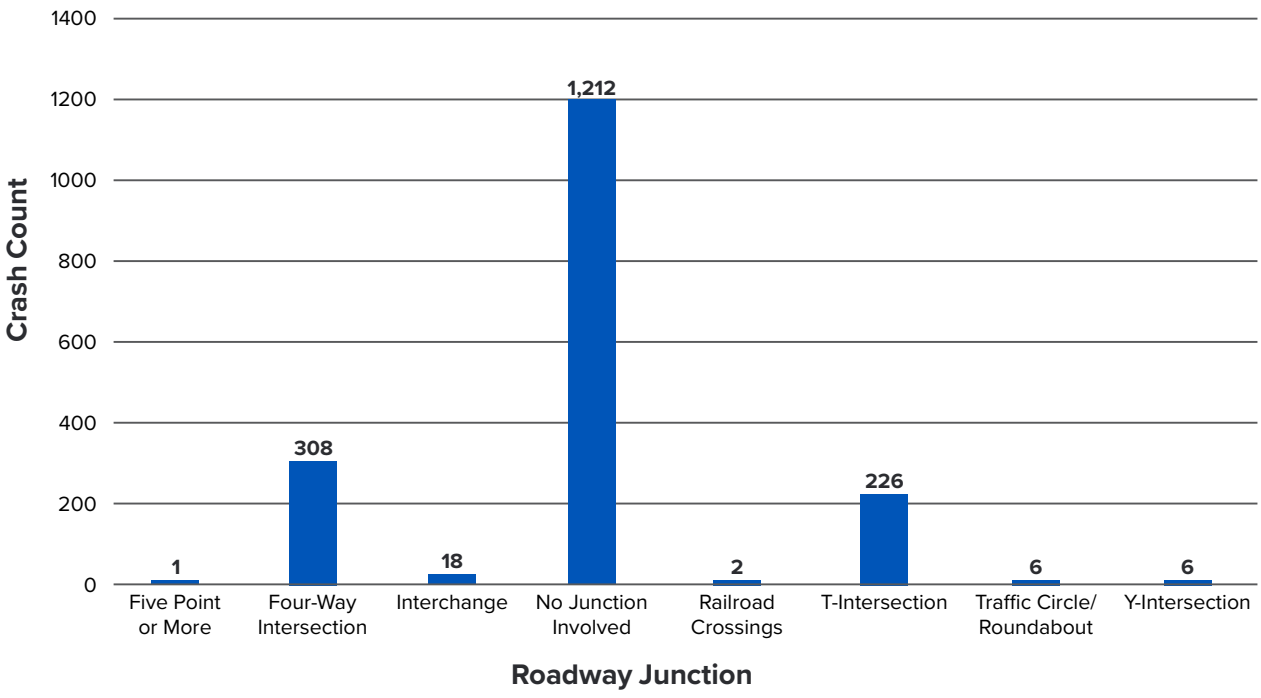
The crash analysis results indicate that the majority of occur along roadway segments (no junction involved), comprising 68% of the total crashes. Despite their higher crash frequency, severe crashes account for 13% of the total roadway segment crashes.

Secondly, among the specified junction types, four-way intersections emerged as the most common location for crashes, accounting for 17% of the total crashes. The severe crashes at four-way intersections account for 26% of total crashes, which is higher compared to any other junction type. A typical four-legged intersection has 32 vehicle-to-vehicle conflict points and 24 vehicle-to-pedestrian conflict points. These conflict points can include areas where vehicles are turning left, turning right, or proceeding straight through the intersection, as well as points where lanes merge or diverge.

This roadway junction type in the crash data may possess a margin of error. It is recommended that a more detailed analysis be conducted in the future to ensure the accuracy of intersection classifications.

Figure 7 summarizes the crashes by roadway junction in Shelbyville during the analysis period.

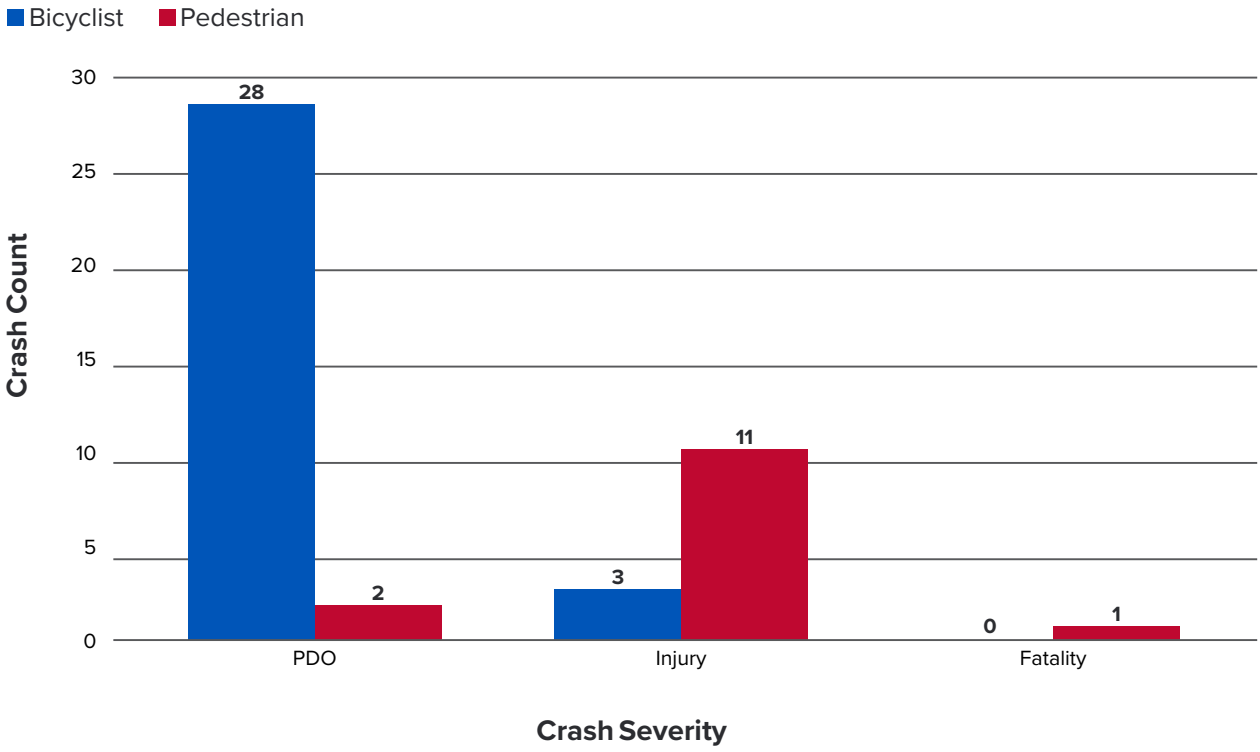
Figure 7: City of Shelbyville, Crashes by Roadway Junction, 2018-2022



VULNERABLE ROAD USER

The findings from the crash analysis reveal a total of 45 reported incidents involving vulnerable road users, comprising 31 incidents with bicyclists and 14 with pedestrians. Most of the bicycle-related crashes resulted in property damage only (PDO), whereas the majority of pedestrian-involved crashes were of a severe nature. ***Figure 8*** summarizes the crashes by vulnerable road user in Shelbyville during the analysis period.

Figure 8: City of Shelbyville, Crashes by Vulnerable Road User, 2018-2022



4.2 HOTSPOT INTERSECTIONS AND HIGH INJURY NETWORK (HIN)

Identifying hotspot intersections and high-injury networks plays a critical role in understanding and addressing areas with a high frequency of crashes and severe injuries, ultimately leading to the implementation of effective safety measures to reduce traffic-related fatalities and injuries.

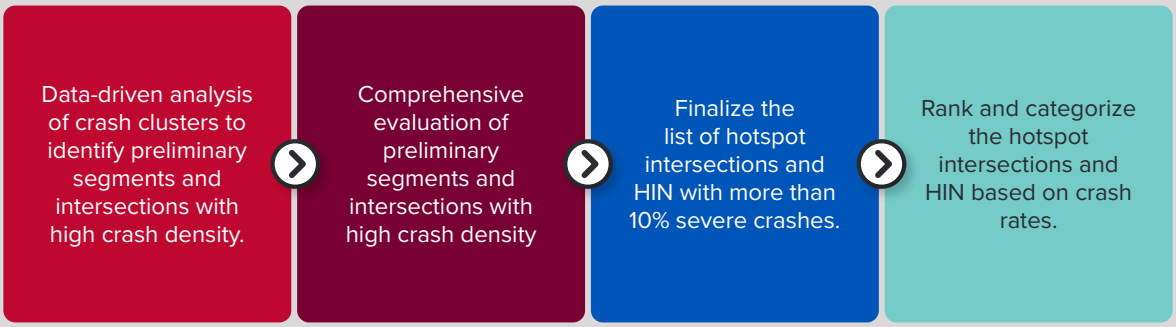
By utilizing crash data and statistical analyses, we can identify trends, patterns, and contributing factors associated with crashes and injuries at specific locations. This evidence-based approach enables the identification of underlying issues and the development of targeted solutions tailored to address the unique safety challenges of each intersection or corridor within the high-injury network.

METHODOLOGY

We developed a four-step process for identifying hotspot intersections and HIN as shown in ***Figure 9***. It involves a systematic approach that leverages data-driven analysis and comprehensive evaluation to prioritize safety improvements.

- **Data-Driven Analysis of Crash Clusters to Identify Preliminary Segments and Intersections:** This initial step involved analyzing crash data to identify clusters of crashes occurring at intersections and segments of roadways. By examining the spatial distribution of crashes, we identified areas with a high frequency of crashes, indicating potential hotspot intersections and segments within the road network.
- **Comprehensive Evaluation of Preliminary Segments and Intersections:** In this step, the comprehensive evaluation of the identified preliminary segments and intersections was performed to determine crash statistics, with a focus on the percentage of severe crashes.
- **Finalize the List of Hotspot Intersections and High-Injury Networks with More Than 10% Severe Crashes:** Building upon the comprehensive evaluation, the list of hotspot intersections and high-injury networks was finalized based on predefined criteria, such as a threshold of more than 10% severe crashes. This criterion ensures that priority is given to intersections and segments with a significant concentration of severe crashes.
- **Rank the Hotspot Intersections and High-Injury Networks Based on Crash Rates:** Finally, the identified hotspot intersections and high-injury networks are ranked based on crash rates, which consider the frequency of crashes relative to the volume of traffic and/or roadway length. Ranking the locations allows the city to prioritize safety improvements based on the level of risk posed to road users. Intersections and segments with higher crash rates are assigned a higher priority for safety interventions.

Figure 9: Methodology for Hotspot Intersections and HIN Identification



4.2.1 IDENTIFICATION OF PRELIMINARY SEGMENTS AND INTERSECTIONS

ArcGIS Pro software was utilized as the primary tool for spatial analysis and visualization of crash data. This GIS platform provided the capability to create a detailed heat map which served as an effective visualization tool for identifying clusters and patterns of crashes within the city. The resulting heat map depicted areas with varying levels of crash density, with hotter colors indicating higher densities of crashes and cooler colors representing lower densities. The roadway segments and intersections with high crash densities served as the initial focus for further evaluation and assessment to determine their suitability for inclusion in the final list of hotspot intersections and high-injury networks.

Figure 10 shows the injury and fatality crash data heat map that was utilized for identifying preliminary segments and intersections.

The analysis of the heat maps revealed notable clusters of high crash density along specific roads within the city boundaries, including Miller Avenue, Mechanic Street, Broadway Street, West Street, Tompkins Street, North State Road 9, and Colescott Street. Additionally, a significant concentration of intersections with high crash density was observed along these streets.

4.2.2 COMPREHENSIVE EVALUATION

Crash trends at each of the preliminary segments and intersections were assessed, with a summary provided in ***Table 5*** and ***Table 6***, respectively.

Table 5: City of Shelbyville, Crash Trend for Preliminary HIN Segments, 2018-2022

SEGMENT NAME	TOTAL CRASHES	INJURY CRASHES	FATALITY CRASHES	PERCENTAGE OF INJURY/FATALITY CRASHES	MAJOR CRASH TYPES
Miller Avenue from W Talyor Street to W Mckay Road	50	7	0	14%	Rear End; Right Angle; Left-turn
S Miller Avenue - From W Broadway Street to W Mckay Road	64	7	0	11%	Right Angle; Left-Turn; Head-On
Mechanic Street - From Conrey Street to N Vine Street	76	13	0	17%	Right Angle; Left-Turn; Sideswipe
E Broadway Street - From Tompkins Street to E Michigan Street	235	45	0	19%	Rear End; Right Angle; Left-Turn
S West Street - From W Mechanic Street to Colescott Street	30	9	0	30%	Rear End; Right Angle; Sideswipe
Tompkins Street - From W Mechanic Street to Colescott Street	56	16	0	29%	Right Angle; Rear End
N State Road 9 - From Knauf Drive to Howard Street	175	29	0	17%	Rear End; Right Angle; Sideswipe
Colescott Street - From S Miller Street to Harris on Street	52	12	0	23%	Rear End; Right Angle; Left-Turn

Figure 10: City of Shelbyville, Injury and Fatality Crash Data Heat Map, 2018-2022

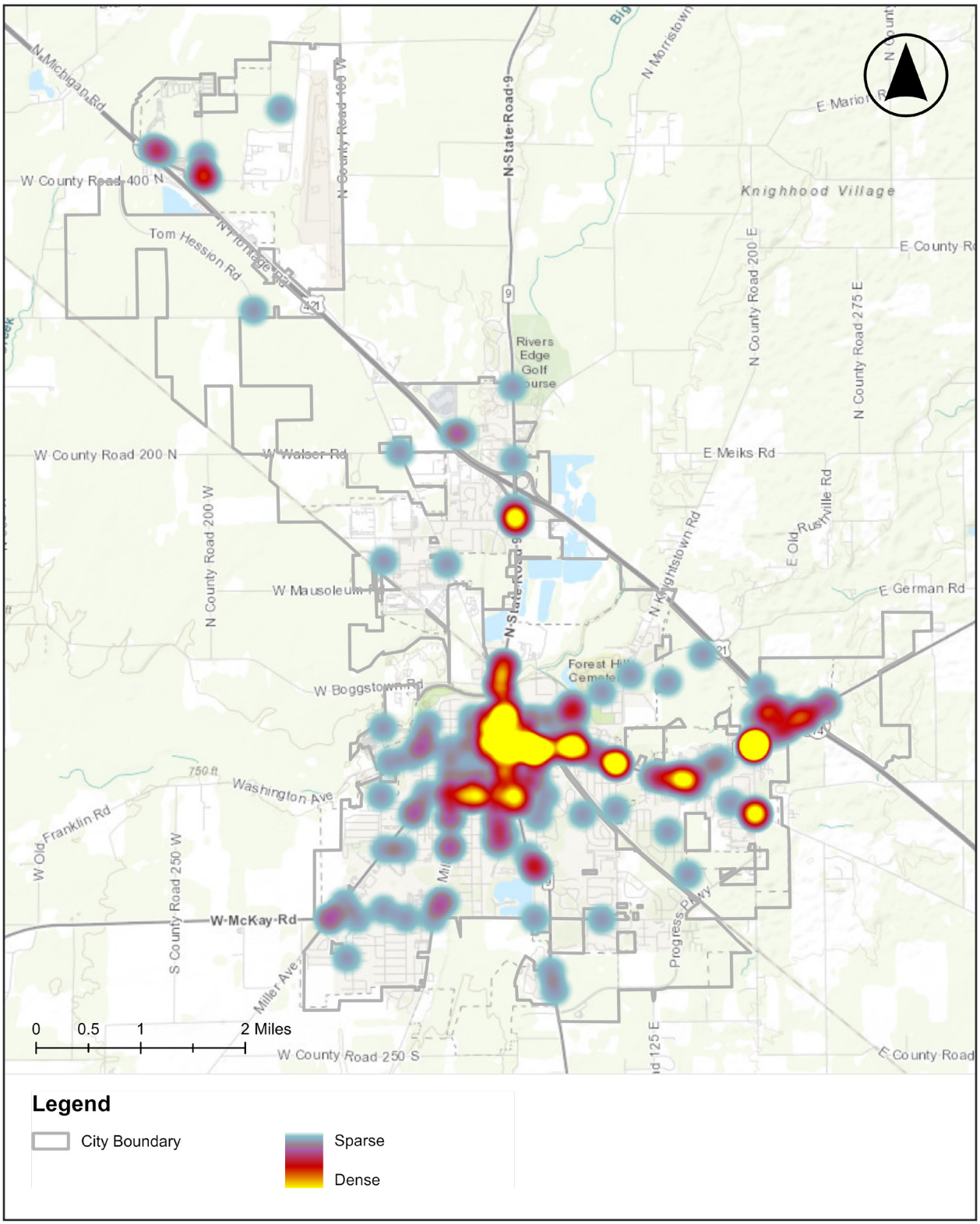


Table 6: City of Shelbyville, Crash Trend for Preliminary Hotspot Intersections, 2018-2022

INTERSECTION NAME	TRAFFIC CONTROL	TOTAL CRASHES	INJURY CRASHES	FATALITY CRASHES	PERCENTAGE OF INJURY/FATALITY CRASHES	MAJOR CRASH TYPES
N State Road 9 and Knauf Drive	Traffic Signal	21	4	0	19%	Rear End; Sideswipe; Right Angle
E Broadway Street and E Hendricks Street	Traffic Signal	29	5	0	17%	Rear End; Left-Turn; Right-Turn
E State Road 44 and Eastern Avenue	Two-Way Stop	11	2	0	18%	Right Angle; Sideswipe
S Noble Street and S Harrison Street	Two-Way Stop	12	3	0	25%	Roadway Departure; Right Angle
E Broadway Street and S Pike Street	Two-Way Stop	18	5	0	28%	Right Angle; Rear End
S Miller Street and Colescott Street	Traffic Signal	16	3	0	19%	Left-Turn; Rear End; Right Angle
Tompkins Street and W Mechanic Street	Two-Way Stop	22	4	0	18%	Right Angle
Tompkins Street and W Washington Street	All-Way Stop	8	5	0	63%	Right Angle
E Mechanic Street and N Harrison Street	Traffic Signal	26	5	0	19%	Right Angle Backing; Rear End
E Broadway Street and Worth Street	Two-Way Stop	10	3	0	30%	Right Angle; Backing; Right-Turn
E State Road 44 and Progress Road	Traffic Signal	110	19	0	17%	Rear End; Right Angle
S Noble Street and E Broadway Street	Traffic Signal	32	8	0	25%	Rear End; Right Angle
E State Road 44 and Amos Road	Traffic Signal	41	9	0	22%	Rear End; Right Angle; Left-Turn
E Michigan Road and Progress Road	Traffic Signal	19	6	1	37%	Right Angle; Rear End
Colescott Street and S West Street	Two-Way Stop	13	5	0	38%	Right Angle; Rear End
Colescott Street and S Tompkins Street	Two-Way Stop	9	3	0	33%	Left-Turn
N Michigan Road and Horseshoe Indianapolis Access	Two-Way Stop	18	3	0	17%	Rear End; Right-Turn
W County Road 400 N and N Michigan Road	Traffic Signal	23	4	0	17%	Sideswipe; Left-Turn; Right Angle
Lee Blvd. and Progress Pkwy	All-Way Stop	6	3	0	50%	Left-Turn
N State Road 9 and E Rampart Street	Traffic Signal	56	6	0	11%	Rear End; Right Angle; Sideswipe

All intersections and segments listed in the tables above exhibited injury crashes greater than 10%, aligning with the criteria outlined in the methodology for selection as hotspot intersections and high-injury networks (HIN).

4.2.3 RANK THE HOTSPOT INTERSECTIONS AND HIN

The frequency of crash occurrence (crash frequency) is the simplest technique for identifying high-hazard locations. Intersections or roadway segments of uniform lengths are simply ranked in order of the number of crashes that occurred during a given time period. Although simple to perform, reliance on crash frequency tends to bias the identification process in favor of higher-volume roadway sections and intersections. As a result, it may ignore severe safety problems on low-volume roads or intersections. Crash rates are normally considered better indicators of risk than crash frequencies alone, because they account for differences in traffic volumes, and hence exposure. Crash rates for roadway segments are normally expressed in terms of crashes per 100 million vehicle-miles of travel whereas for intersections, it is normally expressed in terms of crashes per million entering vehicles.

Table 7 summarizes the HIN ranking by injury and fatality crash rate. Segments with a higher number of injuries and fatality crashes, such as Tompkins Street - from W Mechanic Street to Colescott Street and S West Street - from W Mechanic Street to Colescott Street, indicate areas of significant safety concern. Notably, heavily traveled roadways tend to have higher crashes due to increased exposure to potential hazards. Segments like E Broadway Street - from Tompkins Street to E Michigan Street, with high traffic volumes have higher total crash counts compared to other segments with low traffic volumes. This further emphasizes the importance of utilizing crash rates to avoid biasedness towards heavily traveled roadways.

Table 7: City of Shelbyville, HIN Ranking by Injury and Fatality Crash Rate, 2018-2022

SEGMENT NAME	TOTAL CRASHES	INJURY CRASHES	FATALITY CRASHES	VOLUME OF VEHICLES PER DAY	LENGTH OF ROADWAY SEGMENT (IN MILES)	TOTAL CRASH RATE	INJURY AND FATALITY CRASH RATE	RANK
Tompkins Street - From W Mechanic Street to Colescott Street	56	16	0	330	0.58	16031.83	4580.52	1
S West Street - From W Mechanic Street to Colescott Street	30	9	0	824	0.58	3439.56	1031.87	2
Mechanic Street - From Conrey Street to N Vine Street	76	13	0	3,271	1.09	1168.00	199.79	3
Colescott Street - From S Miller Street to S Harrison Street	52	12	0	11,420	0.41	608.54	140.43	4
E Broadway Street - From Tompkins Street to E Michigan Street	235	45	0	19,666	1.33	492.31	94.27	5
N State Road 9 - From Knauf Drive to Howard Street	175	29	0	20,500	1.03	454.13	75.26	6
S Miller Avenue - From W Broadway Street to Mckay Road	64	7	0	5,432	1.28	504.37	55.17	7
Miller Avenue From W Taylor Street to W Mckay Road	50	7	0	8,483	1.43	225.85	31.62	8

Table 8 summarizes the hotspot intersections ranking by injury and fatality crash rate. The total crash rate and injury and fatality crash rate provide insights into the overall safety performance of each intersection. Intersections with higher crash rates and ranks, such as Tompkins Street and W Washington Street, shall require further investigation and targeted safety interventions to reduce the frequency of crashes.

Table 8: City of Shelbyville, Hotspot Intersections Ranking by Injury and Fatality Crash Rate, 2018-2022

INTERSECTION NAME	TOTAL CRASHES	INJURY CRASHES	FATALITY CRASHES	TOTAL ENTERING TRAFFIC	TOTAL CRASH RATE	INJURY AND FATALITY CRASH RATE	RANK
Tompkins Street and W Washington Street	8	5	0	1,500	2.922	1.826	1
E State Road 44 and Progress Road	110	19	0	23,272	2.590	0.447	2
Tompkins Street and W Mechanic Street	22	4	0	5,080	2.373	0.431	3
N Michigan Road and Horseshoe Indianapolis Access	18	3	0	5,500	1.793	0.299	4
S Noble Street and S Harrison Street	12	3	0	6,832	0.962	0.241	5
S Noble Street and E Broadway Street	32	8	0	18,396	0.953	0.238	6
Colescott Street and S West Street	13	5	0	12,000	0.594	0.228	7
E Michigan Road and Progress Road	19	6	1	14,460	0.720	0.227	8
E State Road 44 and Amos Street	41	9	0	25,326	0.887	0.195	9
E Broadway Street and S Pike Street	18	5	0	15,066	0.655	0.182	10
N State Road 9 and E Rampart Street	56	6	0	19,607	1.565	0.168	11
Lee Blvd. and Progress Pkwy	6	3	0	10,500	0.313	0.157	12
W County Road 400 N and N Michigan Road	23	4	0	14,213	0.887	0.154	13
S Miller Street and Colescott Street	16	3	0	10,662	0.822	0.154	14
Colescott Street and S Tompkins Street	9	3	0	11,800	0.418	0.139	15
E Broadway Street and E Hendricks Street	29	5	0	22,120	0.718	0.124	16
E Mechanic Street and N Harrison Street	26	5	0	22,994	0.620	0.119	17
E Broadway Street and Worth Street	10	3	0	14,409	0.380	0.114	18
N State Road 9 and Knauf Drive	21	4	0	26,940	0.427	0.081	19
E State Road 44 and Eastern Avenue	11	2	0	19,337	0.312	0.057	20

As per the safety analysis results, the HIN and hotspot intersections in the City of Shelbyville are shown in ***Figure 11*** and ***Figure 12***, respectively.

The detailed descriptive analysis results for the hotspot intersections and HIN are included in ***Appendix C*** of this report.

Figure 11: City of Shelbyville, HIN, 2018-2022

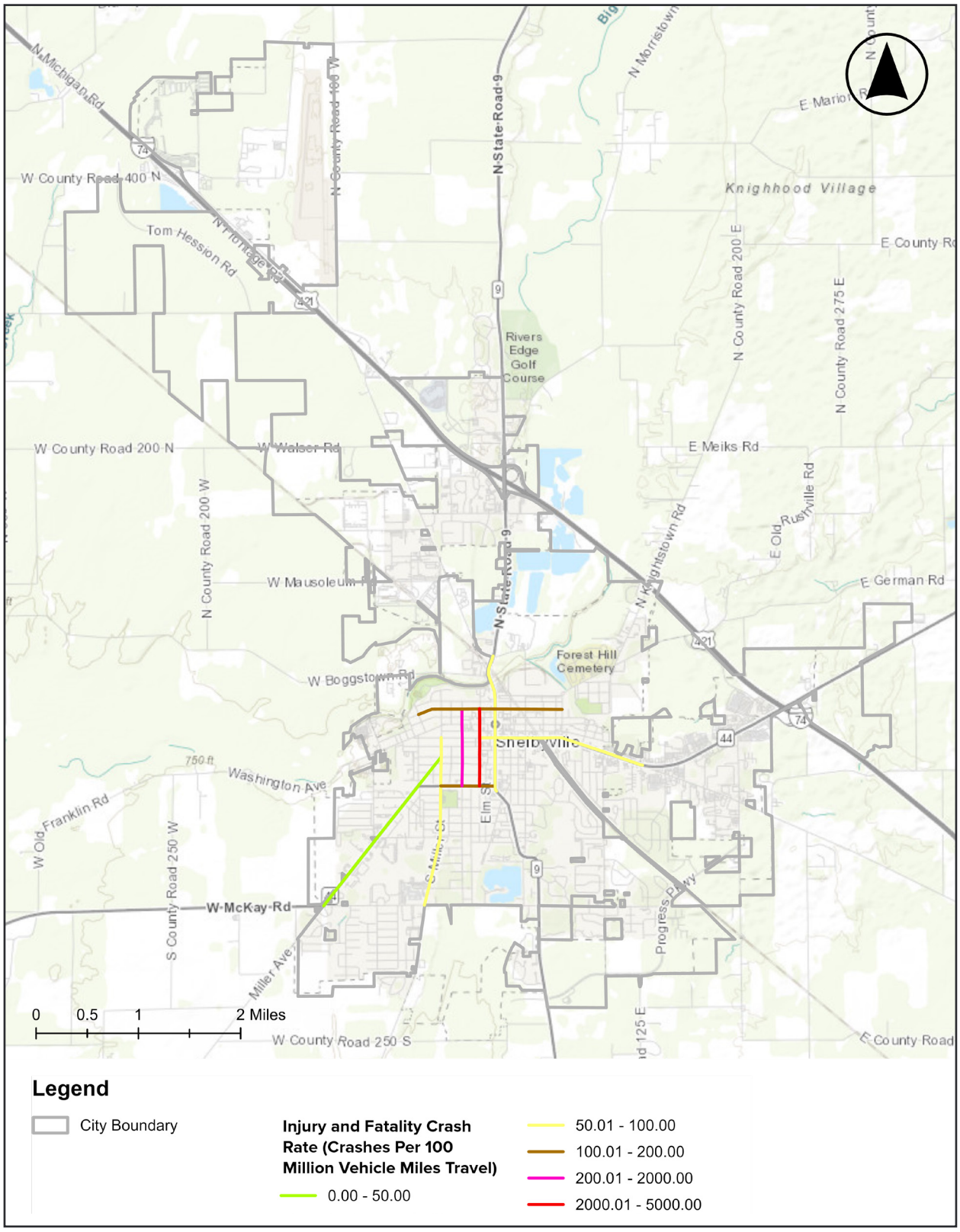
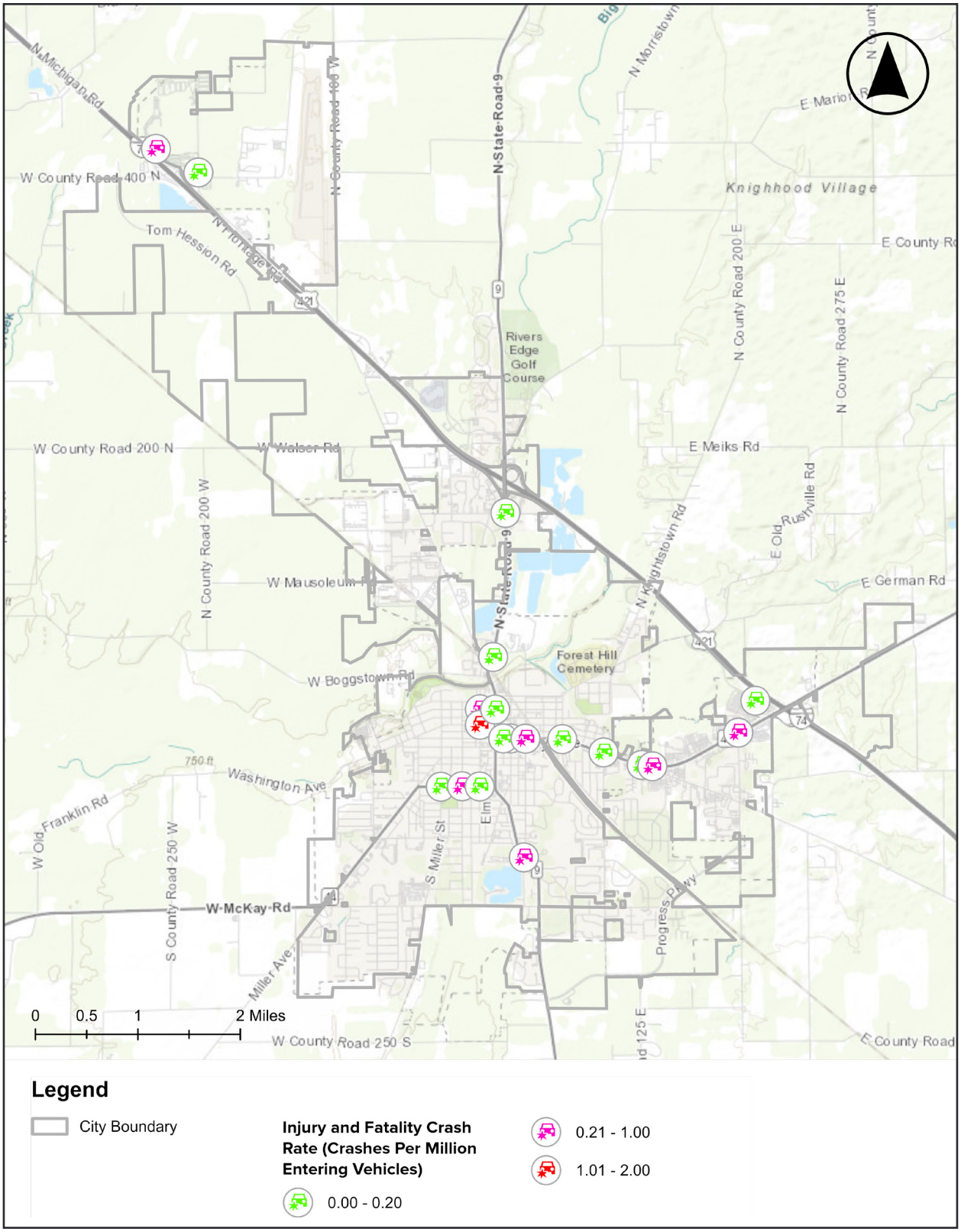


Figure 12: City of Shelbyville, Hotspot Intersections, 2018-2022



4.3 SYSTEMIC SAFETY IMPROVEMENTS

Systemic safety improvements represent a proactive approach to addressing safety concerns on roadways by identifying and implementing measures that target common crash patterns and contributing factors. Unlike traditional spot safety improvements (discussed in Section 8), which focus on specific locations with a history of crashes, systemic safety improvements are applied across a broader network based on systemic risk factors. This approach helps proactively address safety issues comprehensively and efficiently, reducing the overall frequency and severity of crashes.

Based on the high-level trends, we identified three major crash types that had a high proportion of injury and fatality crashes:

- Right Angle
- Head-on
- Left-turn

Based on the review of national and international best practices including, *FHWA's Proven Safety Countermeasures*, and research collected through the *Crash Modification Factors Clearing House*, we selected road design countermeasures that address these three severe crash types and pedestrian crashes, detailed in ***Table 9.***

Table 9: City of Shelbyville, Systemic Severe Crash Countermeasures

CRASH TYPE	INTERSECTION & ROADWAY SEGMENT RELATED RISK FACTORS	COUNTERMEAUSRE	EXISTING INTERSECTION TRAFFIC CONTROL	CRASH REDUCTION FACTOR (CRF) %	REFERENCE
Angle	Poor visibility of traffic signal heads	Replace 8-inch signal heads with 12-inch	Signalized	42	CMF Clearinghouse (CMF ID: 2333)
	Presence of visual trap at a curve or combinations of vertical grade and horizontal curvature	Install Advance Warning Signs (Signal Ahead)	Signalized	35	CMF Clearinghouse (CMF ID: 1684)
	Poor visibility of stop signs, especially in night-time conditions	Increase Retroreflectivity of Stop Signs (reflective strips on sign post optional)	Un-signalized	7	CMF Clearinghouse (CMF ID: 6048)
	Poor visibility of stop signs, especially in night-time conditions	Replace standard stop sign with Flashing LED Stop Sign	Un-signalized	41	HSM, CMF Clearinghouse (CMF ID: 4074)
Head-On	Lane departure due to inadequate lane wisth and poor dilineation	Install centerline rumble strips	None - Roadway Segments	45	CMF Clearinghouse (CMF ID: 3360)
	Presence of multiple access points	Install raised median	None - Roadway Segments	22	CMF Clearinghouse (CMF ID: 22)
Left-Turn	Poor sight distance of opposing left-turn drivers	Provide positive offset left-turn lanes	Signalized	34	CMF Clearinghouse (CMF ID: 6095)
	Heavy left-turn traffic volumes	Replace permissive or protected/permissive left-turn signal phasing with protected only	Signalized	99	CMF Clearinghouse (CMF ID: 333)
	High traffic speed; multiple access points	Convert 4-lane roadway to 3-lane roadway with center turn lane (road diet)	None - Roadway Segments	29	CMF Clearinghouse (CMF ID: 199)
Pedestrian	Heavy mid-block crossing	Install Rectangular Rapid Flashing Beacons (RRFB)	None - Roadway Segments	47	FHWA

5. ENGAGEMENT AND COLLABORATION

5. ENGAGEMENT AND COLLABORATION

Incorporating public input from Shelbyville residents plays an important role in shaping the Comprehensive Safety Action Plan for the city. The engagement of the community in the planning process offers different benefits that extend beyond the confines of transportation planning. This inclusive approach enhances the overall quality and relevance of the safety plan and fosters a sense of community ownership and responsibility.

Public input catalyzes raising awareness about transportation issues within the community. It empowers residents to actively participate in discussions about safety concerns, infrastructure improvements, and overall transportation priorities. Community engagement not only promotes transparency in the planning process but also encourages a shared responsibility for the safety and efficiency of the transportation network.

Public involvement transcends the immediate scope of transportation planning, becoming a foundation for community engagement and collaboration. It empowers individuals to actively contribute to developing a safer and more responsive transportation system, fostering a shared vision for the future of Shelbyville's mobility infrastructure.

5.1 METHODS OF ENGAGEMENT

Public engagement opportunities for the Comprehensive Safety Action Plan included the following components:

- Public engagement events were scheduled to gather information from residents and visitors attending these events. The consultant team conducted public engagement at the following events:
  - Mistletoe Market – December 1, 2023.
- A survey was created on the platform SuveyMonkey.com. The survey aimed to collect information from the general public on the safety of the roads/intersections in Shelbyville.

5.1.1 SURVEY

The consultant created an online survey (see ***Appendix D***) to involve members of the general public and stakeholder teams in the process of creating the City of Shelbyville Safety Action Plan. The survey was created for people within the city and asked them questions about intersections/road safety issues for motorized and non-motorized users. Before being published, the survey was sent out to officials for approval. The survey was published on December 1, 2023, and remained open until January 1, 2024. The online survey was created using SurveyMonkey.com, and the link was shared on different social media platforms. The survey link was also distributed to Shelbyville High School students to gather their input.

The consultant created a Facebook advertisement to help inform the Shelbyville community about the project. The Facebook advertisement briefly introduced the project and distributed the survey link. We utilized Facebook's paid-for advertising service to ensure the link was placed into Shelbyville residents' timelines. Facebook permits these ads to be "geo-fenced, "meaning they are only inserted into Facebook users who live in the city. This advertisement was created and distributed from American Structurepoint's Facebook page. Once created, it was shared by multiple Shelbyville organizations.

The advertisement reached a total of 4,618 people. Of those who viewed the advertisement, 368 clicked the link to the survey. The online survey received 928 total responses from all sources.

When the survey closed in early January 2024, the consultant team reviewed the SurveyMonkey results and identified key trends. The survey helped identify intersections/roadways that felt unsafe for drivers and bicyclists/pedestrian/transit users and the primary reason for unsafety. Demographic information was also asked in the survey to understand the backgrounds of people responding to the survey. The following is a summary of the questions asked and the answers submitted.

The comments from the Shelbyville community highlight various issues related to intersections and roadways within the city.

- **Lack of Sidewalks and Unsafe Routes:** No sidewalks, deep ditches, and unsafe routes for pedestrians and cyclists on multiple roads, including West McKay Road, Amos Road, State Road 9, and State Road 44.
- **Visibility and Speed Concerns:** Poor visibility and concerns about speed were identified around the curve on State Road 9 and South Noble Street.
- **Traffic Violations:** Issues with people running stop signs and red traffic lights in multiple intersections, including State Route 9 and McKay Road, were identified.
- **Turn Lane and Traffic Flow Issues:** Narrow turning lanes and poorly timed lights were identified on Miller Road, Public Square, Mechanic Street, and turning lanes on Broadway & Harrison Street.
- **Dangerous Intersections:** The intersection on South Noble Street, State Road 9 & Culbertson, was described as the most dangerous intersection in the city due to visibility issues.

These trends indicated a range of issues, from pedestrian safety and visibility problems to traffic flow and infrastructure challenges. Addressing these concerns may involve a combination of improved signage, traffic management measures, infrastructure upgrades, and community education on safe driving practices. The safety issue types perceived by motorists and bicyclists/pedestrians/transit users are summarized in ***Figure 13*** and ***Figure 14***, respectively. Additionally, the intersections that are perceived unsafe by motorists and bicyclists/pedestrians are shown on the city's map in Figure 15 and Figure 16, respectively. Similarly, the roadway segments that are perceived unsafe by motorists and bicyclists/pedestrians are shown on the city's map in ***Figure 17*** and ***Figure 18***, respectively.

Figure 13: Safety Issue Types Perceived by Motorists in Shelbyville, Indiana

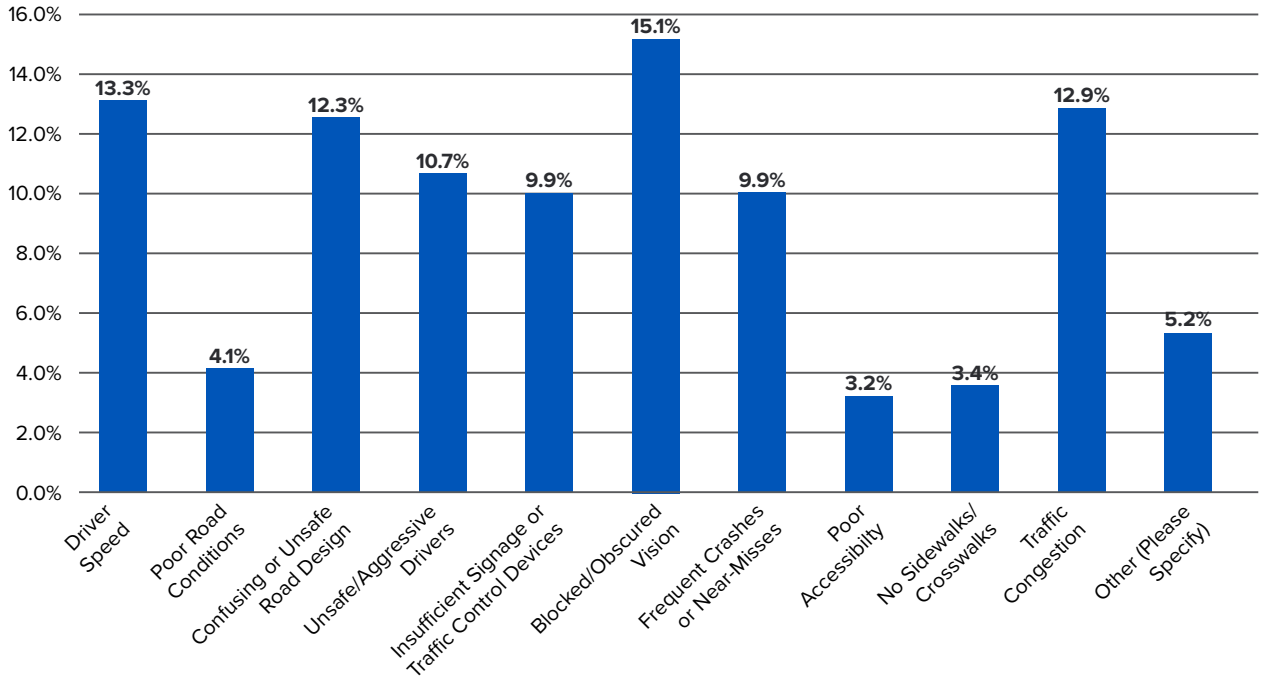


Figure 14: Safety Issue Types Perceived by Bicyclists/Pedestrians/Transit Users in Shelbyville, Indiana

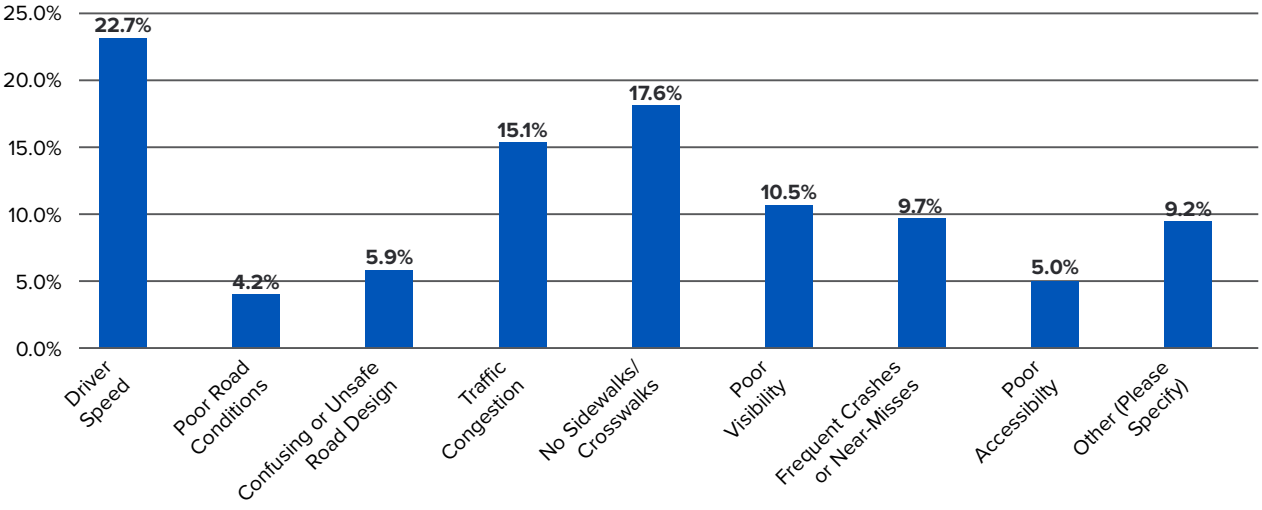


Figure 15: Unsafe Intersections Perceived By Motorists in Shelbyville, Indiana

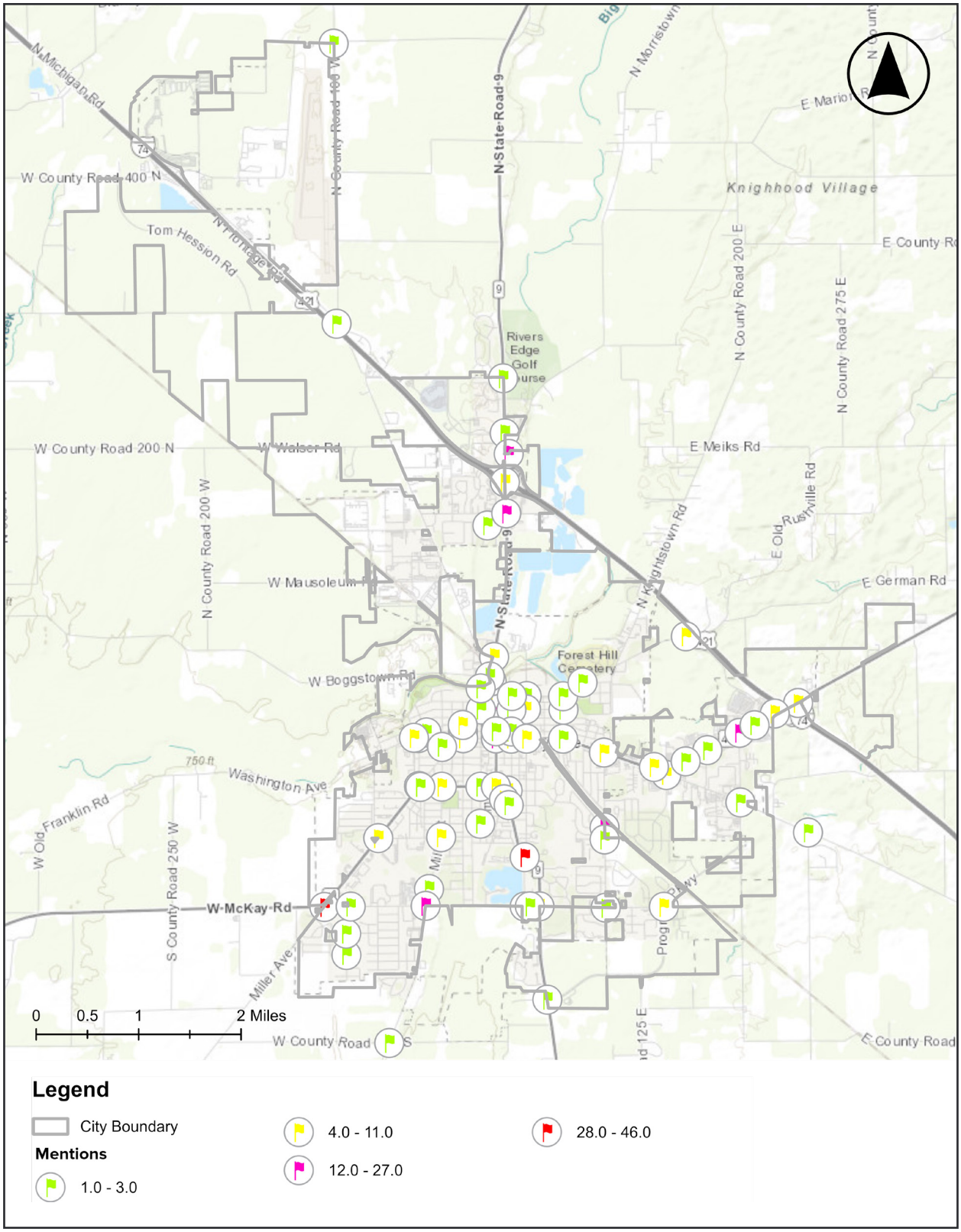


Figure 16: Unsafe Intersections Perceived by Bicyclists/Pedestrians in Shelbyville, Indiana

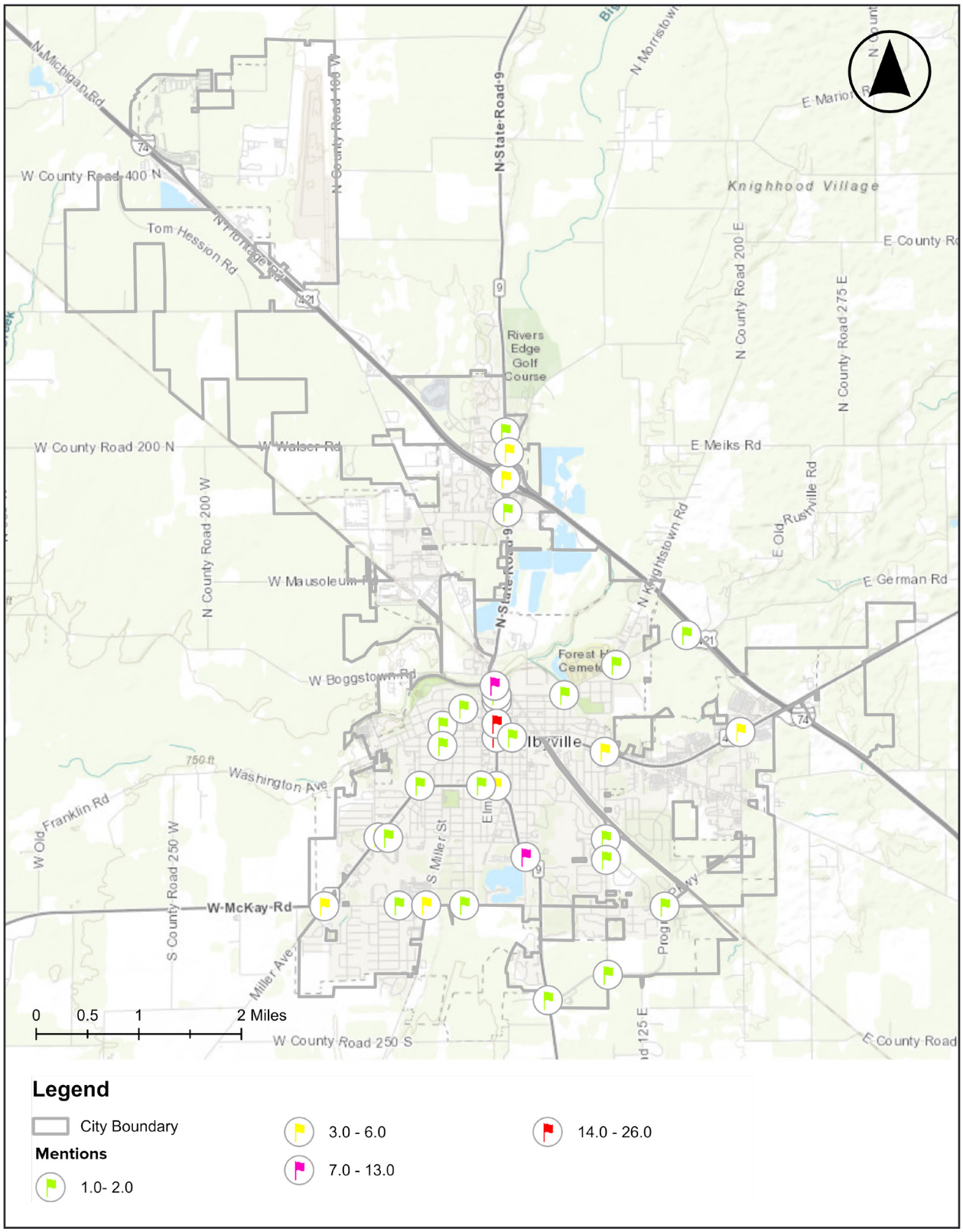


Figure 17: Unsafe Roadway Segments Perceived by Motorists in Shelbyville, Indiana

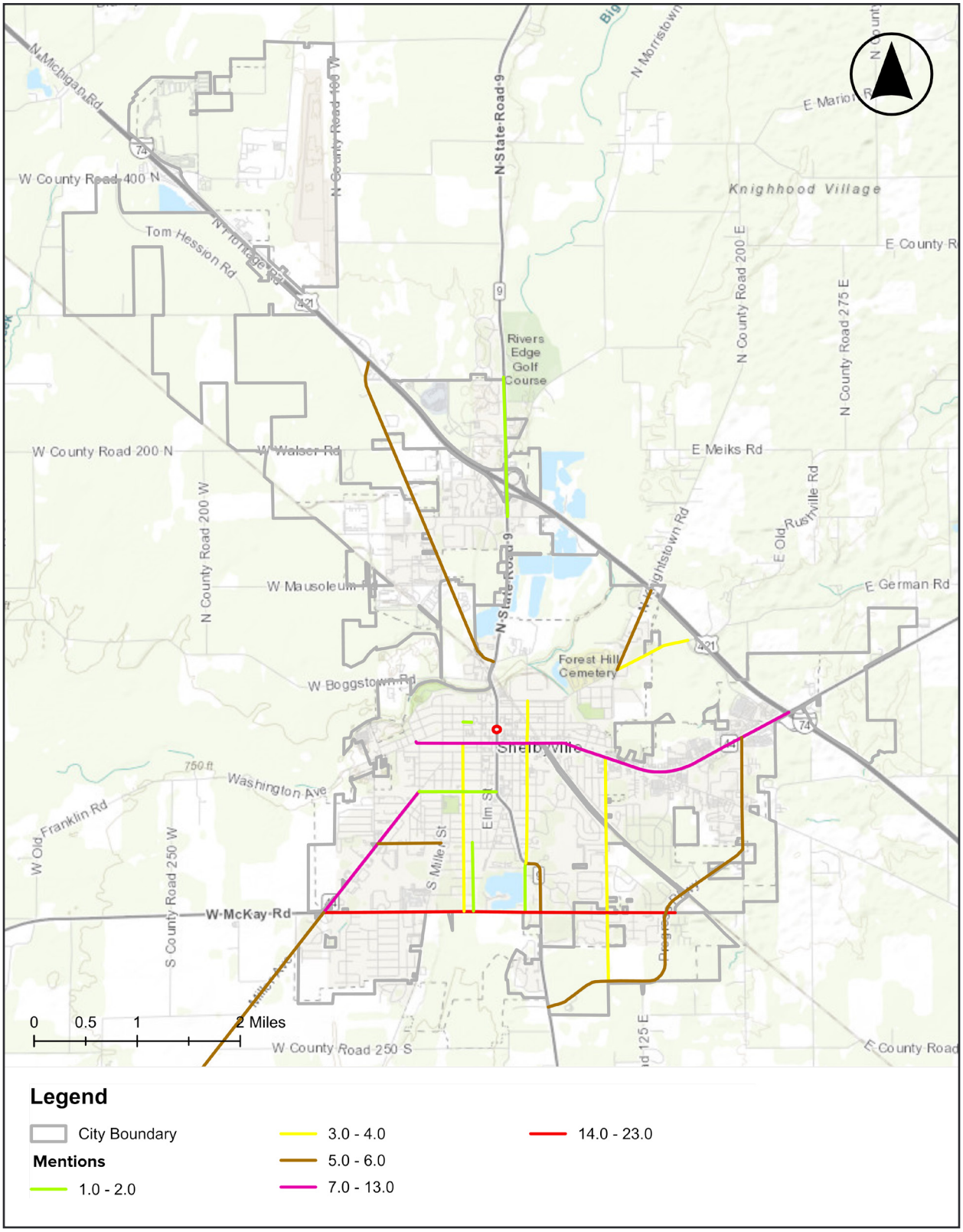
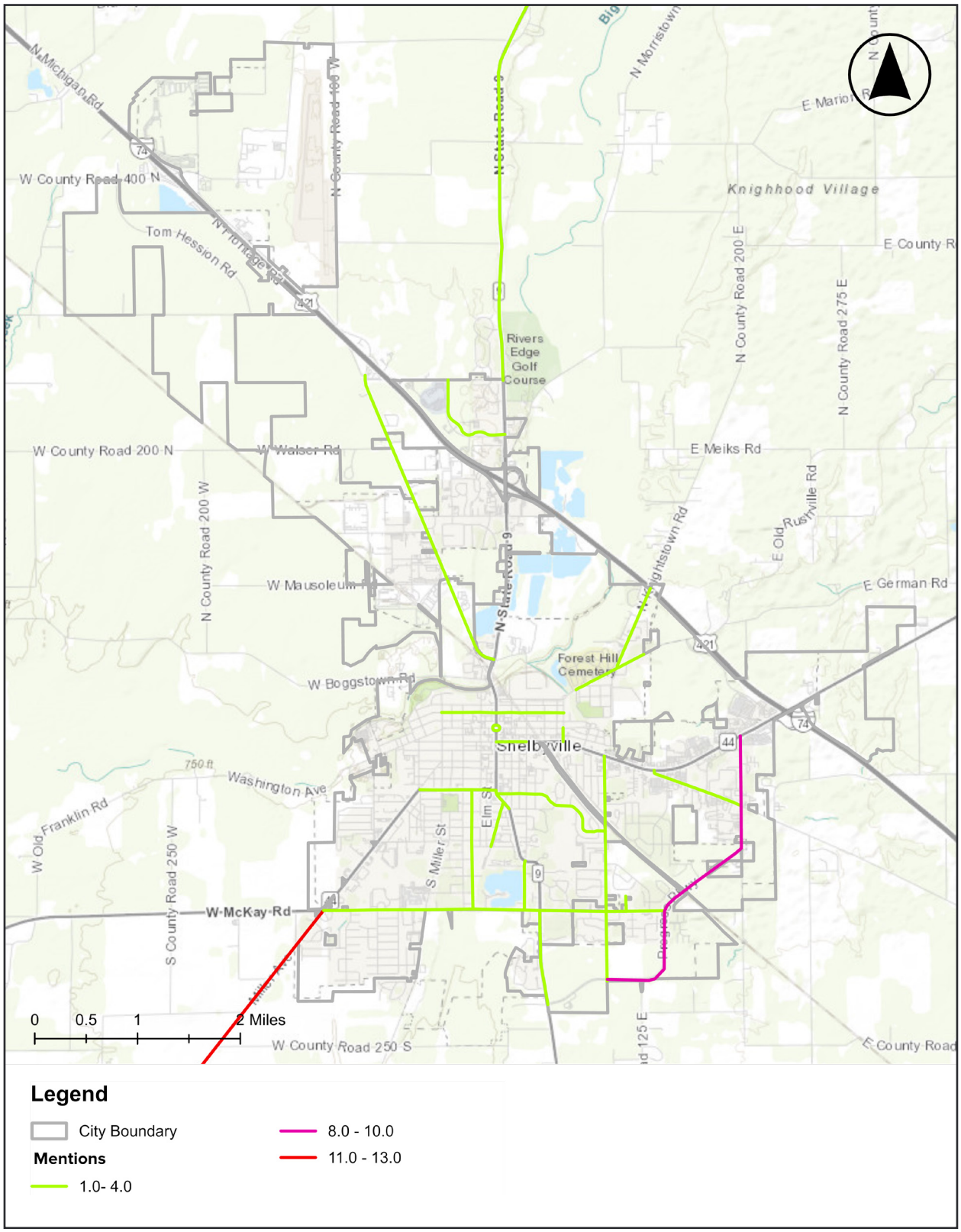


Figure 18: Unsafe Roadway Segments Perceived by Bicyclists and Pedestrians in Shelbyville, Indiana



5.1.2 PUBLIC EVENTS

Mistletoe Market – December 1, 2023

Mistletoe Market is an annual event organized by the City of Shelbyville. The event occurred on December 1, 2023, from 5:00 to 8:00 PM. The event offered a variety of activities, including their annual holiday parade with marching bands and dazzling floats and the appearance of Santa and Mrs. Claus riding on the city's fire truck. The consultant team and city staff had a booth near the City's booth at the event. Three different interactive boards were designed to showcase the public at the event. The boards and results are described below. During the event, business cards with the QR code of the survey were also distributed.

Figure 19: City of Shelbyville – Mistletoe Market Event on December 1, 2023.

Source. American Structurepoint Inc.

5.1.2.1 UNSAFE INTERSECTIONS FOR MOTORISTS

The following is a list of unsafe intersections for motorists as per the feedback received during the event:

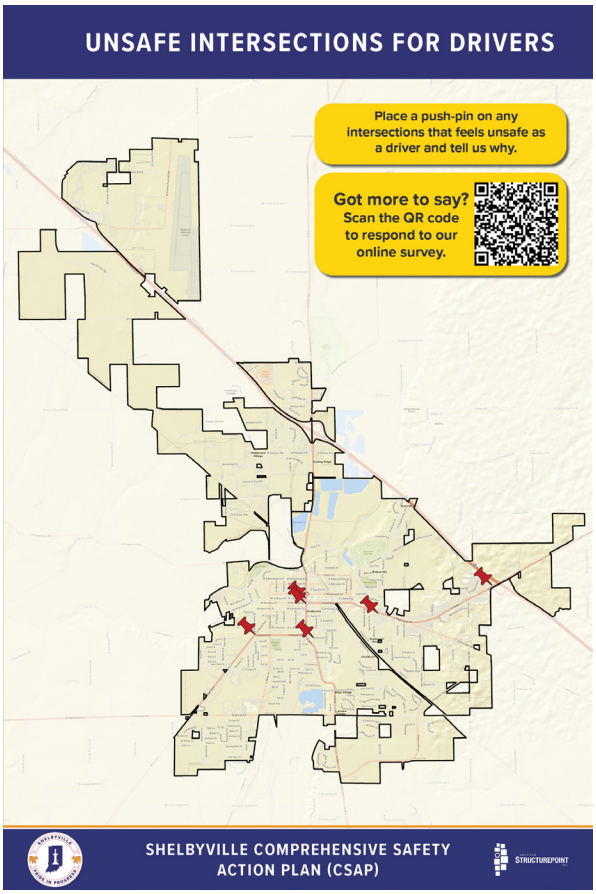
- West Jackson Street and State Road 9
- West Broadway Street and State Road 9
- Sunset Park Drive and Walker Street
- State Road 44 and Amos Road
- State Road 44 and Lee Boulevard
- Columbia Avenue and South Pike Street
- Miller Avenue/Colescott Street and Montgomery Street

5.1.2.2 UNSAFE INTERSECTIONS FOR PEDESTRIAN/BICYCLIST/ TRANSIT USERS

The following is a list of unsafe intersections for pedestrians/bicyclists/transit users as per the feedback received during the event:

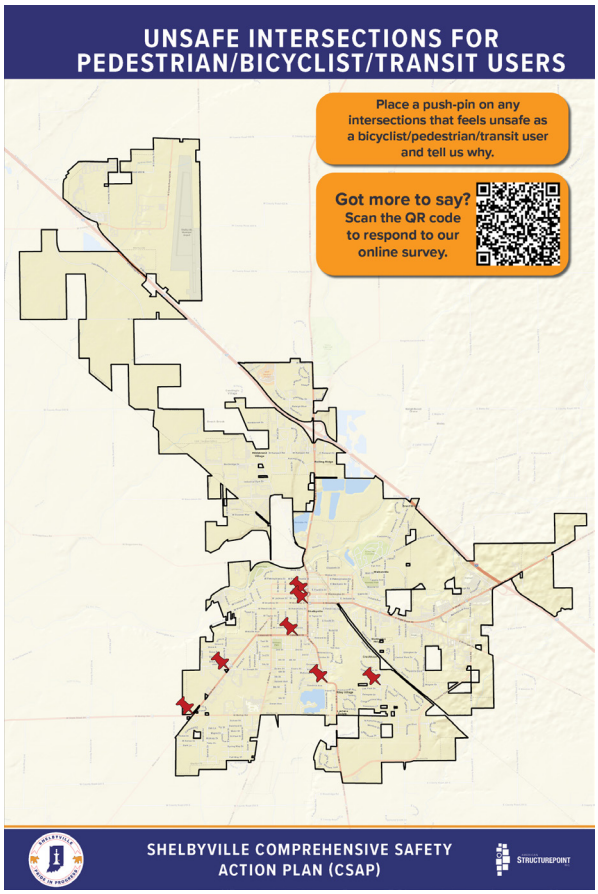
- East/West Washington Street and Public Square (more than one mention)
- West Broadway Street and State Road 9
- Colescott Street and South Tompkins Street (more than one mention)
- Saint Joseph Street and Miller Avenue (more than one mention)
- Miller Avenue and West McKay Road
- Howard Street and Amos Road
- Amos Road and Twin Lakes Boulevard

Figure 20: City of Shelbyville – Board: Unsafe intersections for drivers.



Source. American Structurepoint Inc.

Figure 21: City of Shelbyville – Board: Unsafe intersections for pedestrian/ bicyclist/transit users.



Source. American Structurepoint Inc.

5.1.2.3 TYPE OF SAFETY IMPROVEMENTS FOR SHELBYVILLE

The following is a list of suggested safety improvements as per the feedback received during the event:

- Pedestrian Crosswalk = 10 Sticky Dots
- Connect Sidewalks = 2 Sticky Dots
- Medians and Pedestrian Islands = 2 Sticky Dots
- Additional Road Design = 3 Sticky Dots
- Improve Lighting = 2 Sticky Dots
- Reduce U-turn Conflict Intersections = 0 Sticky Dots
- Roundabouts = 2 Sticky Dots
- Dedicated Left and Right-Turn Lanes at Intersections = 1 Sticky Dots
- Dedicated Bicycle Lanes = 5 Sticky Dots

Figure 22: City of Shelbyville – Board: What type of safety improvements do you suggest for Shelbyville?

Source. American Structurepoint Inc.

5.2 HOW PUBLIC INFORMATION WAS USED?

Intersections/roadways with safety issues identified by the community were analyzed and mapped in ArcGIS to illustrate the location of the safety issues. The location of intersections/roadways identified was used to understand where Shelbyville should focus first to resolve road safety issues. This information also helped identify potential projects that will help address safety problems for drivers, pedestrians, bicyclists, or transit users.

6. EQUITY CONSIDERATIONS

6. EQUITY CONSIDERATIONS

Environmental Justice (EJ) is a concept that emphasizes the equitable distribution of environmental benefits across different communities, mainly focusing on the equal treatment of low-income and minority populations.[2] When considering the City of Shelbyville and proposing new projects, there are several reasons why accounting for these communities is important including equity consideration being an essential aspect of the SS4A action plan. The equity analysis considers social factors disproportionately impacting low-income communities and minorities. Here are some factors that can be viewed during an equity analysis:

HEALTH IMPACTS:

Low-income and minority communities are frequently exposed to higher levels of pollution, noise, and other environmental hazards. These exposures can lead to health concerns, including respiratory, cardiovascular, and other related illnesses. When planning transportation projects, it's crucial to assess potential health impacts and prioritize the well-being of vulnerable populations.

COMMUNITY ENGAGEMENT AND REPRESENTATION:

Environmental justice also ensures meaningful participation and representation of all community members in decision-making. Low-income and minority communities often face barriers to engagement, such as language barriers or lack of resources. By actively involving these communities in the planning and decision-making processes for transportation projects, the outcomes are more likely to be fair and considerate of their needs.

ECONOMIC IMPACTS:

Transportation projects can have economic implications for different communities. Low-income areas may be more heavily impacted by disruptions caused by construction or changes in traffic patterns. Additionally, the benefits of improved transportation infrastructure, such as increased property values or better access to job opportunities, should be distributed equitably to avoid further marginalization of minority populations.

CLIMATE CHANGE RESILIENCE:

Minority communities often face increased risks due to climate change impacts. When planning transportation projects, it's important to consider how these changes may disproportionately affect low-income and minority populations. Ensuring that the transportation infrastructure is resilient and adapted to climate change can contribute to the overall environmental justice goals.

EQUITABLE ACCESS TO OPPORTUNITIES:

Transportation is key to accessing education, employment, healthcare, and other essential services. Ensuring that transportation projects provide equitable access to these opportunities is vital for promoting social and economic justice. This implication includes considering the needs of those who rely on public transportation and may depend more on these services.

Accounting for low-income and minority communities in transportation projects in Shelbyville is essential for achieving environmental justice. It requires a comprehensive approach considering health impacts, community engagement, economic considerations, climate resilience, and equitable access to opportunities. By integrating these considerations into the planning and decision-making processes, cities can move towards a more sustainable and resilient future for all residents.

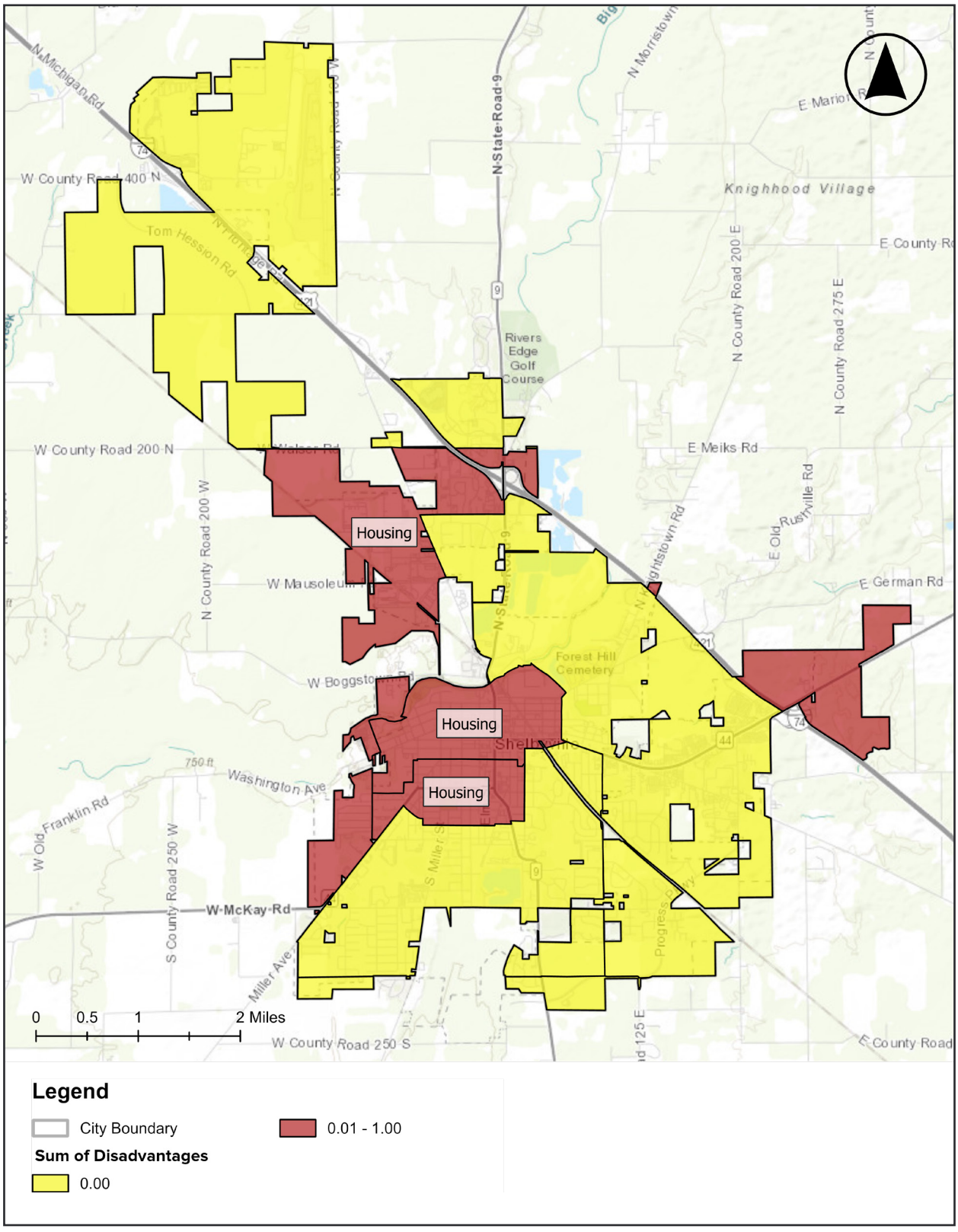
[2] Source: Learn About Environmental Justice | US EPA.

6.1 IDENTIFICATION OF UNDERSERVED COMMUNITIES – CITY OF SHELBYVILLE

Environmental justice considerations were derived from the "Climate and Economic Justice Screening Tool." The US Council on Environmental Quality developed the Climate and Economic Justice Tool (Explore the map – Climate & Economic Justice Screening Tool). The tool illustrates disadvantaged census tracts across all 50 states and the District of Columbia. Communities are disadvantaged if they are in census tracts that meet the threshold for at least one of the following burden categories:

- **Climate change:** Communities are identified as disadvantaged if they are in census tracts at or above the 90th percentile for expected agricultural loss, building loss, flood risk, wildfire risk, or population loss and are or above the 65th percentile for low-income.
- **Energy:** Communities are identified as disadvantaged if they are in census tracts at or above the 90th percentile for energy cost or high particulate matter (PM 2.5) concentrations in the air and are at or above the 65th percentile for low-income.
- **Health:** Communities are identified as disadvantaged if they are in census tracts at or above the 90th percentile for asthma, diabetes, or heart disease, or low overall life expectancy and are at or above the 65th percentile for low income.
- **Housing:** Communities are identified as disadvantaged if they are in census tracts at or above the 90th percentile for underinvestment, cost, lack of green space, lack of indoor plumbing or lead paint, and are at or above the 65th percentile for low income.
- **Legacy pollution:** Communities are identified as disadvantaged if they are in census tracts that have at least one abandoned mine land, formerly used defense sites, or are at or above the 90th percentile for proximity to hazardous waste facilities, proximity to Superfund sites (National Priorities List (NPL)), or proximity to Risk Management Plan (RMP) facilities and are at or above the 65th percentile for low-income.
- **Transportation:** Communities are identified as disadvantaged if they are in census tracts at or above the 90th percentile for diesel particular matter, transportation barriers, or proximity to high traffic volumes and are at or above the 65th percentile for low-income.
- **Water and wastewater:** Communities are identified as disadvantaged if they are in census tracts at or above the 90th percentile for underground storage tank releases or wastewater discharge and are at or above the 65th percentile for low-income.
- **Workforce development:** Communities are identified as disadvantaged if they are in census tracts at or above the 90th percentile for linguistic isolation, have high poverty or unemployment rates, have low levels of education, or are at or above the 65th percentile for low income.

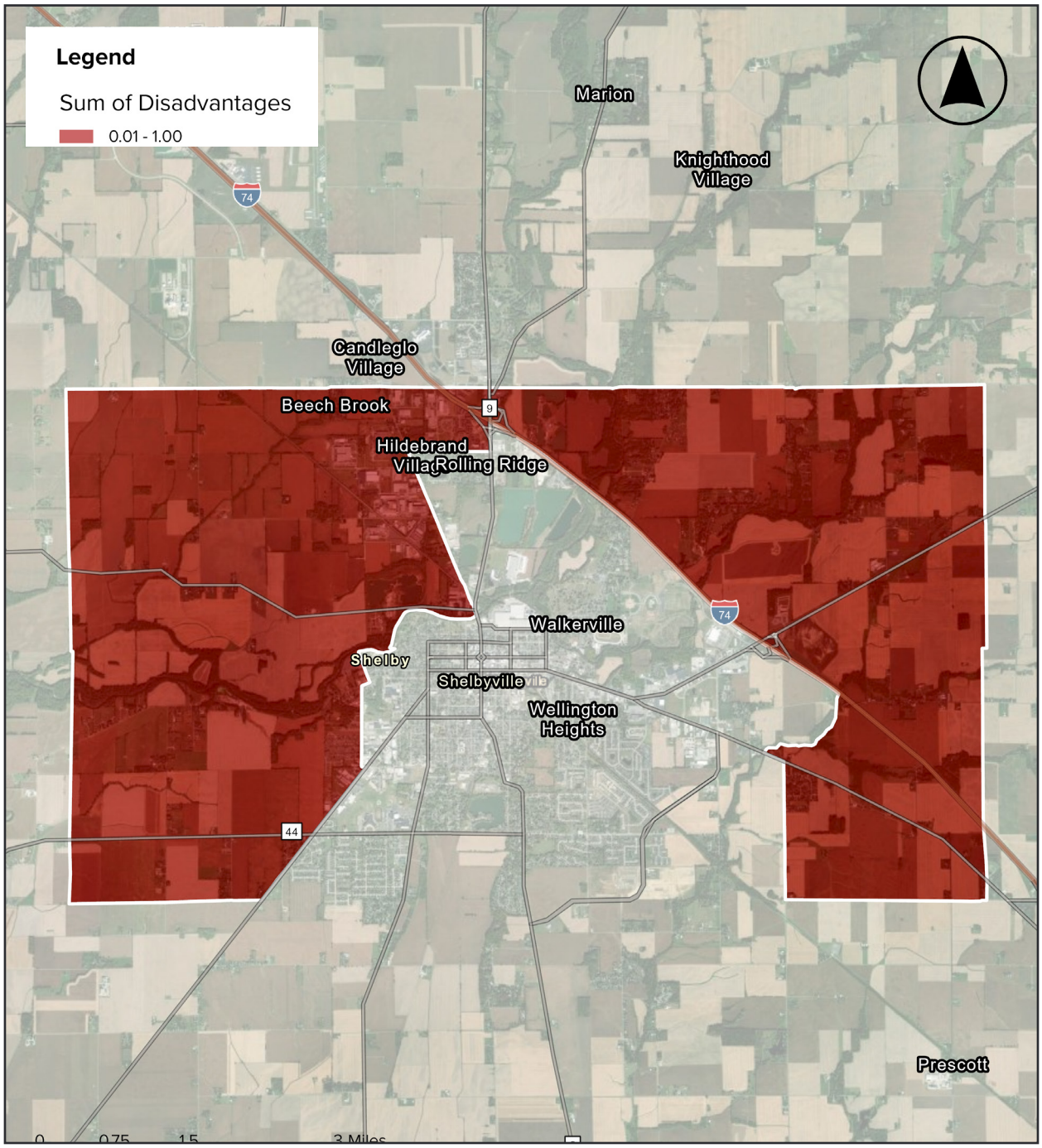
Figure 23: City of Shelbyville – Economic Justice Areas.



6.1.1.1 CENSUS TRACK – 18145710400

The northern census track is considered a disadvantage because it meets more than one burden and associated socioeconomic threshold. This census track scored above two subcategories under the housing category. Under the lack of green spaces (Amount of land, not including cropland, covered with artificial materials like concrete or pavement) category, this track scored 91st above the 90th percentile and 74th above the 65th percentile for the low-income subcategory.

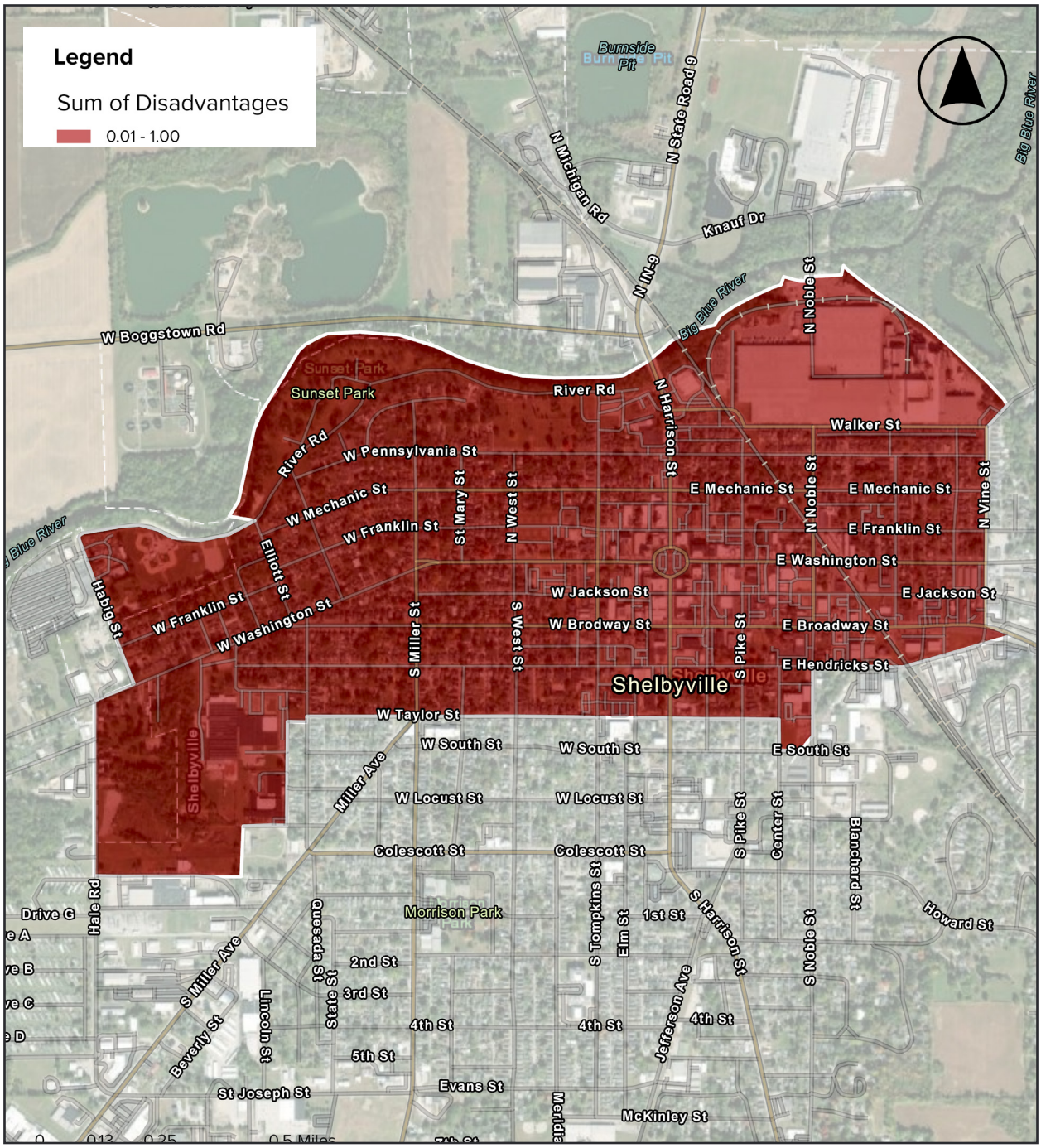
Figure 24: City of Shelbyville – Economic Justice – Census Track 18145710400



6.1.1.2 CENSUS TRACK – 18145710601

The next census track is also considered disadvantaged because it meets more than one burden and associated socioeconomic threshold. Similar to the previous track, this track scored above two subcategories under the housing category. This census track scored right at the 90th percentile limit for lead paint (share of homes likely to have lead paint) and 83rd above the 65th percentile for the low-income subcategory.

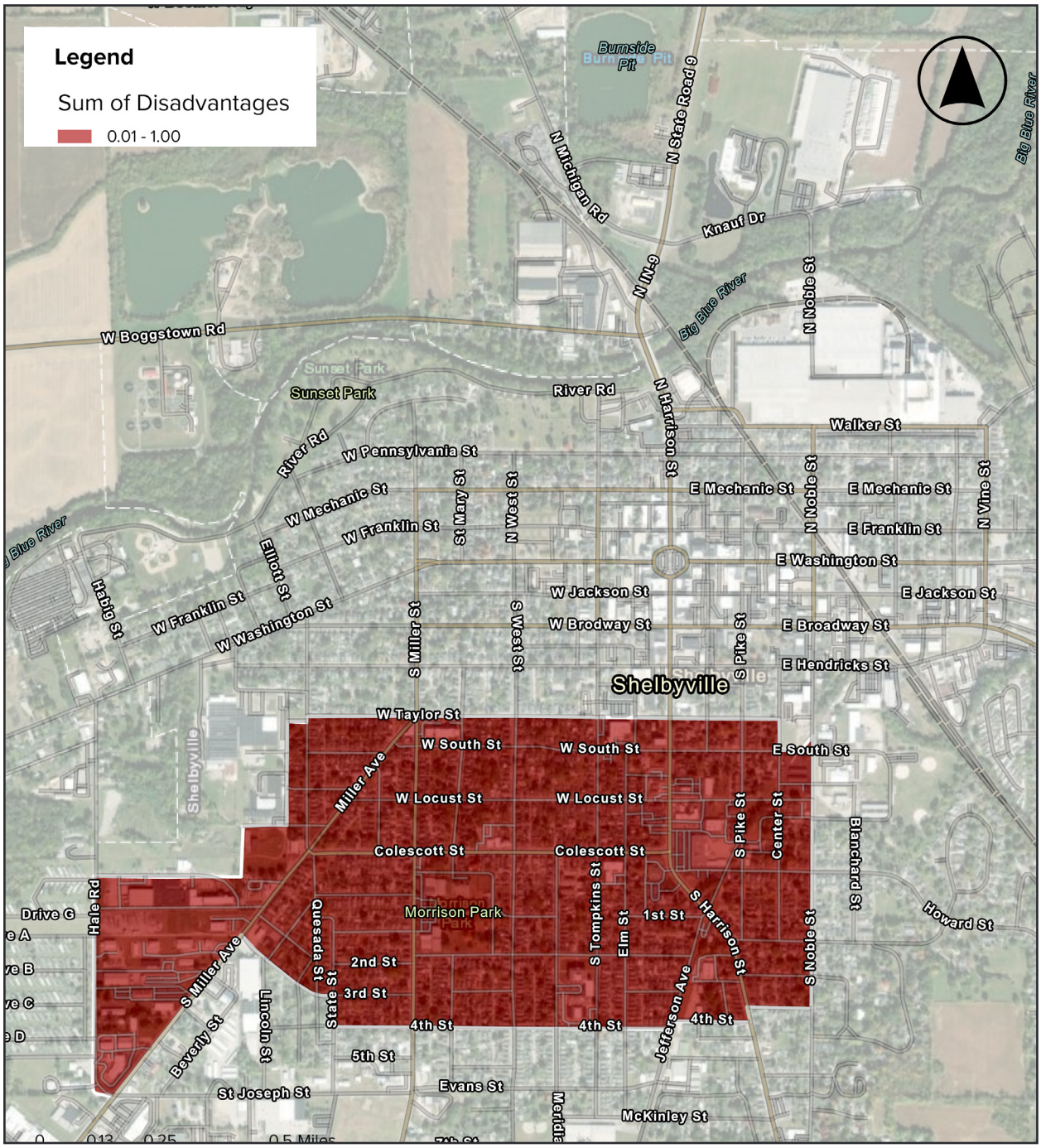
Figure 25: City of Shelbyville – Economic Justice – Census Track 18145710601



6.1.1.3 CENSUS TRACK - 18145710602

The census track illustrated in Figure 25 is considered disadvantaged because it meets more than one burden threshold and the associated socioeconomic threshold. This track scored above some subcategories under the housing category. Under the lead paint subcategory, it scored 96th above the 90th percentile, 80th above the 65th percentile in the low-income subcategory, and 95th above the 90th percentile in the lack of indoor plumbing subcategory.

Figure 26: City of Shelbyville – Economic Justice – Census Track 18145710602



7. POLICY AND PROCESS CHANGES

7. POLICY AND PROCESS CHANGES

To further prioritize and enhance transportation safety in Shelbyville, opportunities for improvements have been identified through a comprehensive review of the City of Shelbyville Unified Development Ordinance and the latest comprehensive plan. The goal is to ensure safe and efficient access to public rights-of-way while promoting responsible development within the city limits.

The review of the Unified Development Ordinance, particularly Articles 5 and 6, reflected the need to improve various aspects of transportation safety. Opportunities for enhancement include revising driveway standards to ensure optimal visibility and safety, updating regulations to accommodate modern farm equipment, implementing stricter regulations for residential and non-residential driveways, and expanding requirements for traffic impact studies.

Additionally, the review emphasizes the importance of evaluating and refining standards related to block sizes, sidewalks, street arrangements, lighting, street trees, and traffic safety signage. These measures aim to enhance pedestrian and cyclist safety, improve connectivity, and mitigate potential hazards.

The 2019 Comprehensive Plan Update analysis highlights the document's significance as a guiding framework for Shelbyville's future development. Opportunities for updating the plan's goals and objectives include incorporating initiatives to improve pedestrian and cyclist safety, as well as traffic safety considerations into infrastructure.

It is proposed that the identified measurements for improvement be integrated into policy revisions and strategic initiatives to effectively implement these findings within the City of Shelbyville Safety Action Plan. Typically, these policy and regulatory documents are updated at regular intervals by the pertinent jurisdiction, and the recommendations within this document should be viewed as inputs into those respective processes, which in turn allows for full transparency and consideration of these elements relative to others (non-safety) needs to be fulfilled by these documents. When incorporated into these update processes, consideration of the recommendations would include collaborating with relevant stakeholders, conducting further research where necessary, and aligning proposed measurements to promote safety, accessibility, and sustainable development within the community. The goal is to ensure safe and efficient access to public rights-of-way while promoting responsible development within the city limits.

7.1 CITY OF SHELBYVILLE UNIFIED DEVELOPMENT ORDINANCE

- Articles 5 and 6 were particularly reviewed for opportunities to improve transportation safety.
- Article 5 focuses on Development Standards, emphasizing Entrance and Drive (ED) standards and Public Improvement (PI) standards.
- Article 6 outlines Design Standards, including Block Standards, Sidewalk and Pedestrian Path Standards, Street Arrangement Standards, Street Geometric Standards, Street Lighting Standards, Street Tree Standards, and Traffic Safety and Information Sign Standards.

OPPORTUNITIES FOR IMPROVEMENT:

- **General Driveway Standards (ED-01):** Enhance criteria for driveway location to ensure optimal visibility and safety. Introduce stricter permit requirements, including comprehensive safety assessments for access to local, state, and federal highways.
- **Agricultural Driveway Standards (ED-02):** Review and update driveway separation and width standards to accommodate modern farm equipment and enhance safety.
- **Residential Driveway Standards (ED-03):** Implement stricter regulations for driveway width and setback to improve pedestrian and vehicular safety. Consider incentives for shared driveways to minimize curb cuts and enhance overall safety.
- **Non-residential Driveway Standards (ED-04):** Strengthen regulations on driveway width and setback to ensure safe access for commercial vehicles and pedestrians. Consider implementing traffic calming measures near non-residential driveways.
- **Public Improvement Standards (PI-01):** Expand requirements for traffic and street impact studies to include all developments, regardless of size. Enhance guidelines for Planning Commission assessments to prioritize traffic safety and ensure adequate infrastructure.
- **Block Standards:** Evaluate block size requirements to optimize traffic flow and pedestrian safety. Consider introducing mixed-use zoning to promote walkability and reduce reliance on vehicular transportation.
- **Sidewalk and Pedestrian Path Standards:** Extend sidewalk requirements to all streets, prioritizing areas with high pedestrian traffic. Implement regular maintenance programs to ensure sidewalk accessibility and safety.
- **Street Arrangement Standards:** Introduce measures to enhance connectivity and accessibility for pedestrians and cyclists. Explore opportunities for traffic calming measures to improve safety and reduce vehicle speeds.
- **Street Lighting Standards:** Conduct a comprehensive review of street lighting locations to ensure adequate coverage in high-traffic and pedestrian conflict areas. Consider implementing smart lighting technologies to improve energy efficiency and enhance public safety.
- **Street Tree Standards:** Expand requirements for street trees to include all streets, prioritizing areas with limited green space and high pedestrian traffic. Develop a comprehensive tree planting and maintenance plan to ensure street tree health. Additionally, implement guidelines to ensure street trees have a mature diameter of less than 4 inches to mitigate the risk of creating safety hazards for run-off-road crashes.
- **Traffic Safety and Information Sign Standards:** Consider implementing additional signage in high-traffic areas to enhance safety awareness.

7.2 CITY OF SHELBYVILLE, INDIANA – 2019 COMPREHENSIVE PLAN UPDATE

PLAN SUMMARY AND PERTINENCE TO PROJECT

The 2019 Shelbyville Indiana Comprehensive Plan Update is a guiding document for the City of Shelbyville, outlining the community's vision, mission, and strategic objectives for the next decade and beyond. The plan was developed through an interactive process that engaged residents and community leaders to gather their input and ideas about the future of Shelbyville. The document discusses the successes and challenges Shelbyville has experienced since completing the last comprehensive plan.

The plan outlines specific objectives and strategies for the community to pursue. These are likely designed to address identified challenges, capitalize on strengths, and align with the vision and mission statements of the comprehensive plan.

To further meet the goals of traffic safety within the framework of the 2019 Shelbyville Indiana Comprehensive Plan Update, herein lie several opportunities for refining and augmenting the outlined goals and objectives to better serve the community's needs and aspirations:

- **Community and Society:** Enhance the objective of "Investing in improving the quality of life" to explicitly include initiatives focused on enhancing pedestrian and cyclist safety, such as expanding and maintaining sidewalks and bike lanes.
- **Natural Environment:** Strengthen the objective of "Strengthening community health and vitality" to incorporate measures aimed at improving road safety, such as implementing traffic calming measures and promoting safe routes to schools initiatives.
- **Built Environment:** Enhance the objective of "Formalizing the city's future growth boundaries" by incorporating traffic safety considerations into road design and infrastructure, including traffic calming features and adequate street lighting. Further, improve the objective of "Investing in safe and efficient transportation networks" by implementing specific strategies like regular safety audits and targeted improvements for roadways and intersections.
- **Commerce and Economy:** Enhance the objective of "Promoting Shelbyville as a regional destination" by emphasizing the significance of a secure and accessible transportation network to attract visitors and bolster local businesses. Expand the objective of "Improving infrastructure to boost future growth" to include investments in traffic safety infrastructure, such as upgrading intersections with safety features like roundabouts or traffic signals and enhancing pedestrian crossings.

8. PROJECTS AND STRATEGIES

8. PROJECTS AND STRATEGIES

A Comprehensive Safety Action Plan should include effective strategies and project recommendations to achieve Vision Zero. Investments in engagement, education, and infrastructure all play a critical role to reduce fatal and serious injury crashes in the City of Shelbyville. We have conducted an extensive analysis of the city's crash data (Section 4), developed an extensive engagement process (Section 5), and reviewed its existing program and policies (Section 7) which culminate into the following project recommendations and strategies.

In March, 2024, the City of Shelbyville passed a Vision Zero resolution with the goal of reducing fatal and serious injury crashes by 100% by the year 2045. Vision Zero is not just a goal. It reframes the way the City of Shelbyville views transportation safety. Vision Zero promotes thinking about transportation safety holistically, considering all transportation users, and incorporating strategies and recommendations that are more than just infrastructure improvements.

The SS4A Action Plan recommendations were developed through engagement with the Steering Committee. The SS4A Action Plan is about people, and it is important that the recommendations of the plan reflect that.

In developing recommendations for the SS4A Action Plan, we reviewed strategies to reduce fatal and serious injury (FSI) crashes endorsed by state and federal officials. The plan incorporates some of USDOT's 28 Proven Safety Countermeasures and recommendations that are proven to reduce fatalities and serious injuries on United States roadways effectively. These proven safety countermeasures (PSCs) are broken into five categories: speed management, pedestrian and bike, roadway departure, intersections, and crosscutting. More information on these countermeasures can be found in ***Appendix E*** of this report.

8.1 SCORING CRITERIA FOR SS4A PROJECT PROPOSALS

A list of potential projects has been compiled in the development of the City of Shelbyville's safety action plan, combining safety data, analysis, equity considerations, stakeholder and community input, and proven safety countermeasures. The resulting project list serves as a roadmap for prioritizing and executing safety projects aimed at achieving Vision Zero within the city.

PROJECT IDENTIFICATION METHODOLOGY

Corridor segments and intersections identified within the High Injury Network (HIN) automatically qualified for inclusion in the project list. This strategic approach targeted areas with a history of recurring safety issues, supported by robust crash data analysis. The HIN, pinpointing locations with the highest fatal and injury crash frequencies, formed a solid foundation for identifying areas most in need of safety enhancements.

Additionally, the project list incorporates locations where safety projects have recently been completed or are nearing implementation. Some of these projects align with areas identified through safety analysis as high-crash locations, demonstrating proactive safety improvement efforts by transportation agencies. Moreover, input from the steering committee, leveraging their extensive knowledge of transportation safety needs in Shelbyville, has enriched the project list.

Each location on the preliminary project list underwent evaluation across five emphasis areas outlined in the plan:

- Total Crash Rate
- Fatality & Injury Crash Rate
- Environmental Justice
- Public Input

While all four elements are considered vital to the development of the City of Shelbyville's Safety Action Plan, collaboration among the steering committee defined the weight of each element in the project scoring criteria to be used. The resulting scoring system placed greater emphasis on elements that the steering committee deemed to be of greater importance in shaping its plan.

Furthermore, a specific scale was applied to evaluate each element, considering the range of values within each category. A points system was then devised to score the projects, assigning a maximum total number of points in each category based on its relative importance in the scoring system.

The weighted scoring system used to evaluate potential projects is depicted in ***Table 10***.

Table 10: Scoring Criteria for SS4A Project Proposals

TOTAL CRASH RATE

The SS4A program targets reducing overall crash rates to enhance community safety and mobility.

Criteria: Locations with documented crashes, including both pedestrian/bicyclist and motor vehicle incidents, contribute to this category's score. Property damage crashes (no injury) are also included.

Projects were scored on the individual site's total crash frequency rate.

30% weightage

FATALITY & INJURY CRASH RATE

Taking action toward Vision Zero involves addressing locations that have a recurring crash history. The plan intends to implement safety countermeasure projects at those locations that have the highest potential for safety improvement.

Criteria: Locations in the high injury network (HIN) or a crash "hotspot" identified through the safety analysis.

Projects were scored on the individual site's fatal and injury (F&I) crash frequency rate.

30% weightage

ENVIRONMENTAL JUSTICE

The SS4A program prioritizes equitable transportation access and outcomes for all community members.

Criteria: Projects located within or immediately adjacent to Environmental Justice (EJ) areas, as identified by the equity analysis, receive points for promoting inclusive transportation access and addressing disparities in underserved communities.

Projects were scored on the individual site location relative to an EJ area.

20% weightage

PUBLIC FEEDBACK

The CSAP is greatly dependent on the community's input due to their unique knowledge and experience with transportation issues within the City. Most importantly, the community is the end user of the City's transportation facilities.

Criteria: Location was identified as a safety concern through the public engagement survey or previously noted by the public through the steering committee's input.

Projects were scored on the number of mentions of individual sites in the public engagement survey.

20% weightage

8.2 PROJECT OVERVIEW

The compiled projects list was scored in accordance with the criteria presented in Section 8.1. The weighted total score of the project defined implementation priority. A 3-tier system was assigned for projects based on the range of scores to give the highest priority to projects that obtained the greater total weighted scores. Therefore, projects that were determined to have the highest need for improvement will be expected to have the highest priority for funding and implementation.

The tier system to correspond with a tentative implementation time frame is defined as follows:

- **Tier 1:** 35 – 50 points, Implementation 2024-2028 (Short-term/Highest priority)
- **Tier 2:** 20 – 35 points, Implementation 2029-2035 (Interim/Medium priority)
- **Tier 3:** Less than 20 points, Implementation 2035+ (Long-term/Lower priority)

The resulting projects with their total weighted scores, implementation timeframe and proposed countermeasures for segments are summarized in ***Table 11*** and for intersections in ***Table 12***. The complete Comprehensive Safety Action Plan Project List is provided in ***Appendix F*** of this report.

Table 11. Comprehensive Safety Action Plan Projects Scoring Summary – Roadway Segments

PROJECT LOCATION	WTD. TOTAL SCORE	TIER	PROPOSED COUNTERMEASURES
1. S West St - W Mechanic St to SR 44/Colescott St	42	Tier 1	Enhance pavement markings near intersections (stop bar, centerline delineation, & parking zones), Consider speed tables, and/or raised crosswalks/intersections
2. Tompkins St - W Mechanic St to SR 44/Colescott St	42	Tier 1	Enhance pavement markings near intersections (stop bar, centerline delineation, & parking zones), Consider speed tables, and/or raised crosswalks/intersections
3. Mechanic St - Conrey St to N Vine St	39	Tier 1	Enhance pavement markings (centerline delineation and parking zones), Consider raised crosswalks/intersections with curb bump-outs
4*. SR 44/Colescott St - Miller St to SR 9/S Harrison St	30	Tier 2	Install crosswalk visibility enhancements: lighting, warning signs, curb bump-outs; add Left-turn lanes at intersections where possible
5. E Broadway St - Tompkins St to E Michigan Rd	24	Tier 2	Corridor Access Management (consolidate driveways to reduce conflict points, install median with directional left-turn lanes at intersections where possible); Implement complete street (multi-use path, bike lane, enhanced pavement markings, crosswalk visibility enhancements), Curb bump-outs
6. S Miller St - W McKay Rd to W Broadway St	23	Tier 2	Enhance pavement markings (centerline delineation and stop bars on intersection approaches, and parking zones), Crosswalk visibility enhancements: high emphasis crosswalks, Traffic calming measures (especially near the High School): consider single-lane roundabouts/mini-roundabouts at angled intersections (St Joseph St, Colescott St), consider raised intersections
7*. SR 9/S Harrison St - Knauf Dr to Howard St	20	Tier 3	Downtown area: Install RRFBs at crosswalks; Outside of downtown area: Corridor Access Management (consolidate driveways to reduce conflict points), enhance pavement markings (delineate outer lane line 6" white and install new RPMs on centerline), Install signal backplates where missing along the street, Implement road diet/complete streets from Colescott St to Hendricks St (add raised median with directional turn lanes, on-street parking)
8. Miller Ave - W McKay Rd to W Taylor St	18	Tier 3	Corridor Access Management (consolidate driveways to reduce conflict points), enhance pavement markings (delineate outer lane line 6" white and install new RPMs on the centerline and gored areas), Install roundabouts at McKay Rd, St Joseph St/Hale Rd, Colescott St/Montgomery St, Taylor St, Replace TWLTL (two-way left turn lane) with raised median and directional turn lanes.
9*. State Road 9 - Noble St to McKay Rd	12	Tier 3	Install flashing chevron signs at the curves with reduced speed, optical speed markers, median rumble strips, sidewalks/multi-use path

*Denotes projects within the joint jurisdiction (City and INDOT)

Table 12. Comprehensive Safety Action Plan Projects Scoring Summary – Intersections

PROJECT LOCATION	WTD. TOTAL SCORE	TIER	PROPOSED COUNTERMEASURES
1**. Tompkins Street & W Mechanic Street	42	Tier 1	Install four-way stop with LED enhanced stop sign and advance stop ahead warning sign, lighting, Crosswalk visibility enhancements
2**. Tompkins Street & W Washington Street	42	Tier 1	Install four-way stop with LED enhanced stop sign and advance stop ahead warning sign, lighting, Crosswalk visibility enhancements
3*. SR 44 & Progress Pkwy	40	Tier 1	Install a multi-lane roundabout, Install lighting, Implement access management (consolidate the two driveways on south leg to restrict left-ins at the Arby's Drive, restrict right-ins at Arby's Drive on SR 44), Install high visibility crosswalks on all approaches
4*. N State Road 9 and E Rampart Street	33	Tier 2	Reconfigure EB I-74 ramp at SR 9 to prohibit free-flow EBR ~500' upstream of this intersection; Install a multi-lane roundabout (or) Install LED signal heads with backplates, FYA heads for left-turns, flashing LED signal ahead sign on SR 9 approaches, retroreflective borders/RPMs
5. State Road & S Noble Street	30	Tier 2	Access management (reduce curb-cuts near intersections), improved pavement markings to delineate travel way from parking, install intersection ahead warning sign; pedestrian refuge
6*. SR 44/Colescott Street & S West Street	30	Tier 2	Enhance pavement markings (stop bar on side street approaches, centerline delineation with RPMs, and parking zones), Reconfigure parking areas along main road to provide adequate sight distance for side-street approaches, Crosswalk visibility enhancements: curb bump-outs, improve lighting, high-emphasis crosswalk, consider raised crosswalks with RRFBs
7*. SR 44/Colescott Street & S Miller Street	29	Tier 2	Access management (reduce curb cuts near intersections), Install flashing yellow arrow signal heads for left-turn movements
8*. SR 44 & Miller Ave/ McKay Rd	28	Tier 2	Install a roundabout with lighting, implement high-emphasis crosswalks with RRFBs on roundabout approaches
9*. SR 9/Harrison Street & S Noble Street	28	Tier 2	Install overhead flashing beacons for TWSC, with advance intersection warning (or) Install a single-lane roundabout, raised pedestrian crosswalks + Intersection lighting
10*. SR 9/N Harrison Street & Mechanic Street	28	Tier 2	Install flashing-yellow arrow (FYA) indication for all Left-turns, install signal backplates, Install lighting, Access management (consolidate driveways and curb-cuts)
11. State Road & S Pike Street	27	Tier 2	Access management (reduce curb-cuts near intersections), improved pavement markings to delineate travel way from parking, install intersection ahead warning signs
12. N Michigan Road and Horseshoe Indianapolis	26	Tier 2	Reconfigure parking garage entrance drive, install pedestrian HAWK signal and implement crosswalk visibility enhancements: lighting, high visibility crosswalk, ped crossing signs, realign crosswalk with pedestrian landing pad, consider adding raised crosswalk

*Denotes projects within the joint jurisdiction (City and INDOT)

**Denotes project underway or completed

Table 12 (cont.) Comprehensive Safety Action Plan Projects Scoring Summary – Intersections

PROJECT LOCATION	WTD. TOTAL SCORE	TIER	PROPOSED COUNTERMEASURES
13. State Road & Worth Street	21	Tier 2	Access management (reduce curb-cuts near intersections), improved pavement markings to delineate travel way from parking, install median barriers for restricting left-turns
14*. SR 44/Colescott Street & S Tompkins Street	21	Tier 2	Enhance pavement markings (stop bar on side street approaches, centerline delineation with RPMs, and parking zones), Reconfigure parking areas along main road to provide adequate sight distance for side-street approaches, Crosswalk visibility enhancements: curb bump-outs, improve lighting, high-emphasis crosswalk, consider raised crosswalks with RRFBs
15. State Road & Hendricks Street	20	Tier 2	Short-term: Install raised median on intersection approaches to block driveway access, Implement crosswalk visibility enhancements: high emphasis crosswalks, lighting; Long-term: Install a multi-lane roundabout
16. E Michigan Road & Progress Pkwy	20	Tier 2	Install a single-lane roundabout (or) Install a raised median on intersection approaches; Implement access management: consolidate driveways (reduce curb cuts) near the intersection
17*. SR 44 & Amos Road	17	Tier 3	Add EBR turn lane, signal ahead sign, Wait Delayed Signal sign on minor approach (or) multi-lane roundabout; access management (reduce curb cuts near intersection)
18. W County Road 400 N and N Michigan Road	17	Tier 3	Upgrade signal to include LED signal heads with backplates, FYA heads for left-turns (or) Install a multi-lane roundabout; Install retroreflective borders, Improve SSD, Add supplemental lane-use signage and wayfinding signs for the Casino.
19. CR 200 W & Michigan Rd	15	Tier 3	Improve pavement markings for NB dual left-turns, add supplemental signage (or) Install roundabout; Retroreflective borders/RPMs, Install intersection lighting
20. Lee Blvd. and Progress Pkwy	14	Tier 3	Install LED embedded STOP sign posts, Crosswalk visibility improvements, Enhanced pavement markings, and turn template, Add delineator posts or median mountable curb
21*. SR 9 & Morristown Rd	14	Tier 3	Remove the existing traffic signal and reconfigure the intersection to a right-in/right-out access only, install a new roundabout to accommodate the proposed re-alignment of Morristown at Raleigh Blvd
22*. SR 9/Harrison St & Knauf Drive	11	Tier 3	Install roundabout and intersection lighting, Install retroreflective borders
23*. Michigan & SR 44	11	Tier 3	Short-term: Implement access management (consolidate driveways (reduce curb cuts) near the intersection, improve Northbound approach alignment, channelize and add pedestrian refuge island; Long-term: Install a multi-lane roundabout
24. McKay Rd & Progress Pkwy	8	Tier 3	Install a multi-lane roundabout, with intersection lighting, implement high-emphasis crosswalks with RRFBs on roundabout approaches

*Denotes projects within the joint jurisdiction (City and INDOT)
**Denotes project underway or completed

8.3 STRATEGY RECOMMENDATIONS

While infrastructure plays an important role in achieving Shelbyville's Vision Zero goal, strategies that focus on enforcement, education, and engagement are just as critical to adopting a holistic multi-disciplinary approach to safety. To develop strategies for the SS4A Action Plan, we reviewed the historical crash data records, public feedback, and state and federal resources.

The initial twelve strategies, categorized by the Safe System Element they address, are summarized in ***Table 13***. Each strategy comprises various components aimed at furthering its objectives. For a more comprehensive understanding of the proposed actions, anticipated implementation timelines, and the departments accountable for execution – as well as supporting departments where applicable—please refer to the subsequent sections. It's worth noting that the Steering and Implementation Committee reserves the right to amend or refine these strategies based on evolving information, community input, considerations of equity impacts, and insights gleaned from ongoing evaluations.

Table 13: City of Shelbyville CSAP Comprehensive Safety Strategies

NO.	STRATEGY	SAFE SYSTEM ELEMENT ADDRESSED
1	Launch a Comprehensive Safety Campaign	Safe Users, Safe Vehicles
2	Implement Measures to Reduce Speeding Citywide	Safe Users, Safe Vehicles, Safe Speeds
3	Foster a Culture of Shared Responsibility within the City	Safe Users, Safe Vehicles, Safe Speeds
4	Target High Injury Areas to Reduce Severe Crashes and Speeds	Safe Users, Safe Vehicles
5	Transform Residential Streets into Safe, Low-Speed, Low-Stress Environments	Safe Users, Safe Streets
6	Develop Commercial Streetscapes Promoting Safe Speeds and Crossings	Safe Users, Safe Streets
7	Implement Systemic Improvements at High-Risk Locations	Safe Users, Safe Vehicles, Safe Speeds
8	Establish Safe, Accessible Networks for Pedestrians, Cyclists, and Assistive Device Users	Safe Users, Safe Streets
9	Ensure Equity in Access to Safe Vehicles	Safe Users, Safe Vehicles
10	Rapid Response to Fatal Crashes	Safe Users, Safe Vehicles, Safe Speeds, Post-Crash Care
11	Utilize Data and Technology to Understand High-Risk Behaviors and Streets	Safe Users, Safe Vehicles, Safe Speeds, Safe Streets
12	Monitor Progress towards Safety Goals	Safe Users, Safe Vehicles, Safe Speeds, Safe Streets, Post-Crash Care

STRATEGY 1: LAUNCH A COMPREHENSIVE SAFETY CAMPAIGN

Establishing a comprehensive safety culture throughout Shelbyville, embraced by all sectors including the public, initiates raising awareness about the city's significant crash challenges, their impact, causative factors, and preventive measures. Campaign messages, disseminated across diverse platforms, must center on severe crashes, and emphasize the detrimental impact of speed on crash severity. Our messaging strategy should be tailored to inspire the behavioral shifts essential for mitigating and eradicating severe crashes.

Table 14: Strategy 1 Action Items, Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Create a culturally relevant traffic safety campaign aimed at reducing severe injuries and fatalities by addressing speeding and dangerous driving behaviors such as running red lights and failing to yield to pedestrians.	Within the next 1-2 years	City of Shelbyville (Engineering Department), *Media Services*
Prioritize driver education and awareness through civilian staff warnings and diversion programs before enforcing fines at high-crash locations and areas with heightened dangerous driving behaviors.	Within the next 1-2 years	*State or Local Law Enforcement Agencies, Shelbyville Central Schools, Shelby County Chamber of Commerce*
Communicate information about the City's speed limits and any future changes to speed limits through social media and other channels available to the City.	Within the next 1-2 years	City of Shelbyville (Engineering Department), *Media Services*
Expand the Safe Routes to School in-class education program to high schools, focusing on safe driving behaviors and alternatives to driving.	Within the next 1-2 years	*Shelbyville Central Schools, Major Health Partners Foundation*

STRATEGY 2: IMPLEMENT MEASURES TO REDUCE SPEEDING CITYWIDE

The city recognizes that solely relying on messaging won't ensure all drivers slow down. Therefore, the city is committed to designing our streets to encourage safe speeds for pedestrians, cyclists, and those using assistive devices. This includes adjusting posted speed limits to align with our desired target speeds for safer streets. Additionally, we'll explore alternative enforcement approaches, carefully considering their equity implications.

Table 15: Strategy 2 Action Items Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Ensure that adequate signage is placed on major streets to alert drivers of the designated speed limit.	Within the next 1-2 years	City of Shelbyville (Engineering Department)
Establish zones with reduced speed limits by implementing changes to speed regulations and implementing road designs that naturally encourage compliance, particularly in areas with a high concentration of vulnerable road users such as schools, parks, community centers, and housing facilities for seniors and transitional residents.	Within the next 3+ years	City of Shelbyville (Engineering Department)
Evaluate the fairness, uniformity, effectiveness, and equity considerations of existing traffic enforcement methods, fines, and legal procedures.	Within the next 3+ years	City of Shelbyville (Department of Law)
Explore the potential implementation of automated systems or unarmed civilian enforcement to address dangerous driver behaviors like speeding, drawing inspiration from initiatives in other US cities.	Within the next 3+ years	City of Shelbyville (Engineering Department), *State or Local Law Enforcement Agencies*

STRATEGY 3: FOSTER A CULTURE OF SHARED RESPONSIBILITY WITHIN THE CITY

The Safe System Approach underscores the shared responsibility in reducing severe crashes, emphasizing that everyone has a role to play. Shelbyville has a unique opportunity to take the lead by fully embracing the goal of eliminating severe crashes and integrating the Safe System approach into all city services and operations. Equally crucial is the role of City employees in setting an example through their behaviors. If the city is committed to achieving the citywide goal of eliminating traffic crashes, it's imperative that the city holds itself accountable and refuses to tolerate unsafe driving practices among city employees.

Table 16: Strategy 3 Action Items Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Train and educate City staff, contractors, and government partners on Safe System concepts and practices to raise awareness.	Within the next 1-2 years	City of Shelbyville (Engineering Department)
Create and execute a driver training program for employees who operate vehicles during work duties, focusing on safe driving practices, particularly regarding speed and interactions with pedestrians, cyclists, scooter riders, and individuals using assistive devices.	Within the next 3+ years	City of Shelbyville (Engineering Department), *State or Local Law Enforcement Agencies*

STRATEGY 4: TARGET HIGH INJURY AREAS TO REDUCE SEVERE CRASHES AND SPEEDS

For a long time, severe crashes have been seen as an unavoidable part of operating, making the city's goal difficult to achieve. However, by investing in the HIN, the city not only has the chance to significantly reduce severe crashes but also to prove that eliminating roadway fatalities and serious injuries is achievable. As we enhance the HIN, we must assess the extent of our progress and adjust our priorities as needed to ensure we continue to focus on the most valuable safety investments.

Table 17: Strategy 4 Action Items Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Integrate the High Injury Network (HIN) into the yearly major street resurfacing plan and maintain safety enhancements during resurfacing projects.	Within the next 1-2 years	City of Shelbyville (Engineering Department)
Review all High Injury Network (HIN) corridors managed by the City for safety enhancements and execute a minimum of one corridor safety project annually. These projects will utilize a blend of quick-delivery enhancements like striping and signal adjustments alongside capital investments such as RRFBs, curb extensions, and refuge islands.	Within the next 1-2 years	City of Shelbyville (Engineering Department)
Regularly update the High Injury Network (HIN) every 3 to 5 years using current crash data to pinpoint new areas for enhancement and showcase successful declines in severe and fatal crashes.	Within the next 3+ years	City of Shelbyville (Engineering Department)

STRATEGY 5: TRANSFORM RESIDENTIAL STREETS INTO SAFE, LOW-SPEED, LOW-STRESS ENVIRONMENTS

Although most severe crashes happen on busy arterial and collector streets, the city must prioritize safety on low-traffic residential streets, which serve as essential pathways for pedestrians and cyclists accessing neighborhood amenities like parks and schools in Shelbyville.

Table 18: Strategy 5 Action Items, Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Continue seeking federal and state funds for safety enhancements around local schools, and explore collaborations with other city departments to implement broader safety measures in upcoming years.	Ongoing	City of Shelbyville (Engineering Department & Department of Behavioral Health & Justice Equity)
Assess the influence of freight and heavy trucks on traffic safety, especially in residential areas, and create measures and standards to address unsafe conditions.	Within the next 1-2 years	City of Shelbyville (Engineering Department), Shelby County Chamber of Commerce
Implement a trial Slow Street Network initiative and assess its effectiveness using safety data and feedback from residents.	Within the next 3+ years	City of Shelbyville (Engineering Department)

STRATEGY 6: DEVELOP COMMERCIAL STREETSCAPES PROMOTING SAFE SPEEDS AND CROSSINGS

To maximize the benefits of the commercial streetscapes in Shelbyville, it's crucial to create inviting environments that cater to all individuals, where economic vitality, social interaction, and community development thrive without being compromised by hazardous street conditions.

Table 19: Strategy 6 Action Items, Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Include speed reduction measures in all streetscape initiatives and adjust speed limits to align with target speeds whenever possible.	Within the next 1-2 years	City of Shelbyville (Engineering Department)
Broaden the criteria for selecting streetscape projects to encompass areas with elevated severe crash rates and risky roadway characteristics.	Within the next 1-2 years	City of Shelbyville (Engineering Department), *Mayor's Office*

STRATEGY 7: IMPLEMENT SYSTEMIC IMPROVEMENTS AT HIGH-RISK LOCATIONS

The review of severe crashes, vulnerable road users, and high-risk road attributes reveals opportunities for significant investments in preemptive measures to prevent severe crashes. Acting swiftly, the city can implement and evaluate new countermeasures while refining internal procedures to enhance safety.

Table 20: Strategy 7 Action Items, Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Deploy and evaluate rapid implementation of countermeasures matched for crash types identified in Section 3 of the report.	Within the next 1-2 years	City of Shelbyville (Engineering Department)
Expedite systemic safety improvements through the Right of Way permitting process.	Within the next 1-2 years	City of Shelbyville (Engineering Department)

STRATEGY 8: ESTABLISH SAFE, ACCESSIBLE NETWORKS FOR PEDESTRIANS, CYCLISTS, AND ASSISTIVE DEVICE USERS

Through the adopted resolution, the city has pledged to guarantee safe and convenient mobility for all residents of Shelbyville, regardless of their mode of transportation. Recognizing the increased vulnerability of pedestrians, cyclists, and individuals using assistive devices, we are dedicated to intentionally designing our streets to facilitate their safe movement to desired destinations.

Table 21: Strategy 8 Action Items, Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Improve lighting at pedestrian crossings	Within the next 3+ years	City of Shelbyville (Engineering Department)
Enhance safety at intersection pedestrian crossings with proven measures like curb extensions, refuge islands, high-visibility crosswalk markings, signage, signals, and beacons.	Within the next 3+ years	City of Shelbyville (Engineering Department)
Install mid-block crossings between major pedestrian areas where crossing distances between existing signals or enhanced crossings are impractical.	Within the next 3+ years	City of Shelbyville (Engineering Department)

STRATEGY 9: ENSURE EQUITY IN ACCESS TO SAFE VEHICLES

Explore avenues to enhance the safety of our existing vehicle fleet in Shelbyville, ensuring that all residents, including those who cannot afford new vehicles or choose not to drive, are accounted for in our safety initiatives.

Table 22: Strategy 9 Action Items, Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Create concise policies regarding the deployment and usage of micromobility devices.	Within the next 3+ years	City of Shelbyville (Engineering Department)
Promote accessible and attractive alternatives to owning personal vehicles, such as shared mobility, public transit, walking, and cycling, through investments, pilot initiatives, subsidies for low-income individuals, and incentives.	Within the next 3+ years	City of Shelbyville (Engineering Department), *INDOT, ShelbyGo*

STRATEGY 10: RAPID RESPONSE TO FATAL CRASHES

As the city enacts the safety plan and fosters collaborations and a collective safety mindset among various sectors and the community, it recognizes that unfortunate crashes may still happen. It's crucial to not only react to severe crashes but also to increase the understanding of it's causes and effects.

Table 23: Strategy 10 Action Items, Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Regularly provide the public and decision-makers with access to statistics regarding fatal crashes.	Within the next 1-2 years	City of Shelbyville (Engineering Department), *Media Services*
Implement safety enhancements at locations where fatal crashes have occurred.	Within the next 3+ years	City of Shelbyville (Engineering Department)
Work with medical experts to merge hospital and crash data, enhancing the understanding of severe crash demographics, enhancing behavioral intervention effectiveness, and accessing additional funding streams.	Within the next 1-2 years	City of Shelbyville (Engineering Department), *Major Health Partners Foundation*
Explore traffic signal priority measures for emergency vehicles to expedite and ensure safer response times to crashes and medical emergencies.	Within the next 3+ years	City of Shelbyville (Engineering Department), *Major Health Partners Foundation*

STRATEGY 11: UTILIZE DATA AND TECHNOLOGY TO UNDERSTAND HIGH-RISK BEHAVIORS AND STREETS

Shelbyville relies on police reports to gauge the severity, location, and nature of severe and fatal crashes. However, this data source offers only a partial view of high-risk behaviors and may overlook crucial opportunities for intervention. To comprehensively evaluate and address these areas, Shelbyville must access additional relevant data from various existing and emerging sources to enhance safety planning, evaluation, and monitoring efforts.

Table 24: Strategy 11 Action Items, Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Gather and centralize data on severe crashes, speeds, and risky driving behaviors to gain deeper insights into current and potential locations of severe crashes and their impact on road users.	Within the next 1-2 years	City of Shelbyville (Engineering Department)
Enhance data collection and analysis techniques to assess the impact of countermeasures efficiently through customized, streamlined, and automated tools and dashboards.	Within the next 1-2 years	City of Shelbyville (Engineering Department)
Obtain subscription to big data analytics company such Streetlight/INRIX to determine where and when speeding occurs throughout the city.	Within the next 1-2 years	City of Shelbyville (Engineering Department)

STRATEGY 12: MONITOR PROGRESS TOWARDS SAFETY GOALS

Enhancing road safety in Shelbyville relies on its capacity to learn from its initiatives and enhance the procedures continually. Evaluation serves as a means of accountability. Further details on the evaluation methods, progress tracking, and coordination of implementation are outlined in the progress and transparency section that follows.

Table 25: Strategy 12 Action Items, Implementation Timeframe, and Responsible Department(s)

ACTION ITEM	TIMEFRAME	RESPONSIBLE DEPARTMENT(S)
Annually review the progress of the Comprehensive Safety Action Plan (CSAP) strategies, presenting the findings to the Steering & Implementation Committee, Mayor, and City Council. Assess the need for updates to the CSAP based on the evaluation results.	Within the next 1-2 years	City of Shelbyville (Engineering Department)
Annually assess the effectiveness of two corridor safety projects by analyzing crash data, gathering resident feedback, and utilizing other relevant data sources. Identify any necessary further improvements based on the evaluation results.	Within the next 1-2 years	City of Shelbyville (Engineering Department)

9. PROGRESS AND TRANSPARENCY

9. PROGRESS AND TRANSPARENCY

The CSAP serves as a detailed plan to achieve the regional goal of reducing fatal and serious injury crashes by 100% in the City of Shelbyville by the year 2045. While this goal is within reach, it acknowledges the considerable effort needed to change behaviors and implement systemic changes.

Many strategies outlined in the CSAP can be executed within a short timeframe, while others may require longer-term or ongoing efforts. It's important to understand that completing all strategies within specific timeframes may not be realistic, and our focus should instead be on continuous adaptation for effectiveness and equity.

The CSAP aims to establish a comprehensive safety program with a strong framework for monitoring and evaluation to demonstrate incremental progress each year. It also emphasizes the importance of adjusting strategies as needed based on feedback from Shelbyville residents and the impact on their lives and communities.

COMPREHENSIVE SAFETY ACTION PLAN PROGRESS MEASURES

The Comprehensive Safety Action Plan in Shelbyville is designed to evolve over time, reflecting ongoing efforts and progress toward achieving Vision Zero for the city. As milestones are reached, the impact of these achievements on the overall safety goals will be regularly assessed.

An annual report on the SS4A Action Plan's progress will be published by the city each December. This report will feature the following:

- Updated crash statistics, focusing on fatal and serious injury incidents as well as bicycle and pedestrian-related crashes.
- Graphical representations of crash trends over the past five years
- Updated status of projects recommended by the SS4A Action Plan.
- Update the city's CSAP dashboard, its HIN, and hotspot intersections every two years to ensure that the roadway network accurately reflects the current citywide safety landscape.

TRANSPARENCY

The city of Shelbyville has developed the SS4A Action Plan with the goal of full transparency. As part of the engagement process, the city created a diverse steering committee, conducted a citywide survey, and engaged consultants to allow as many voices as possible into the development of the plan. The SS4A Action Plan will be posted in final form on the city's Comprehensive Safety Action Plan/Vision Zero webpage. Interim documents like the annual report and updated HIN will also be posted on the webpage.

10. GLOSSARY

10. GLOSSARY

TERM	DEFINITION
Safe Streets and Road for All (SS4A)	A federal grant program that provides funds to local, regional, and Tribal communities for implementation, planning, and demonstration activities as part of a systematic approach to prevent deaths and serious injuries on the nation's roadways.
Comprehensive Safety Action Plan (CSAP)	A comprehensive safety action plan is a strategic framework developed to address various aspects of traffic safety within a specific area or jurisdiction. It typically involves a multi-faceted approach that aims to reduce crashes, mainly injuries and fatalities through a combination of strategies, policies, and initiatives.
Indiana Department of Transportation (INDOT)	It is the state government agency responsible for planning, building, maintaining, and operating the transportation infrastructure in the state of Indiana, United States.
High Injury Network (HIN)	It represents roadway segments/crashes where the high number of traffic fatalities and serious injuries are occurring.
Raised Pavement Markers (RPMs)	RPMs are typically equipped with reflective materials that make them highly visible to drivers, especially during low-light conditions or inclement weather. This enhanced visibility helps drivers maintain proper lane alignment and navigate safely, reducing the risk of crashes.
Rectangular Rapid Flashing Beacons (RRFBs)	They are a type of traffic control device used to enhance pedestrian safety at crosswalks and other pedestrian crossing locations. RRFBs consist of rectangular-shaped LED lights mounted on a horizontal bar or sign structure. When activated by a pedestrian or crossing signal, the lights rapidly flash in a distinctive pattern, alerting drivers to the presence of pedestrians in the crosswalk. RRFBs are particularly effective at increasing driver awareness and yielding compliance, thereby reducing the risk of pedestrian-vehicle collisions.
Pedestrian Hybrid Beacons (PHB) aka High-Intensity Activated Crosswalk (HAWK)	PHBs are a type of pedestrian crossing signal that provides a controlled crossing opportunity for pedestrians at locations where traffic signals are not warranted or feasible. They are typically used at mid-block crossings, crosswalks on multi-lane roads, or locations with high pedestrian activity. PHBs operate similarly to traffic signals but are activated by pedestrians using a push-button. When a pedestrian presses the button to request a crossing, the PHB system activates warning beacons to alert drivers of the pedestrian's intent to cross. These warning beacons typically consist of flashing lights or other visual cues to grab drivers' attention. After a brief warning period, the PHB system transitions to a steady or flashing indication for pedestrians to cross, typically accompanied by a "WALK" signal or pedestrian symbol. This indicates to pedestrians that it's safe to cross the roadway.

TERM	DEFINITION
Leading Pedestrian Interval (LPI)	It is a traffic signal timing strategy designed to enhance pedestrian safety at signalized intersections. During an LPI phase, pedestrians receive a head start to begin crossing the street before conflicting vehicle movements are allowed to proceed. When the traffic signal changes, the pedestrian signal turns to "WALK" or displays a pedestrian symbol, indicating to pedestrians that they have the right of way to begin crossing the street. Simultaneously, the vehicle signal remains red, temporarily halting vehicle movements in the same direction as the pedestrians' intended crossing path. The purpose of the Leading Pedestrian Interval is to increase the visibility and predictability of pedestrians in the intersection, thereby reducing the likelihood of conflicts between pedestrians and turning vehicles.
Flashing Yellow Arrow (FYA)	A flashing yellow arrow (FYA) is a traffic signal indication used at signalized intersections to control left turns. It is part of a signal phasing system that typically includes solid green, solid yellow, and solid red arrow indications as well. When a flashing yellow arrow is displayed, it indicates to drivers that they are permitted to make a left turn after yielding to oncoming traffic and pedestrians. In other words, drivers are allowed to turn left, but they must first yield to any oncoming vehicles and pedestrians in the intersection. The flashing yellow arrow indication is commonly used to provide flexibility and improve traffic flow at intersections. It allows left-turning vehicles to proceed with caution when safe to do so, rather than being required to wait for a green arrow signal, which may not always be necessary or efficient.
Stopping Sight Distance (SSD)	Stopping Sight Distance (SSD) refers to the distance needed by a driver to bring their vehicle to a complete stop after perceiving a hazard on the roadway. It is a critical concept in highway and traffic engineering used to ensure safe driving conditions and design roadways that accommodate safe stopping distances. The SSD is influenced by several factors, including the speed of the vehicle, the reaction time of the driver, the roadway grade, the condition of the road surface, and the efficiency of the vehicle's braking system. The calculation of stopping sight distance considers these factors to determine the minimum distance required for a driver to perceive a hazard, react to it, and come to a stop safely.
Two-way Stop Control (TWSC)	In a two-way stop control scenario, vehicles traveling on one road are required to come to a complete stop and yield the right-of-way to vehicles traveling on the intersecting road. Two-way stop control is commonly used at intersections with lower traffic volumes or where visibility is limited along side streets, as it helps to manage traffic flow and reduce the risk of collisions. It is a simple and effective traffic control measure that promotes safety and efficiency at intersections

TERM	DEFINITION
High-Intensity Activated Crosswalk (HAWK)	It is a type of pedestrian-activated traffic signal used to facilitate safe pedestrian crossings at mid-block locations or intersections. The HAWK signal is typically installed at locations where there is a high volume of pedestrian traffic or where pedestrians face challenges in crossing busy roadways. The HAWK signal remains dark until activated by a pedestrian. When a pedestrian wishes to cross, they must push a button to activate the signal. Upon activation, the signal displays a series of flashing and solid red lights to stop vehicular traffic. Pedestrians are then given a "WALK" signal or pedestrian symbol, indicating that it is safe for them to cross. After a designated pedestrian crossing time, the signal changes to flashing red, allowing vehicles to proceed cautiously if the crosswalk is clear. Finally, the signal goes dark again, indicating that vehicular traffic may resume its normal operation.
State Road (SR)	A State Road refers to a roadway that is owned, maintained, and managed by the government of a specific state or province. State roads are typically designated and numbered according to a standardized system established by the state's transportation department or authority. State roads play a crucial role in the transportation network, connecting cities, towns, and regions within a state, as well as providing access to major highways, interstates, and other transportation facilities. They serve as primary routes for intra-state travel and commerce, accommodating various modes of transportation, including automobiles, trucks, buses, bicycles, and pedestrians.
Eastbound Approach Right-turn Movement (EBR)	In traffic engineering and transportation planning, it refers to the movement of vehicles traveling eastbound on a roadway that are making a right turn at a specific intersection.
Light Emitting Diode (LED)	A Light Emitting Diode (LED) is a semiconductor device that emits light when an electric current passes through it. LEDs are widely used in various applications, including lighting, displays, indicators, and signage, due to their energy efficiency, longevity, and compact size.
Northbound Approach (NB)	In traffic engineering and transportation planning, it is a common term used to describe the movement of traffic on a roadway approaching an intersection from the south and heading north.

11. APPENDICES

Appendix A: Vision Zero Resolution

Appendix B: Steering Committee Meeting Minutes

Appendix C: Safety Analysis

Appendix D: Public Engagement

Appendix E: U.S. Department of Transportation Proven Safety Countermeasures

Appendix F: Comprehensive Safety Action Plan Projects

APPENDIX A: VISION ZERO RESOLUTION

FILED
CITY CLERK-TREASURER

MAR 04 2024

SCOTT M. ASHER

A RESOLUTION OF THE CITY OF SHELBYVILLE COMMON COUNCIL APPROVING AND ADOPTING THE 2024 VISION ZERO RESOLUTION AND COMMITMENT TO A GOAL TO ELIMINATE TRAFFIC DEATHS AND SERIOUS INJURY BY 2045 ON THE STREETS WITHIN THE CITY OF SHELBYVILLE

RESOLUTION NO 2024- 10

WHEREAS, the City of Shelbyville Common Council ("City Council") has created a the 2024 Vision Zero Resolution and filed the same in the City of Shelbyville Clerk Treasurer's Office;

WHEREAS, Vision Zero is the simple yet ambitious idea that there is no acceptable number of traffic deaths and serious injuries on our roadways; and

WHEREAS, the City Council recognizes that traffic deaths and serious injuries are not inevitable; and

WHEREAS, the 2024 Vison Zero Resolution is a required component of the Safe Streets and Roads for All Action Plan; and

WHEREAS, this Vision Zero Resolution sets forth a goal of reducing serious and fatal crashes to zero by the year 2045; and

WHEREAS, it is the desire of the City Council to authorize and approve certain actions as further set forth in this Resolution.

NOW, THEREFORE, BE IT RESOLVED, by the City of Shelbyville Common Council as follows

1. That the 2024 Vision Zero Resolution, as on file with the City of Shelbyville Clerk Treasurer's Office is hereby approved and adopted;

2. The City of Shelbyville hereby commits to a goal to eliminate traffic deaths and serious injuries by 2045 on the streets within the City of Shelbyville.

RESOLVED by the Common Council of the City of Shelbyville, Indiana, this 4th day of March, 2024.

VOTE: Ayes 7 Nays 0

PRESIDING OFFICER

Scott Furgeson, Mayor

Attest:

Scott Asher, Clerk-Treasurer

MAYORAL APPROVAL:

Scott Furgeson, Mayor

ATTEST:

Scott Asher, Clerk-Treasurer

CERTIFICATION

The undersigned Clerk-Treasurer does hereby certify that the above resolution was presented to the Mayor, approved and signed by the Mayor on the date shown, and that said Mayor announced its approval to the Common Council this 5th day of MARCH, 2024.

Scott Asher, Clerk-Treasurer

APPENDIX B: STEERING COMMITTEE MEETING MINUTES

MEETING MINUTES

DATE: **November 8, 2023, 1:00 PM EDT**

RE: **Shelbyville Comprehensive Safety Action Plan (CSAP) Steering Committee Meeting**

Microsoft Teams

Minutes By: Rahul Rajbhara, American Structurepoint
(Meeting Minutes in *Blue*)
(Action Items in *Red*)

The following notes reflect our understanding of the discussions and decisions made at this meeting.
If you have any questions, additions, or comments, please contact the issuer of these minutes.

1. **Introductions/Steering Committee Members [5 minutes]**
    a. Steering Committee Members
        i. City of Shelbyville
            - *John Kuntz (City Engineer)*
            - *Jacob Stevenson (Asst. City Engineer)*
            - *Adam Rude (Planning Director)*
            - *Allan Henderson (Deputy Planning Director)*
            - *Mark Weidner (Police Chief)*
            - *Brian Tackett (Fire Chief)*
            - *Buffy Power (Livable Communities Coalition Member)*
            - *Tom DeBaun (Mayor)*
            - *Betsy Means-Davis (City Council)*
            - *Linda Sanders (City Council)*
            - *Jason Abel (County Commissioner)*
            - *Brandy Coomes (Mainstreet Shelbyville, Inc Exec. Director)*
            - *Donna Christian (Shelby County Chamber of Commerce Exec. Director)*
            - *Carrie Glisson (Shelbyville Central Schools Transportation Director)*
            - *Latisha Idlewine (Major Health Partners Exec. Director)*
            - *Laura Slusher (Purdue University)*
        ii. American Structurepoint
            - *Hardik Shah (Traffic Group Leader)*
            - *Rahul Rajbhara (Project Manager)*
            - *Gaurav Kashyap (Senior Traffic Engineer)*
            - *Alex Crandall (Traffic Engineer)*
            - *Phil Roth (Planning Project Manager)*
            - *Patty Salgado (Associate Planner)*

2. **Project Scope/Discussion [45 minutes]**
    a. SS4A components review (what is a CSAP?)
        - *Rahul R. provided a general overview of the SS4A action plan components and what this CSAP would entail.*
        - *Rahul R. shared with the committee about the progress to date.*
    b. Vision Zero Commitment from City leadership
        - *Rahul R. explained to the committee about the FHWA requirement from the city leadership on Vision Zero Commitment. He detailed how the steering committee would play a role in overseeing the plan development, implementation and monitoring this goal beyond the plan adoption by City Council.*
    c. Steering Committee and Advisory committee
        - *Rahul R. noted that establishing a plan steering committee is instrumental for a successful SS4A action plan development.*
    d. Public Involvement and Stakeholder Coordination
        - *Phill R. initiated the discussion by inquiring about the committee's expectations for public engagement. He suggested leveraging upcoming events for in-person public engagement.*
        - *Adam R. proposed utilizing events in the upcoming months, such as the Mistletoe Festival, for conducting in-person public engagement.*
        - *Mayor Tom generously offered dedicated locations/booths at events to facilitate community engagement.*
        - *Betsy M. suggested incorporating student-focused questions in the survey, specifically targeting data related to students' modes of transportation to schools. Additionally, she recommended the inclusion of QR codes for convenient scanning by students.*
        - *Buffy P. suggested creating paper surveys for seniors with language barriers in mind. In response to Adam R.'s inquiry about languages, Buffy P. clarified that English and Spanish are the two primary languages, with a small Japanese-speaking population.*
        - *Phil R. also noted that social media outreach will be conducted leading up to the public involvement meeting.*
    e. Schedule
        - *Rahul R. noted that RFP indicated the proposed completion date for a Safety Action Plan would be April 1st, 2024. A draft action plan would be shared with the committee for review one month prior to that date (March 1st, 2024).*
        - *Rahul R. noted that this date was selected with the intention to get ready for seeking Implementation Grant funds through SS4A.*

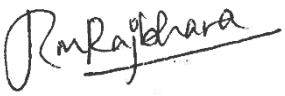
3. **Action Items [5 minutes]**
    a. City of Shelbyville
        i. *Provide a list of events to conduct public involvement.*

b. American Structurepoint
    i. *Prepare the Survey for Public Involvement*
    ii. *Continue work on safety and equity analysis.*
    iii. *Monthly progress updates*

4. Next Meeting [5 minutes]

a. Monthly Progress Meeting (Sometime Next Month)
b. Second Steering committee meeting (TBD)
c. Public involvement meeting (TBD)

Very truly yours,
American Structurepoint, Inc.



Rahul M. Rajbhara
Project Manager

Shelbyville – CSAP

Steering Committee Meeting #2

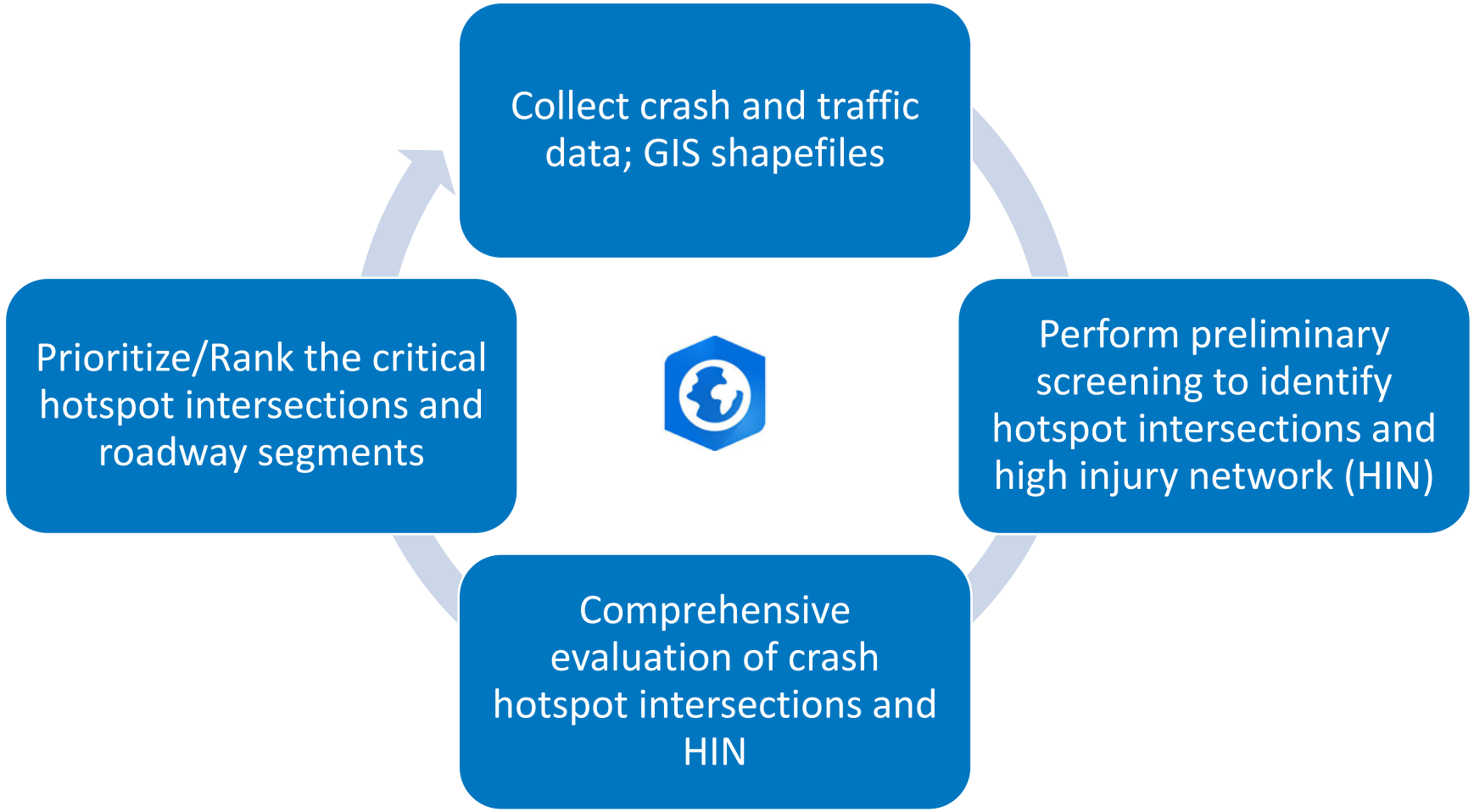
AMERICAN STRUCTUREPOINT INC.

SHELBYVILLE PRIDE IN PROGRESS

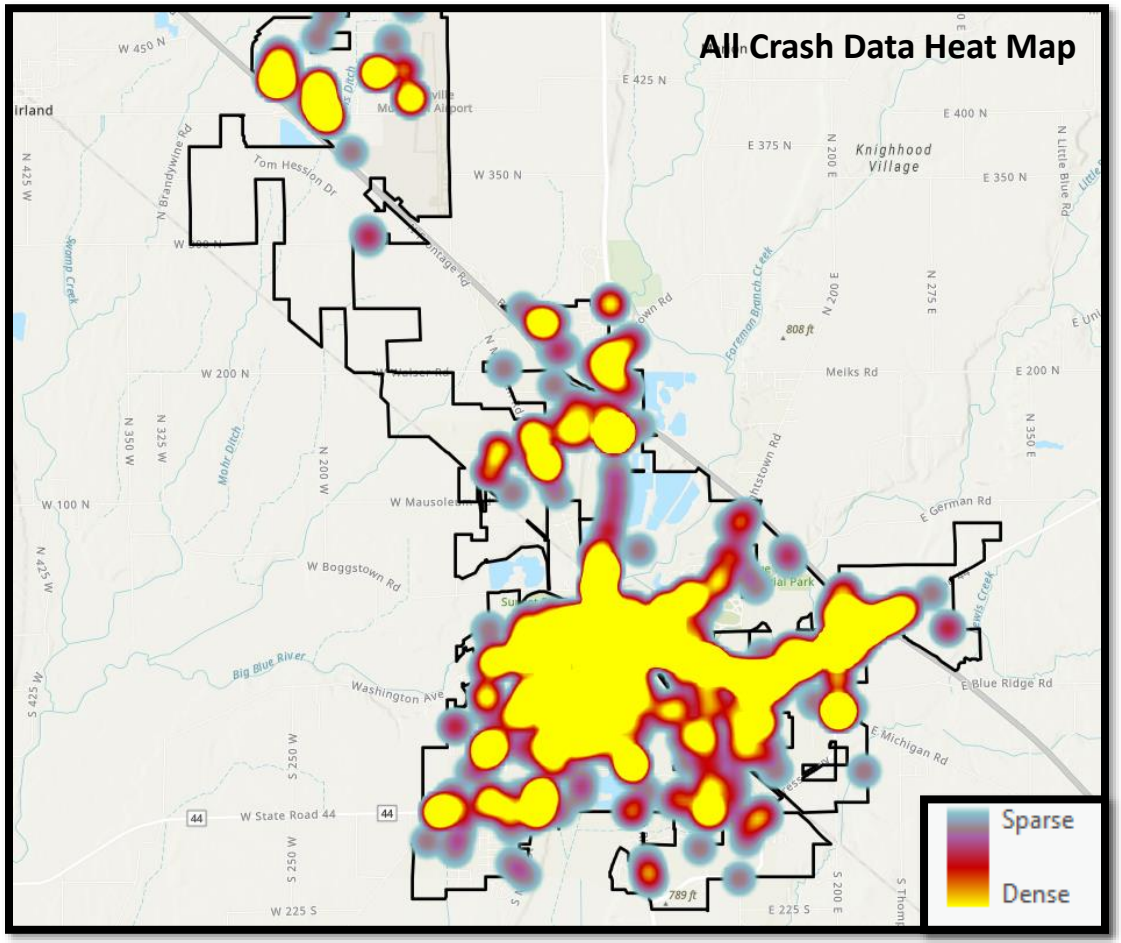
Project Status Update

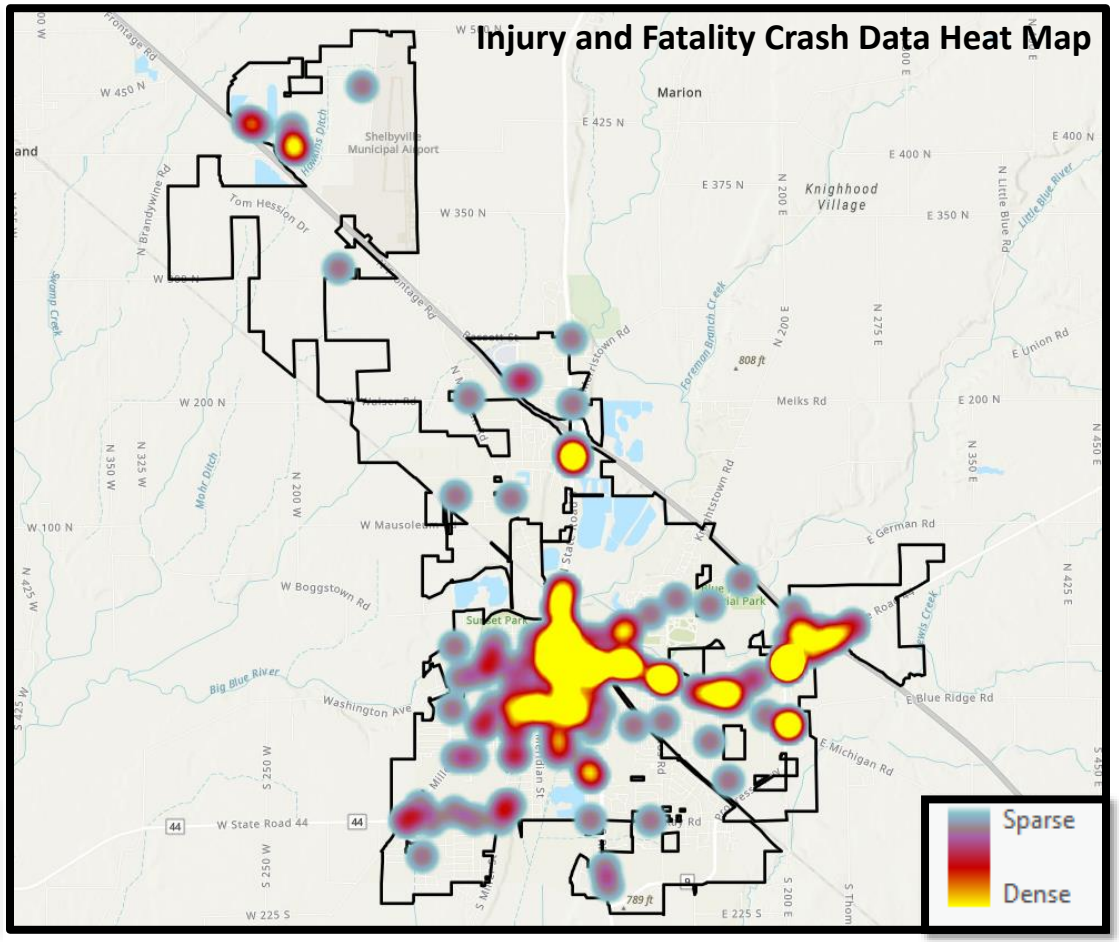
Action Plan Component	Milestone	Status
Leadership Commitment and Goal Setting	Vision Zero Resolution established by the city leadership	Complete
Planning Structure	Set-up a Steering Committee	Complete
Safety Analysis	Geo-spatial identification of high-risk locations (High Injury Network and Hotspot Locations)	Complete
Engagement and Collaboration	Robust engagement with public and relevant stakeholders	Complete
Equity Considerations	Identify census tracks within the city that are underserved	Complete
Policy and Process Changes	Assess current policies, plans, guidelines and suggest some revisions , as appropriate	On-going
Strategy and Project Selections	Identification of a comprehensive set of projects and strategies	On-going

Safety Analysis – 4 Step Process

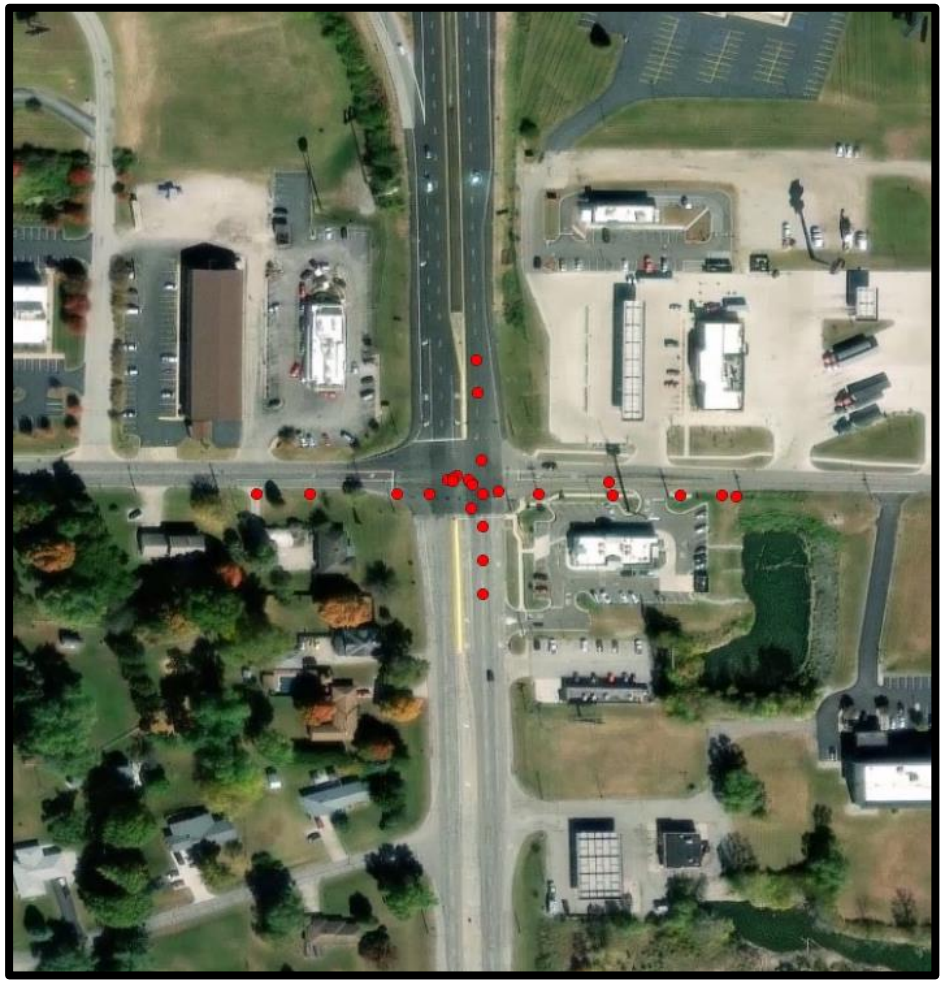


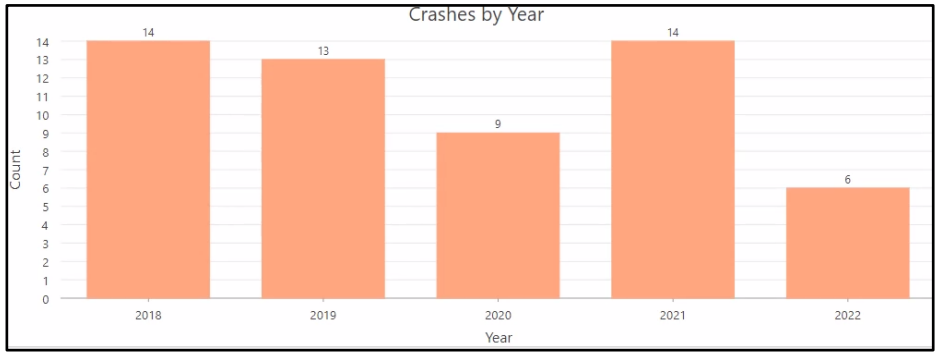
Safety Analysis – Step 2: Preliminary Screening

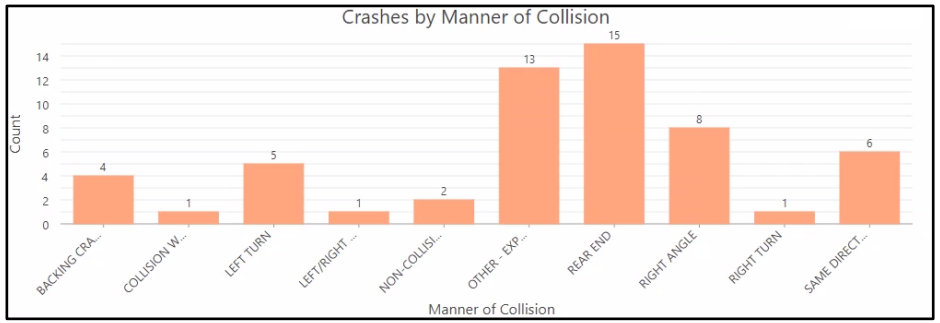


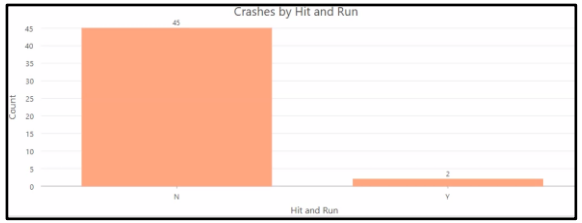


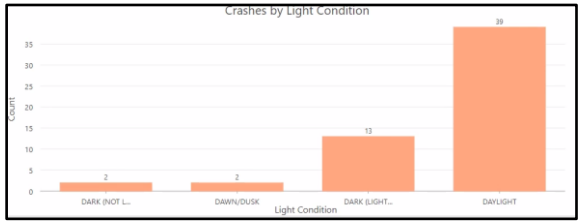
Safety Analysis – Step 3: Comprehensive Evaluation



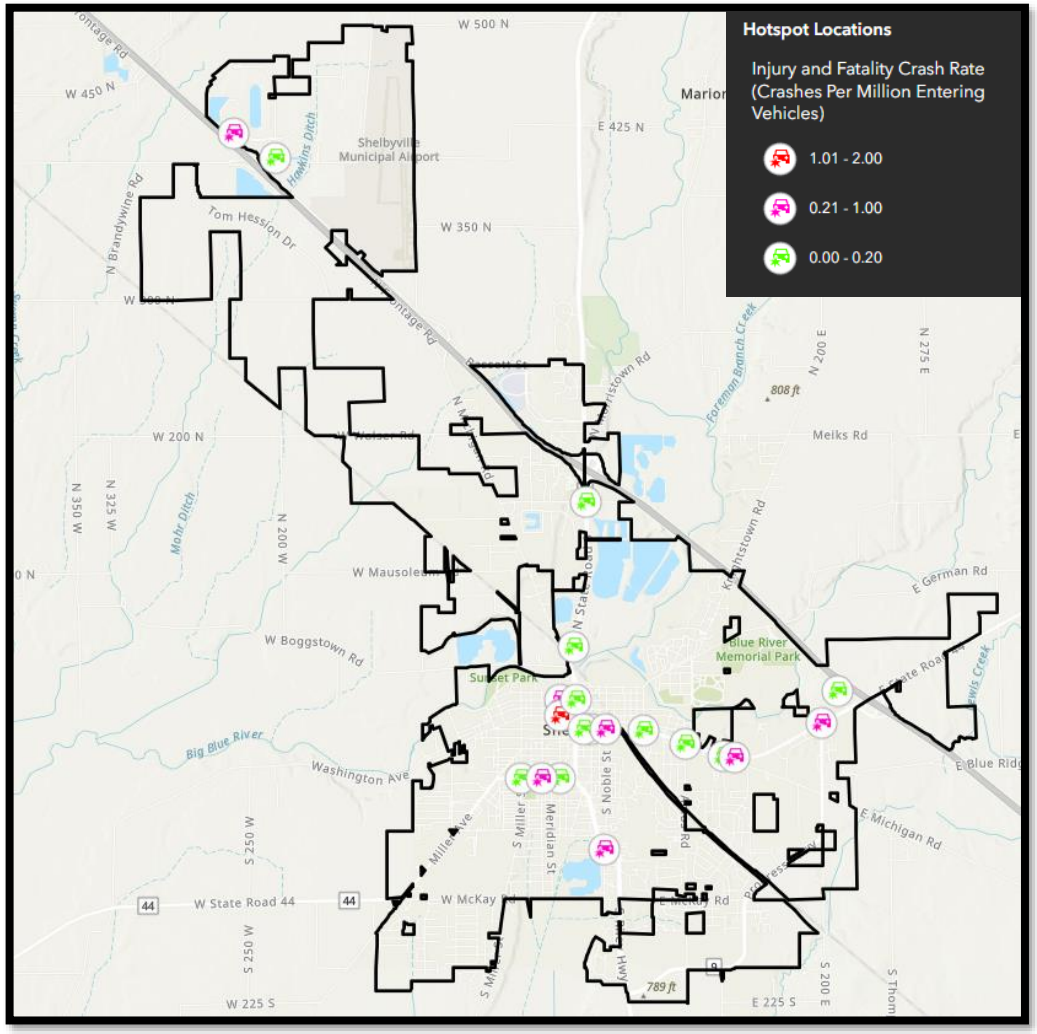


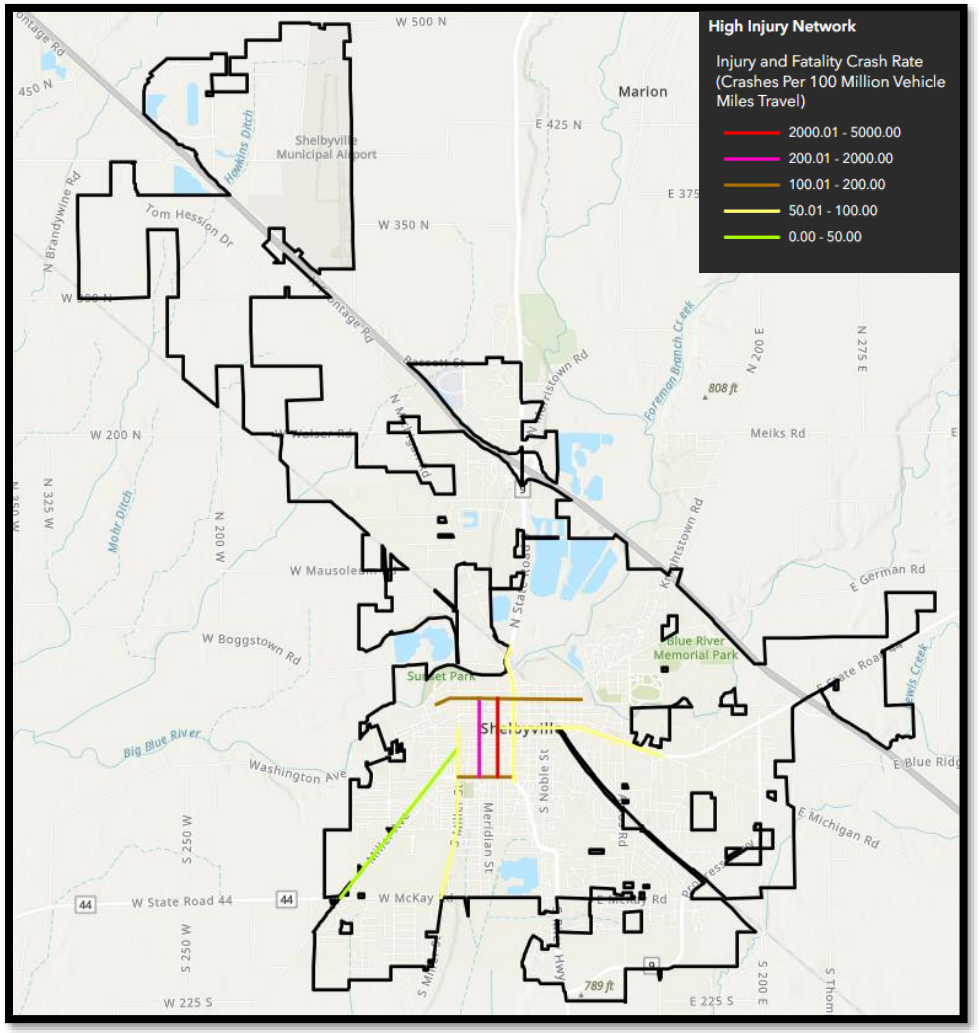






Safety Analysis – Step 4: Prioritize Hotspot Intersections and High Injury Network (HIN)





Equity Considerations

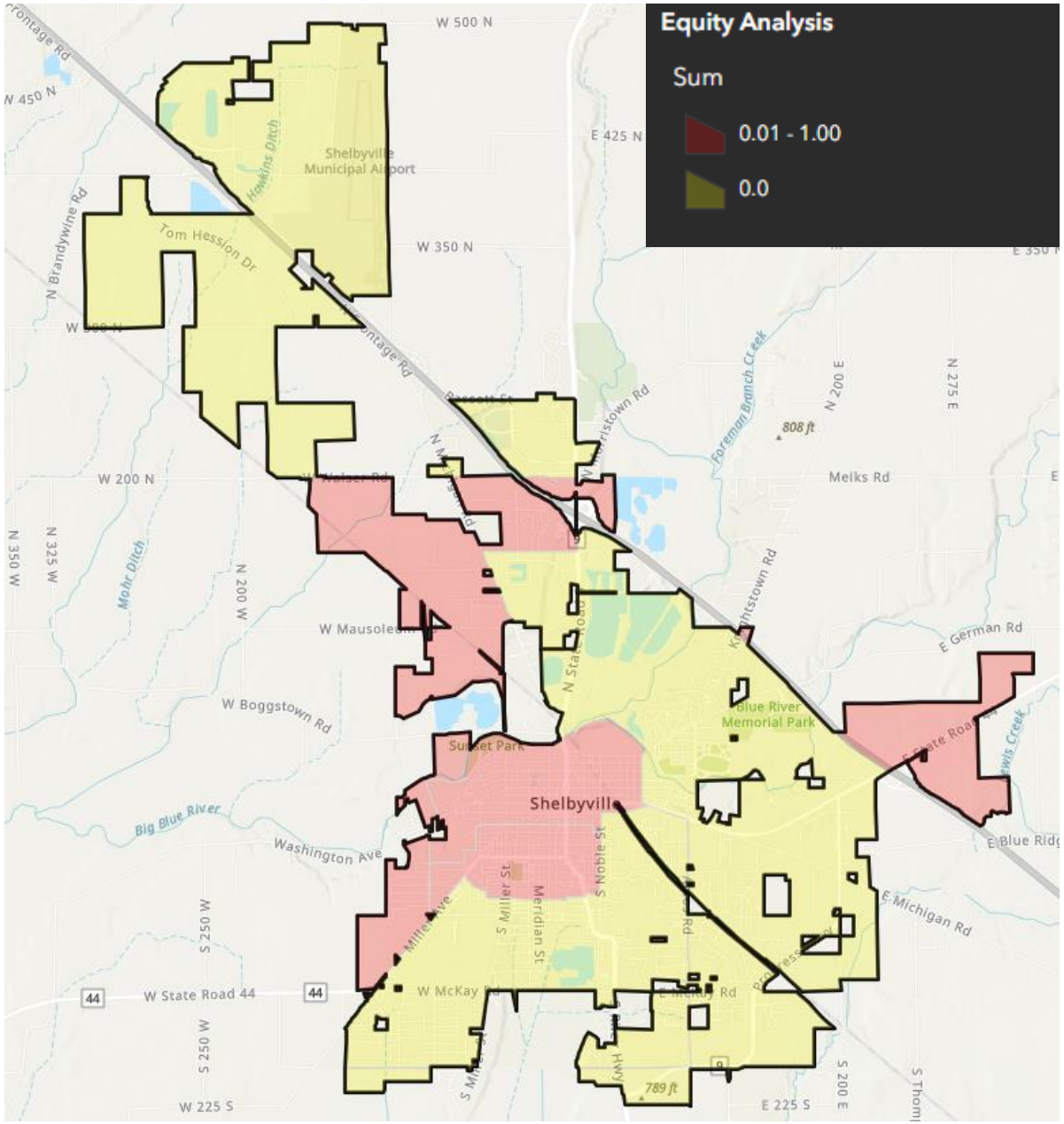
Equity Analysis Factors:

- Health Impacts
- Community Engagement and Representation
- Economic Impacts
- Climate Change Resilience
- Equitable Access to Opportunities

Environmental Justice Categories

- Climate Change
- Energy
- Health
- Housing
- Legacy Pollution
- Transportation
- Water and Wastewater
- Workforce Development

[Explore the map - Climate & Economic Justice Screening Tool (geoplatform.gov)]


Equity Analysis
Sum
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0.0
W 500 N
E 425 N
W 350 N
W 200 N
W 450 N
Shelbyville Municipal Airport
Hawkins Ditch
Tom Hession Dr
N Brandywine Rd
Frontage Rd
W Mausoleum Rd
W Boggstown Rd
Mohr Ditch
N 350 W
N 325 W
N 200 W
N 200 E
N 275 E
Foreman Branch Creek
808 ft
Melks Rd
E German Rd
Blue River Memorial Park
Sunset Park
Shelbyville
Big Blue River
Washington Ave
S Miller St
S Noble St
Meridian St
E Michigan Rd
W State Road 44
W McKay Rd
S 250 W
S 200 E
789 ft
W 225 S
E 225 S
Lewis Creek
44

Public Engagement

MISTLETOE MARKET

FACEBOOK ADVERTISEMENT

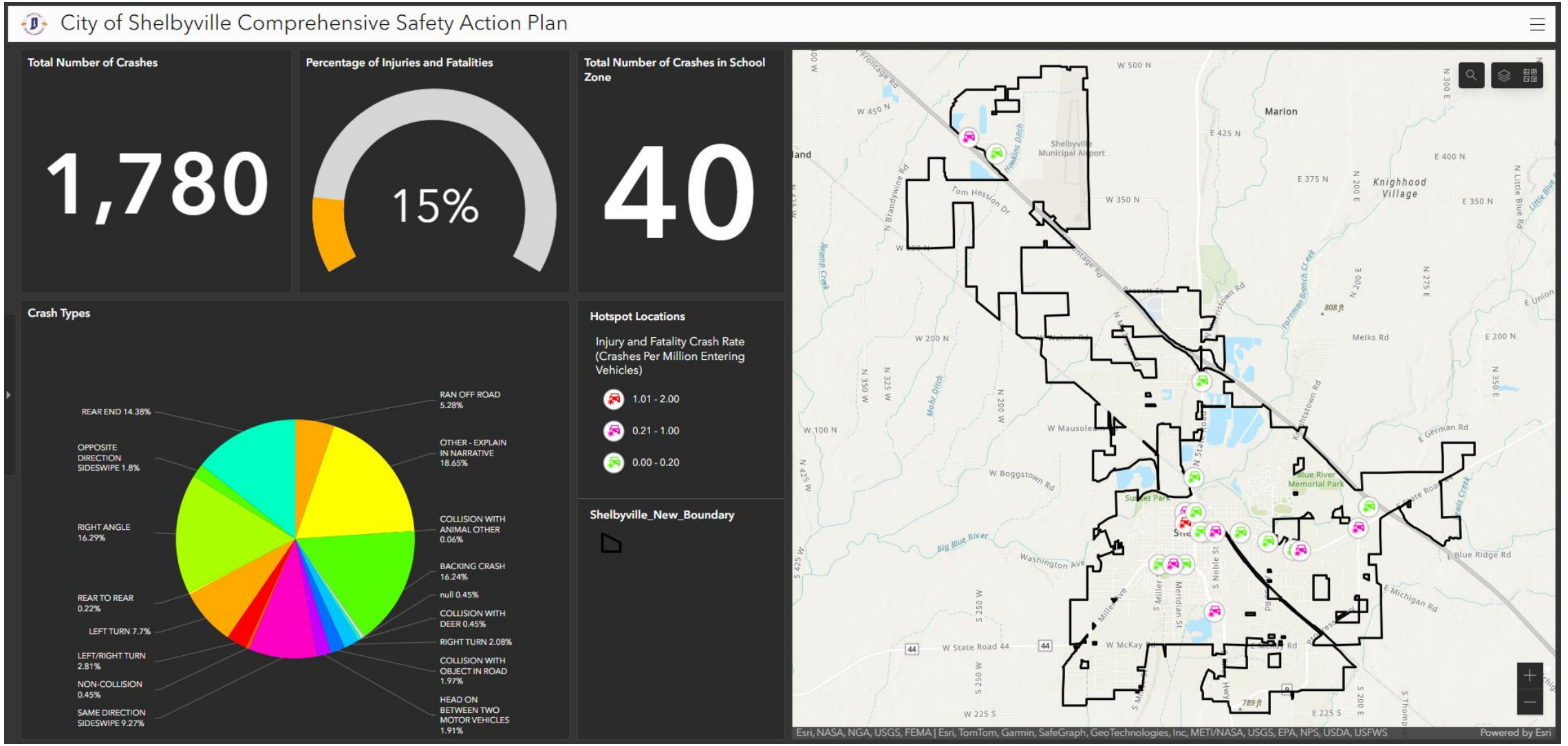
REACHED 4,618 PEOPLE, AND 450 CLICKED THE LINK TO THE SURVEY

929 SURVEY RESPONSES

Key Trends

- **Lack of Sidewalks and Unsafe Routes:** No sidewalks, deep ditches, and unsafe routes for pedestrians and cyclists on multiple roads, including West McKay Road, Amos Road, State Road 9, and State Road 44.
- **Visibility and Speed Concerns:** Poor visibility and concerns about speed were identified around the curve on State Road 9 and South Noble Street.
- **Traffic Violations:** Issues with people running stop signs and red traffic lights in multiple intersections, including State Route 9 and McKay Road and West McKay Road and Miller Avenue.
- **Turn Lane and Traffic Flow Issues:** Narrow turning lanes and poorly timed lights were mentioned for Miller Road, Public Square, Mechanic Street, and turning lanes on Broadway and State Road 9.
- **Dangerous Intersections:** The intersection on South Noble Street, State Road 9, and Culbertson was described as unsafe in the city due to visibility issues.

City of Shelbyville CSAP Dashboard



Next Steps:

Project Selection and Prioritization

Criteria	Preliminary Weightage
Vulnerable Road User (Pedestrian/Bicyclist) Fatality and Injury Crash Locations	30%
Project Location (High Injury Network or Hotspot Location)	30%
Underserved Communities	20%
Public Engagement	20%

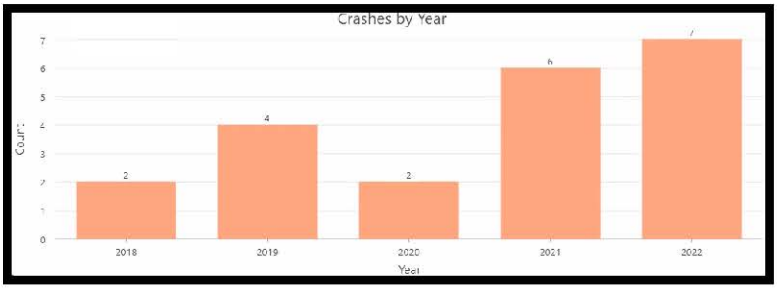
Thank You!

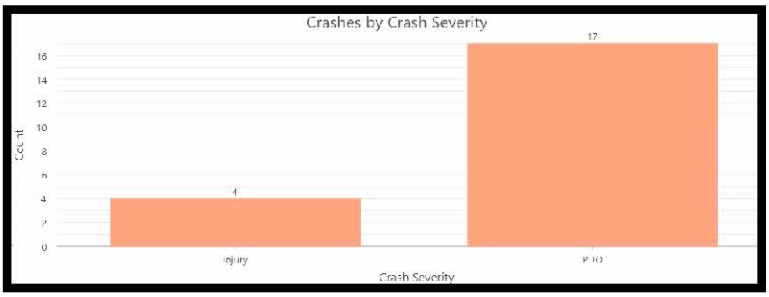
APPENDIX C: SAFETY ANALYSIS

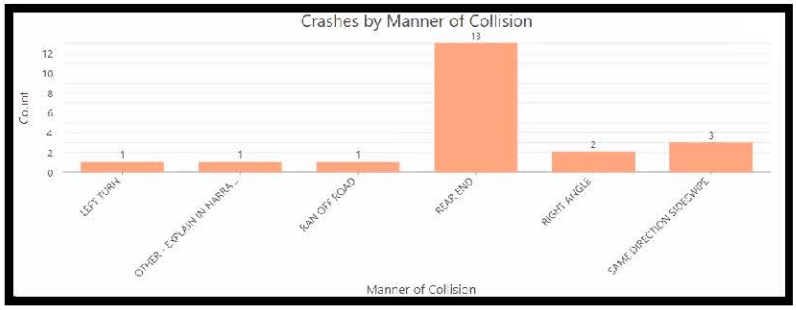
Hotspot Locations Summary Report

Intersection Name	Total Crashes	Injury Crashes	Fatality Crashes
N State Road 9 and Knauf Drive	21	4	0
E Broadway Street and E Hendricks Street	29	5	0
E State Road 44 and Eastern Avenue	11	2	0
S Noble Street and S Harrison Street	12	3	0
E Broadway Street and S Pike Street	18	5	0
S Miller Street and Colescott Street	16	3	0
Tompkins Street and W Mechanic Street	22	4	0
Tompkins Street and W Washington Street	8	5	0
E Mechanic Street and N Harrison Street	26	5	0
E Broadway Street and Worth Street	10	3	0
E State Road 44 and Progress Road	110	19	0
S Noble Street and E Broadway Street	32	8	0
E State Road 44 and Amos Road	41	9	0
E Michigan Road and Progress Road	19	6	1
Colescott Street and S West Street	13	5	0
Colescott Street and S Tompkins Street	9	3	0
N Michigan Road and Horsehoe Indianapolis	18	3	0
W County Road 400 N and N Michigan Road	23	4	0
Lee Blvd. and Progress Pkwy	6	3	0
N State Road 9 and E Rampart Street	56	6	0

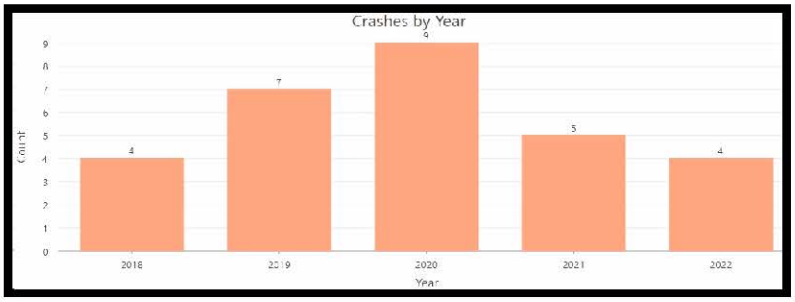
N State Road 9 and Knauf Drive

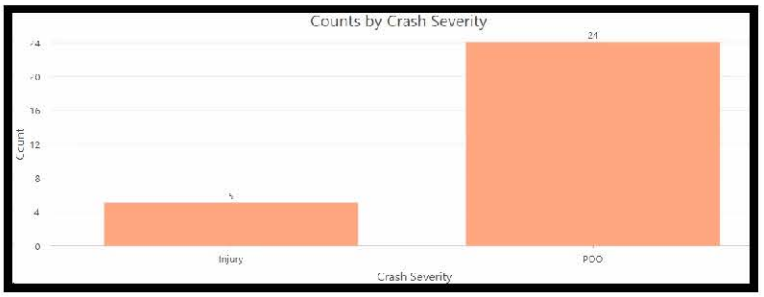


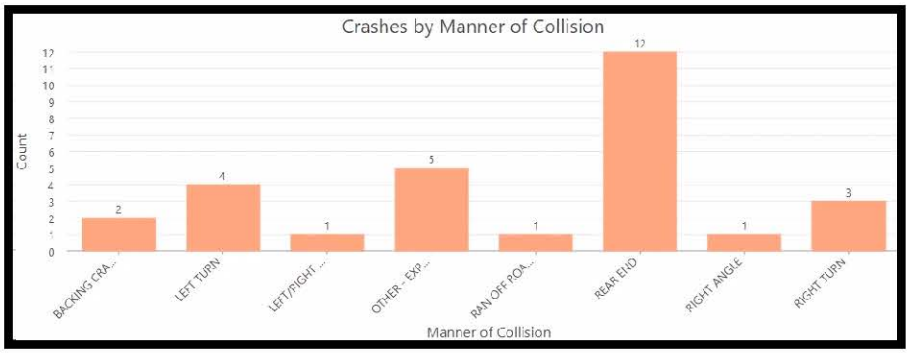




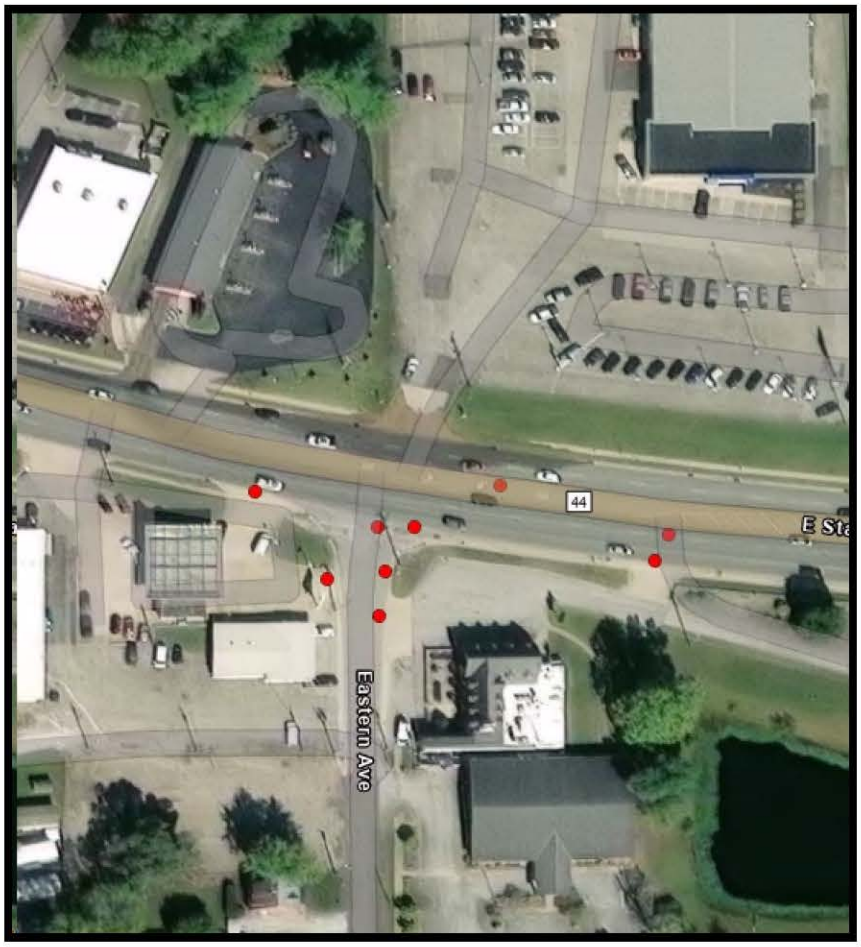
E Broadway Street and E Hendricks Street

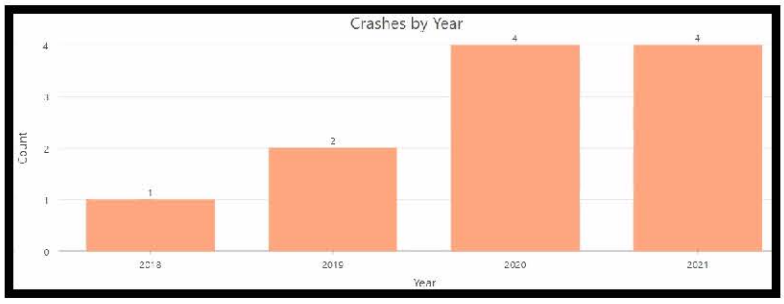


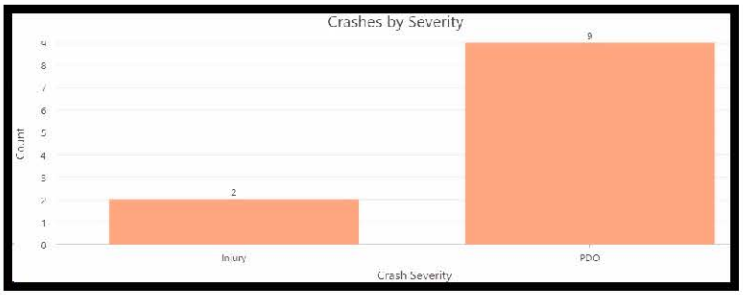


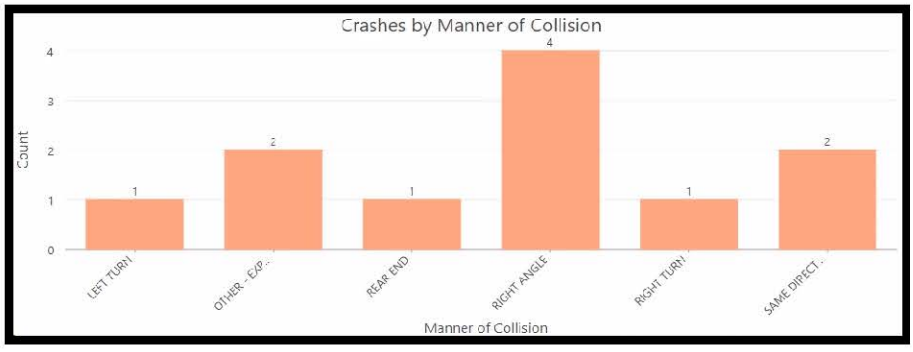


E State Road 44 and Eastern Avenue

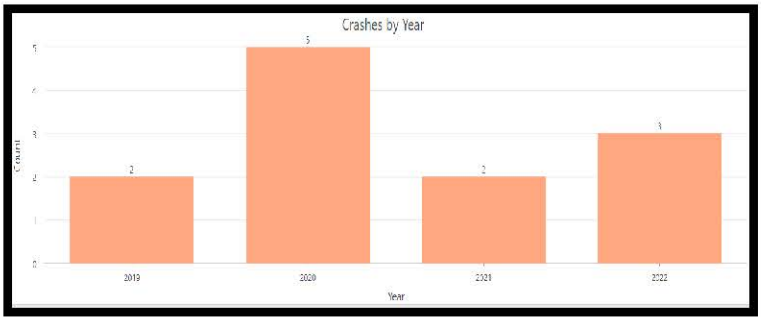


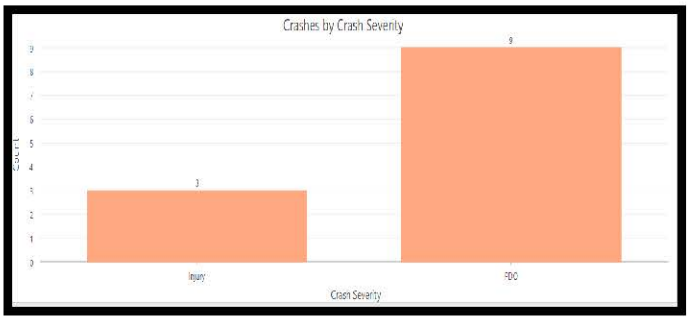


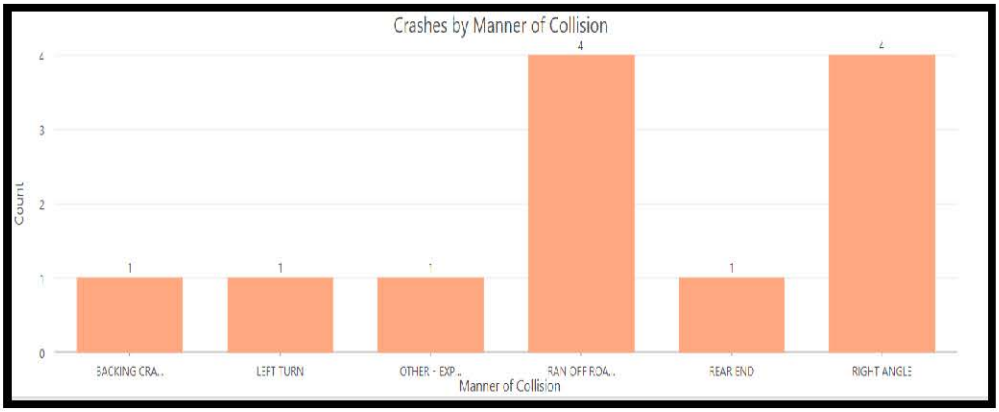




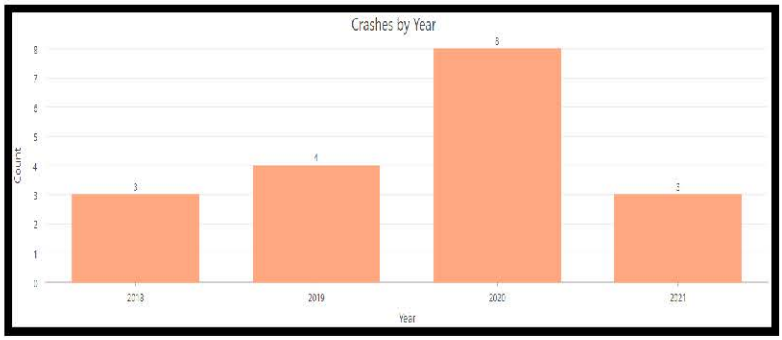
S Noble Street and S Harrison Street

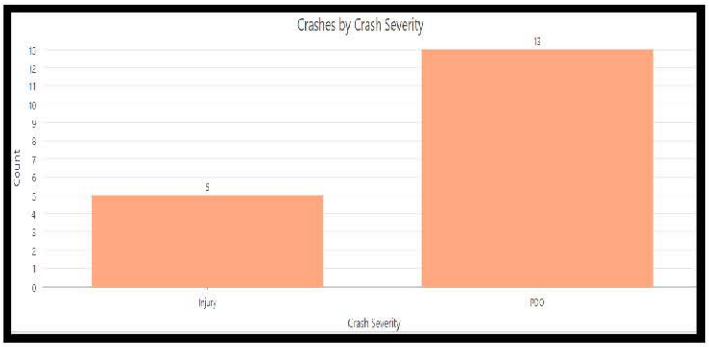


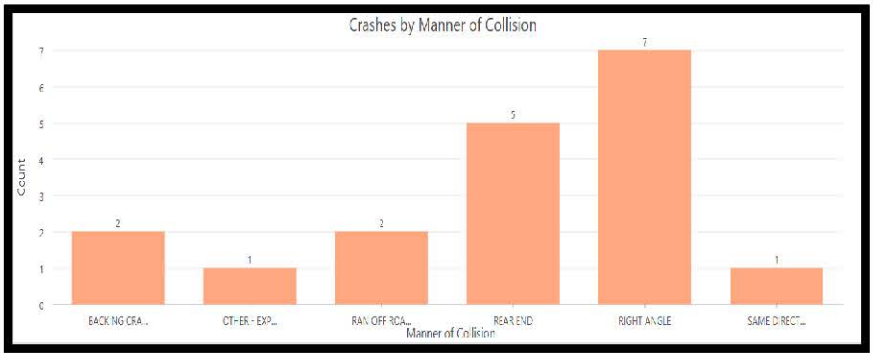




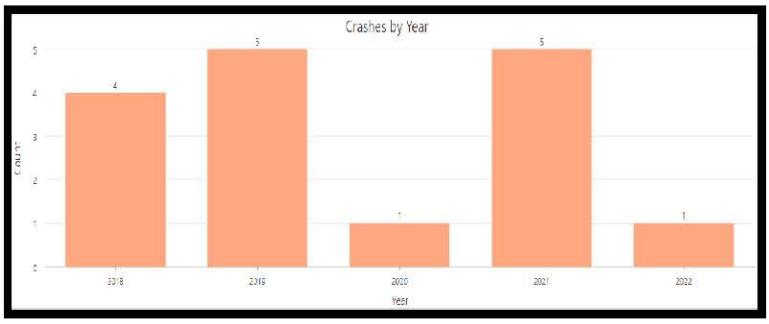
E Broadway Street and S Pike Street

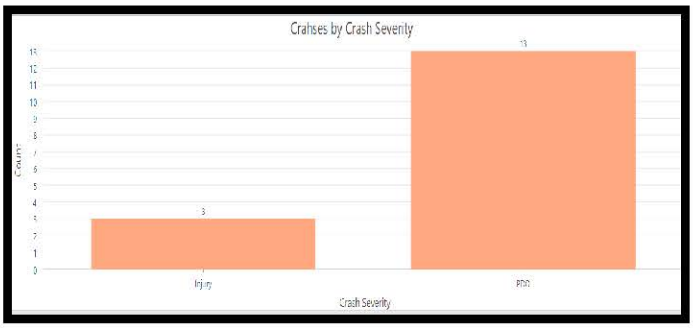


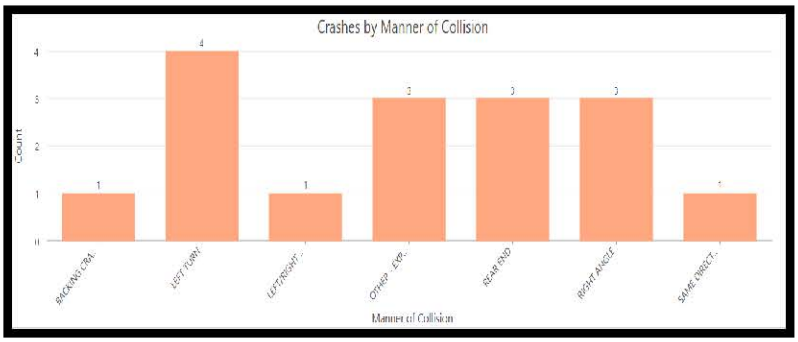




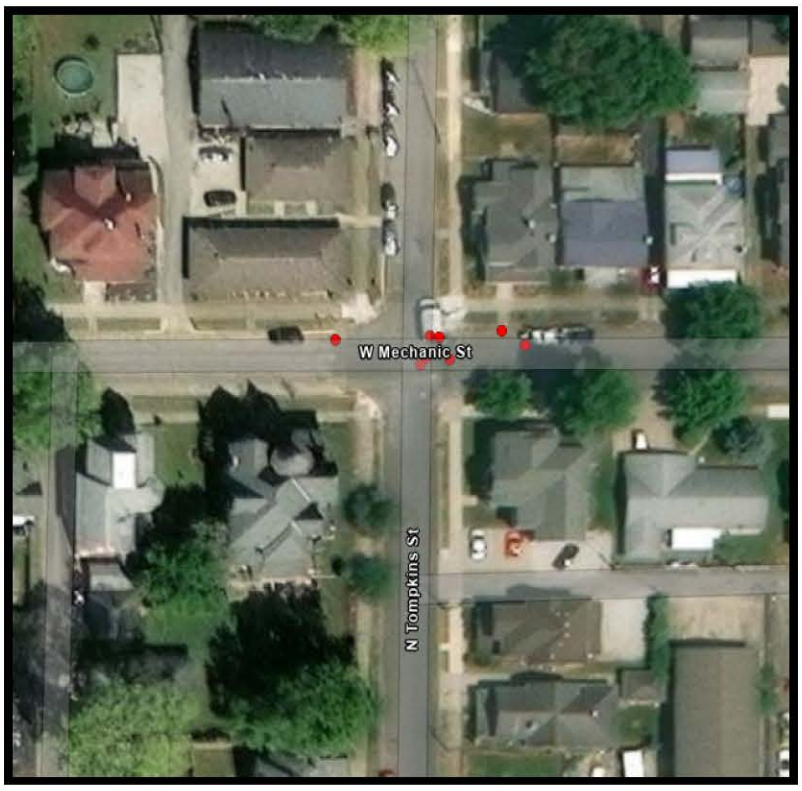
S Miller Street and Colescott Street

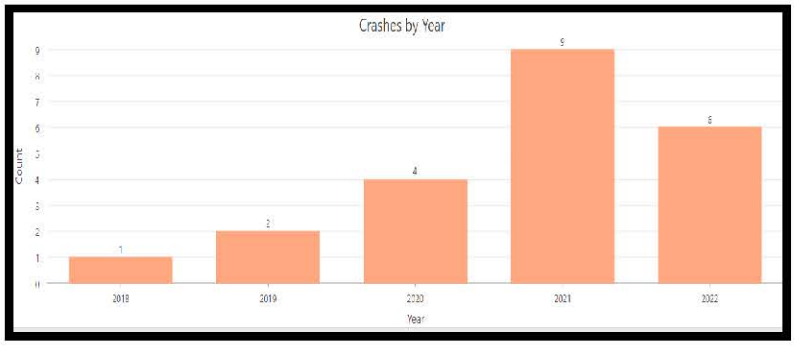


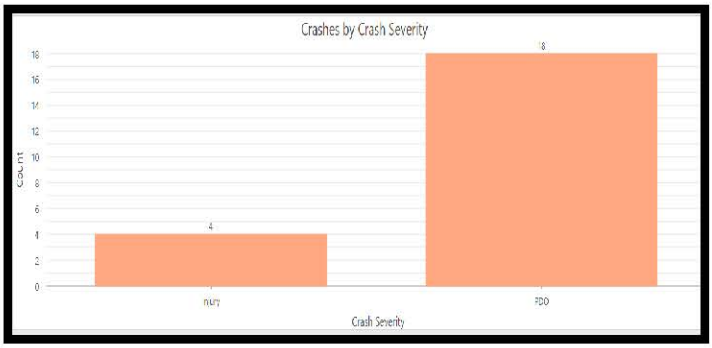


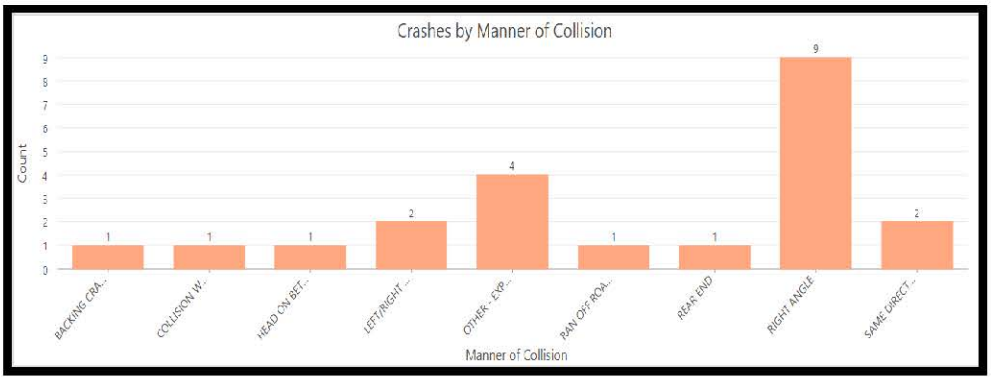


Tompkins Street & W Mechanics Street

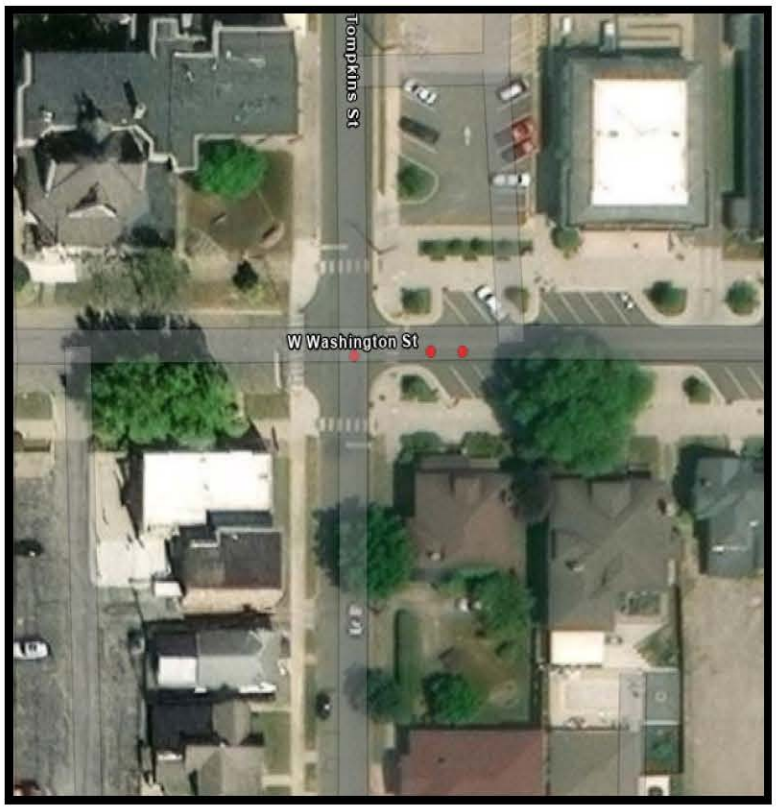


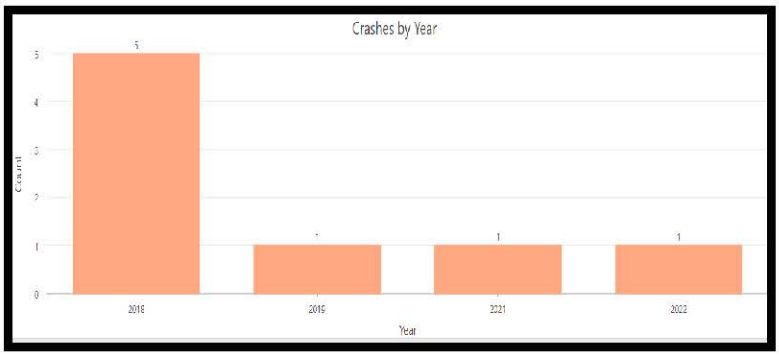


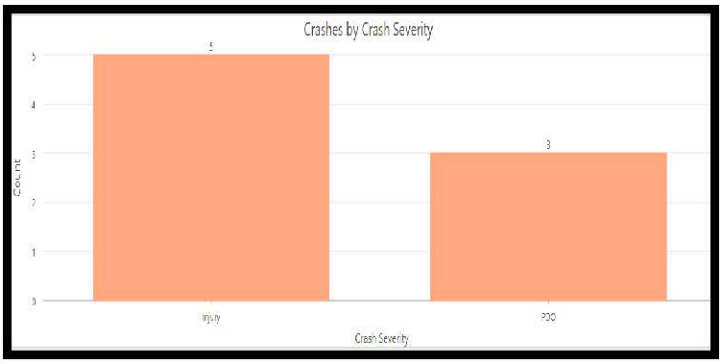


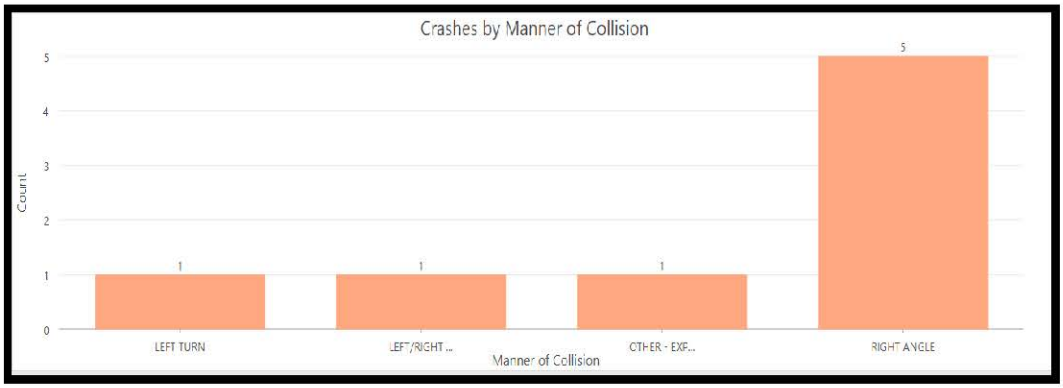


Tompkins Street and W Washington Street

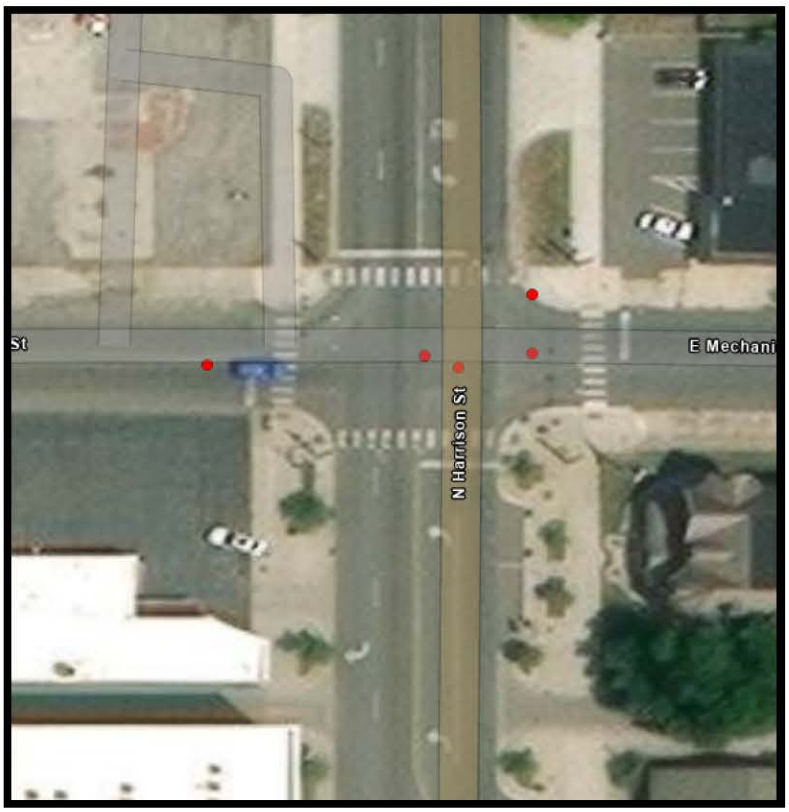


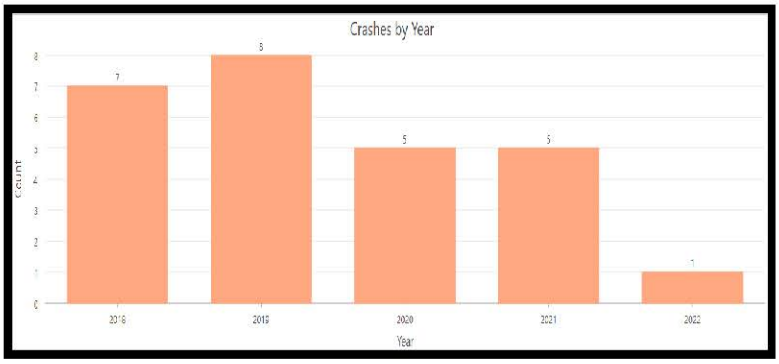


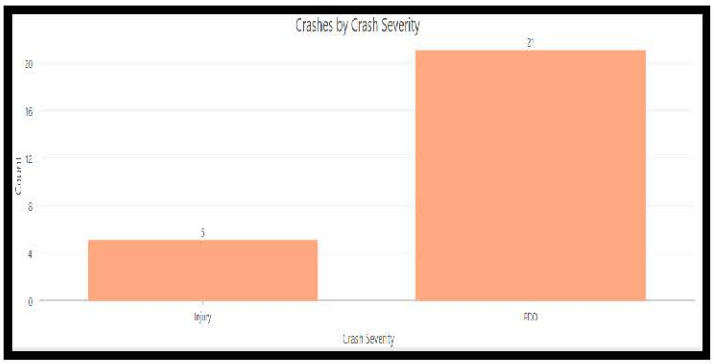


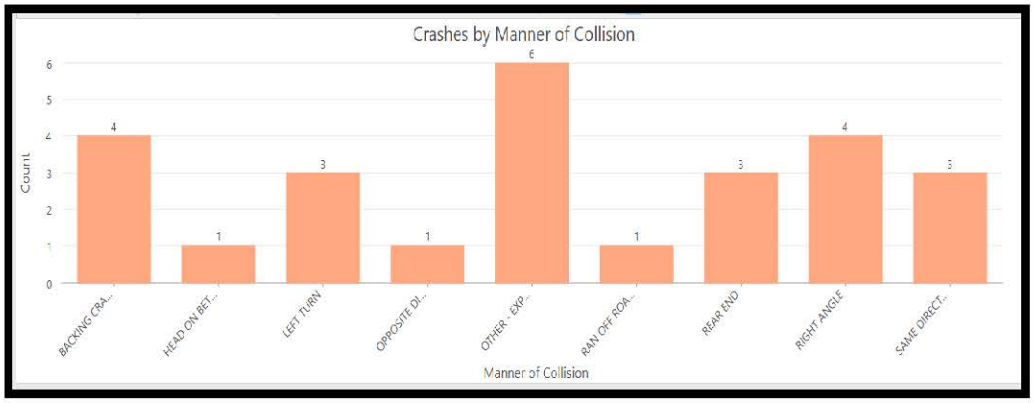


E Mechanic Street and N Harrison Street

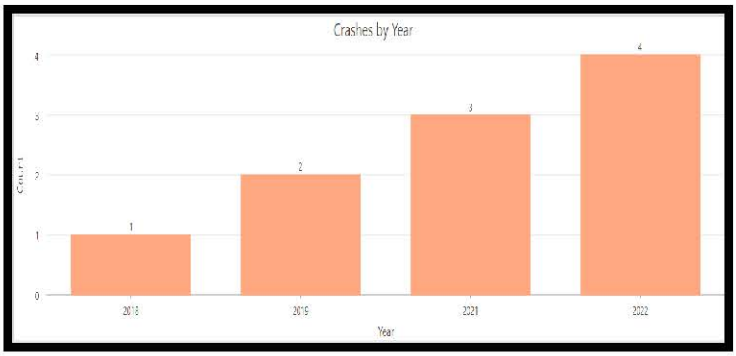


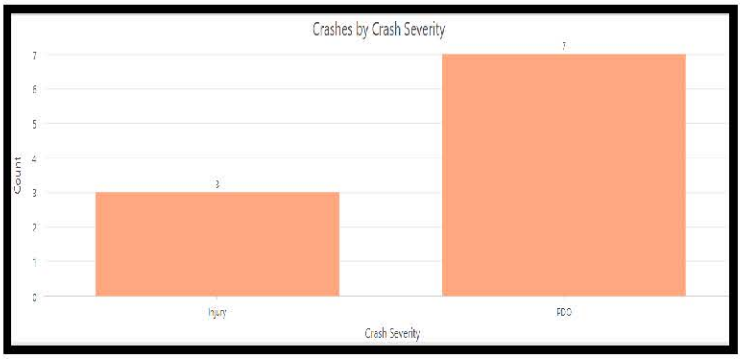


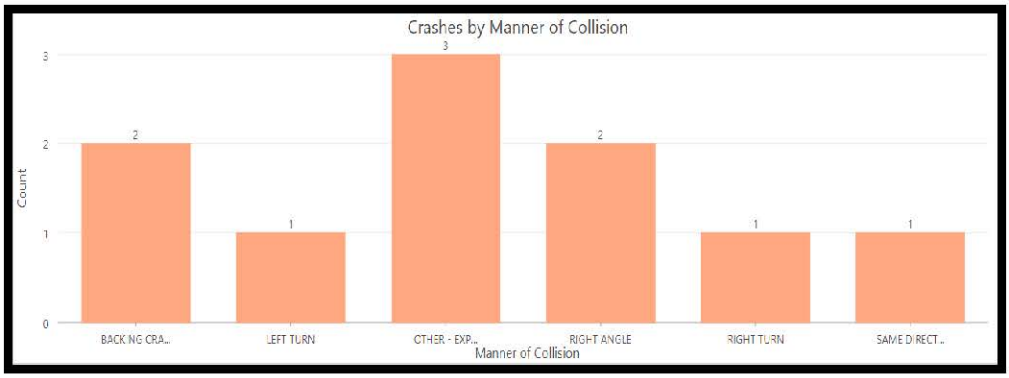




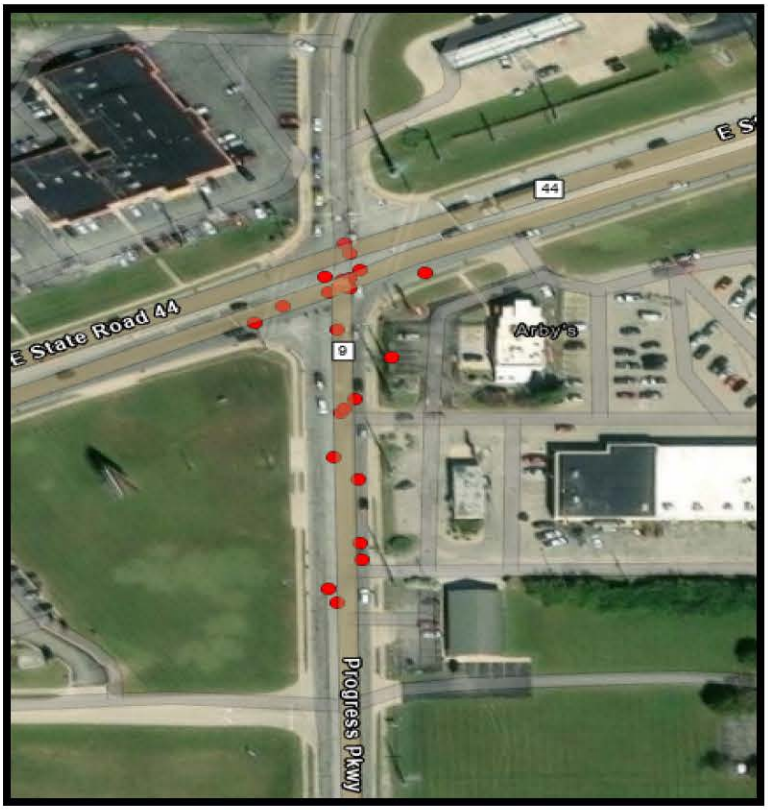
E Broadway Street and Worth Street

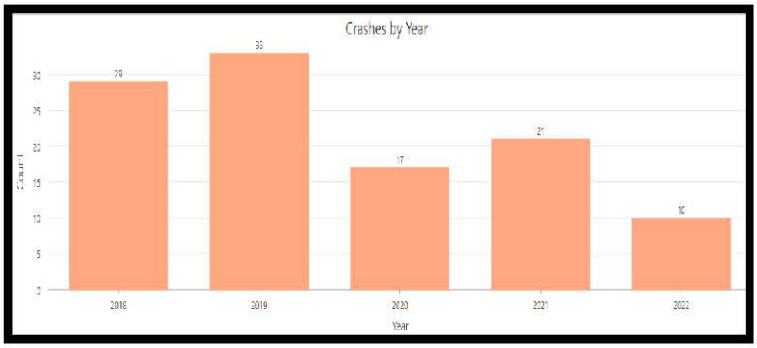


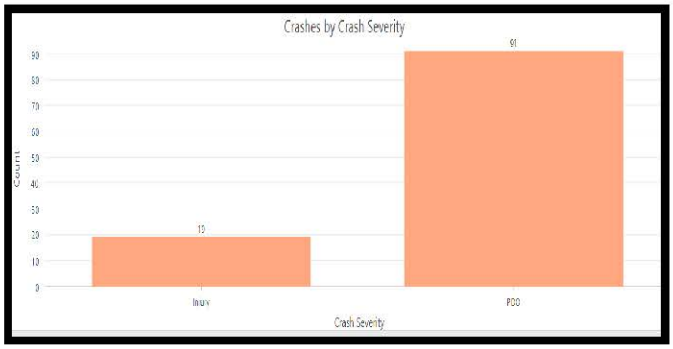


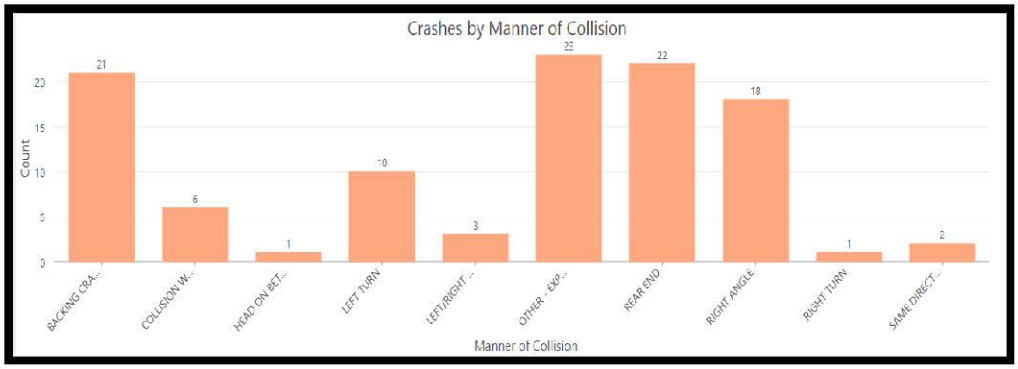


E State Road 44 and Progress Road

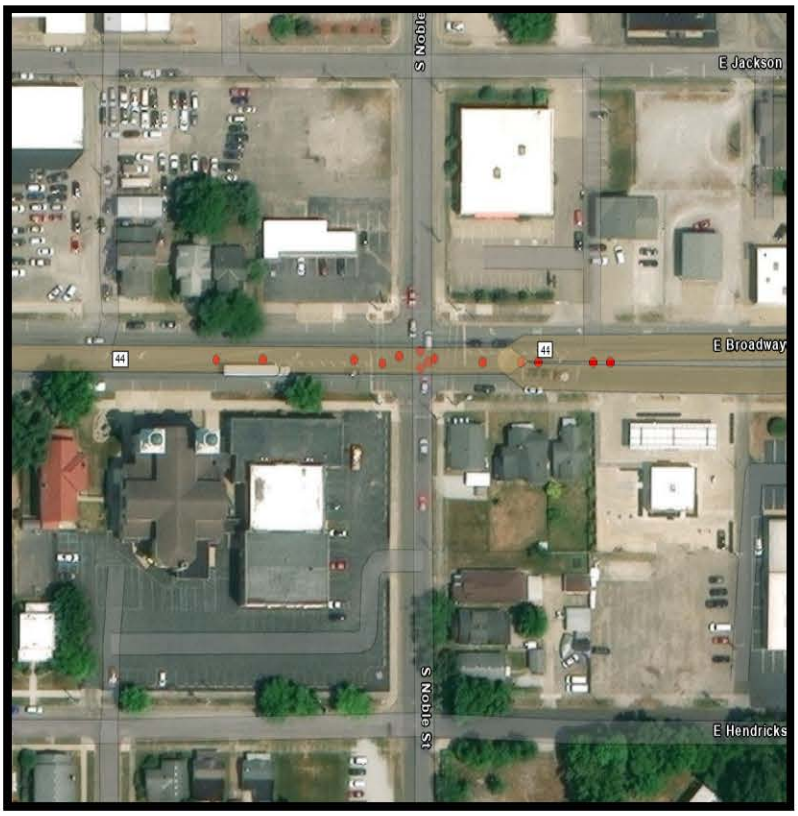


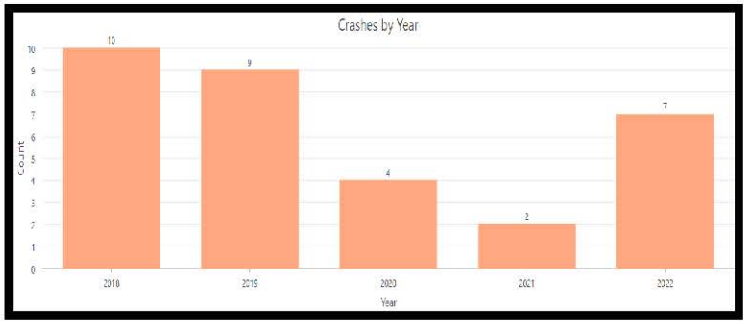


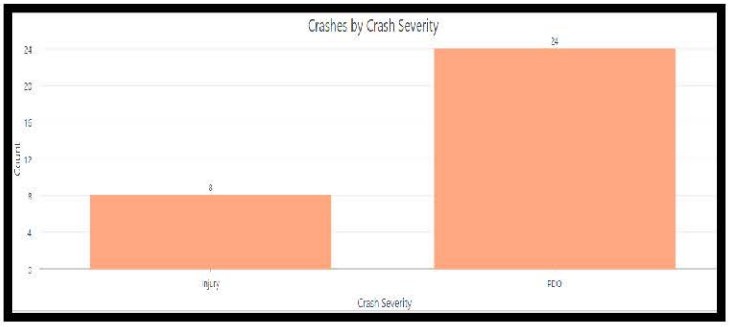


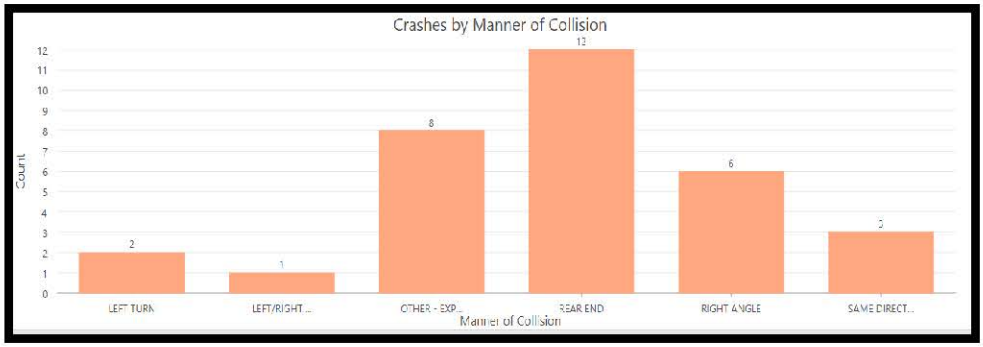


S Noble Street and E Broadway Street

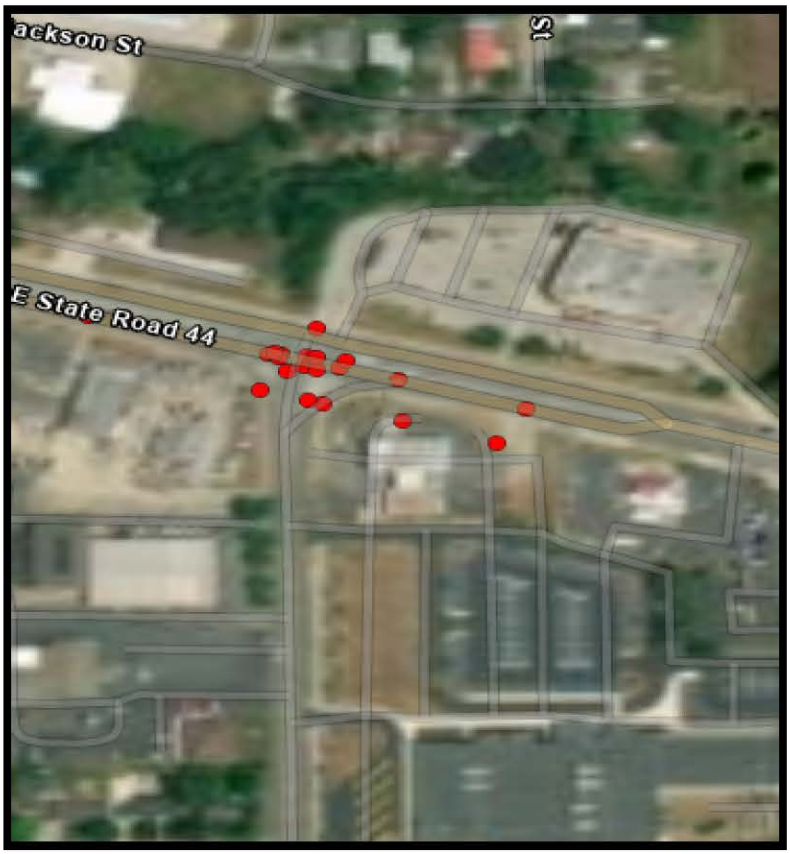


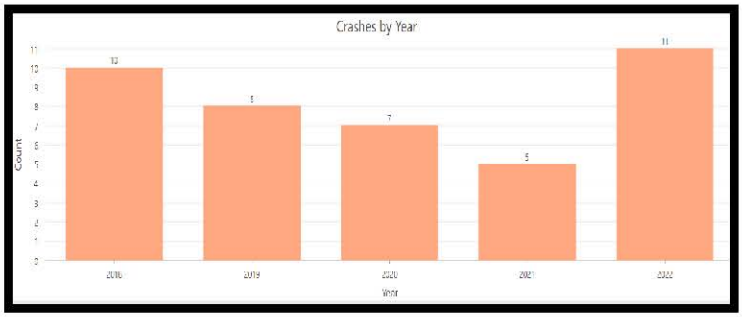


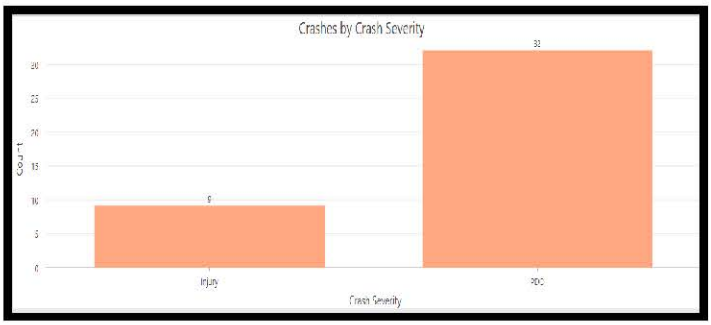


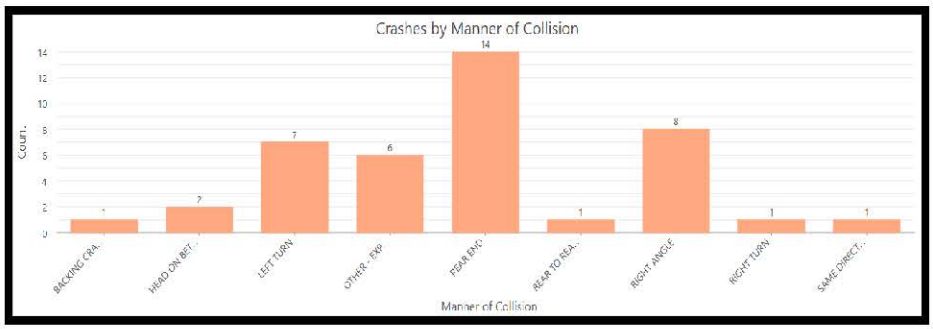


E State Road 44 and Amos Road

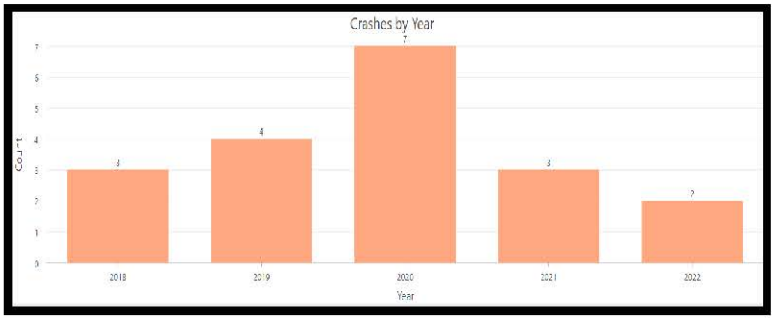


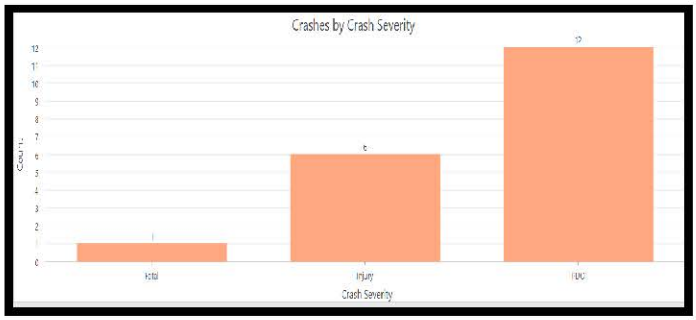


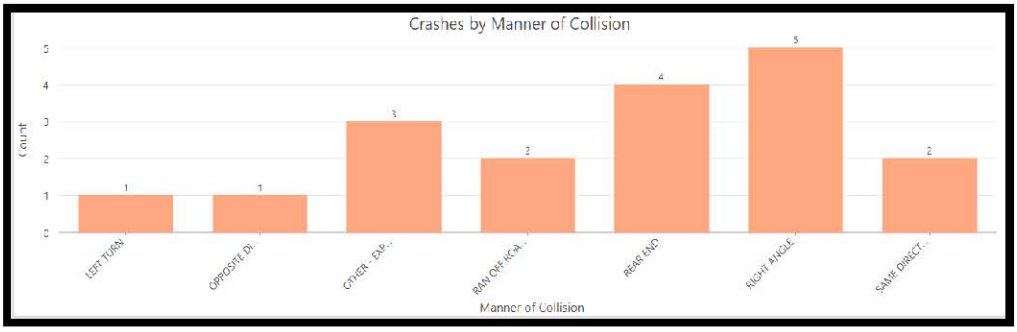




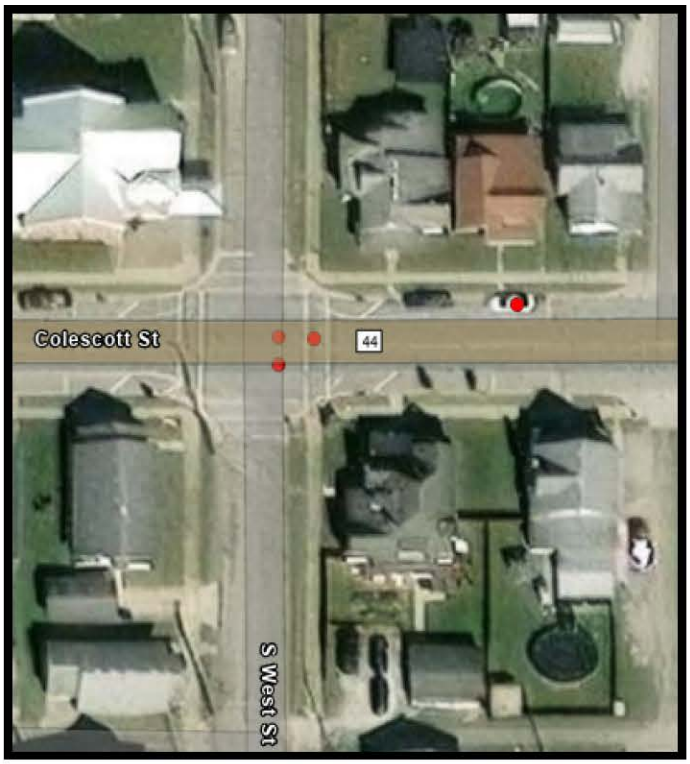
E Michigan Road and Progress Road

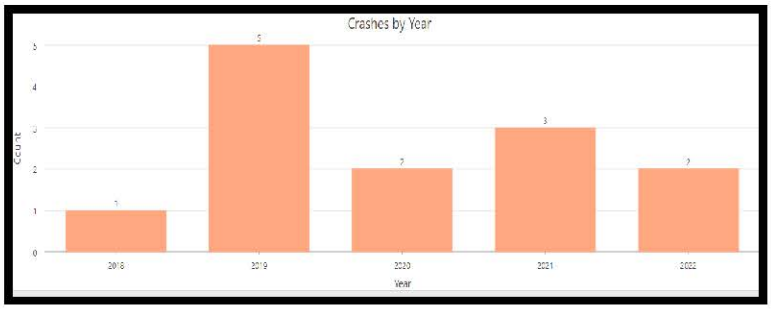


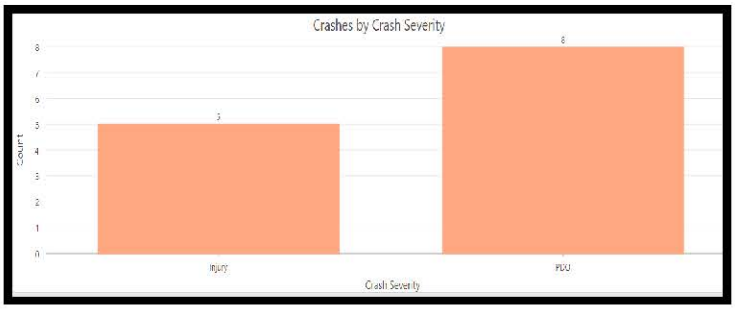


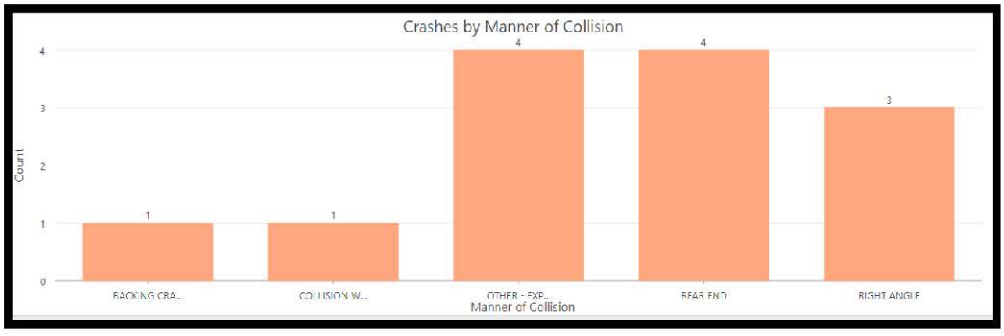


Colescott Street and S West Street

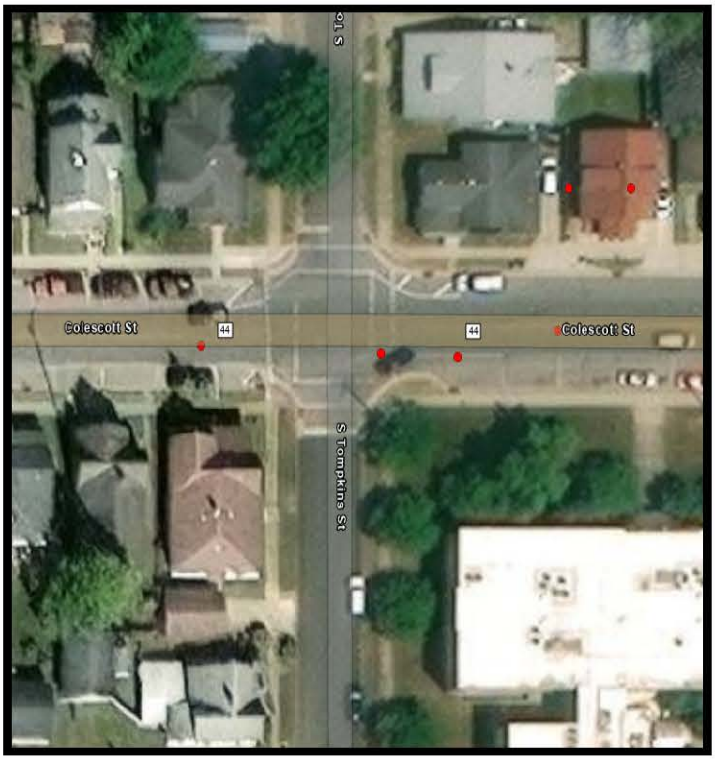


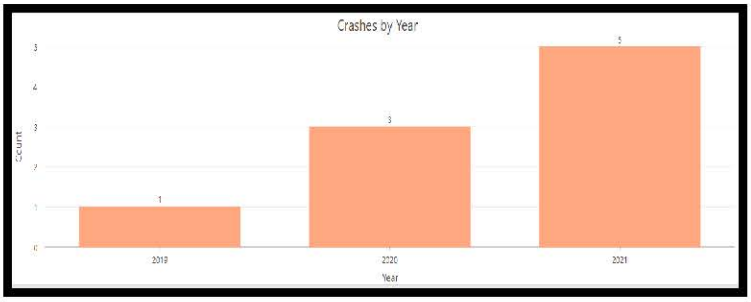


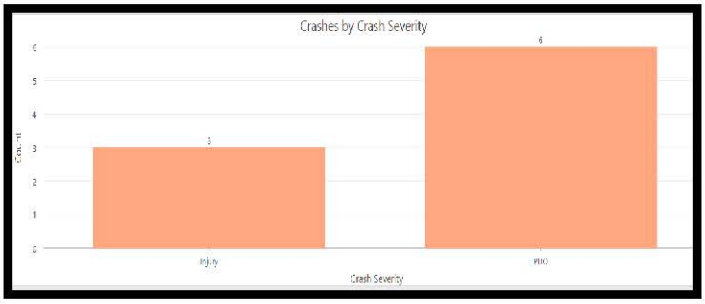


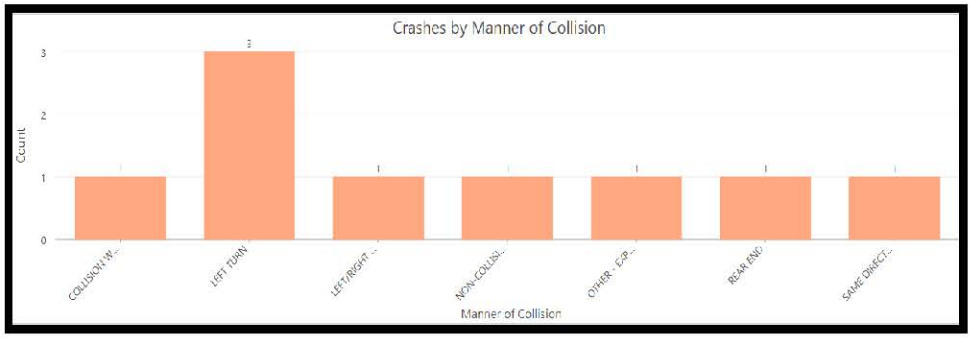


Colescott Street & S Tompkins Street

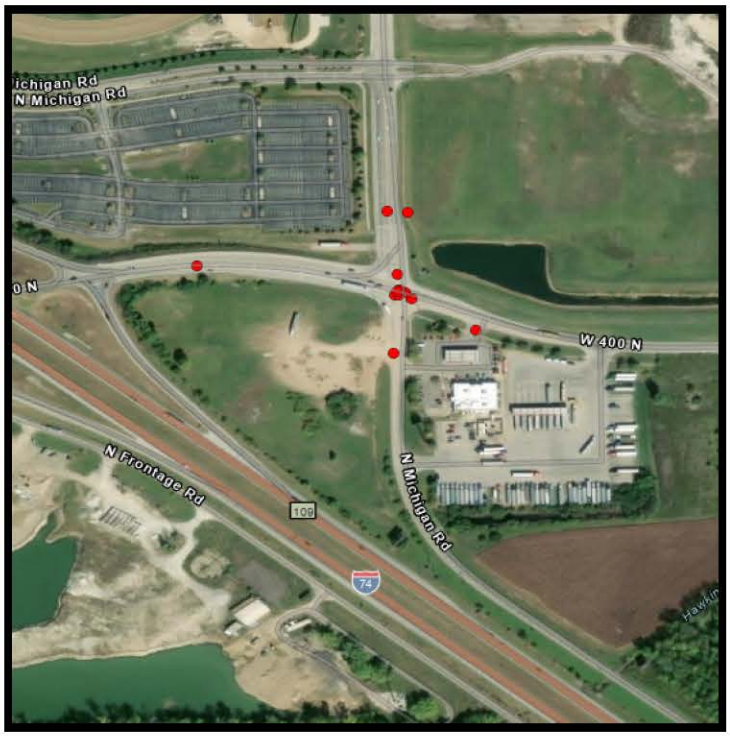


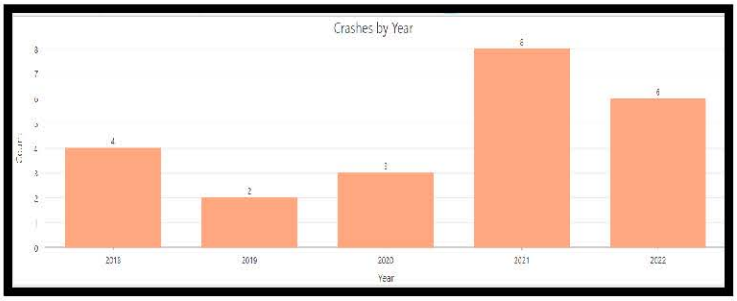


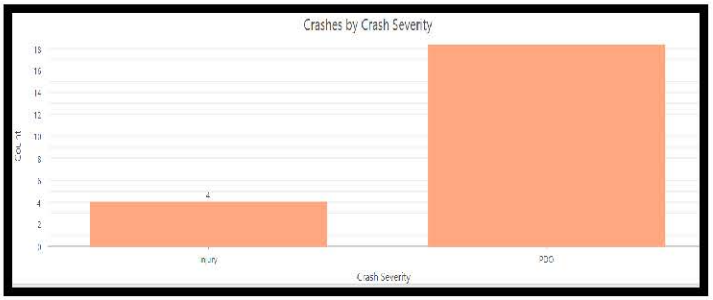


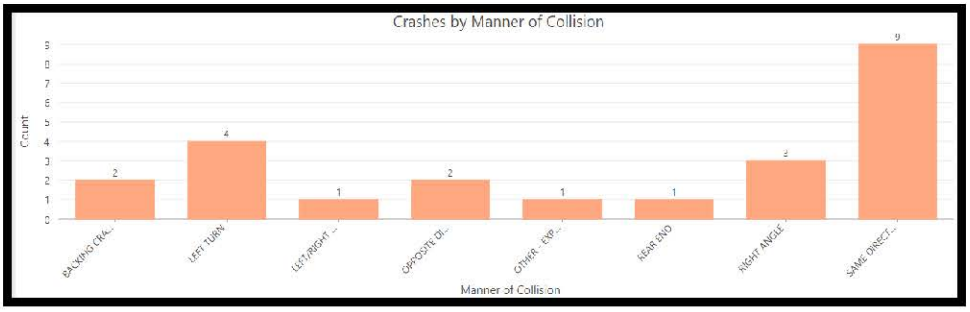


W County Road 400 N and N Michigan Road

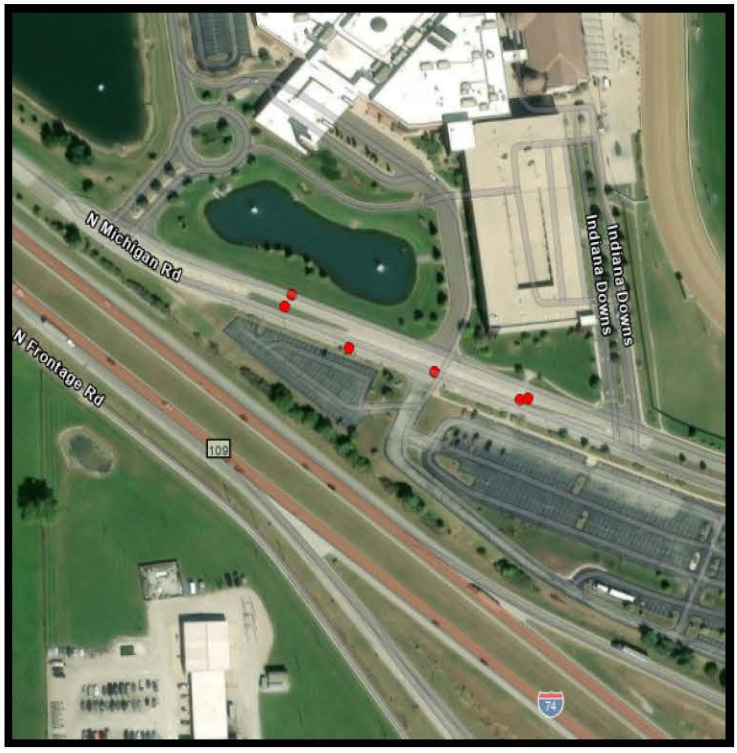


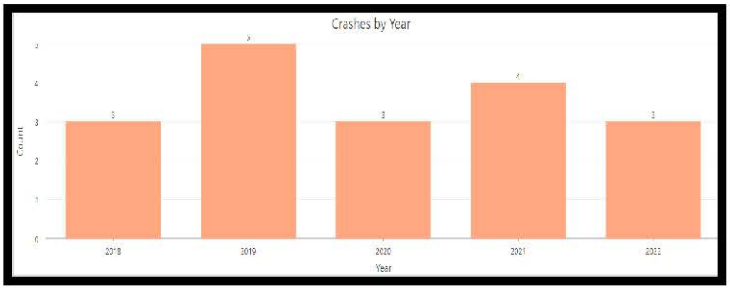


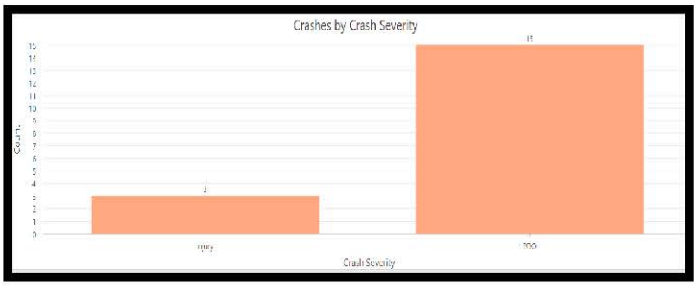


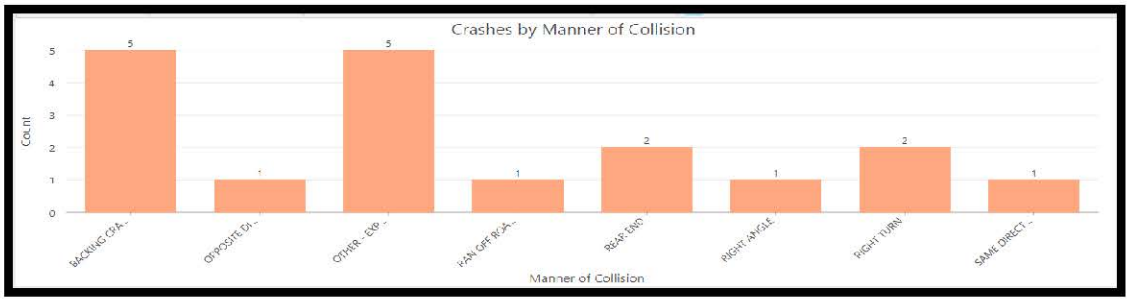


N Michigan Road and Horsehoe Indianapolis Access

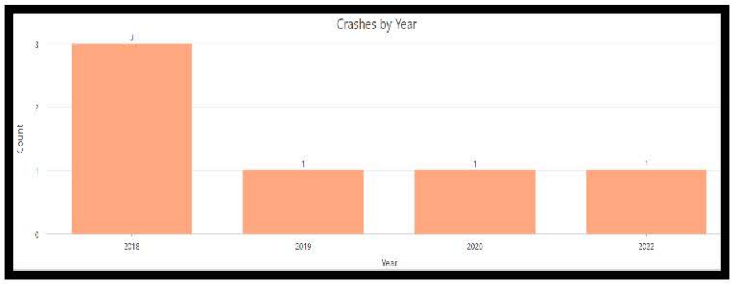


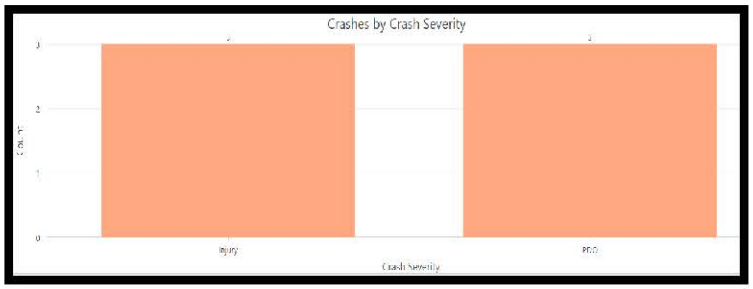


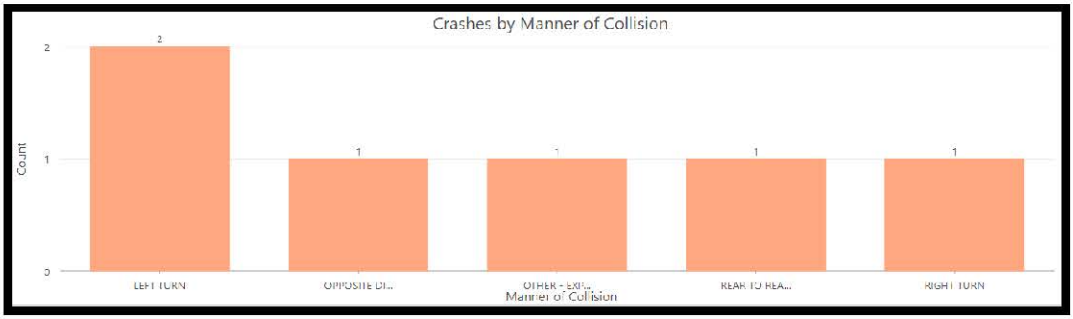




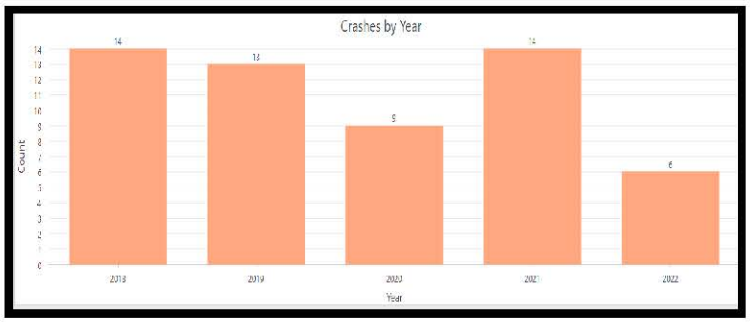
Lee Blvd. and Progress Pkwy

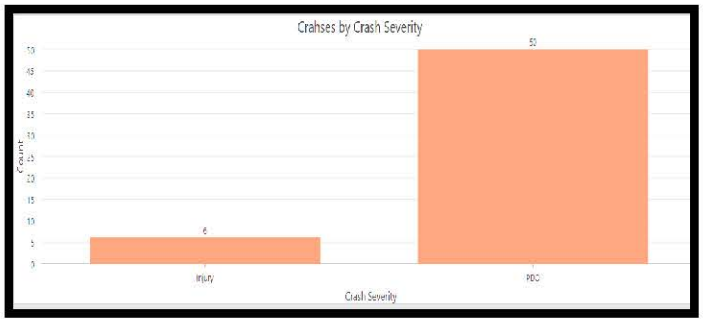


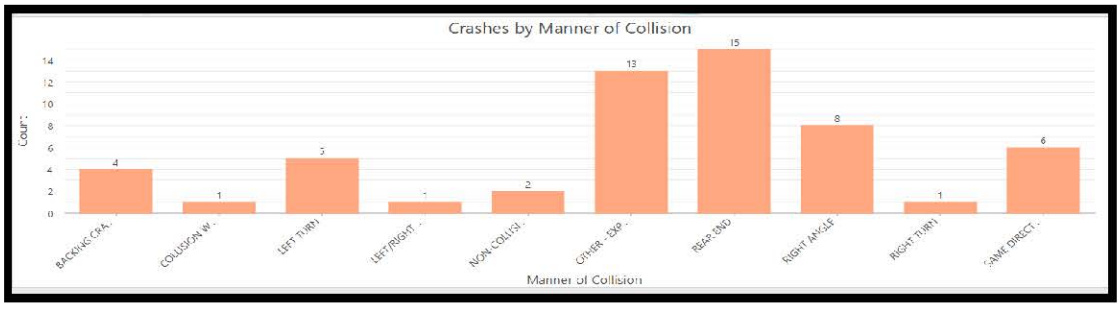




N State Road 9 and E Rampart Street





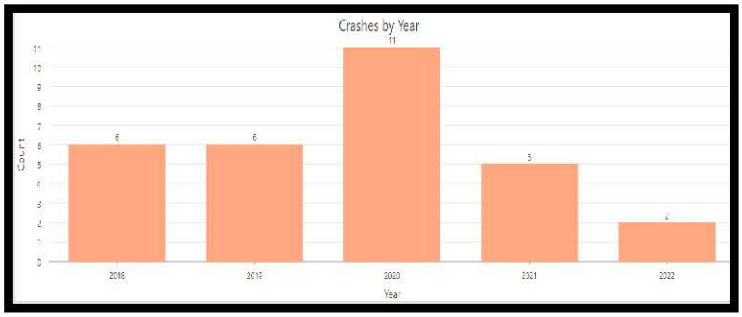


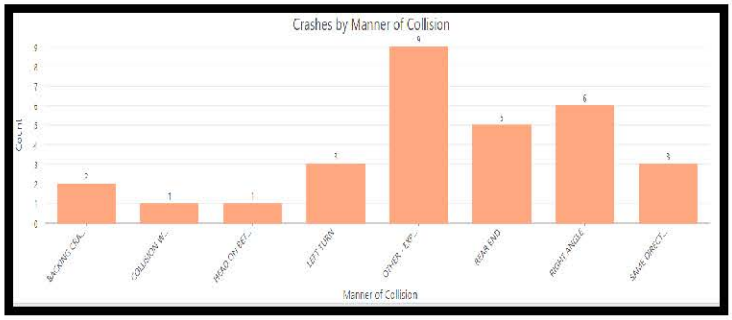
High Injury Network (HIN) Summary Report

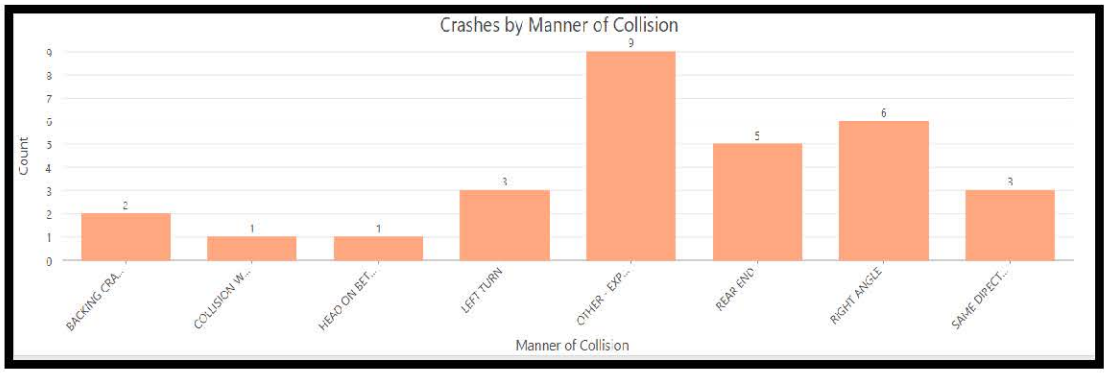
Segment Name	Total Crashes	Injury Crashes	Fatality Crashes
Miller Avenue From W Taylor	50	7	0
S Miller Avenue - From W Broadway	64	7	0
Colescott Street - From S Miller	52	12	0
S West Street - From W Mechanic	30	9	0
N State Road 9 - From Knauf Drive	175	29	0
Mechanic Street - From Conrey	76	13	0
E Broadway Street - From	235	45	0
Tompkins Street - From W Mechanic	56	16	0

AMERICAN STRUCTUREPOINT INC.

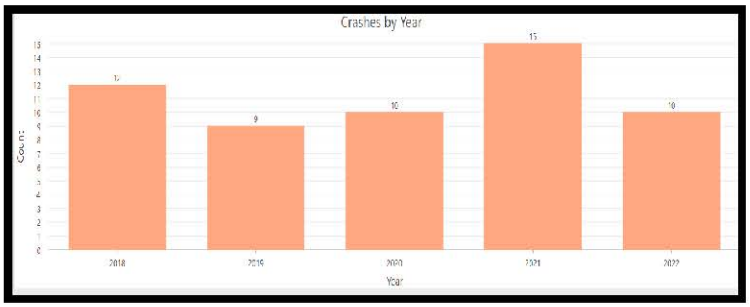
S West Street - From W Mechanic to Colescott Street

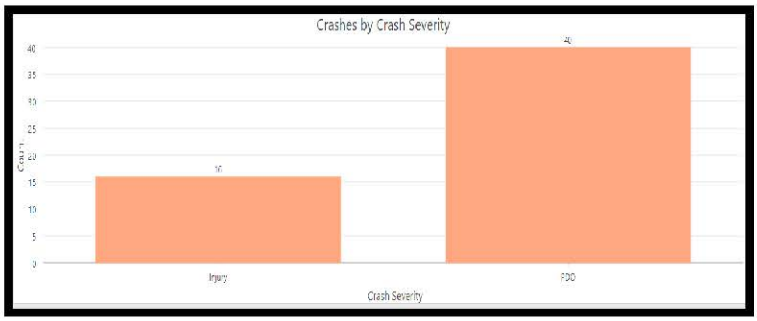


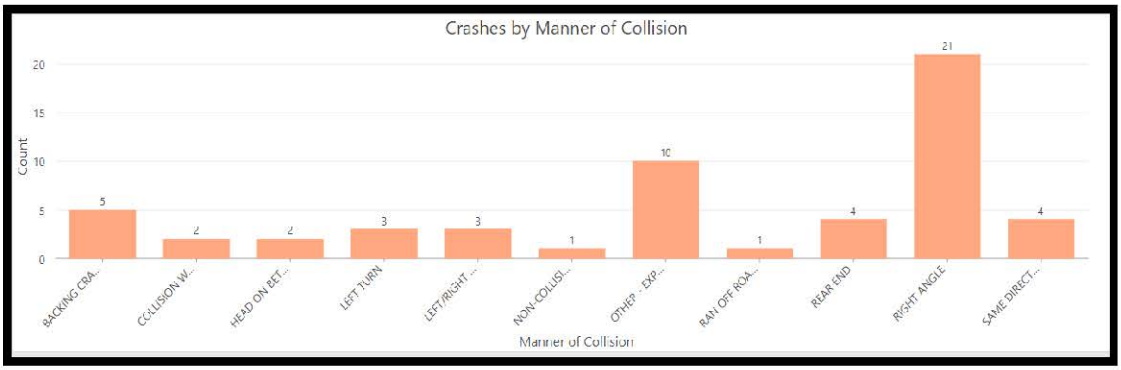




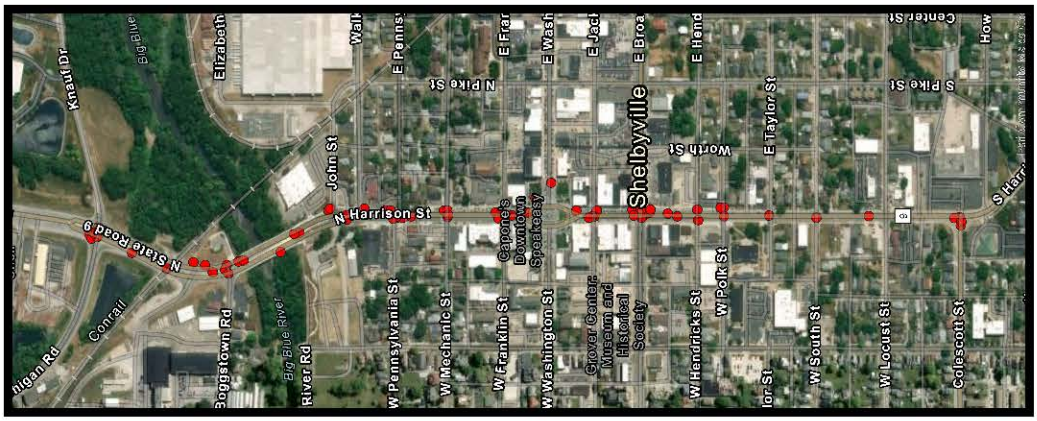
Tompkins Street - From W Mechanic to Colescott Street

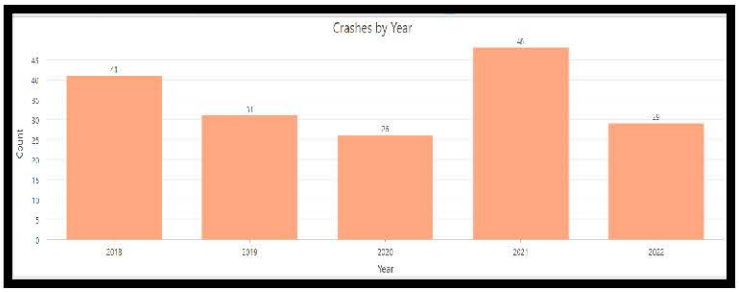


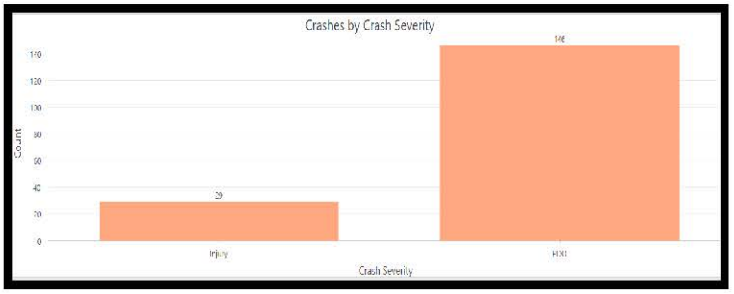


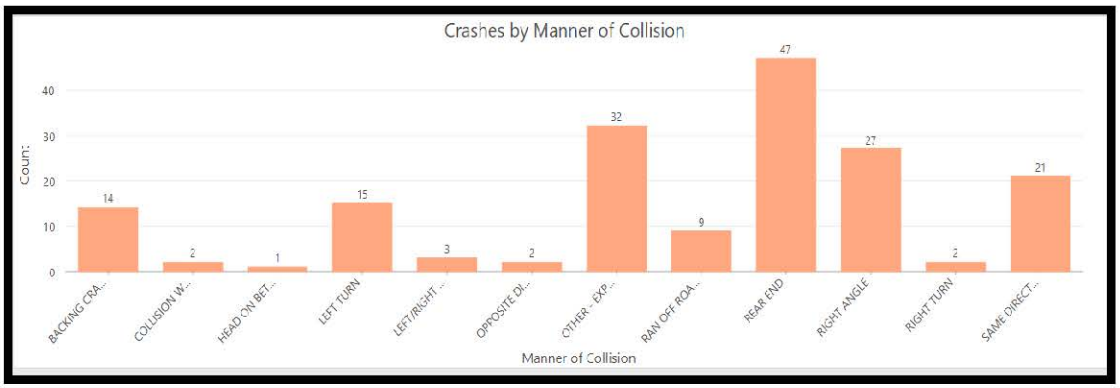


N State Road 9 - From Knauf Drive to Howard Street

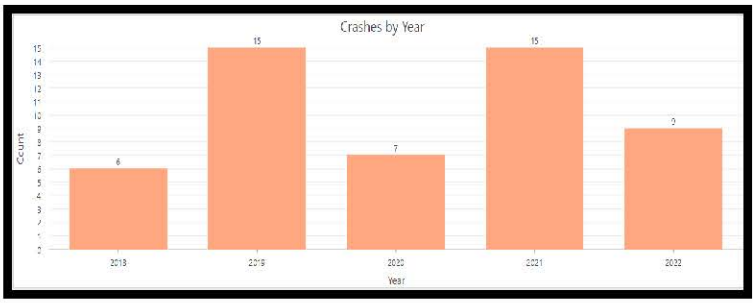


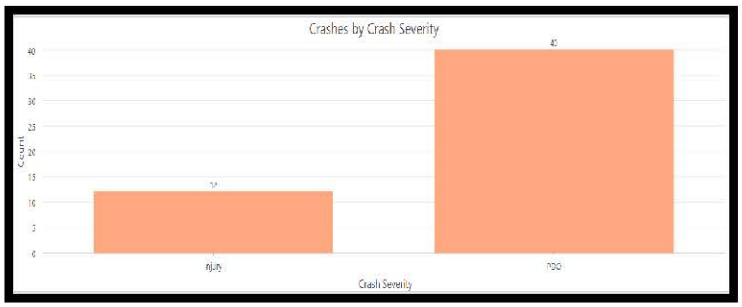


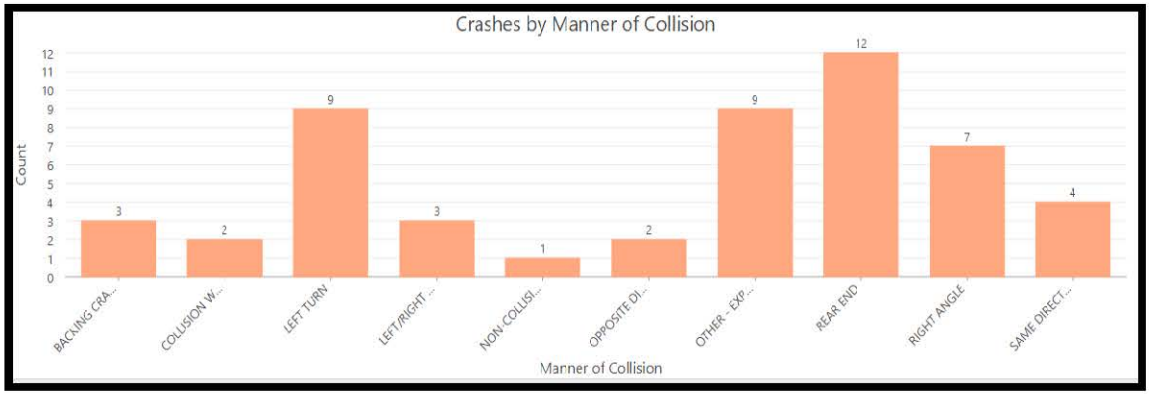




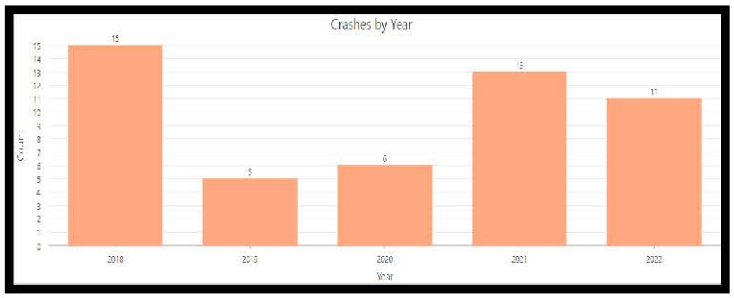
Colescott Street - From S Miller Street to S Harrison Street

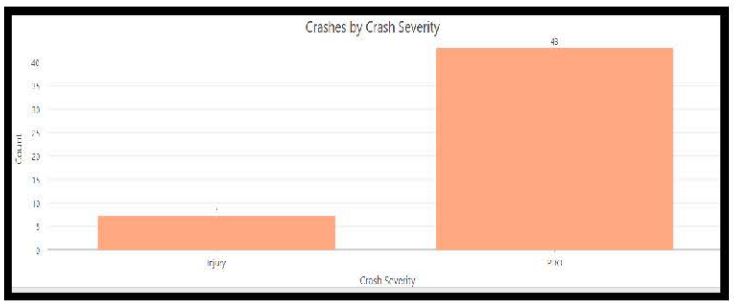


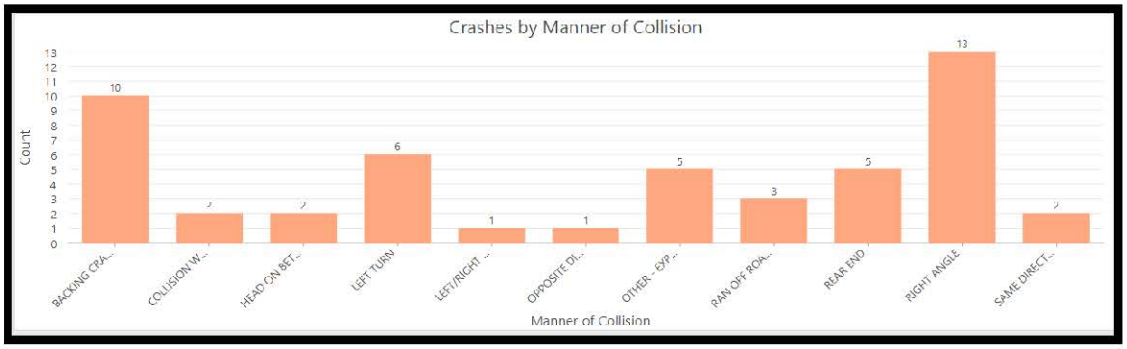




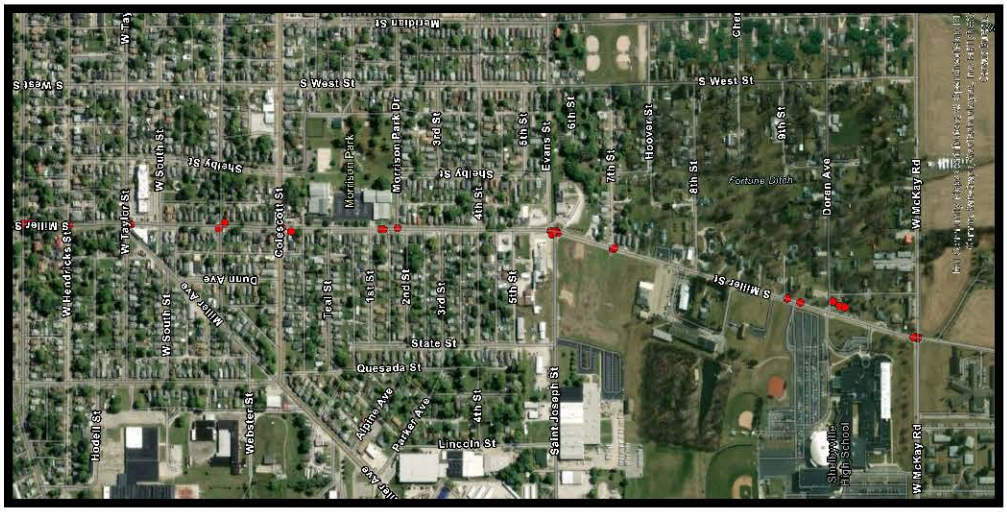
S Miller Avenue - From W Taylor Street to W Mckay Road

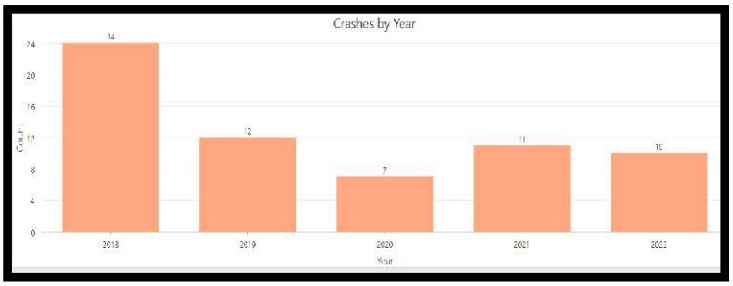


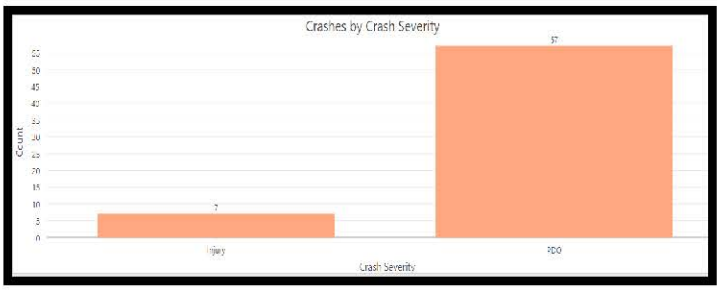


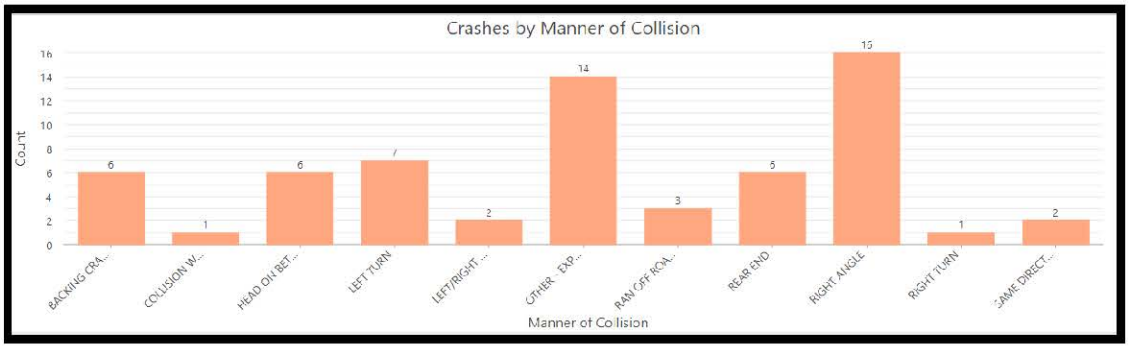


S Miller Street - W Broadway Street to W Mckay Road

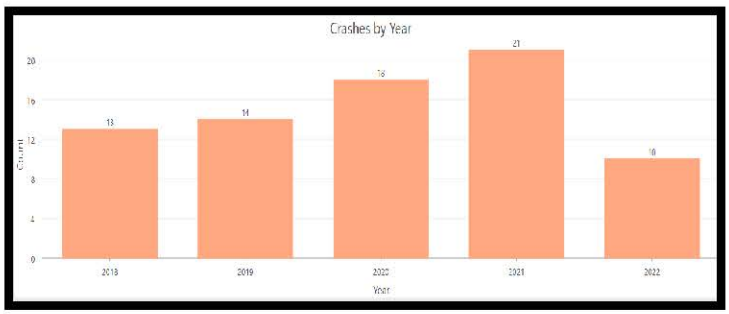


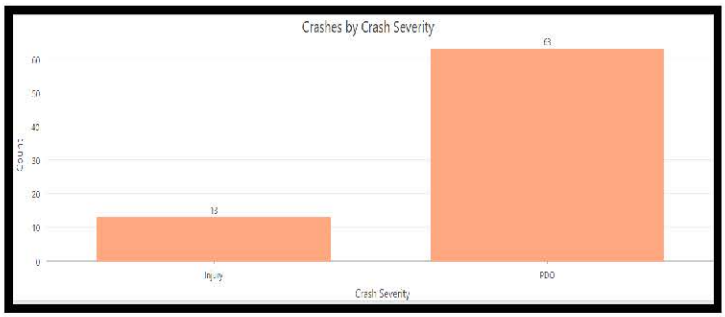


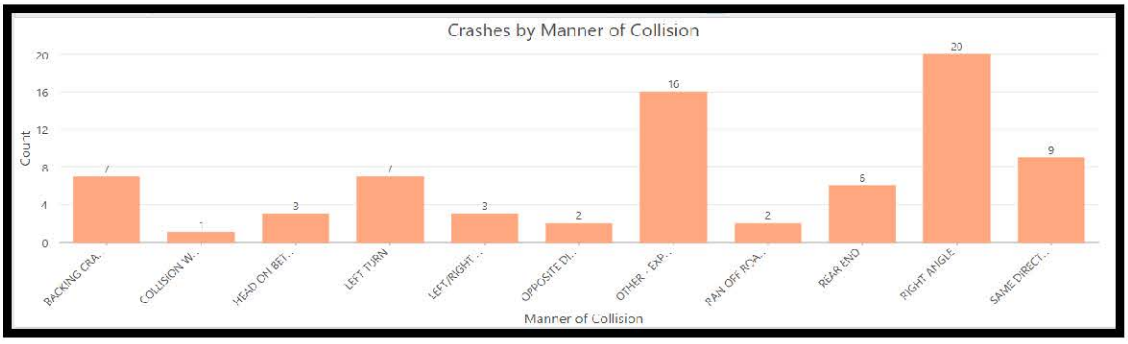




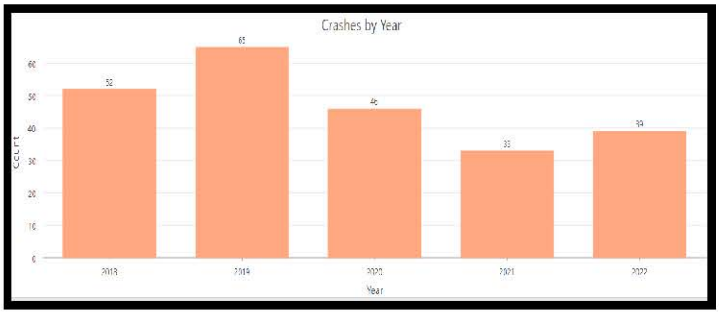
Mechanic Street - Conrey Street to N Vine Street

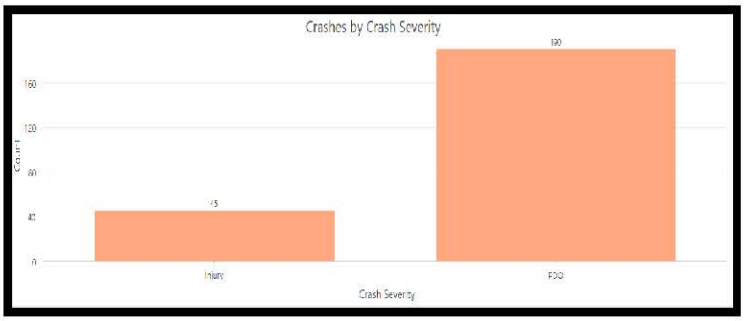


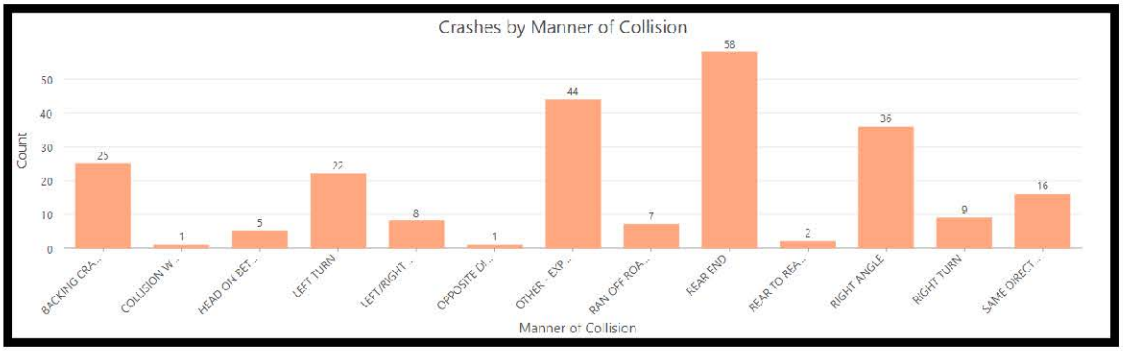




E Broadway Street - From Tompkins Street to E Michigan Road



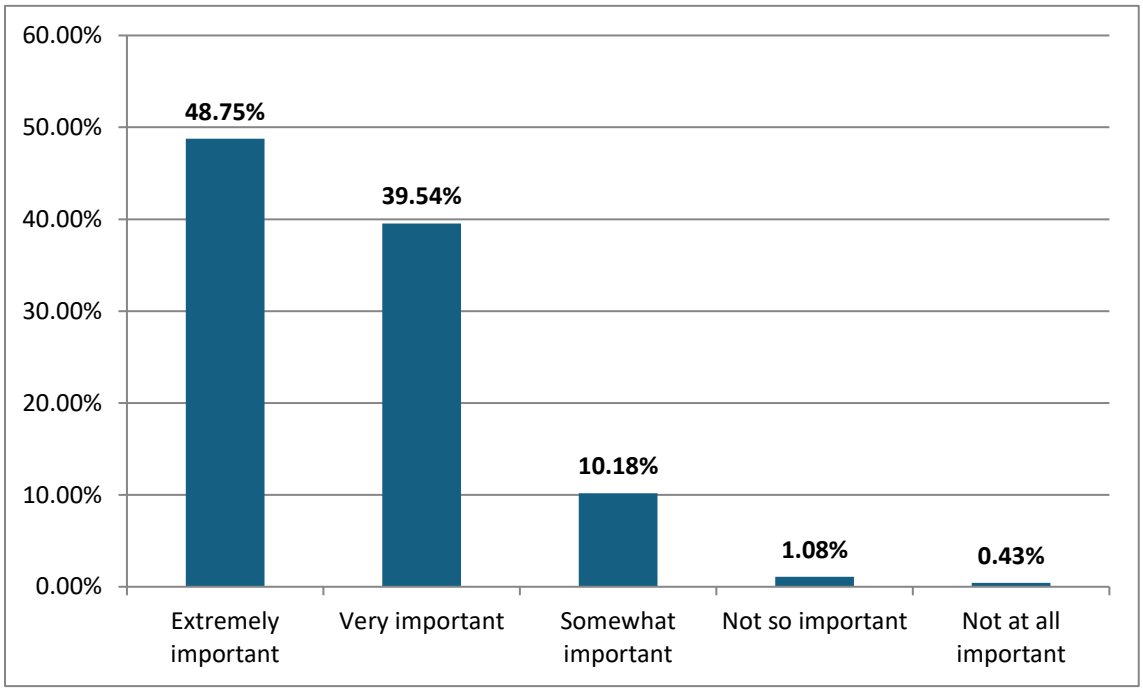




APPENDIX D: PUBLIC ENGAGEMENT

Survey Questions

1. **How important is it for the roads and trails in our community to be accessible for individuals with disabilities?**



2. **Name an intersection or roadway that feels unsafe as a driver (on the next question tell us why) (Please note this was an open-ended question; the analysis of the most mentioned intersections/roadways is below.)**

Intersection Name	***Number of Mentions***
Miller Avenue & McKay Road	*46*
State Road 9 & Noble Street	*44*
Public Square	*35*
Harrison Street & Broadway Street	*27*
State Road 44 & Progress Parkway Dr	*23*
Amos Road & Howard Street	*18*
Miller Street & McKay Road	*14*
State Road 9 & Morristown Road	*13*
Harrison Street & Mechanic Street	*12*
State Road 9 & Rampart Street	*12*
Harrison Street & Colescott Street	*11*
State Road 44 & Lee Blvd	*9*
State Road 9 & McKay Road	*8*
Colescott Street & Miller Street	*8*
St.Joseph Street/Evans Street/Miller Street	*8*

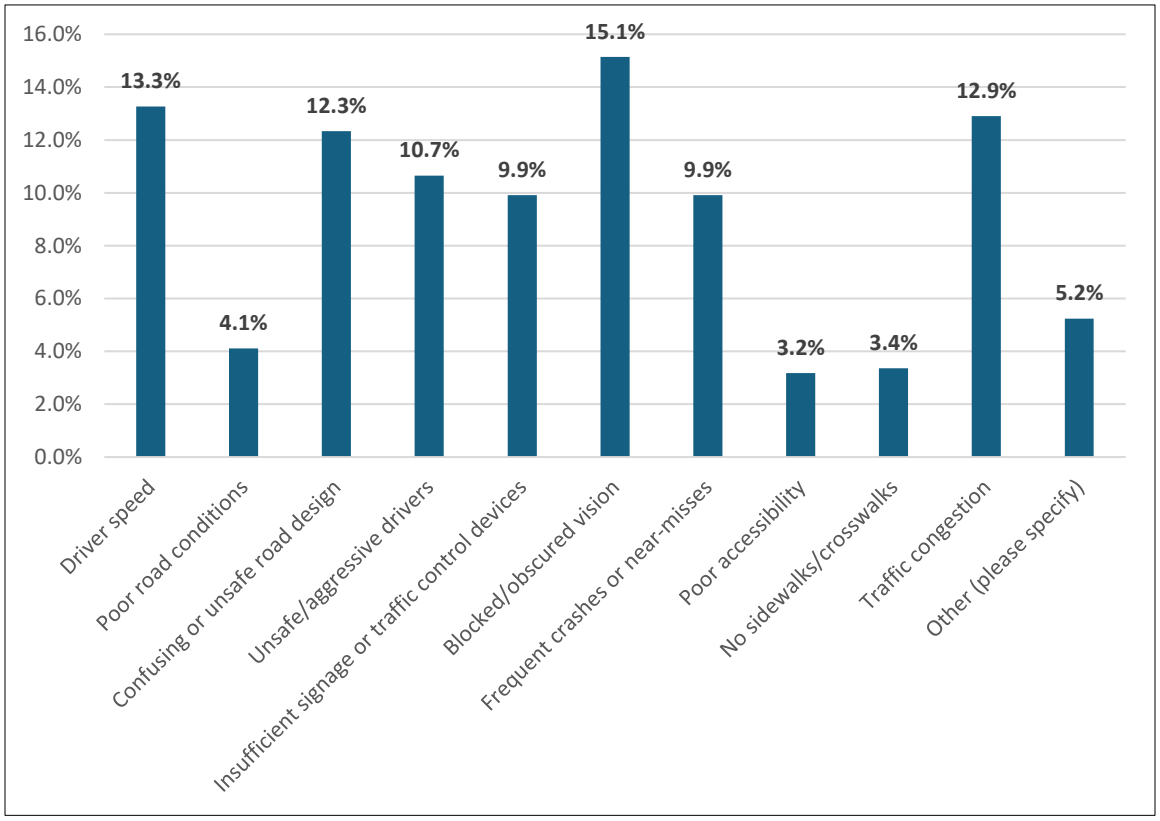
Howard Street & Columbia Avenue	*7*
Washington Street & West Street	*6*
Michigan Road & Saraina Road	*5*
Noble Street & Mechanic Street	*5*
Harrison Street & John Street	*5*
State Road 9 & I-74 Interstate	*5*
State Road 44 & Amos Road	*5*
Broadway Street & West Street	*5*
Washington Street & Broadway Street	*5*
Lee Blvd & East Morris Avenue	*5*
State Road 9 & N Michigan Road	*4*
Miller Ave/Colescott St/Monthomery St/Quesada St	*4*
Broadway Street & Pike Street	*4*
State Road 44 - East of I-74	*4*
Jefferson Avenue & Harrison Avenue	*4*
Miller Street & Joseph Street	*4*
Noble Street & Broadway Street	*4*
State Road 44 & Michigan Road	*4*
Progress Parkway & McKay Road	*4*
Amos Road & McKay Road	*3*
State Route 9 & Bassett Road	*3*
Mechanic Street & Pike Street	*3*
Mechanic Street & Vine Street	*3*
Walker Street & Vine Street	*3*
Bridge on State Road 9	*3*
Berwick Drive & McKay Road	*3*
State Road 44 & Henderson Drive	*2*
Culbertson Road & Harrison Street	*2*
Jackson Street & Pike Street	*2*
Jackson Street & West Street	*2*
Quesada Street & Colescott Street	*2*
Boggstown Road & State Road 9	*2*
Loper Drive & Amos Road	*2*
John Street & Walker Street	*2*
State Road 9 & 500 South	*1*
Smithland Road & County Road 275 W	*1*
Berwick Drive $ County Creek Circle	*1*
Noble Street & Walker Street	*1*
Edgehill Road & Rollingridge Road	*1*

Colescott Street & Tompkins Street	*1*
Miller Street & Doran Avenue	*1*
Michigan Road & Thompson Road	*1*
Fair Avenue & Morris Avenue	*1*
Broadway Street & Vine Street	*1*
State Road 9 & Intelliplex Drive	*1*
Thompkins Street & 4th Street	*1*
Broadway Street & Montgomery Street	*1*
Harrison Street & Van Avenue	*1*
Mechanic Street & Tompkins Street	*1*
W County Road 500 & N County Road 100	*1*
Michigan Road & N County Road 100	*1*
State Road 9 & Progress Parkway	*1*
Washington Street & Conrey Street	*1*
Entrance of Belair Center	*1*
South Miller Street & County Road 250 South	*1*
Berwick Drive & Maple Drive	*1*
State Road 9 & E Jackson Street	*1*
East Michigan & Progress Pkwy	*1*
State Road 44 & Dagley Ct	*1*
W McKay Road & Graham Drive	*1*
South Miller Street & West Hendricks Street	*1*
North Tompkins Street & River Road	*1*

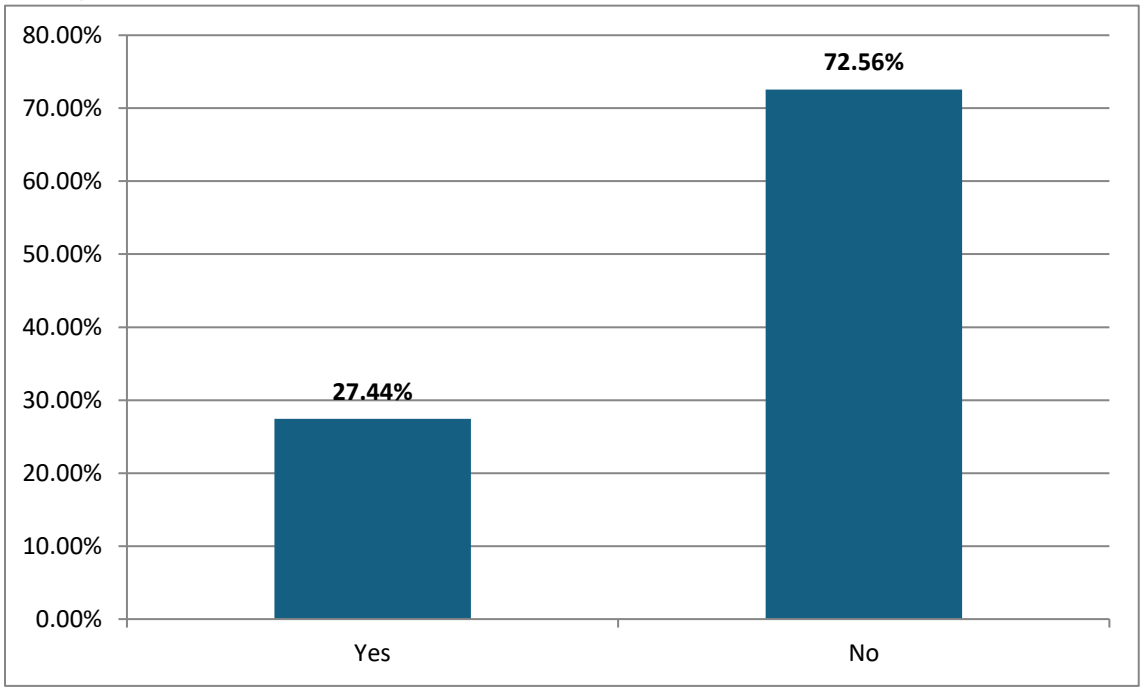
Road Name	***Limits***	***Number of Mentions***
Miller Road	*W McKay Road - Smithland Road*	*3*
Amos Road	*State Road 44 - Progress Parkway*	*2*
E Mechanic Street	*State Road 9 - N Vine Street*	*2*
Morris Avenue	*N Vine Street - N Rushville Road*	*2*
Colescott Street	*State Road 9 - Mille Avenue*	*2*
E Michigan Road	*State Road 44 - Clark Road*	*1*
N Riley Highway	*Bassett Road - County Road 600*	*1*
Public Square	*All intersections*	*1*
Howard Street	*Amos Road - State Road 9*	*1*
S Harrison Street	*Van Avenue - Colesscott Street*	*1*
W Mechanic Street	*N Miller Street - State Road 9*	*1*
Intelliplex Drive	*State Road 9 - W Bassett Road*	*1*
S Vine Street	*E Washington Street - E Broadway Street*	*1*

Jefferson Avenue	*State Road 9 - McKinley Street*	*1*
N Michigan Road	*State Road 9 - I-74 Intersection*	*1*
State Road 9	*W McKay Road - Progress Parkway*	*1*
Culbertson Road	*W McKay Road - State Road 9*	*1*
McKay Road	*Miller Avenue - Progress Parkway*	*1*
S North Street	*E McKay Road - End*	*1*
E Broadway Street	*State Road 9 - S Noble Street*	*1*

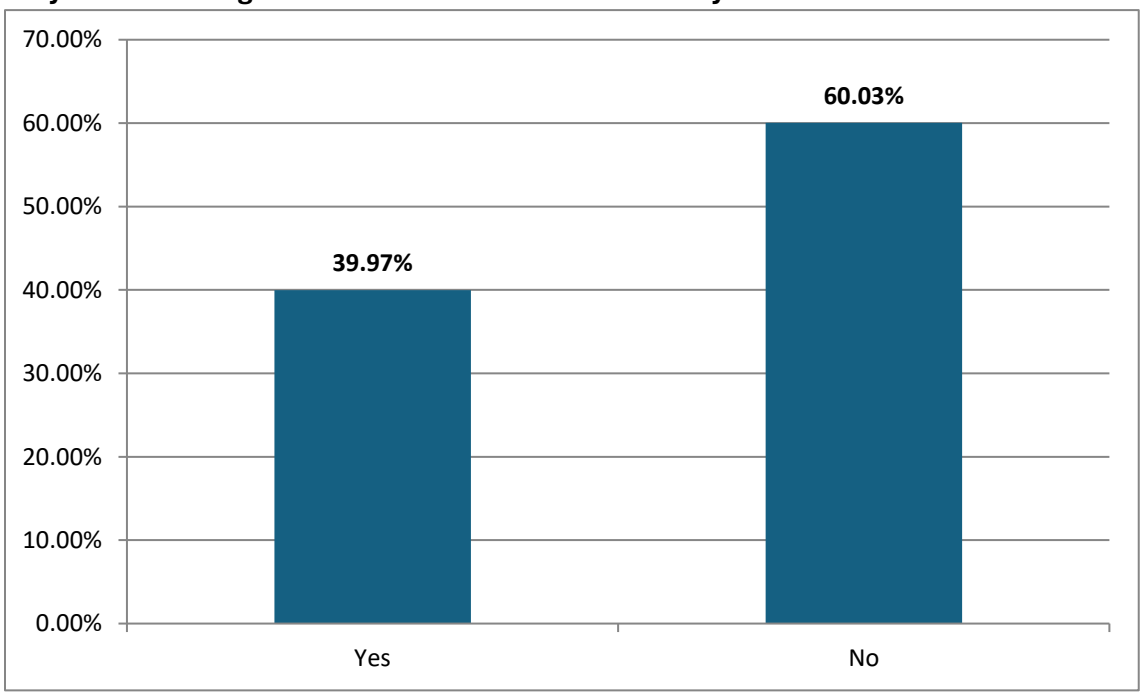
3. **What do you consider the primary cause of the unsafety of this intersection/roadway? Select all that apply:**



4. **Have you been involved in or witnessed a crash at this intersection?**



5. **Do you avoid using this intersection/road due to safety concerns?**



6. **Name an intersection/roadway that feels unsafe as a bicyclist/pedestrian/transit user. (Please note this was an open-ended question; the analysis of the most mentioned intersections/roadways is below.)**

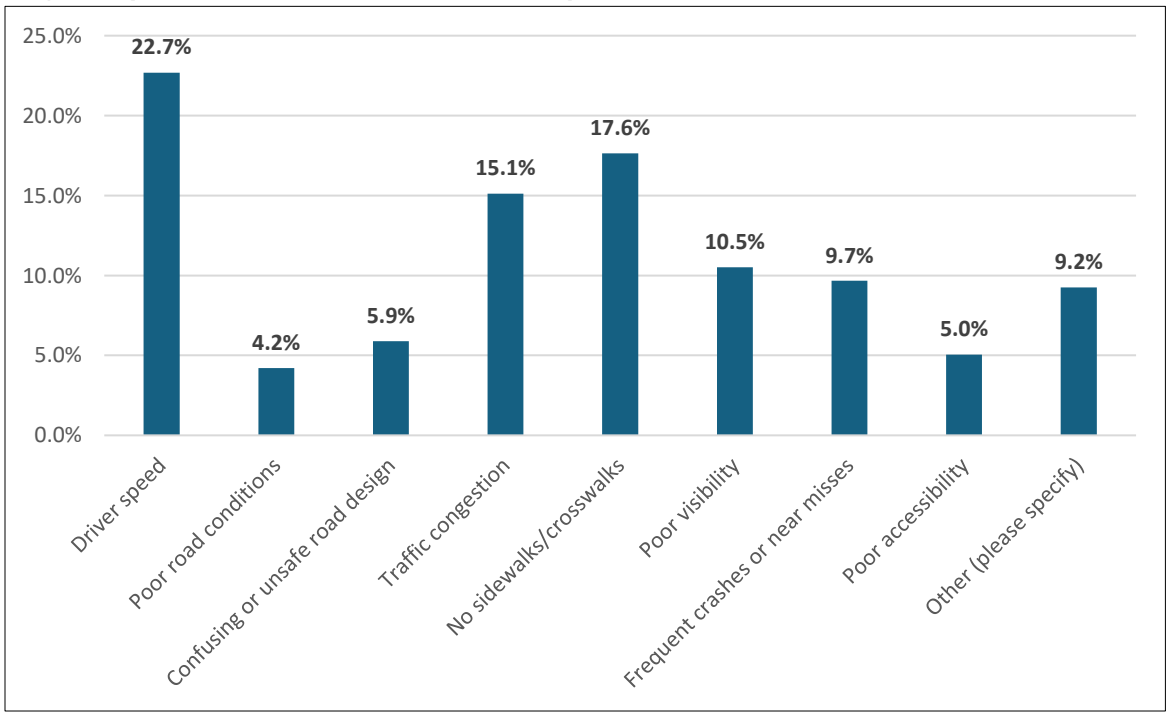
Intersection Name	***Number of Mentions***
Public Square	*26*
E Broadway St & State Road 9	*20*

State Road 9 & Sunset Park Drive	*13*
State Road 9 & S Noble Street	*9*
State Road 44 & Progress Parkway	*6*
Miller Ave & W McKay Rd	*5*
Miller Street & West McKay Road	*5*
St.Joseph St & Miller Ave	*4*
State Road 9 & Colescott Street	*4*
State Road 9 & I-74 St	*3*
State Road 9 & Amos Road	*3*
Morristown Road & State Road 9	*3*
E Pennsylvania St & State Road 9	*2*
W McKay & Theobald St	*2*
State Road 9 & Progress Parkway	*2*
State Road 9 & Walker St	*2*
N Miller St & W Washington St	*2*
State Road 9 & E Rampart St	*2*
W McKay Road & S West Street	*2*
Colescott Street & Tompkins Street	*2*
St.Joseph & Beverly St	*1*
S Vine Street & Trail Crossing	*1*
Progress Parkway & Amos Road	*1*
Progress Parkway & McKay Road	*1*
Loper Drive & Amos Road	*1*
State Road 9 & Intelliplex Drive	*1*
East Broadway & S Pike Street	*1*
North West & West Mechanic Street	*1*
Miller Avenue & Colescott Street	*1*
Amos Road & Twin Lakes Blvd	*1*
Hendricks Street & South Miller Street	*1*
Morris Avenue & Knightstown Road	*1*
Rushville Road & Lee Blvd	*1*
Rampart Road & State Road 9	*1*

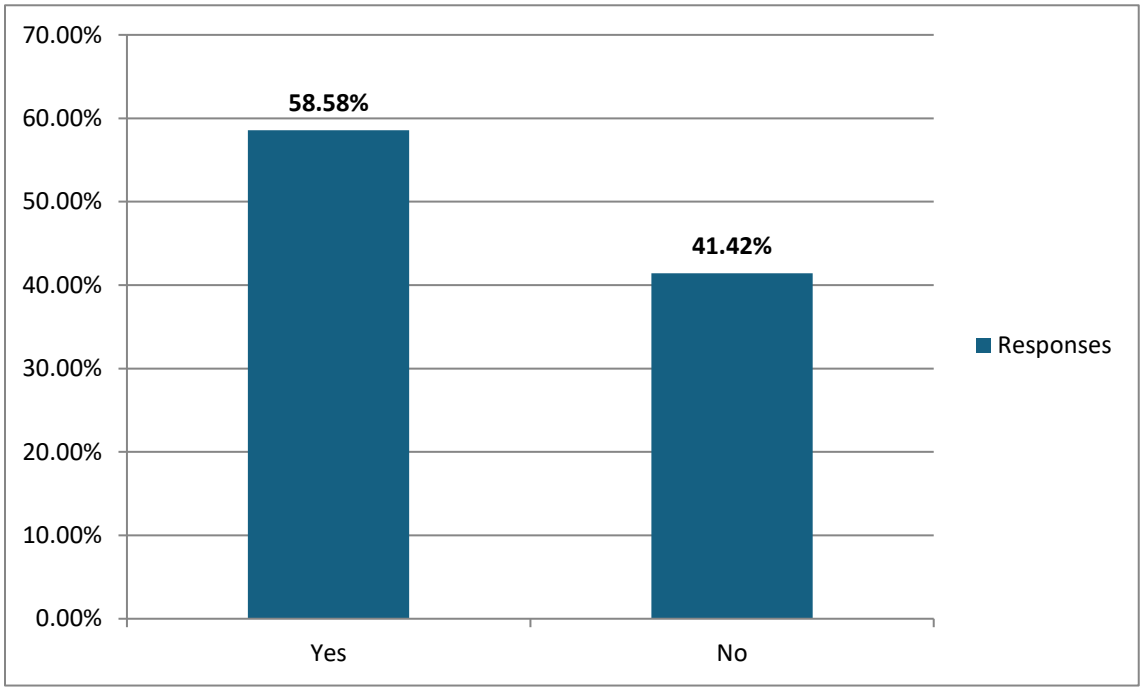
RoadName	***Limits***	***Number of Mentions***
Miller Road	*W McKay Road - Smithland Road*	*13*
Progress Parkway	*Amos Road - State Road 44*	*8*
W Mechanic Street	*N Miller Street - State Road 9*	*3*
Amos Road	*State Road 44 - Progress Parkway*	*3*

McKay Road	*Miller Avenue - Progress Parkway*	*3*
Public Square	*All intersections*	*2*
Howard Street	*Amos Road - State Road 9*	*2*
S Vine Street	*E Washington Street - E Broadway Street*	*2*
E Mechanic Street	*State Road 9 - N Vine Street*	*2*
Morris Avenue	*N Vine Street - N Rushville Road*	*2*
Colescott Street	*State Road 9 - Mille Avenue*	*2*
North Knightstown Road	*I-74 Interstate - Morris Avenue*	*2*
E Michigan Road	*State Road 44 - Clark Road*	*1*
N Riley Highway	*Bassett Road - County Road 600*	*1*
S Harrison Street	*Van Avenue - Colesscott Street*	*1*
Intelliplex Drive	*State Road 9 - W Bassett Road*	*1*
Jefferson Avenue	*State Road 9 - McKinley Street*	*1*
N Michigan Road	*State Road 9 - I-74 Intersection*	*1*
State Road 9	*W McKay Road - Progress Parkway*	*1*
Culbertson Road	*W McKay Road - State Road 9*	*1*
S North Street	*E McKay Road - End*	*1*
E Broadway Street	*State Road 9 - S Noble Street*	*1*
Meridian Street	*Collescott Street - West McKay Road*	*1*

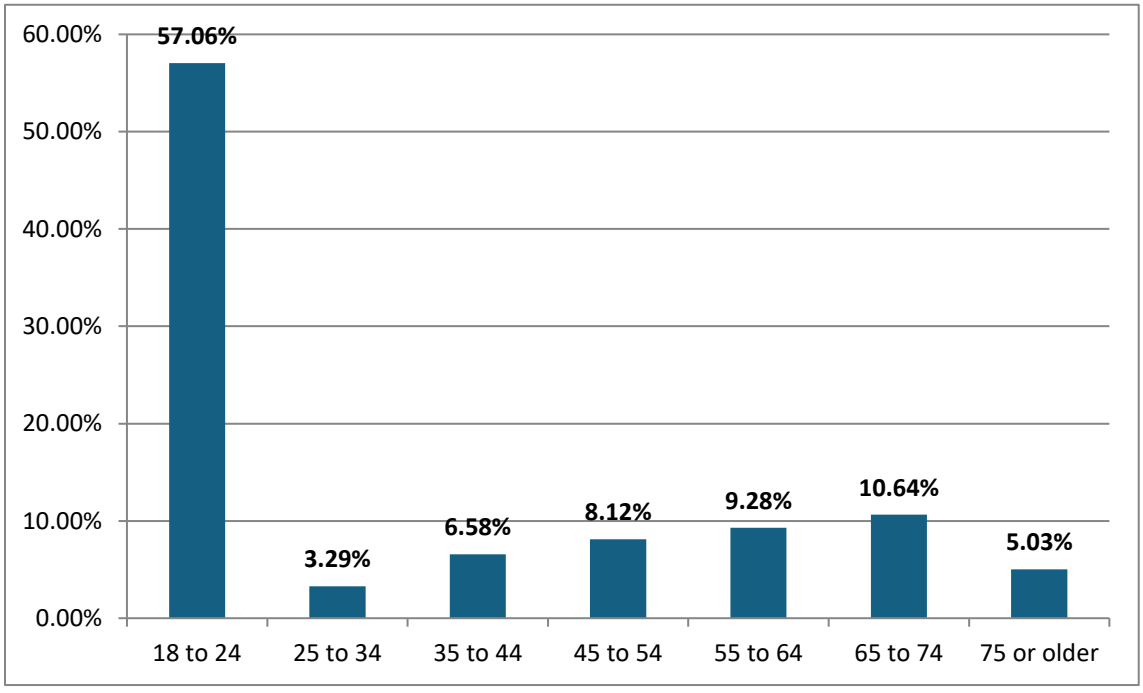
7. What would the primary cause to deter your use of the intersection/roadway as a bicyclist/pedestrian/transit user? Select up to five.



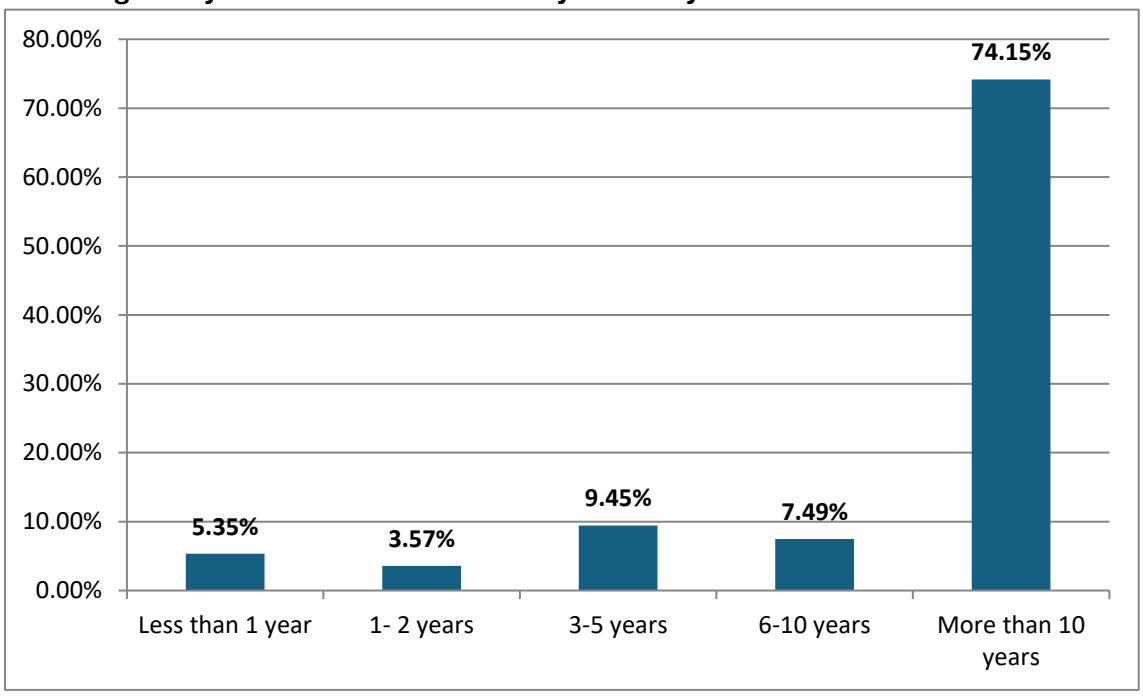
8. **As a pedestrian/bicyclist, do you avoid using this intersection/roadway due to safety concerns?**



9. **What is your age?**



10. How long have you lived/worked in the City of Shelbyville?

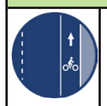


APPENDIX E: U.S. DEPARTMENT OF TRANSPORTATION PROVEN SAFETY COUNTERMEASURES

PROVEN SAFETY COUNTERMEASURES

Source: U.S. Department of Transportation Federal Highway Administration Proven Safety Countermeasures

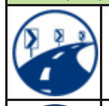
- Safety Focus Areas

Countermeasure		Description	Types of Crash Mitigation	Typical Locations for this Treatment	Additional Considerations
Speed Management					
	Appropriate Speed Limits for All Road Users	A growing body of research shows that speed limit changes alone can lead to measureable declines in speeds and crashes.	Various	Anywhere where appropriate, though particularly in urban areas where various modes of transportation are utilizing the road.	Agencies with designated authorities to set speed limits can establish non-statutory speed limits or designate reduced speed zones, and a growing number are doing so. FHWA provides further direction on how to do this.
	Speed Safety Cameras	Speed safety cameras use speed measurement devices to detect speeding and capture photographic or video evidence of vehicles that are violating a set speed threshold.	Rear end, sideswipe, and roadway departure crashes caused by aggressive driving	Expressways, freeways, and principal arterials, particularly on corridors where speeding is a concern (high-crash freeways, school zones, etc.).	Requires regular evaluation to measure effectiveness; can be unpopular and controversial so public trust and siting important to ensure underserved populations are not unfairly targeted.
	Variable Speed Limits	Variable Speed Limits are speed limits that adapt to changing conditions in a short period of time, such as congestion, weather, or crashes, and are often part of an Active Traffic Management (ATM) plan.	Rear end and sideswipe crashes	Urban or rural expressways, freeways, and other higher-speed corridors, especially where recurring congestion or variable weather conditions can affect traffic flow.	Often implemented as part of Active Traffic Management plans.
Pedestrian / Bicyclist					
	Bicycle Lanes	Dedicated facilities to be used by bicyclists to reduce conflicts with vehicles.	Bicycle/vehicle crashes	Recommended on a large variety of road locations and functional classifications, particularly where lane repurposing allows (either through a road diet or lane narrowing). Can be warranted where bicycle traffic is already high or where cycling is encouraged.	Lanes separated from roadway using a lateral offset and painted buffer provide added effectiveness and, generally, the more removed bicylces are from the travel lanes, the better. In rural areas, rumble strips can negatively affect bike lanes.
	Crosswalk Visibility Enhance-ments	Enhancements that make crosswalk users more visible to drivers, including lighting, signage, and pavement markings.	Pedestrian/vehicle crashes	Enhanced crosswalks and lighting can be implemented anywhere pedestrian traffic exists or is could exist; multi-lane arterials typically demand more robust enhance-ments. Signage within the street is most effective on lower-speed two-or-three-lane roads.	Most effective when deployed in repeated locations along a single corridor (versus a more random approach). Can effectively calm traffic if properly designed.
	Leading Pedestrian Interval	An adjustment to signal timing that gives crosswalk users 3-7 seconds to enter the crosswalk before vehicles are given a green light.	Pedestrian/ turning vehicle crashes	Intersections with high turning vehicle volumes. Tend to be in areas of higher pedestrian traffic, such as city and village centers and surrounding neighborhoods. Can be especially effective for aged and disabled populations who require more time to cross.	Low cost when only signal timing alteration is required.
	Medians and Pedestrian Refuge Islands in Urban and Suburban Areas	A defined area between opposing lanes of traffic to separate motorized and non-motorized users of the roadway. A pedestrian refuge island is intended to protect non-motorized road users.	Head-on Pedestrian/vehicle crashes	Curbed urban and suburban multilane roadways, particularly in areas with a signif-icant mix of pedestrian and vehicle traffic, traffic volumes over 9,000 vehicles per day, and travel speeds 35 mph or greater.	The width of refuge islands must be at least 4', but 8' or wider is optimal for pedestrian comfort. Refuge islands can be defined simply through pavement markings, but raised medians or islands allow for increased pedestrian buffering from vehicular traffic.
	Pedestrian Hybrid Beacons	At midblock crossings, or intersections without signals, this beacon allows a pedestrian to cross the roadway safely. With two red lights above a yellow light, it is activated by a pedestrian to stop vehicular traffic and allow the pedestrian the right-of-way.	Head-on Pedestrian/vehicle crashes	Locations where it is difficult for pedestrians to cross a roadway, such as when gaps in traffic are not sufficient or speed limits exceed 35 miles per hour. They are effective multi-lane arterials and where daily traffic volumes exceed 9,000 vehicles.	Marked crosswalks and pedestrian countdown signals must also be installed. Agencies should conduct education and outreach before installation in areas where this concept is unfamiliar.

PROVEN SAFETY COUNTERMEASURES

Source: U.S. Department of Transportation Federal Highway Administration Proven Safety Countermeasures

- Safety Focus Areas

	Countermeasure	Description	Types of Crash Mitigation	Typical Locations for this Treatment	Additional Considerations
Pedestrian / Bicyclist (continued)					
	Rectangular Rapid Flashing Beacons (RRFB)	RRFBs have two rectangular-shaped yellow lights that, when activated, flash alternatingly to warn drivers of pedestrians trying to cross	Head-on Pedestrian/vehicle crashes	Applicable at many areas with high pedestrian volumes, but particularly effective on multilane roadways with speed limits of 40 or below. Can be teamed with school or trail crossing signs and locations.	Should not be used for approaches or egress from a roundabout. Can be activated through pushbuttons or passive (e.g. video, infrared) pedestrian detection. Can be exceptionally effective at increasing motorist yield rates.
	Road Diets (Roadway Configuration)	Restriping a road to reduce the number of dedicated vehicle lanes allows for the addition of facilites for alternative purposes, such as bicycle lanes, on-street parking, transit stops, and pedestrian refuge islands.	Pedestrian and bicycle/vehicle crashes; rear-end, left-turn and right- angle crashes	Multilane roadways, typically in urban or suburban areas where pedestrian and/or bicycle traffic exists or could exist. FHWA notes a 25,000 vehicle-per-day maximum, although rarely considered regionally unless volumes are well-under this threshold.	Typically involves the conversion of a four-lane roadway to one travel lane in each direction plus a center two-lane left-turn lane and bicycle lanes. Often implemented in conjunction with a new pavement overlay.
	Walkways	Any defined path meant to be used by pedestrians, including sidewalks, shared-use paths, and roadway shoulders.	Pedestrian/vehicle crashes	Any non-freeway roadway locations except where exceptional circumstances exist. Most notable sidewalk gaps (where demand exists) can be found in suburban areas.	In rural areas where walkways/sidewalks are not feasible, a widened and walkable shoulder is acceptable but not preferable. Maintaining an accesible walkway is an important consideration.
Roadway Departure					
	Enhanced Delineation for Horizontal Curves	For the purpose of alerting drivers to upcoming curves, the direction of the curve, and the speed at which to travel, several strategies can be implemented including pavement markings, chevron signs, warning signs, etc.	Roadway departure crashes	Any horizontal curve locations with high crashes. Specific signage or pavement markings may be more applicable to particular corridor types or geographic locations, but the general countermeasure is applicable across the roadway system.	Recommended to be applied systemically (e.g. target all locations with smaller curve radii, where intersections are along or adjacent to the curve, locations within a daily traffic range).
	Longitudinal Rumble Strips and Stripes on Two-Lane Roads	Rumble strips are raised elements in the pavement to alert drivers that they have left the travel lane, through sound and vibration. Rumble stripes can be painted over the strips to make them more visible.	Roadway departure (edge and center line rumble strips) and head-on crashes (center line rumble strips)	Most commonly used on higher-speed two-lane roadways, particularly in lower-density/rural areas.	Generally not recommended in higher-density residential areas because of the noise they generate. FHWA asserts that there is no evidence to support that rumble strips deteriorate pavement more quickly or that ice/snow/rain buildup has caused issues.
	Median Barriers	Longitudinal barriers that separate opposing traffic to prevent collisions	Roadway departure incidents, particularly those that lead to angle and head-on crashes	Moderate-to-high-speed divided highways. Typically used on higher-volume highways but can be effective on any highways where cross-median crashes occur.	Decisions to choose cable, metal guiderails, or concrete barriers will vary depending upon traffic volume, land-use context, available space and cost.
	Roadside Design Improvements at Curves	Treatments that target the high risk of roadway departure along the outside of horizontal curves, including added or widened shoulders, a widened clear zone to provide the opportunity to regain control of a vehicle, or flattened sideslopes.	Roadway departure crashes	Any horizontal curve locations with high crashes, particularly in locations with higher speeds and where drivers can recover from roadway departures before hitting a fixed object or a drastic change in elevation.	Not all roadside hazards can be eliminated through design improvements and expanding recovery zones, so installing barriers should still may be the preferred solution for areas where fixed objects or steep embankments exist.
	SafetyEdge[sm]	Reducing the risk of edge drop-offs by shaping the edge of the pavement with a 30 degree angle to provide a gentle slope, preventing a vehicle from becoming unstable.	Roadway departure crashes	Roadways where curbs and guiderails are not present. Typically prioritized on rural routes and higher speed roadways but universally recommended on un-curbed roads.	SafetyEdge will wear over time due to erosion, settling, and tire wear, but still will provide a gentler slope for when roadway departures occur.
	Wider Edge Lines	Wider edge lines are increased from a normal width of 4 inches to a maximim normal width of 6 inches. The purpose of a wider edge line is to increase the visibility of the edge of the road.	Roadway departure crashes	All conditions: freeways, divided and undivided multi-lane highways, and two-lane highways. Have been proven most effective on rural two-lane highways. Can be especially useful on roads with narrow shoulders.	Wider edge lines may provide better guidance for automated and connected vehicle sensors as those technologies advance.

Countermeasure		Description	Types of Crash Mitigation	Typical Locations for this Treatment	Additional Considerations
Intersections					
	Backplates with Retroreflective Borders	A backplate with a retroreflective border makes a traffic signal head more visible to drivers, especially those drivers who are older or deficient in color vision.	Any type of intersection crashes caused by running a red signal	Any signalized intersections. FHWA recommends making this a standard treatment for all signals within a jurisdiction.	Can also be useful by improving an intersection's conspicuity during power outages and in night-time or dark driving conditions. Agencies should consider the existing signal support system to ensure its design is sufficient to support the additional wind load.
	Corridor Access Management	A set of techniques to manage entry and exit points along a roadway to improve safety for all users, reduce conflict points, reduce congestion, minimize traffic delay, and facilitate bicycle and pedestrian movements.	Various crashes caused by vehicles entering and exiting the dominant roadway	An important consideration for most locations, but particularly on suburban corridors with significant commercial development and a high number of ingress/egress points. Should especially be considered on multi-lane arterial roadways.	Succesful access management must balance the overall safety and mobility of all users with the needs of adjacent land uses.
	Dedicated Left- and Right-Turn Lanes at Intersections	Separating turning-traffic lanes from through-traffic lanes reduces crashes and improves traffic flow. These auxiliary lanes can also store vehicles that are stopped and waiting to turn.	Intersection-related crashes, most notably side-impact or angle crashes as well as rear-end crashes	Most locations where significant turning volume exists, where there is a history of turn-related crashes, or major road approaches at a stop-controlled, 3-4 leg intersection. Offset turn lanes are particuarly effective on higher-speed, high volume corridors.	The safety and convenience of pedestrians and bicylists should be considered. Additional turning lanes, especially offset turning lanes, will lenghten crossing distances for these users.
	Reduced Left-Turn Conflict Intersections	Minor road traffic is restricted to making a right turn on a high-speed or high-volume corridor, followed by a U-turn at a designated location. The designated location for the U-turn can be signalized or unsignalized.	Head-on and angle crashes, and other potentially severe, high-speed crashes	High volume arterial corridors. Most commonly used on higher-speed suburban and rural multi-lane corridors, but has been shown to be effective even on some urban applications and corridors with multimodal usage.	Studies have demonstrated that there are often measureable travel time improve- ments where this is applied. Can create more crossing opportunities for bicylclists and pedestrians. An effective and less-expensive alternative to constructing an interchange.
	Roundabouts	A type of intersection with a circular configuration with a center island meant to promote safety and efficiency. Incoming traffic must yield to traffic already in the rounadabout, thereby reducing speeds. Additionally, roundabouts reduce conflict points for all modes of transportation.	All types of intersection-related crashes	Wide range of applications. Most often constructed at moderate-volume intersec- tions replacing stop control or signalized intersections. Effective at calming traffic and in transition-zone environments (e.g. urban-rural, speed limit changes).	Single-lane roundabouts are much simpler and involve less processing. Multi-lane roundabouts are still effective, but increase chances for minor collisions. Despite traffic calming characteristics, roundabouts often help to reduce overall corridor travel time.
	Systemic Application of Multiple Low-Cost Counter- measures at Stop-Controlled Intersections	This approach involves adding multiple low-cost improvements to several intersec- tions within an area or jurisdiction, such as advanced intersection warning signs on the left and right of the roadway, enhanced pavement markings, retroreflective sheeting on sign posts, and other improvements.	All types of intersection-related crashes	Any stop-controlled intersections where intersection crashes occur. Can be particu- larly effective on higher-speed roadways and are often in suburban or rural areas.	Large variety of solutions for both through approaches and stop approaches. Best when applied systematically across a corridor or entire jurisdiction.
	Yellow Change Intervals	The speed of approaching vehicles, vehicle deceleration, intersection geometry, and driver-perceived reaction time should all be considered when analyzing the best timing for the yellow light interval.	All types of intersection-related crashes	Any signalized intersections where red-light running is common.	Imperative that yellow change interval is appropriately timed. A too-brief interval can lead to unsafe stops or unintentional red-light running. A too-long interval may lead to drivers treating the yellow as an extension of the green phase and invite red-light running.
Crosscutting					
	Lighting	With nighttime fatality rates being much greater than daytime rates, lighting can be applied to reduce the incidence of crashes. Lighting also improves safety for pedestrians, bicyclists, and other mobility device users.	Various; notably pedestrian-related night crashes	Can be applied in most locations as research indicated continuous lighting along a rural or urban corridor has an established safety benefit. Important for locations with pedestrian and bicycle traffic, both for their safety crossing roads and their personal safety.	Jurisdictions and agencies are encouraged to engage with underserved populations to determine where and how new or improved lighting can benefit their communi- ties. Modern lighting gives precise control with reduced amounts of light pollution.
	Local Road Safety Plans	A Local Road Safety Plan (LRSP) addresses safety issues and concerns on local roads with actions and improvements to reduce risks and enhance safety. FHWA developed a LRSP website to assist local communities in the process of creating and implementing a LRSP.	Planning efforts can focus on reducing all crashes that occur on local roadways	All locally-owned roadways within the plan's coverage area.	This can be an effective framework for considering the safety of local roadways, which often have less funding availability to address issues.
	Pavement Friction Manage- ment	Pavement Friction Management is the process of collecting and analyzing data to better design, construct, and maintain a roadway. Friction affects how a vehicle will interact with a roadway, and can reduce crashes. High Friction Surface Treatments (HFST) can be applied to improve safety performance.	Various; notably roadway departure crashes and intersection approach crashes	Pavement Friction Management can be applied system-wide. HFSTs are applied in locations with increased friction demands including horizontal and vertical curves, intersection approaches, and locations with history of wet weather & rear end crashes.	HFST is applied on existing pavement so no new pavement area is added. Lifespan of HFST will be reduced if underlying pavement is unstable. Application of HFST systemically in multiple locations can significantly reduce cost-per-mile installation.
	Road Safety Audit (RSA)	A Road Safety Audit (RSA) can be performed in any phase of project development, taking into account all road users, their capabilities, and other human factors in order to identify potential safety concerns. This evaluation is performed by an independent, multidisciplinary team.	Planning efforts can focus on reducing all types of crashes.	Any corridors with documented safety issues, particularly those that communities and agencies plan to improve (e.g. those listed on the regional Long-Range Trans- portation Plan).	Although RSAs can be performed in any phase of project development, agencies are strongly encouraged to perform RSAs at the earliest point possible, prior to design alternatives and project options being determined.

APPENDIX F: COMPREHENSIVE SAFETY ACTION PLAN PROJECTS

Project Score Summary - Intersections

No.	Project Location	Total Crash Rate (per MEV)	Score	Env. Justice Criteria (within EJ?)	Score	F&I Crash Rate (per MEV)	Score	Stakeholder & Public Input (# of Mentions)	Score	Weighted Total Score	Tier/ Prioritization
1	Tompkins Street & W Mechanic Street	2.373	5	Entirely	5	0.431	5	1	1	**42**	Tier 1
2	Tompkins Street & W Washington Street	2.922	5	Entirely	5	1.826	5	0	1	**42**	Tier 1
3	SR 44 & Progress Pkwy	2.590	5	EJ 0	0	0.447	5	29	5	**40**	Tier 1
4	N State Road 9 and E Rampart Street	1.565	4	Bordering	3	0.168	3	13	3	**33**	Tier 2
5	E Broadway Street & S Noble Street	0.953	2	Entirely	5	0.238	4	4	1	**30**	Tier 2
6	SR 44/Colescott Street & S West Street	0.594	2	Entirely	5	0.228	4	0	1	**30**	Tier 2
7	SR 44/Colescott Street & S Miller Street	0.822	2	Entirely	5	0.154	3	8	2	**29**	Tier 2
8	SR 44 & Miller Ave/McKay Rd	0.529	2	Bordering	3	0.088	2	51	5	**28**	Tier 2
9	SR 9/Harrison Street & S Noble Street	0.962	2	EJ 0	0	0.241	4	53	5	**28**	Tier 2
10	SR 9/N Harrison Street & Mechanic Street	0.620	2	Entirely	5	0.119	2	12	3	**28**	Tier 2
11	E Broadway Street & S Pike Street	0.655	2	Entirely	5	0.182	3	5	1	**27**	Tier 2
12	N Michigan Road and Horsehoe Indianapolis Access	1.793	4	EJ 0	0	0.299	4	0	1	**26**	Tier 2
13	E Broadway Street & Worth Street	0.380	1	Entirely	5	0.114	2	0	1	**21**	Tier 2
14	SR 44/Colescott Street & S Tompkins Street	0.418	1	Entirely	5	0.139	2	3	1	**21**	Tier 2
15	E Broadway Street & Hendricks Street	0.718	2	Bordering	3	0.124	2	1	1	**20**	Tier 2
16	E Michigan Road & Progress Pkwy	0.720	2	EJ 0	0	0.227	4	1	1	**20**	Tier 2
17	SR 44 & Amos Road	0.887	2	EJ 0	0	0.195	3	3	1	**17**	Tier 3
18	W County Road 400 N and N Michigan Road	0.887	2	EJ 0	0	0.154	3	0	1	**17**	Tier 3
19	CR 200 W & Michigan Rd	1.033	3	EJ 0	0	0.094	2	0	0	**15**	Tier 3
20	Lee Blvd. and Progress Pkwy	0.313	1	EJ 0	0	0.157	3	0	1	**14**	Tier 3
21	SR 9 & Morristown Rd	0.107	1	EJ 0	0	0.036	1	16	4	**14**	Tier 3
22	SR 9/Harrison St & Knauf Drive	0.427	1	EJ 0	0	0.081	2	4	1	**11**	Tier 3
23	Michigan & SR 44	0.626	2	EJ 0	0	0.063	1	4	1	**11**	Tier 3
24	McKay Rd & Progress Pkwy	0.067	1	EJ 0	0	0.000	1	5	1	**8**	Tier 3

EJ = Environmental Justice (area of disadvantaged/underserved population)
MEV = Million Entering Vehicles

Project Score Summary - Corridors

No.	Project Location	Total Crash Rate (per 100M VMT)	Score	Env. Justice Criteria (within EJ?)	Score	F&I Crash Rate (per 100M VMT)	Score	Stakeholder & Public Input (# of Mentions)	Score	Weighted Total Score	Tier/ Prioritization
1	S West St - W Mechanic St to SR 44/Colescott St	3439.56	5	Entirely	5	1031.87	5	3	1	42	Tier 1
2	Tompkins St - W Mechanic St to SR 44/Colescott St	16031.83	5	Entirely	5	4580.52	5	0	1	42	Tier 1
3	Mechanic St - Conrey St to N Vine St	1168.00	5	Entirely	5	199.79	4	3	1	39	Tier 1
4	SR 44/Colescott St - Miller St to SR 9/S Harrison St	608.54	3	Entirely	5	140.43	3	2	1	30	Tier 2
5	E Broadway St - Tompkins St to E Michigan Rd	492.31	2	Partially	3	94.27	2	13	3	24	Tier 2
6	S Miller St - W Mckay Rd to W Broadway St	504.37	3	Partially	3	55.17	2	0	1	23	Tier 2
7	SR 9/S Harrison St - Knauf Dr to Howard St	454.13	2	Partially	3	75.26	2	1	1	20	Tier 2
8	Miller Ave - W Mckay Rd to W Taylor St	225.85	1	Partially	3	31.62	1	11	3	18	Tier 3
9	S State Road 9 - Noble St to McKay Rd	303.06	2	EJ 0	0	69.94	2	0	0	12	Tier 3

EJ = Environmental Justice (area of disadvantaged/underserved population)
100M VMT = 100 Million Vehicle Miles Traveled

Project Scoring Key

Scoring Criteria, Points and Weightage							
Total Crash Rate (30% Weight)	**Points**	**Env. Justice Criteria (20% Weight)**	**Points**	**F&I Crash Rate (30% Weight)**	**Points**	**Stakeholder and Public Input Criteria (20% Weight)**	**Points**
Crash Rate 0-250 seg, <0.5 int)	1	Not in EJ Area	0	0-50 segment, <0.075 intersection	1	0-5 mentions	1
Crash Rate 250-500 seg, 0.5-1 int)	2	Bordering/Partially EJ	3	50-100 segment, 0.075-0.15 intersection	2	6-10 mentions	2
Crash Rate 500-750 seg, 1-1.5 int)	3	Entirely within EJ	5	100-150 segment, 0.15-0.225 intersection	3	11-15 mentions	3
Crash Rate 750-1000 seg, 1.5-2 int)	4	-	-	150-200 segment, 0.225-0.3 intersection	4	16-20 mentions	4
Crash Rate >1000 seg, <2 int)	5	-	-	>200 segment, >0.3 intersection	5	>20 mentions	5

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