



SOUTHWEST BUTLER COUNTY

Multi-Municipal Safety Action Plan



Comprehensive Safety Action Plan

PARTNERING TOGETHER for the Southwest Butler County Safety Action Plan



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ACRONYMS AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ARLE	Automated Red Light Enforcement Program
CFA	Commonwealth Finance Authority
CIP	Capital Improvement Plan
CMAQ	Congestion Mitigation and Air Quality
CRP	Carbon Reduction Program
CSAP	Comprehensive Safety Action Plan
DCED	Pennsylvania Department of Community and Economic Development
DCNR	Pennsylvania Department of Conservation and Recreation
FSI	Fatalities and Serious Injuries
HIN	High Injury Network
HSIP	Highway Safety Improvement Program
LiDAR	Light Detection and Ranging
NEPA	National Environmental Policy Act
SHSP	Strategic Highway Safety Plan
SPC	Southwestern Pennsylvania Commission
SS4A	Safe Streets and Roads for All
STLC	Smart Transportation Through Livable Communities Program
RSA	Roadway Safety Audit
TIP	Transportation Improvement Program
TIRe	Traffic Information Repository
USDOT	United States Department of Transportation
VRU	Vulnerable Roadway Users

ACKNOWLEDGEMENTS

The development of the Southwest Butler County Multi-Municipal Comprehensive Safety Action Plan was a collaborative effort involving numerous agencies, organizations, and individuals committed to improving roadway safety across this portion of Butler County. Their time, expertise, and insights were essential in shaping a data-driven, practical, and locally informed plan that reflects the shared responsibility required to eliminate traffic fatalities and serious injuries.

Planning Committee

Cranberry Township – Kyle Beidler, Ph.D, RLA, AICP – Assistant Township Manager, CPO

Jackson Township – Chris Rearick, AICP – Township Manager

Harmony Borough – Greg Such – Borough Council President

Zelienople Borough – Mary Hess – Borough Council Member;
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Leadership Commitment

As leaders responsible for the safety, mobility, and quality of life for the people who live, work, and travel in the southwest Butler County region, that includes the municipalities of Cranberry Township, Jackson Township, Zelenople Borough, and Harmony Borough, we recognize that traffic fatalities and serious injuries are unacceptable and preventable.

The Southwest Butler Comprehensive Safety Action Plan was developed through a community-based, data-driven process with input from a broad list of stakeholders and the public. It identifies priority safety issues, defines strategies based on the Safe System Approach, and proposes projects and policies to reduce severe and fatal crashes across the region's roadways for all users.

We endorse this plan and its goal to work toward the ultimate objective of *zero traffic fatalities in the southwest Butler County region by the year 2050*.

Collectively, we will:

Support Implementation of the Plan

Integrate its goals, strategies, and priority projects into our respective planning, design, operations, and maintenance programs where feasible.

Prioritize Safety for All Users

Focus on improvements that address the most at-risk parts of the roadway network and protect vulnerable roadway users, including pedestrians and bicyclists.

Collaborate and Coordinate Across Jurisdictions

Continue to coordinate and work across jurisdictions and agencies to deliver safety projects and policies effectively.

Track and Share Progress

Monitor safety performance and review strategies regularly to gauge progress toward long-term goals.

By endorsing this plan, we affirm our shared intention to make measurable, sustained progress toward a safe transportation system that serves the needs of all users and fosters livable communities and economic development.

Resolutions formally adopting the plan from each municipality are included in Appendix G.

Executive Summary

The Southwest Butler County Multi-Municipal Comprehensive Safety Action Plan (CSAP) establishes a coordinated, data-driven strategy to eliminate roadway fatalities and serious injuries across Cranberry Township, Jackson Township, Zelenople Borough, and Harmony Borough.

As some of the fastest-growing municipalities in the Pittsburgh region, these communities are contending with a transportation network built for a smaller, more rural population. Now home to over 43,000 residents, the area faces challenges related to increased traffic, including crashes which disproportionately affect vulnerable road users such as children and seniors, people walking and biking, and those who are low-income or have disabilities.

Continued growth will require thoughtful planning to ensure safe mobility for people of all ages and abilities now and into the future, and municipal leadership desires to retool the region's transportation network planning from one that is reactive and struggling to keep up with growth and development, to one that encourages a safe, multimodal transportation network that proactively prioritizes safety.

Collectively, the municipal partners fully support and commit to the goal of reducing fatalities and serious injuries on Pennsylvania's roadways with the ultimate objective of zero fatalities by the year 2050, in support of the target year established by the Pennsylvania Strategic Highway Safety Plan.

With Cranberry Township—the largest of the four municipalities—leading a collaborative grant application process, these communities were awarded a grant through the U.S. Department of Transportation's Safe Streets and Roads for All (SS4A) program to prepare this plan, which analyzes existing risks and challenges and provides a framework for implementing targeted safety improvements.

Drawing on crash data, community input, stakeholder engagement, and a field-based Road Safety Audit (RSA), the CSAP identifies the region's most critical safety challenges and proposes a suite of engineering and policy strategies. The qualitative and quantitative data collected allowed problem areas to be identified and prioritized for safety improvements based on highest need and potential impact of interventions. Conceptual designs were developed for five priority locations, while a suite of potential countermeasures were identified which could be more broadly applied at other sites.

Plan Vision

Eliminate roadway fatalities and serious injuries for all roadway users through a comprehensive approach to safety that enhances existing and future infrastructure, development, and economic growth throughout the southwest Butler County region.

Plan Goals



Improve Safety Conditions for All System Users

Reduce fatalities and serious injuries for users of all modes through retrofitting existing and designing new infrastructure that focuses on the implementation of safety features.



Improve the Local Safety Culture

Facilitate a regional, coordinated effort to address safety concerns through enforcement and education with the end goal of transforming public attitudes and behavior as well as organizational culture to recognize that all transportation system users have a responsibility for other people's safety in addition to their own.



Prioritize Safety Improvements in Existing and New Development

Implement transportation safety solutions for all roadway users, particularly vulnerable roadway users, when considering new residential and commercial development in a manner that promotes responsible growth and economic development.



Improve Quality of Life

Consider inclusion of ADA compliant infrastructure for vulnerable roadway users in all transportation infrastructure improvement projects.

Safety Analysis

Using a Safe System Approach, the plan emphasizes proactive, human-centered strategies that mitigate the consequences of human error and prioritize safety for users of all ages and abilities. High-risk intersections and roadway segments were identified through crash-rate analysis, revealing several corridors with elevated concentrations of FSI crashes—particularly along high-speed state routes and complex intersections with turning conflicts.

Analysis shows that angle, hit-fixed-object, and rear-end crashes account for 80% of all incidents, with 59 fatal or serious injury (FSI) crashes occurring over the 5-year period.

Vulnerable Roadway Users (pedestrians and cyclists), although representing a small share of total crashes, experience disproportionately severe outcomes.

This study pairs the crash history findings with a Road Safety Audit and stakeholder input to identify and prioritize corridors for safety improvements aimed at reducing crash frequency and severity.

Public Engagement

Extensive public engagement—including surveys, mapping activities, stakeholder interviews, and in-person events—surfaced recurring community priorities: safer pedestrian infrastructure, stronger enforcement, traffic calming, and addressing congestion and development pressures. These insights directly informed the vision, goals, and scoring criteria used to prioritize projects.

FIGURE 3.1 – OUTREACH PROCESS TIMELINE

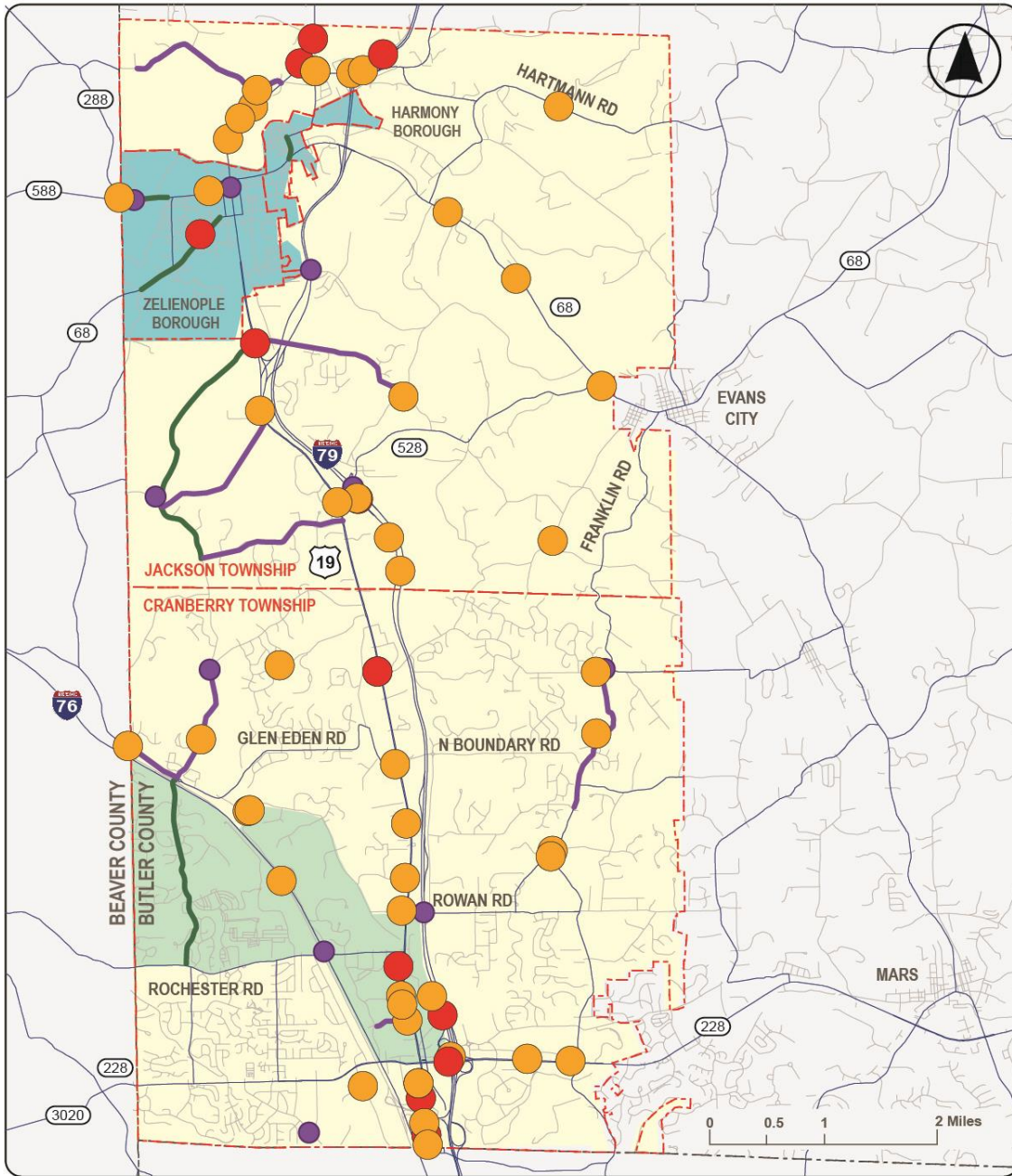


Recommendations

Based on the needs and risk analysis across the study area, 25 locations were identified as areas for targeted safety improvements. These opportunities were prioritized based on potential to improve safety conditions, promote local culture and collaboration, improve existing and new developments, and improve quality of life, as well as project readiness and public input.

Five priority corridor concepts were developed—featuring recommendations such as new roundabouts, sidewalk expansions/widening, traffic calming, ADA accessibility enhancements, crosswalk improvements, shared-use path connections, and intersection redesigns. An additional 20 project locations were identified with recommended countermeasures, cost ranges, implementation timeframes, and potential funding sources.

EXHIBIT 9.1-FATAL & SERIOUS INJURIES WITH SOCIAL VULNERABILITY INDEX AND PROPOSED PROJECT SITES



Legend		Crash Severity		Levels of Vulnerability	
	County		Fatal		Medium-High
	Study Municipalities		Serious Injury		Low-Medium
	State Roadways		Priority Projects		Low
	Local Roadways		Additional Projects		



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FSI & Social Vulnerability Index

Beyond infrastructure, the plan outlines policy recommendations supporting enforcement, multimodal safety, access management, and regional collaboration. The CSAP also outlines metrics to evaluate progress towards achieving these goals.

Implementation

This Plan serves as a strategic resource, guiding the integration of safety improvements with other infrastructure and development projects. Roadway owners, and those responsible for operating and maintaining traffic control devices and dedicated bicycle and pedestrian facilities, are encouraged to consult this plan to identify opportunities for partnerships that address overlapping community safety goals and priorities. This is especially valuable when roadway and bridge upgrades such as betterments or routine maintenance are scheduled, or where there are proposed real estate development projects that require improvements to the surrounding transportation network.

Implementation of the CSAP will require strategic coordination with PennDOT District 10-0, the Southwestern Pennsylvania Commission, Butler County, and local municipalities. Success will depend on leveraging competitive funding streams—including HSIP, TASA, CMAQ, CRP, ARLE, CFA Multimodal, and federal SS4A grants—and systematically tracking progress through annual evaluations.

Ultimately, the CSAP sets a path toward a safer, more resilient, and more connected transportation network in southwest Butler County—supporting local quality of life, economic development, and *the region’s shared commitment to achieving zero roadway fatalities by 2050.*

Section 1. Introduction

In 2023, four municipalities – Cranberry and Jackson Townships and the Boroughs of Zelienople and Harmony received a United States Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) grant to complete this Comprehensive Safety Action Plan (CSAP).

This plan is intended to create a CSAP that will provide a roadmap for the efficient and effective implementation of safety projects throughout the region. The CSAP will complement ongoing initiatives to develop a safer and more accessible transportation system for all users and modes of travel, while serving as a framework for future infrastructure investments. Developing a CSAP focused on implementation is vital, as it will provide a framework for real world, readily implementable solutions to address safety both proactively and reactively.

This Action Plan is in support of the 2022 Pennsylvania Strategic Highway Safety Plan (SHSP) goal to reduce fatalities on Pennsylvania’s roadways with the ultimate objective of zero fatalities by the year 2050. This represents a reduction in fatalities of 2% annually.

Similarly, the CSAP supports both Pennsylvania and the Southwestern Pennsylvania Commission’s (SPC) adopted Federal Safety Performance Measures (PM 1), established under 23 CFR 490.209(a). These statewide and regional performance targets include reducing fatalities by 2% annually and having zero annual increase to serious injuries.

These municipalities have a long track record of working together to address common issues in each municipality, such as trail development, stormwater management, and now, transportation safety.

FIGURE 1.1 – PENNSYLVANIA STRATEGIC HIGHWAY SAFETY PLAN



SAFE SYSTEM APPROACH

The CSAP will be developed using a Safe System Approach which is a comprehensive framework that focuses on reducing fatalities and serious injuries through a set of five elements, shown in **Figure 1.2**, and six key principles.

1. **Death and serious injuries are unacceptable.** Parties involved in delivering the CSAP must begin with an understanding that zero transportation-related deaths are the only successful outcome to this effort.
2. **Humans make mistakes.** The CSAP for the region must acknowledge that crashes will occur, but the severity of these incidents must be minimized through lower travel speeds and roads that are designed to reduce the risk of traveler mistakes.
3. **Humans are vulnerable.** Actions defined through the CSAP must be human centric and consider all types of travelers.
4. **Responsibility is shared.** Collaboration – inviting dialogue and incorporating feedback into prioritized solutions – will lead to better outcomes for travelers.
5. **Safety is proactive.** Available data and emerging tools must be applied to identify safety risks, anticipate crashes, and provide faster incident response.
6. **Redundancy is crucial.** Safety systems must work in concert to account for gaps that exist under the dynamic conditions that travelers in the county face daily.

FIGURE 1.2 – FEDERAL SAFE SYSTEMS APPROACH



PLANNING PROCESS

The CSAP focuses on gathering data and input from the community, identifying areas of safety concerns, and identifying countermeasures to address those safety concerns. The development of this CSAP followed the process below:

1. Define the planning structure for the Safety Action Plan.
2. Collect and analyze safety data within the Action Area through:
 - a. Safety Data Analysis
 - b. Community and Stakeholder Engagement
 - c. Roadway Safety Audits
3. Define the Vision, Goals, and Metrics used to select and prioritize projects.
4. Select projects and applicable safety countermeasures.
5. Prioritize projects for implementation.
6. Review policies and provide recommendations.
7. Develop a plan for measuring the Action Plan's progress.
8. Establish Leadership Commitment and Plan Adoption.

PLANNING STRUCTURE

To guide development of the CSAP, a Planning Committee was established by the municipalities and consisted of the following members:

- Kyle Beidler, Ph.D., RLA, AICP, Cranberry Township Assistant Township Manager, CPO
- Chris Rearick, AICP, Jackson Township Manager
- Andrew Spencer, Zelienople Borough Manager
- Mary Hess, Zelienople Borough Council
- Greg Such, Harmony Borough Council President

The Planning Committee met six times during the year-long planning process. The Planning Committee will continue to play a critical role throughout the implementation and monitoring of the Action Plan. **Table 1.1** provides details on the key milestones discussed at each meeting.

TABLE 1.1 – MEETING MILESTONES

Meeting	Key Milestones	Meeting Date
1	Review Work Plan, discuss data needs, public engagement approach and establish PC meeting schedule	May 30, 2025
2	Review existing plans and projects, discuss safety conditions, review public engagement findings, discuss leadership commitment requirements	August 22, 2025
3	Review findings of Road Safety Audits (RSA), discuss leadership commitment, review goals and strategies	October 24, 2025
4	Discuss recommended countermeasure strategies and projects	November 24, 2025
5	Review draft plan and its recommendations	January 30, 2026
6	Review feedback from planning committee meeting and finalize plan for adoption	March 6, 2026

SOUTHWEST BUTLER COUNTY COMMUNITY CONTEXT

The southwest Butler County region is comprised of Cranberry and Jackson Townships and the Boroughs of Harmony and Zelienople. This part of Butler County, Pennsylvania, includes traditional boroughs incorporated in 1840 and townships established in 1804 and 1854. These two boroughs have a walkable, grid street network and traditional main streets that are home to businesses, restaurants and gathering spaces. Cranberry and Jackson Townships are both high-growth areas of the County that are characterized by auto-oriented commercial development along major corridors (SR-228, SR-528, US-19) with low-to medium-density residential development situated throughout the two Townships. Both Cranberry and Jackson have impact fee programs and development policies in place that require developers to provide pedestrian infrastructure within developments; however, gaps exist between developments that can leave pedestrians vulnerable when traveling between other residential developments to parks, schools, and commercial areas.

These two different development patterns present their own unique challenges and opportunities in transportation safety. This CSAP will examine current conditions and recommend countermeasures at intersections and along corridors where safety concerns are identified by data, community and stakeholder input and through field views and Road Safety Audits. The plan will also recommend policy changes to enhance the safety culture and to address non-infrastructure related issues and concerns.

Section 2. Current Safety Conditions

To better understand the crash history in the study area, it is important to consider the broader crash trends across the state of Pennsylvania. These statistics point to a fatal and serious injury crash peak in 2020, a trend observed nationally, followed by a general decline of these crash types. There is an inverse trend showing an increase in non-motorized (pedestrian and cyclist involved) crashes across the state since 2020.

According to the USDOT Federal Highway Administration [State Highway Safety Report for Pennsylvania](#), the 5-year average of fatalities was reported to be 1161.6 across the state for the 5-year period ending in 2023 (**Figure 2.1**), with an average fatality rate of 1.180 fatalities per 100 million vehicle miles traveled (MVMT).

The 5-year average of serious injuries caused by crashes was reported to be 4,738.6 serious injuries across the state (**Table 2.1**) with an average rate of 4.806 per 100 million MVMT. Trends between 2017 to 2023 generally show both average fatality rates increasing and serious injury rates increasing.

The 5-year average of Non-Motorized Fatalities and Serious Injuries has been steadily increasing, with an average of 830.2 Non-Motorized Fatalities and Serious Injuries crashes occurring per year. Locally driven safety projects and policies can contribute to improving statewide averages.

FIGURE 2.1 – NUMBER OF FATALITIES, PENNSYLVANIA STATEWIDE

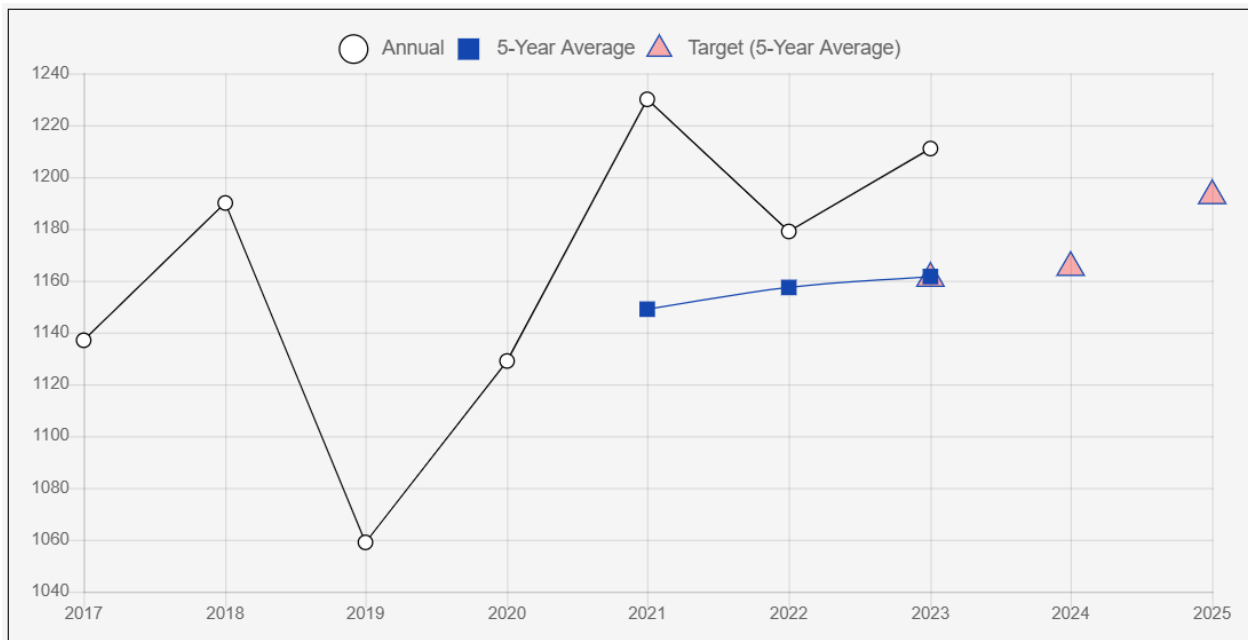


TABLE 2.1 – FATALITY TRENDS, PENNSYLVANIA STATEWIDE

Fatalities	2017	2018	2019	2020	2021	2022	2023	2024	2025
Annual	1,137	1,190	1,059	1,129	1,230	1,179	1,211		
5-Year Average					1,149.0	1,157.4	1,161.6		
Target (5-Year Average)							1,160.9	1,165.1	1,192.8

CRASH TYPES

Crash type distribution provides insight into the predominant conflict patterns within the Study Area. A total of 1,739 crashes were recorded in the 5-year analysis period between January 1, 2019 and December 31, 2023. As shown in Table 2.2, angle crashes represent the largest share (30%), closely followed by hit-fixed-object (26%) and rear-end collisions (24%). Together, these three crash types comprise 80% of all reported crashes.

- Angle crashes (30%) typically occur at intersections or driveways and signal challenges associated with turning movements, sight distance limitations, and conflicting vehicle paths. These are prominent throughout the corridor, particularly in denser commercial areas, as illustrated on **Exhibit 2.1**.
- Hit-fixed-object crashes (26%) occur frequently along higher-speed segments, suggesting issues such as lane departure, roadside hazards, or driver loss of control.
- Rear-end crashes (24%) reflect congestion, closely spaced driveways, fluctuating speeds, and queueing near signalized intersections.
- Less common crash types such as sideswipes (4%), head-on crashes (2%), backing collisions (0.2%), and pedestrian crashes (1%) account for the remainder.

Fatalities and Serious Injury (FSI) crash types reveal similar patterns. **Table 2.3** shows that among the 59 FSI crashes, angle crashes (31%) and hit-fixed-object crashes (24%) remain the most prevalent, followed by rear-end crashes (19%). Head-on crashes, while infrequent overall, represent 10% of FSI crashes, underscoring their higher severity potential. Pedestrian crashes comprise 8% of FSI crashes despite representing only 1% of all crashes, a notable imbalance indicating increased vulnerability.

Exhibit 2.1 demonstrates that angle and rear-end crashes cluster in the southern portion of the Study Area, while hit-fixed-object crashes are more dispersed along state road segments.

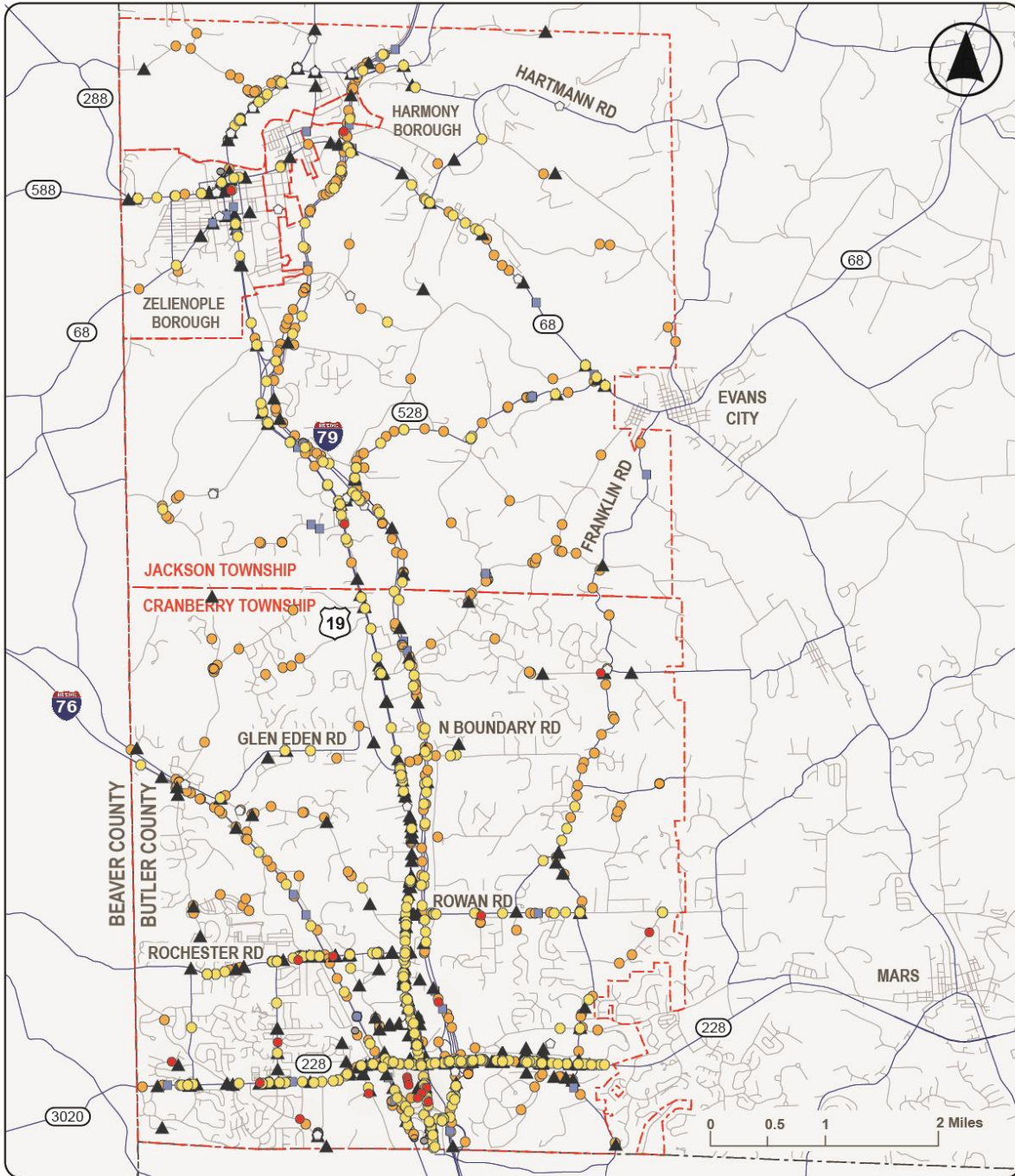
TABLE 2.2 – CRASH TYPE BREAKDOWN (ALL)

Crash Type	2019-2023	
	Total	Percentage
Angle	528	30%
Hit-Fixed-Object	449	26%
Rear-End	425	24%
Other / Unknown / Non-Collision	211	12%
Sideswipe	61	4%
Head-On	42	2%
Hit Pedestrian	19	1%
Backing	4	0.2%
Total	1739	100%

TABLE 2.3 – CRASH TYPE BREAKDOWN (FSI ONLY)

FSI Crash Type	Fatal	Serious Injury	Total	% FSI by Type
Angle	4	14	18	31%
Hit-Fixed-Object	1	13	14	24%
Rear-End	3	8	11	19%
Head-On	1	5	6	10%
Hit Pedestrian	2	3	5	8%
Other / Non-Collision	2	3	5	8%
Total	13	46	59	100%

EXHIBIT 2.1 – COLLISION TYPES (2019–2023)



Legend

- | | | |
|----------------------|-----------------------|-----------|
| County | Collision Type | Head-On |
| Study Municipalities | Hit Pedestrian | Sideswipe |
| State Roadways | Hit-Fixed-Object | Backing |
| Local Roadways | Rear-End | Angle |

Collision Types (2019–2023)

CRASH SEVERITY

Crash severity trends help identify the extent of crash outcomes within the study area. As shown in **Table 2.4**, most crashes during the 2019–2023 period resulted in property damage only (63%), followed by suspected minor injuries (19%). More severe outcomes are less frequent, but remain a significant concern:

- 46 suspected serious injury crashes (3%)
- 13 fatal crashes (1%)
- Total FSI crashes: 59 (3.4%) of all crashes

Although small in percentage, FSI crashes have an outsized impact on community safety.

Figure 2.2 illustrates year-to-year variation in severe outcomes. Fatal crashes remained relatively low but consistent (2–4 per year), while serious injuries fluctuated between 6 and 13 annually. The highest number of serious injuries occurred in 2022, correlating with a noticeable concentration of FSI crash locations in the center of the study area as shown on **Exhibit 2.2**.

Spatial distribution of severity levels, as depicted in **Exhibit 2.2**, shows clusters of injury crashes around major corridors and intersections with high turning activity. FSI crashes, shown in **Exhibit 2.3**, are more common along higher-speed state routes, including north–south corridors where roadway geometry, speed transitions, and limited access control contribute to risk.

Motorcycle-related crashes **Exhibit 2.2** are dispersed throughout the region but exhibit a pattern of occurring along higher-speed roadways and curvilinear segments, which aligns with expected vulnerability for these users.

TABLE 2.4 – MAXIMUM SEVERITY DISTRIBUTION (ALL CRASHES) (2019–2023)

Maximum Severity	# of Crashes	Percentage
Property Damage Only	1,092	63%
Suspected Minor Injury	332	19%
Injury-Unknown Severity / Unknown	149	9%
Possible Injury	107	6%
Suspected Serious Injury	46	3%
Fatal	13	1%
Total	1,739	100%

FIGURE 2.2 – FATAL AND SERIOUS INJURY CRASH TRENDS (2019–2023)

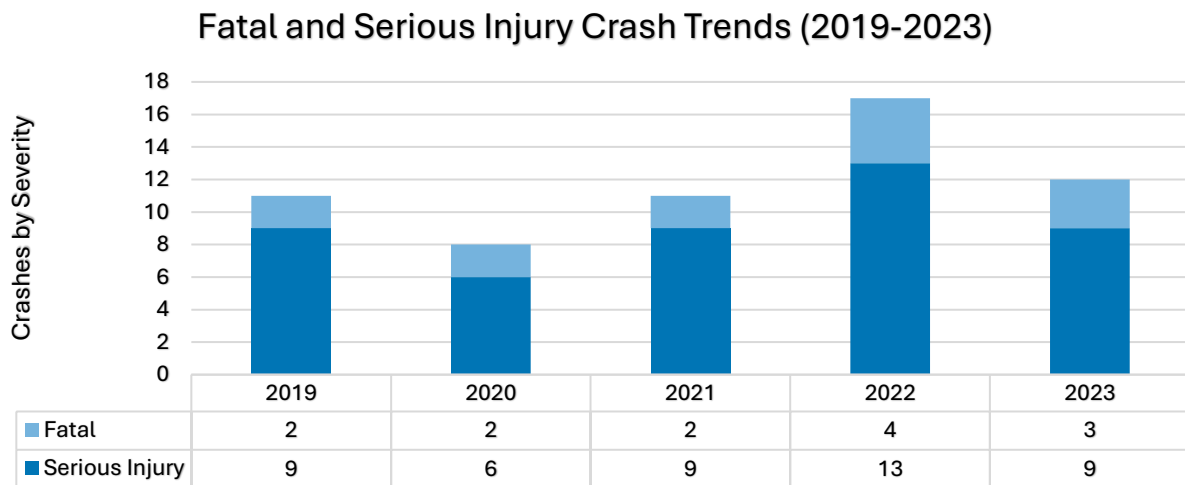
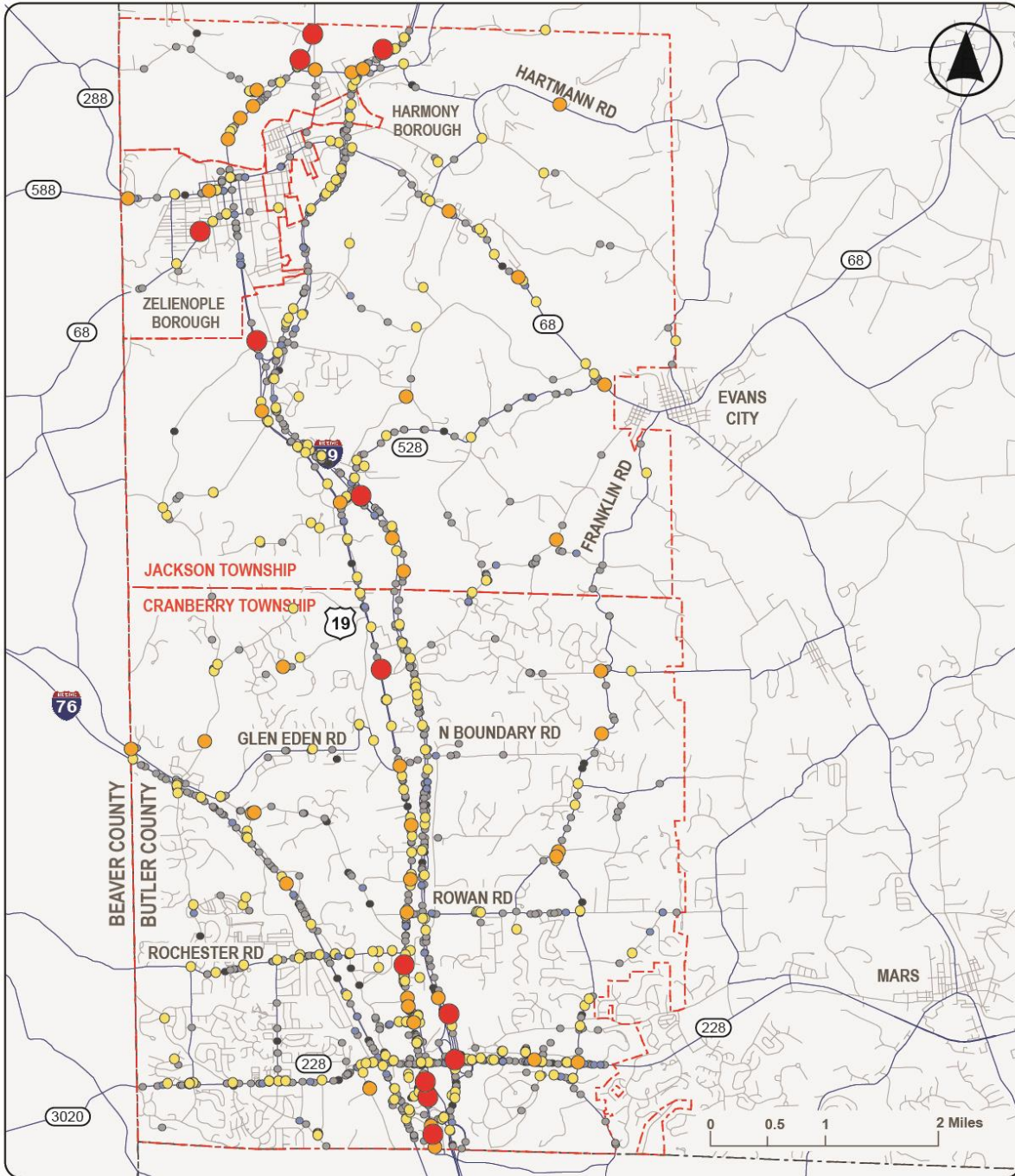


EXHIBIT 2.2 – CRASH SEVERITY (2019–2023)



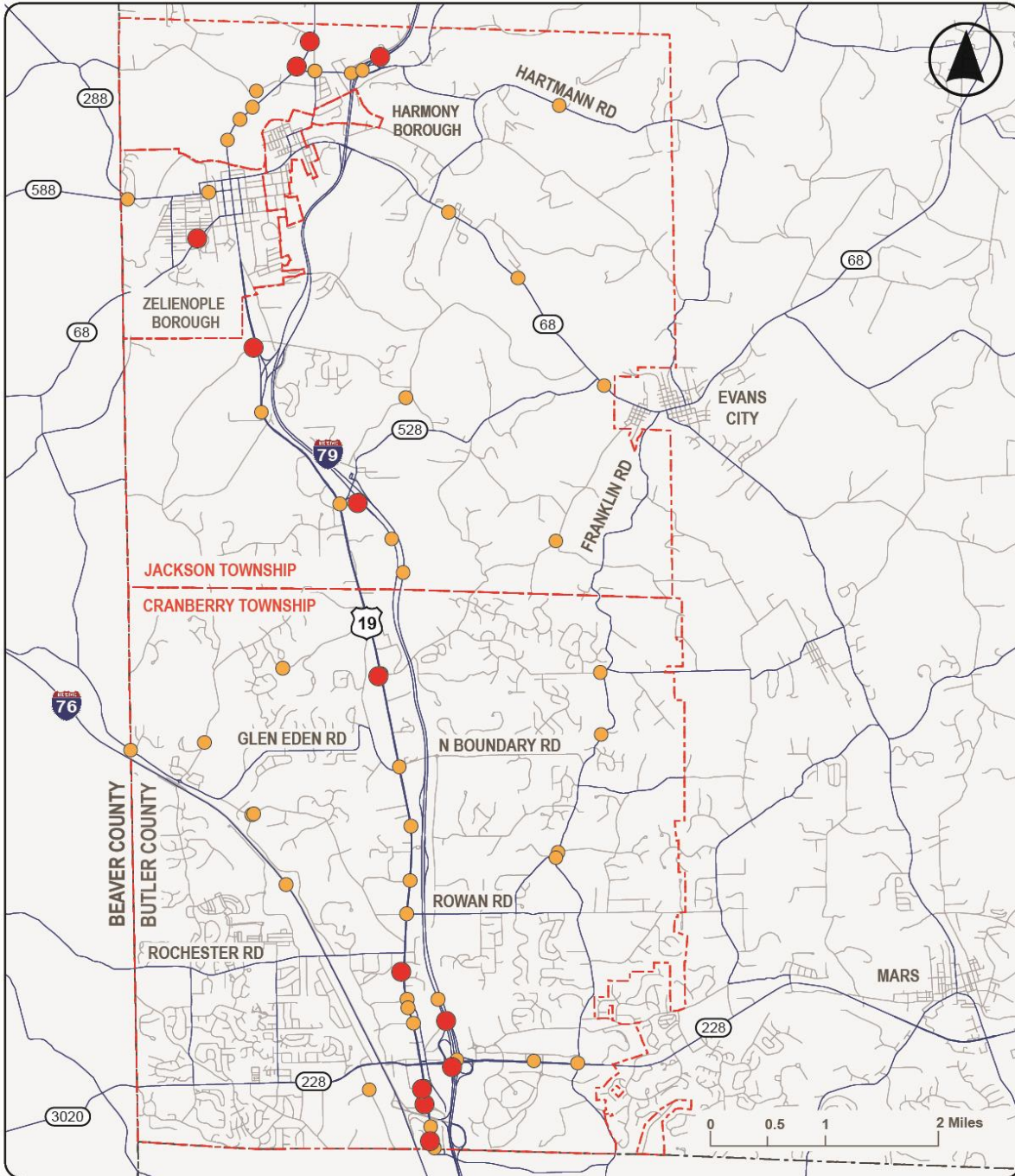
Legend

-  County
-  Study Municipalities
-  State Roadways
-  Local Roadways

Injury Severity

-  Fatal
-  Suspected Serious Injury
-  Suspected Minor Injury
-  Property Damage Only
-  Possible Injury
-  Unknown

EXHIBIT 2.3 – FATAL AND SERIOUS INJURY CRASH LOCATIONS (2019–2023)



Legend

-  County
-  Study Municipalities
-  State Roadways
-  Local Roadways

Crash Severity

-  Fatal
-  Suspected Serious Injury

VULNERABLE ROADWAY USERS

Vulnerable Roadway User (VRU) crashes, which involve pedestrians and cyclists, are a key part of the Action Plan because of their high potential for severity. **Table 2.5** shows 23 total VRU crashes between 2019 and 2023:

- 17 pedestrian crashes
- 6 cyclist crashes

Although these crashes make up a small portion of total collisions, their severity is disproportionately high. Several years recorded multiple pedestrian crashes, including four in 2019 and four in 2023. Cyclist crashes were infrequent but increased slightly in 2023. Spatial patterns in **Exhibit 2.4** demonstrate that VRU crashes cluster in areas with pedestrian activity, including:

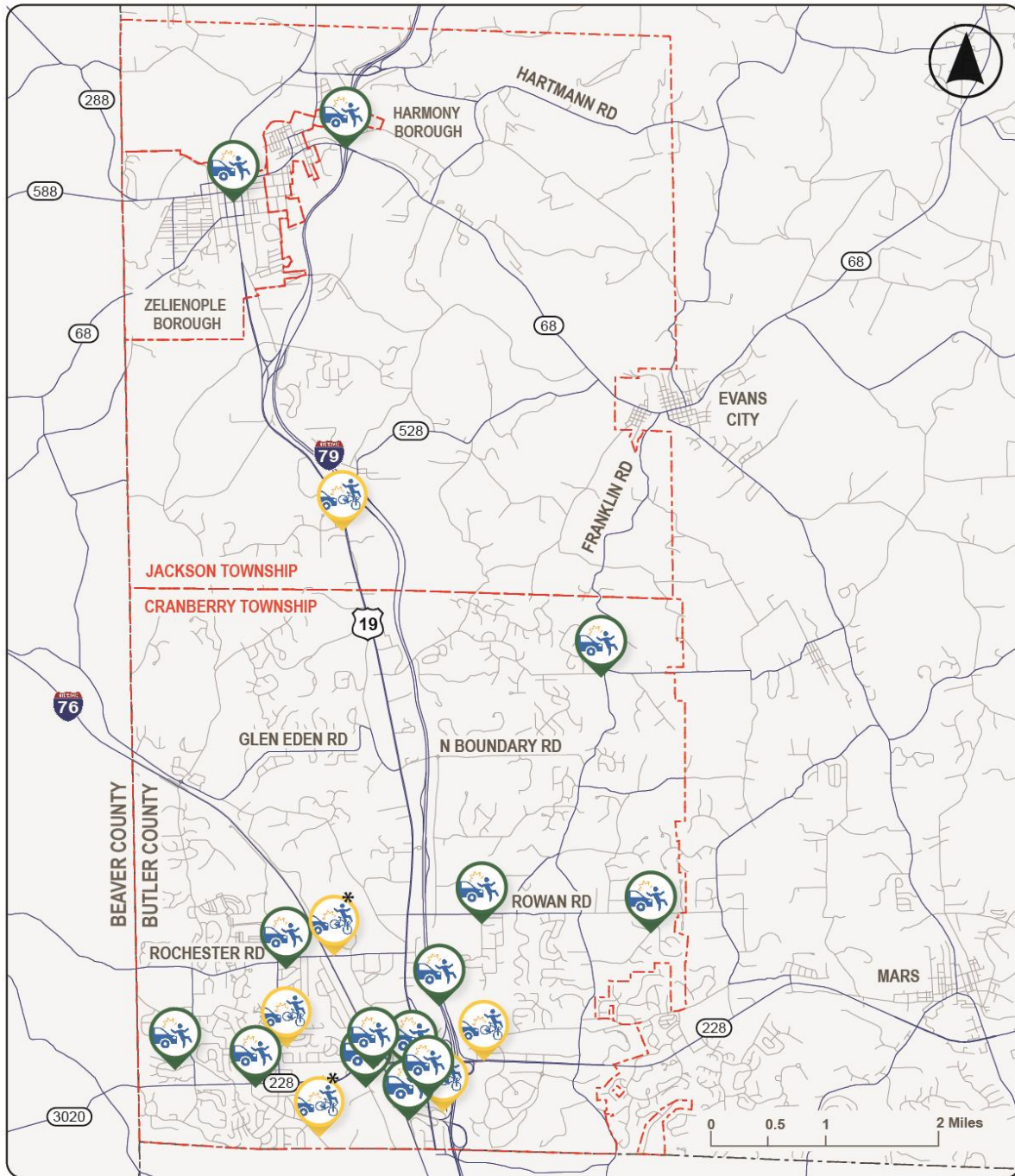
- Residential neighborhoods
- Intersections with limited crossing infrastructure
- Large retail areas and major parking lots

These locations typically feature multiple conflict points, driveway density, and pedestrian exposure.

TABLE 2.5 – NUMBER OF CRASHES INVOLVING PEDESTRIAN OR CYCLISTS (2019–2023)

Year	2019	2020	2021	2022	2023	Total
Hit Cyclist	0	2	0	2	2	6
Hit Pedestrian	4	4	2	3	4	17
Total	4	6	2	5	6	23

EXHIBIT 2.4 – PEDESTRIAN AND CYCLIST INVOLVED CRASH LOCATIONS (2019–2023)



Legend

-  County
-  Study Municipalities
-  State Roadways
-  Local Roadways

Crash Type

-  Pedestrian Involved
-  Cyclist Involved

 * Additional Data Provided by Public Feedback



SOUTHWEST BUTLER COUNTY
Multi-Municipal Safety Action Plan

**Pedestrian and Cyclist
Crash Locations
(2019–2023)**

CRASH BUFFER ANALYSIS

The transportation network in the study area was assessed using an intersection crash cluster analysis and uniform segment crash analysis. Crash rate calculations rely on Average Annual Daily Traffic (AADT) volume data, historical crash data, and segment lengths. The segments generally follow locations where count data was available from PennDOT's Traffic Information Repository (TIRe). For segments lacking readily available count data, the count data from a neighboring segment was assumed or estimated to calculate an approximate crash rate for comparison.

The roadway network was broken into intersections and segments at key locations to determine the **High Injury Network (HIN)**, which represents the location of the majority of Fatal and Serious Injury crashes. For the buffer analysis, corridor segments change when traffic volumes change, and intersection clusters occur at the junction of two or more corridor segments. A buffer analysis was conducted; a 250' buffer was extended from the center of each intersection to assign crashes to intersections within their area of influence, or to a neighboring segment.

The crash data was manually assessed to refine and assign crashes to segments or intersections. Approximately 66% of total crashes were captured by the buffer analysis. The remaining crashes are scattered throughout the transportation system, typically on smaller roads without AADT data where a crash rate could not be readily calculated.

INTERSECTION ANALYSIS

The intersection-level buffer analysis highlights locations with the highest total crash frequencies or FSI crash frequencies. Seventy (70) unique intersection buffers were analyzed. **Exhibit 2.5** presents total crash rates for intersection buffers across the study area and labels the Top 10. A complete list of intersection crash rates using total crashes can be found in **Appendix C**.

The three highest intersection crash rates for **all** crashes are:

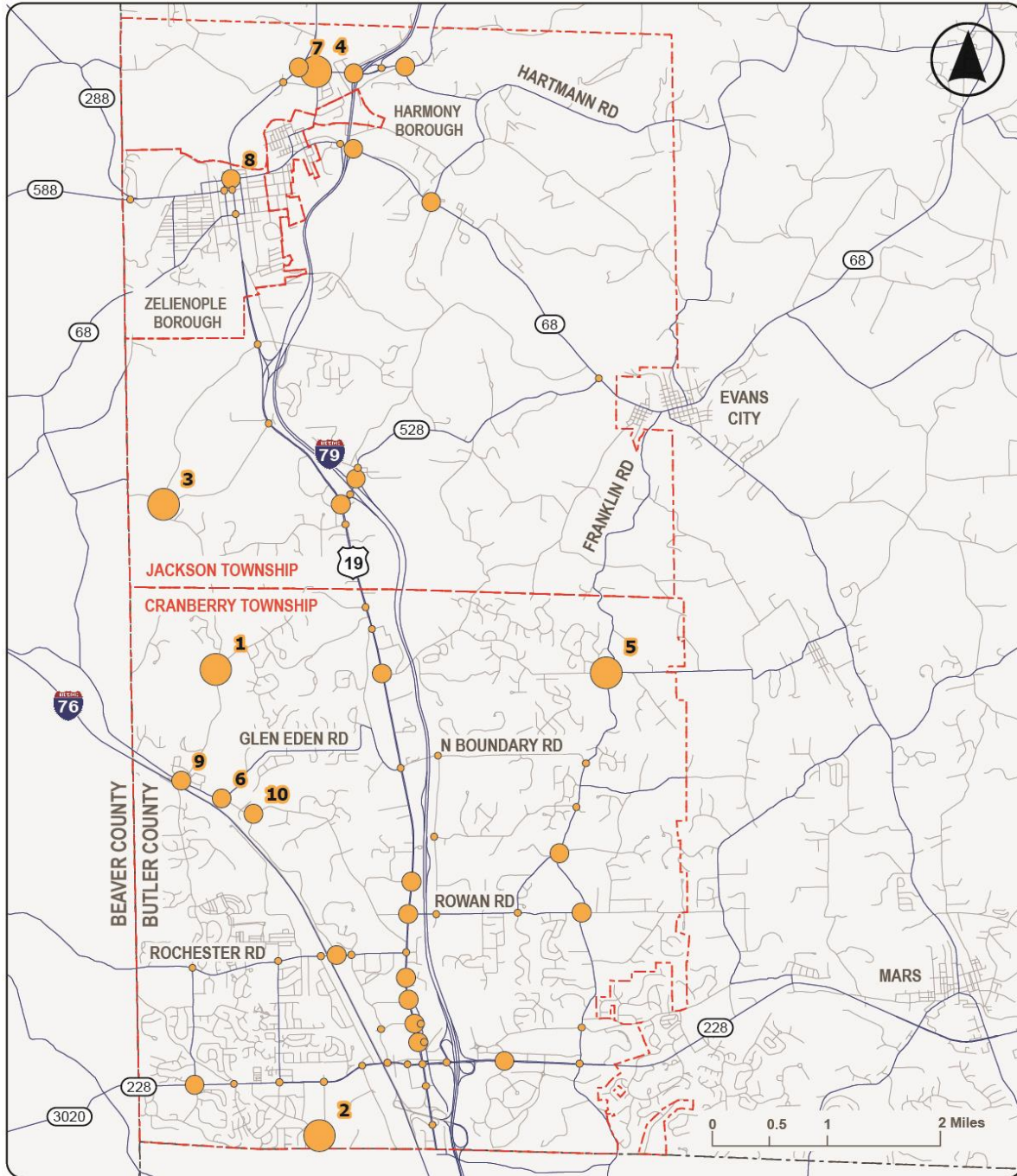
1. Freshcorn Road at Heights Drive (1.68 crashes per 1 MVMT)
2. Thorn Hill Road at Rolling Road (1.65 crashes per 1 MVMT)
3. Zehner School Road at Gudekunst Road (1.14 crashes per 1 MVMT)

Exhibit 2.6 presents FSI-only crash rates for intersection buffers across the study area and labels the Top 10. A complete list of intersection crash rates using FSI crashes can be found in **Appendix C**.

The three highest intersection crash rates for **FSI** crashes are:

1. Graham School Road at Unionville Road (0.30 FSI crashes per 1 MVMT)
2. Franklin Road at Rowan Road /Hope Road (0.16 FSI crashes per 1 MVMT)
3. Franklin Road at Ehrman Road (0.15 crashes per 1 MVMT)

EXHIBIT 2.5 – INTERSECTION BUFFER CRASH RATES & TOP 10 RANKING (TOTAL CRASHES)



Legend

-  County
-  Study Municipalities
-  State Roadways
-  Local Roadways

Intersection Crash Rate (Total)




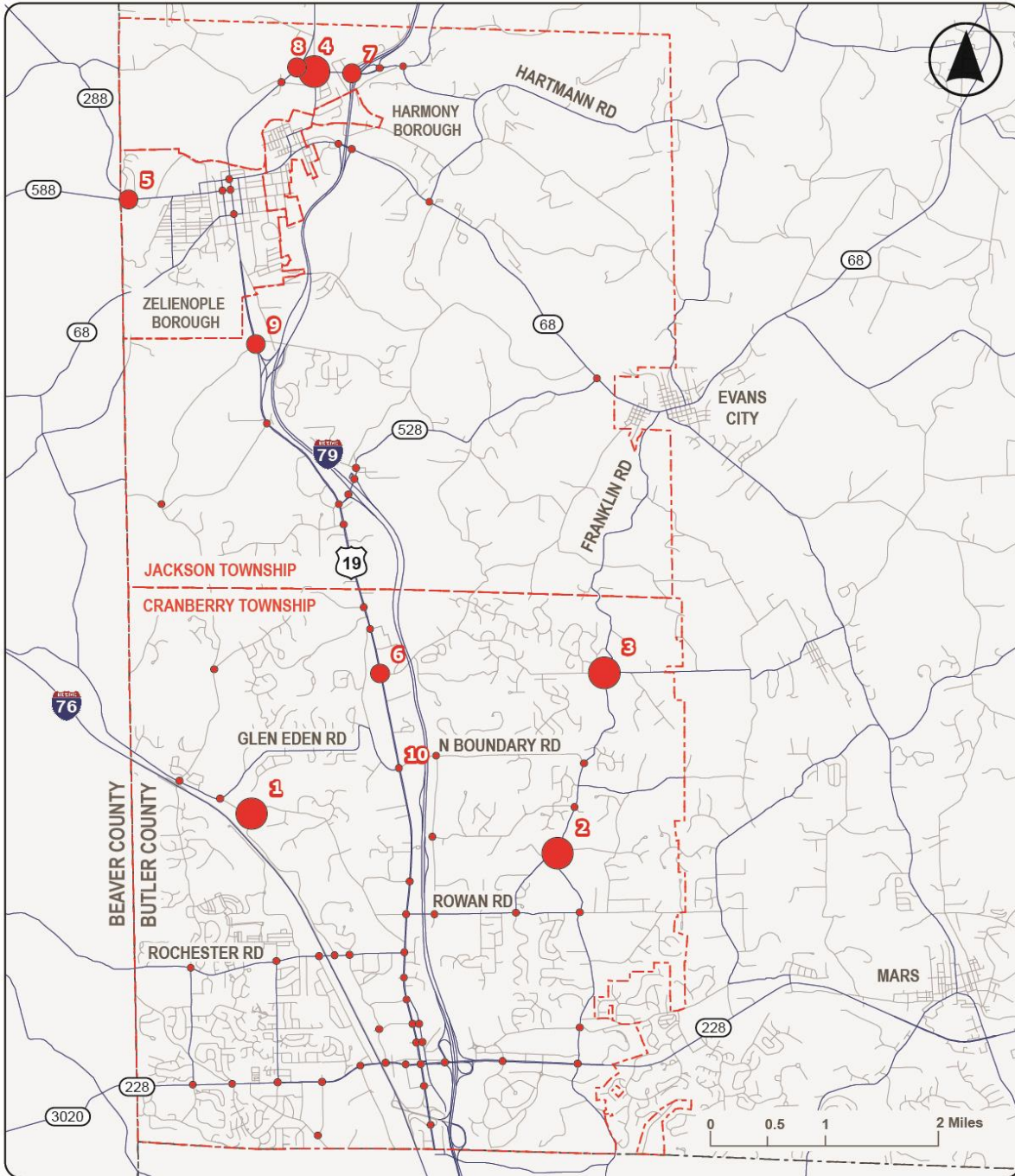

-  <0.25 Crashes per MVMT
-  0.25 to 0.75 Crashes per MVMT
-  >0.75 Crashes per MVMT


EXHIBIT 2.6 – INTERSECTION BUFFER CRASH RATES & TOP 10 RANKING (FSI CRASHES)



Legend

-  County
-  Study Municipalities
-  State Roadways
-  Local Roadways

Intersection Crash Rate (FSI)

-  <0.025 FSI Crashes per MVMT
-  0.025 to 0.10 FSI Crashes per MVMT
-  >0.10 FSI Crashes per MVMT

SEGMENT ANALYSIS

Segment-level analysis identifies longer stretches of roadway between intersection buffers. Ninety-six (96) unique intersection buffers were analyzed. **Exhibit 2.7** presents total crash rates for segment buffers across the study area and labels the Top 10. A complete list of segment crash rates using total crashes can be found in **Appendix C**.

The three highest segment crash rates for **all** crashes are:

1. Cranberry Square Drive from Executive Drive to US 19 (674.457 crashes per 100 MVMT)
2. Lutz Road from Zehner School Road to US 19 (461.87 crashes per 100 MVMT)
3. Fanker Road from Dutch Road to US 19 (413.707 crashes per 100 MVMT)

Exhibit 2.8 presents FSI-only crash rates for segment buffers across the study area and labels the Top 10. A complete list of segment crash rates using FSI crashes can be found in **Appendix C**.

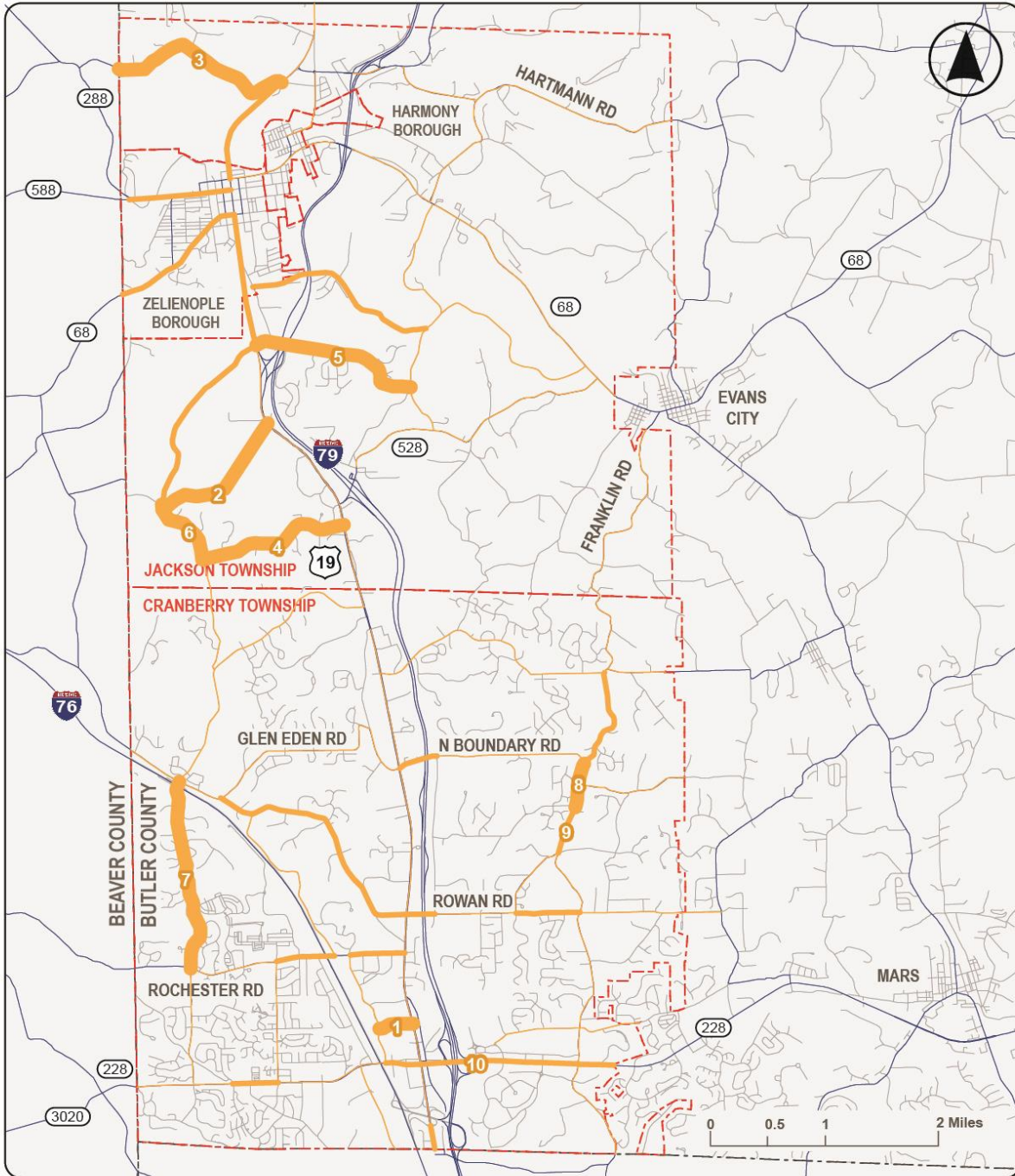
The three highest segment crash rates for **FSI** crashes are:

1. Freshcorn Rd from Heights Drive to Glen Eden Road (66.365 crashes per 100 MVMT)
2. Glen Eden Road from Carlyle Drive to Powell Road /Freshcorn Road (31.985 crashes per 100 MVMT)
3. Franklin Road from T 313/Callery Road to North Boundary Road (26.434 crashes per 100 MVMT)


The crash history analysis summarizes when, where, and under what conditions crashes occurred within the study area from 2019 to 2023. The results identify clear safety concerns across intersections and roadway segments, with angle, hit-fixed-object, and rear-end crashes comprising the majority of collisions. These patterns are closely linked to turning conflicts, access density, speed differentials, and roadside conditions, especially along higher-speed routes and commercial corridors.

Although most crashes resulted in property damage only, FSI crashes occur disproportionately along high-speed arterials and rural roadways, at complex intersections, and in areas with changing roadway context. VRU crashes show elevated severity and cluster in areas with pedestrian activity and limited sidewalks and crosswalks. This study pairs the crash history findings with a Road Safety Audit and stakeholder input to identify and prioritize corridors for safety improvements aimed at reducing crash frequency and severity.

EXHIBIT 2.7 – ROADWAY SEGMENT CRASH RATES & TOTAL 10 RANKING (TOTAL CRASHES)



Legend

-  County
-  Study Municipalities
-  State Roadways
-  Local Roadways

Segment Crash Rate (Total)




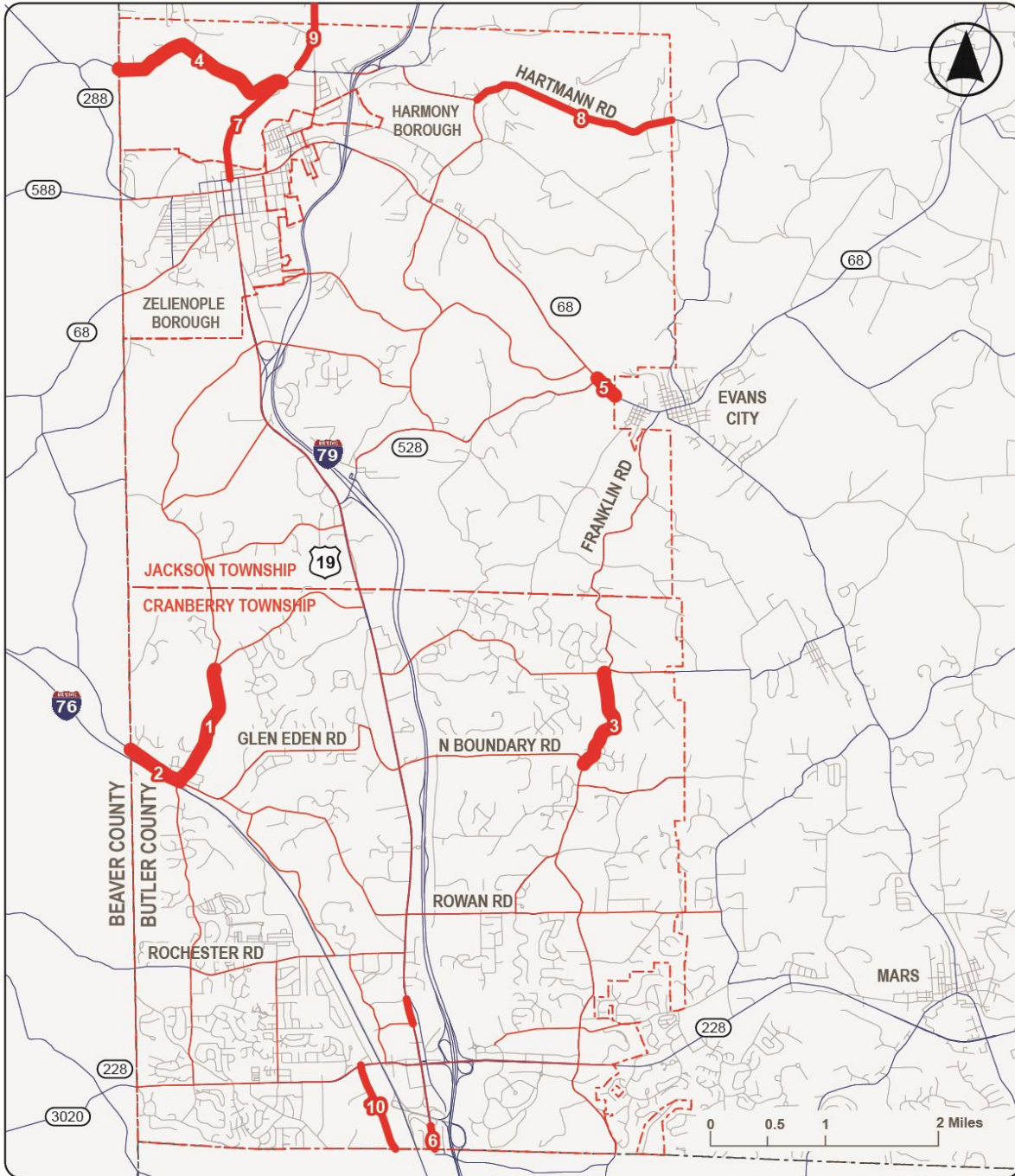
-  <100 Crashes per 100 MVMT
-  100 to 200 Crashes per 100 MVMT
-  >200 Crashes per 100 MVMT

EXHIBIT 2.8 – ROADWAY SEGMENT CRASH RATES & TOTAL 10 RANKING (FSI CRASHES)



Legend	
	County
	Study Municipalities
	State Roadways
	Local Roadways
	Segment Crash Rate (FSI) <10 FSI Crashes per 100 MVMT
	10 to 20 FSI Crashes per 100 MVMT
	>20 FSI Crashes per 100 MVMT



SOUTHWEST BUTLER COUNTY
Multi-Municipal Safety Action Plan

Segment Crash Rates & Top 10 Rankings FSI Crashes

CRASH HISTORY FINDINGS

Crash history plays an important role in showing where reportable crashes have occurred in the past. To gain comprehensive view of safety in the study area, including assessing future crash risks, the project team used a multi-pronged approach including community input and in-person field visits. The project team gathered community input about safety concerns and areas of near-misses and conducted Road Safety Audits throughout the study area to visually observe roadway and roadside geometry, road user behavior, and conflict areas to develop a comprehensive list of projects and policies to improve safety.

Section 3. Public Engagement

Public engagement was central to this effort. By gathering input from residents, stakeholders, and community partners, the plan reflects local values and priorities and guides the development of targeted safety strategies, policies, and projects. **Figure 3.1** depicts the CSAP Outreach process timeline. The full Outreach Summary for the CSAP can be found in the Outreach Summary (**Appendix B**).

Five primary outreach methods were used to support the CSAP effort:

- Planning Committee
- Stakeholder Interviews
- Online Engagement
- Public Meetings
- Promotions and Advertisements

FIGURE 3.1 – OUTREACH PROCESS TIMELINE



Round 1 of the CSAP outreach was conducted from July 7 through August 29, 2025. This first round focused on educating and informing the community about the CSAP and Vision Zero initiatives, as well as gathering initial safety input. Round 1 engagement utilized a

combination of feedback tools (digital/paper surveys, interactive map, comment form), informational materials (website, fact sheet, business cards, boards), promotion (social media, email blast, press release, digital toolkit), and direct communication (stakeholder meetings, community open house) as summarized in **Figure 3.4**.

Round 2 began on February 13, 2026. The draft CSAP was posted to the project website on February 13, 2026, and was promoted via a press release, the Planning Committee, Butler County, and social media. The Plan was open for public review until February 27, 2026.

STAKEHOLDER INTERVIEWS

Six stakeholder interviews were held in Round 1 which offered diverse insights to support a balanced, representative plan. They supplemented policy reviews and safety and equity analyses with deeper context on challenges and investment decisions.

FIGURE 3.2 – EMAIL GRAPHIC SENT FOR STAKEHOLDER INTERVIEWS



This group encompassed a variety of interests and expertise from critical stakeholders. As part of the stakeholder interview process, the project team provided an overview of the CSAP, including its purpose and goals. Participants were briefed on current crash data, the analytical methods used in the CSAP, and the identified safety emphasis areas. This foundation ensured stakeholders had a clear understanding of the project’s context before sharing their perspectives and input.

The key concerns and priorities included:

- Traffic Enforcement & Driver Behavior
- Infrastructure & Design Improvements
- Growth, Congestion & Development Pressure
- Safety Culture & Behavior Change
- Vulnerable Roadway Users
- Emergency Response and Post-Crash Care

- Municipal Coordination
- Policy and Legislative Gaps

Stakeholder meeting attendees by date and a summary of key concerns and priorities can be found in the Outreach Summary (**Appendix B**).

TABLE 3.1 – STAKEHOLDER MEETING ATTENDEES

Participants	Agency/Entity
Participants 8.18.2025	
Nathan Werner	Butler County
Sheryl Kelly	Butler County
Molly Hobba	Butler County
Mark Gordon	Butler County
Michael Musser	SAG-PA
Participants 8.19.2025	
Adam Hartwig	Alliance for Nonprofit Resources
Zeke Reed	Jackson Township Police Department
Chris Rearick	Jackson Township
Michael Malak	Cranberry Township
Kelly Maurer	Cranberry Township
Sandra Curry	Community Partnership, Inc.
Participants 8.25.2025	
Kim Geyer	Butler County Commissioner
Kevin Boozel	Butler County Commissioner
David Heaton	The Buncher Company
Participants 8.28.2025	
Leslie Osche	Butler County Commissioner
John Paul	Butler Transit Authority
Ron Henshaw	Cranberry Township
Anna Richard	Cranberry Township
Matt Nickl	Cranberry Township EMS, Harmony EMS
Participants 9.03.2025	
Lillie Gabreski	SPC
Ryan Gordon	SPC
Evan Schoss	SPC
Devon White	SPC
Adam L Marshall	PennDOT District 10-0
Chris A Forsha Jr.	PennDOT District 10-0

ONLINE ENGAGEMENT

An interactive project website was developed and used to disseminate information and collect input on safety concerns and priorities.

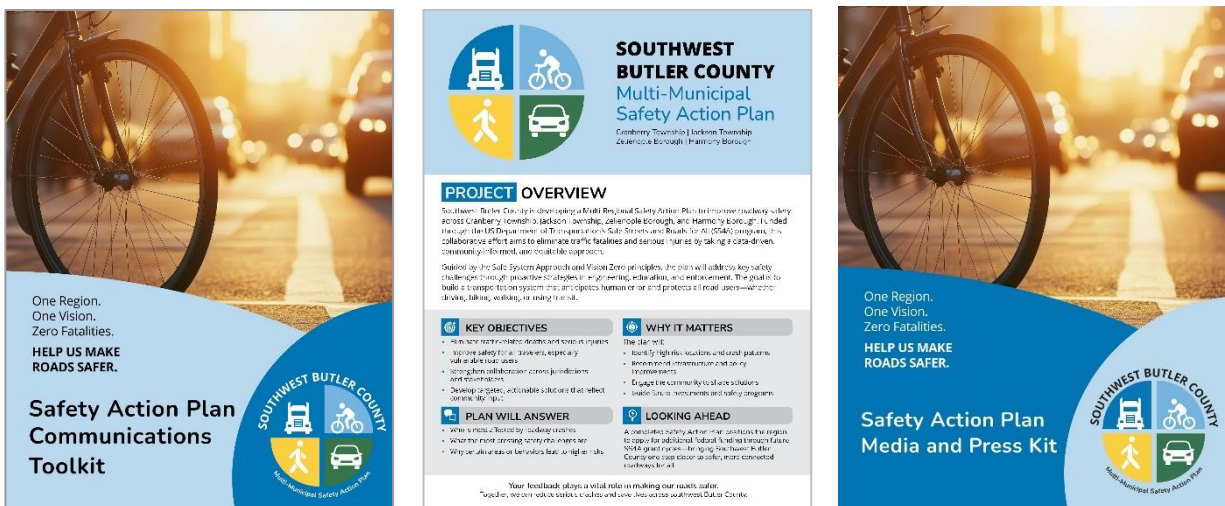
Project Resources

The project website contained a suite of project resources aimed at informing the public and providing them with tools to assist in spreading the word about the plan and to help encourage participation. The resources included a press kit, project fact sheet, and communications tool kit. A full description of the project resources can be found in the Outreach Summary (**Appendix B**)

The one-page fact sheet offered a concise overview of the Southwest Butler County Safety Action Plan and was distributed, along with project business cards, to stakeholders and the public to help promote the survey.

To further support outreach, the project team developed a digital communications toolkit for stakeholders and partner organizations. This resource—shared with the Steering Committee and community groups—featured ready-to-use materials, including the fact sheet, web banners, social media graphics and messaging, newsletter content, talking points, and the CSAP logo. Both the toolkit and fact sheet were available for download on the project website.

FIGURE 3.3 – PROJECT RESOURCES



Safety Survey

The interactive website included a safety survey that was launched on July 7, 2025 to collect input from the community on the CSAP. Using the study, the team gathered feedback about the process, respondents’ safety concerns, and future considerations. The team conducted the survey online and in person at the open house. Overall, the project team received 161 complete surveys.

Table provides a breakdown of the top localities/zip codes for residents who submitted surveys:

TABLE 3.2 – NUMBER OF SURVEYS SUBMITTED PER ZIP CODE

ZIP Code	Neighborhood	Surveys Submissions
16066	Cranberry Township	96
16063	Zelienople	16
16037	Harmony	15
16033	Evans City	7
16046	Mars	7
16001 and 16002	Butler	5
16052, 16051, 15090, 16006, 15066, 15042, 16123, 16334, and 15005	Prospect, Portersville, Wexford, Boyers, New Brighton, Freedom, Fombell, Marienville, and Baden	9 (total)

Note: Six survey responses did not include zip codes

The project team distilled the responses into the three most prevalent themes:

- Theme 1: Enforcement of Traffic Laws and Driver Behavior
- Theme 2: Infrastructure Improvements
- Theme 3: Development and Congestion Concerns

Survey Open Response

The survey offered a section for open-ended responses. The responses revealed a strong community concern about traffic safety in southwest Butler County. Most participants reported neutral or negative experiences on local roads, citing frequent traffic violations, limited pedestrian protections, and increased congestion linked to development that strains existing infrastructure.

Few residents expressed confidence in their safety while traveling; most remained neutral or disagreed. Respondents emphasized the need for stronger enforcement—such as enhanced law enforcement presence and intersection cameras—to address speeding, red-light running, distracted driving, and aggressive behavior. Residents also called for pedestrian-focused improvements, including protected bike lanes and safer crossings.

Overall, the feedback highlights a clear demand for safer, more walkable communities, stronger traffic enforcement, and greater attention to development impacts.

Interactive Map

The online interactive mapping tool enabled respondents to pinpoint specific locations in southwest Butler County’s transportation network that need safety improvements. The project team received a total of 408 posts on the social map from 133 individual contributors. **Table** provides a breakdown of the top localities/zip codes for residents who contributed to the interactive map:

TABLE 3.3– CONTRIBUTIONS BY RESPONDENT LOCATION

Location	Contributions	% Contributions
Cranberry Township (15042, 15044, 16046, 16066)	325	79.7%
Zelienople (16033, 16063)	58	14.2%
Harmony (16037)	15	3.7%
Evans City (16033)	5	1.2%
Warrendale (16066)*	3	0.7%
Mars (16046)	2	0.5%

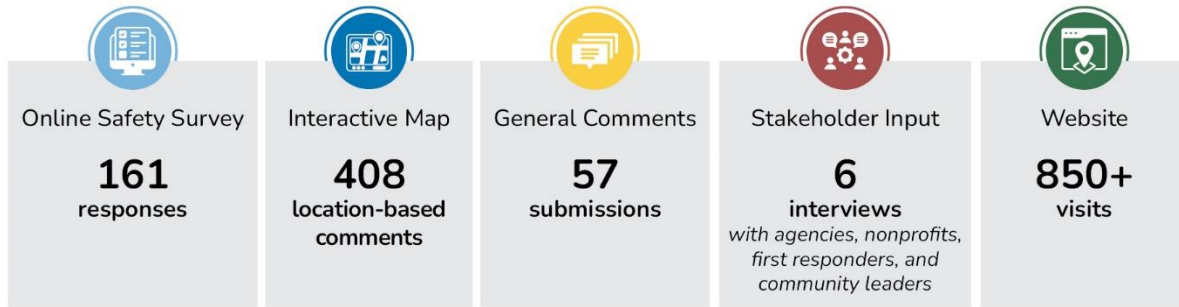
**Interactive map zip code results for Warrendale (16066) differ from Google Maps (15086)*

The project team identified three primary themes from the survey responses and organized them accordingly.

- Theme 1: Pedestrian and Cyclist Safety Infrastructure
- Theme 2: Traffic Enforcement and Driver Behavior
- Theme 3: Planning and Development Oversight

Along with the safety survey and interactive map, the CSAP website included a “general comment form” as an additional method for residents to share their input. This option gave individuals who lacked time for the full survey or map an easy way to share feedback and concerns in a quick, convenient format. Through this form, the project team received 57 general comments.

FIGURE 3.4 – ROUND 1 ONLINE ENGAGEMENT SUMMARY



Public Meetings

The project team held one public meeting during Round 1 (**Figure 3.4**) to reach a broader segment of the community through education and engagement.

FIGURE 3.5 – SOCIAL MEDIA GRAPHICS FOR PUBLIC MEETING



The meeting was held outdoors under a tent and staffed for four hours by representatives from AECOM, Kimley-Horn, and French Engineering. The setup included tables with project collateral and opportunities for engagement, while staff also circulated among nearby Community Day vendors to directly solicit feedback. **Table 3.4** summarizes the event dates, locations, and collateral provided to attendees.

TABLE 3.4 – PUBLIC MEETING MATERIALS

Station	Information
Crash Maps	Board: Crash Data: Maximum Severity of Crashes (2019-2023) Board: Crash Data: Pedestrian and Cyclist Crash Locations (2019-2023) <i>Materials: exhibition boards</i>
Additional Data	Board: Crash Data Statistics (2019-2023) Activity Board: Share your roadway safety concerns <i>Materials: exhibition boards</i>
Take Our Survey	Opportunity to take the survey on-site <i>Materials: iPad, hard copy of survey, QR code</i>
Registration	Board: Welcome sign Sign in for the open house Project Fact Sheet <i>Materials: Media kit, CSAP promo card, sticker</i>

Attendance at the Safety Action Plan public meeting was steady, with a flow of participants who actively engaged in discussions and shared valuable safety insights specific to the area. Project-branded stickers were also distributed, creating a positive, interactive experience. The feedback gathered during these sessions will play an important role in shaping next steps and reinforcing the value of continued community involvement.

FIGURE 3.6 – CRANBERRY TOWNSHIP COMMUNITY DAYS PHOTOS

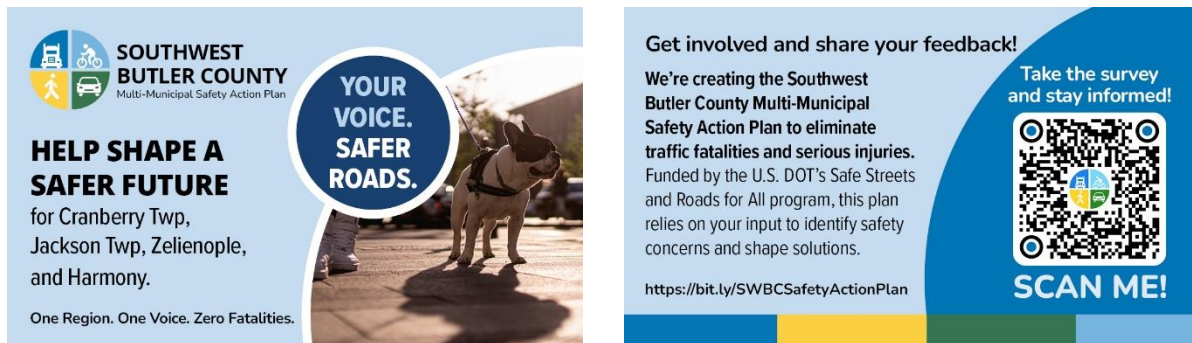


Project Collateral

To support outreach for the CSAP, the project team developed a collection of print and digital collateral to inform and engage the public and meeting participants. The collateral included:

- Fact sheet
- Project business card (**Figure 3.7**)
- Branded project sticker
- Social media graphics and campaign materials
- Digital communications toolkit
- Presentation boards and maps
- Planning Committee PowerPoint presentation

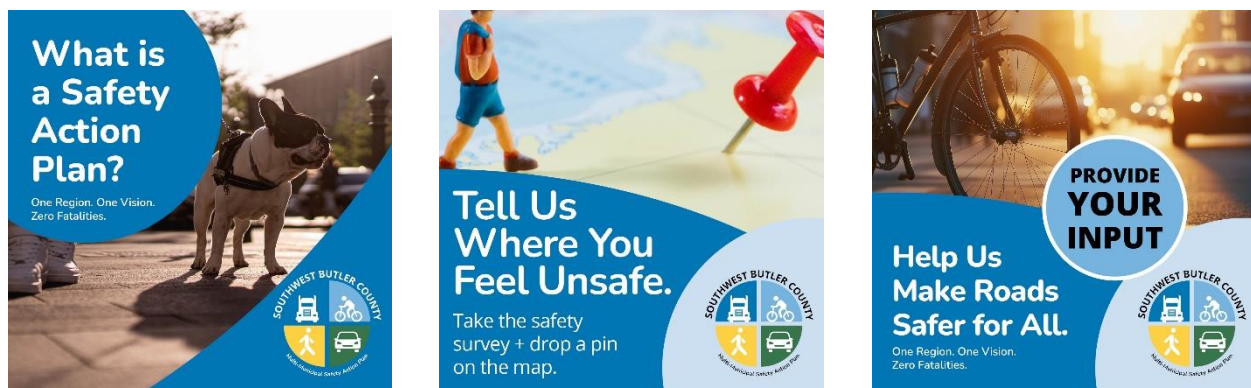
FIGURE 3.7 – PROJECT BUSINESS CARD



Social Media

The project team leveraged partner organizations’ social media channels to share content (**Figure 3.8**) and engage with the community. These efforts helped broaden reach and build awareness, with ongoing engagement planned to maintain momentum leading into Round 2 in early 2026.

FIGURE 3.8 – SOCIAL MEDIA GRAPHICS



ROUND 2 ENGAGEMENT SUMMARY

Outreach Phase 2 of the CSAP shared the draft plan with the public and gathered feedback to refine strategies. From February 13 to February 27, 2026, the phase emphasized transparency through updates on the plan’s progress and priorities. Input was collected primarily through an online survey and ongoing planning committee meetings. Support materials included website updates, an updated fact sheet, a press kit, and social media. Feedback indicated continued public support, highlighting the need for stronger traffic enforcement and better cyclist safety as adoption approaches.

FIGURE 3.9 DRAFT CSAP ADVERTISEMENT



DRAFT SAFETY ACTION PLAN
Open for Public Comment • February 13–27

Click to view the draft Safety Action Plan

Click to download the Appendices

Closed

View the draft Safety Action Plan February 13 to February 27, 2026

Your feedback is appreciated!

DRAFT PLAN FEEDBACK SURVEY

The project team launched a survey on February 13, 2026, to collect community feedback on the proposed draft CSAP. Using the study, the team gathered feedback about the process, respondents’ safety concerns, and future considerations. The team conducted the survey online through the project website.

Draft Plan Feedback Survey and Responses

METRICS

The project team received 6 survey responses.

The project team divided the survey into two sections:

1. Open Response Feedback
2. Rating of existing conditions on 5-Point Likert Scale

The following sections summarize key findings. See the Appendix for detailed results.

OPEN RESPONSE FEEDBACK SUMMARY

The survey open responses are listed below:

- “While well intentioned on paper, safety will not be improved in real life. The behavior of all travelers needs to be amended with stricter law enforcement (automated or physical officials) to make all travelers slow down and be more respectful/aware.”
- “Will the bike lanes on Powell Road be protected? - no one feels safe biking on the new bike lanes on freedom road - we need separation from the motorists to truly feel safe in this township, too many close calls.”
- “The crash data and corresponding map is missing a pedalcycle crash from July 2022 on Rochester Road at the PA Turnpike underpass.”
- “Do not reference, and do not plan, that shoulders will be expanded to provide more space for bicycles. This shows ignorance to the law. PA Title 75 stipulates that pedalcycles shall be ridden upon the roadway. The shoulder is NOT part of the roadway.”

INCORPORATION OF FEEDBACK INTO PLAN

Feedback received was incorporated into the plan by revising the concepts and priority projects to include Sharrows into the proposed countermeasures, acknowledging that cyclists are entitled by PA Title 75 to use the entire travel lane.

Additional clarification was also added to Section 8 and Section 10, noting that all of these recommendations were developed at a planning level and will be further developed and refined during the design and engineering phase of the project development process.

Section 4. Road Safety Audits

MUNICIPAL OFFICIAL MEETINGS

On September 29, 2025, the Road Safety Audit (RSA) kicked off with meetings with officials representing each municipality, the Southwestern Pennsylvania Commission and PennDOT District 10-0. The consultant team included engineers and planners from AECOM, Kimley-Horn and French Engineering. Municipal participants provided invaluable commentary and context about local points of interest and safety concerns, sharing their in-depth local knowledge. The municipal meetings gave the project team context prior to conducting the field work.

TABLE 4.1 – MUNICIPAL MEETING TIMES AND LOCATIONS

Time	Location	Participants
8:30AM – 10:00AM	Cranberry Township Municipal Building	Cranberry Township Officials and Police Department
11:00AM-12:00PM	Jackson Township Municipal Building	Jackson Township Officials
2:30PM-3:00PM	Zelienople Borough Building	Zelienople and Harmony Borough Officials

FIELD VIEWS

On the afternoon of September 29, and the full days of September 30 and October 2, the project team conducted extensive field views in the region.

TABLE 4.2 – FIELD VIEW DATES AND TIMES

Date	Location
September 29 (afternoon)	Zelienople Borough
September 30 (morning)	Zelienople and Harmony Boroughs
September 30 (afternoon)	Jackson Township
October 2 (all day)	Cranberry Township

The field work followed a customized checklist to assess safety from multiple perspectives. The project team used tools such as photographs, measurements, and observations to log information about areas of concern during daytime conditions. The project team traveled to each intersection and roadway segment on the key corridors in the study area to assess concerns with infrastructure (pavement, signs, shoulders, flooding/erosion), conditions

and visibility, roadway and intersection geometry, driving behaviors, and nonmotorized modes and VRUs.

FIGURE 4.1 – ROAD SAFETY AUDIT PHOTOS

Zelienople



Harmony



Jackson



Cranberry



Section 5. Vision, Goals, and Metrics

VISION STATEMENT

Eliminate roadway fatalities and serious injuries for all roadway users through a comprehensive approach to safety that enhances existing and future infrastructure, development, and economic growth throughout the southwest Butler County region.

The vision, goals, and metrics were developed using information from community input, analysis of safety data and conditions, observations during RSAs, and input from the Planning Committee. Through this process, the municipal partners in the southwest Butler County region identified the following considerations to guide the development of the Safety Action Plan vision, goals, and metrics.

Collectively, the municipal partners, including Cranberry Township, Jackson Township, Zelienople Borough, and Harmony Borough fully support and commit to the goal of reducing fatalities and serious injuries on Pennsylvania’s roadways with the ultimate objective of zero fatalities by the year 2050, in support of the target year established by the Pennsylvania Strategic Highway Safety Plan.

Municipal leadership desires to retool the region’s transportation network planning from one that is reactive and struggling to keep up with growth and development, to one that encourages a safe, multimodal transportation network that proactively prioritizes safety.

Regional police forces will collaborate and coordinate efforts to enhance safe travel behaviors on the region’s roadways. Enforcement and education will play a critical role in improving transportation safety outcomes.

GOALS



Improve Safety Conditions for All System Users







Reduce fatalities and serious injuries for users of all modes through retrofitting existing and designing new infrastructure that focuses on the implementation of safety features.

The southwest Butler region’s transportation infrastructure includes state and local roads, trails, shared-use paths, sidewalks, on-road bicycle facilities, signs, streetlights, traffic signals, interchanges, park and ride lots, barriers, guide rails, and other transportation assets.

The design of these facilities influences how people interact with and use the transportation system. Drivers, public transit users, motorcyclists, vulnerable roadway users, and those using mobility devices navigate the transportation system using visual cues, signage, regulations, and their personal expectations about how other people will use the transportation system and obey traffic laws. Infrastructure for all travelers needs to be planned, designed, constructed, operated, and maintained to correctly indicate travel speed and behavior consistent with the surrounding land uses, the geography and topography of the natural environment, and other system users.

Transportation infrastructure can be constructed or retrofitted to reduce FSI crashes. Opportunities include implementing proven safety countermeasures on roadways and at intersections.

Achieving the goal of improving safety conditions for all system users can be evaluated with the following metrics:

Metrics:	
	Decrease in the rolling five-year averages for fatalities and serious injuries
	Increase length of new sidewalks and crosswalks constructed
	Increase number of intersections and/or roadways improved
	Increase number of new trail connections created
	Increase number of streetlights installed, repaired, or replaced
	Increase number of ADA-compliant crosswalks and ramps improved or installed



Improve the Local Safety Culture

Facilitate a regional, coordinated effort to address safety concerns through enforcement and education with the end goal of transforming public attitudes and behavior as well as organizational culture to recognize that all transportation system users have a responsibility for other people’s safety in addition to their own.

Developing and sustaining a strong, coordinated, and collaborative safety culture, where transportation safety is integrated into everyday decision-making, is key to reducing unnecessary deaths and serious injuries related to transportation. Cultural change involves educating everyone involved with improving and using transportation infrastructure. A strong safety culture means that elected leaders and employees at all levels are encouraged and rewarded for prioritizing safety and identifying safety concerns and solutions while carrying out their missions and individual job responsibilities.









Inspiring a strong safety culture among residents can be achieved in several ways. Effective public information and education about the rules of the road—and updates to those rules—are essential for improving safety. Access to current and widely available driver and motorcycle training also helps ensure that road users understand safe practices.

Clear communication from law enforcement agencies about the benefits of transportation law enforcement can help shift social norms, encouraging slower speeds, greater respect for others, and shared responsibility among all road users. In addition, community engagement in transportation safety plans and programs raises awareness of how individual choices affect the safety of the entire system.

This can be achieved through public service announcements, educational events and safety campaigns (e.g., educational booths at local events, and driver training).

Effective traffic law enforcement is an important tool for reducing dangerous behavior and reinforcing safety culture. In addition, timely response by law enforcement and emergency medical responders can lead to decreases in transportation-related fatalities and serious injuries. With appropriate resources, more emergency medical responders can be trained and made available to respond to crashes in a timely manner and law enforcement can target dangerous behaviors such as speeding, traffic law noncompliance, and aggressive, distracted, and impaired driving to implement proven approaches and programs for protecting public safety.

Achieving the goal of improving safety culture will be measured with the following metrics:

Metrics:	
	Reduction in distracted driving crashes
	Decrease in emergency response times
	Decrease in incident clearance times
	Reduction in DUIs
	Reduced number of traffic law noncompliance citations
	Increase number of municipal employees and emergency responders that attend annual safety training
	Increase number of annual public outreach events for transportation safety education campaigns and public participation
	Increase number of annual safety education programs at local schools









Prioritize Safety Improvements in Existing and New Development

Implement transportation safety solutions for all roadway users, particularly vulnerable roadway users, when considering new residential and commercial development in a manner that promotes responsible growth and economic development.

Increased attention by roadway owners should be considered in areas of the region where the roadway network does not have adequate capacity or geometry to serve high density developments. Driveway access management to reduce conflict points between modes of transportation, as well as adding meaningful sidewalk or trail connections between new residential and commercial developments, will be critical to achieving this goal.

This requires commitment by both the municipality and the individual developers to address potential safety elements upfront, before construction of the new development. A potential avenue could be to discuss potential safety issues with developers early in the approval process and to develop a safety checklist to guide the review and guide discussions with developers.

Achieving the goal of prioritizing safety when retrofitting existing and considering new development be measured with the following metrics:

Metrics:	
	Reduction in hit-fixed-object crashes on rural roads
	Reduction in VRU involved crashes
	Increase in deployment of advance warning signage (curves, signal ahead, pedestrian crossing, etc.)
	Increase in neighborhood sidewalk and trail connections
	Increase in traffic calming infrastructure
	Increase deployment of systematic safety improvements (signing, pavement markings, rumble strips, lighting, etc.)







Improve Quality of Life

Consider inclusion of ADA compliant infrastructure for vulnerable roadway users in all transportation infrastructure improvement projects.

A safe, accessible and multimodal transportation system increases a community’s livability and quality of life for its residents. Transportation is not just about getting from point A to point B. It affects decisions people make from where they choose to live, raise a family, work and play. Safer streets have multiple benefits to individual health, wellness, and community vibrancy.

Safer streets promote active transportation, which improves public health through increased physical activity and a decreased dependence on motor vehicles for short trips. Reliable and safe transportation reduces anxiety associated with commuting, especially for vulnerable populations and roadway users such as children, seniors, and people with disabilities. Similarly, safe transportation networks allow people to reliably reach employment, education, and healthcare, which directly impacts an individual’s economic mobility. Finally, streets designed at a pedestrian scale, that are well lit and marked to encourage slower traffic speeds, often become more attractive and functional, supporting local businesses and social interaction.

The following metrics can be utilized to measure impacts on quality of life through safety improvements.

Metrics:	
	Reduction of pedestrian and cyclist involved crashes
	Increase in streetscape improvements in downtown and Main Street corridors
	Inclusion of ADA compliant infrastructure in all transportation improvement projects
	Increase in neighborhood sidewalk and trail connections

Section 6. Safety Countermeasure Development

A safety countermeasure is a street or roadway treatment shown to address specific safety concerns. Each countermeasure has an expected safety benefit, and multiple countermeasures can be combined for added safety.

Some categories with proven countermeasures include those for vulnerable users, intersection improvements, and roadway and roadside measures. Pedestrian and bicycle enhancements may include sidewalk installation or replacement, high visibility crosswalks, street lighting, or shared use paths. Road reconfigurations may include intersection improvements to install, retime, or remove a traffic signal, or install a roundabout to reduce crash severity. They may also include low-cost alternatives such as high visibility pavement markings and signage and edge and/or centerline rumble strips. Streetscaping may include pedestrian-scale lighting, driveway access and conflict management, speed management, and traffic calming.

Figure 6.1 provides a graphic which describes potential crash countermeasures that may be applicable to projects throughout the southwest Butler County region.

FIGURE 6.1 – SAFETY COUNTERMEASURE TOOLBOX

Countermeasure Toolbox

Mid-block Crossing



Installing a mid-block pedestrian crossing helps to break up longer stretches of roadway and to help make pedestrians more visible to motorists.

Advance Warning Signage



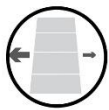
Installing an Advance Warning sign to warn road users in advance of intersections, curves, pedestrian crossings where a driver may need to slow down.

All-Way Stop Control



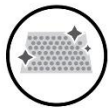
Installing All-Way Stop Control prevents motorists, bicyclists, and pedestrians from having to cross free-flowing lanes of traffic reducing the risk of collision.

Widen Sidewalk



Installing wider sidewalks to locations with existing sidewalks that are too narrow can provide more space for both pedestrians and bicyclists.

ADA Compliant Ramps



Installing curb ramps must follow Americans with Disabilities Act (ADA) design guidelines. Assists visually impaired pedestrians at crossings.

4-way Roundabout Crosswalk



Installing a roundabout would manage vehicular speeds, reduces pedestrian exposure, improve safety at intersections through elimination of angle collisions and help with traffic flow.

Access Management



Removing or closing driveways near intersections or areas along curves may reduce potential conflicts with pedestrians and vehicles.

Pedestrian Refuge



Install a median with a refuge area for pedestrians crossing multi-lane roads to provide a protected area for pedestrians. Reduces exposure time for pedestrian crossings.

Curve Warning Signs



Installing a Curve Warning Signs and Chevrons to warn a person of an upcoming curve or other potential points of conflict where a driver may need to slow down.

Lighting Improvements



Installing or replacing highway and/or pedestrian-level lighting to improve nighttime visibility. Lighting can help make hazards more visible and improve driver reaction time, reducing the risk of collision.

Streetscaping



Installing streetscaping improvements to commercial corridors through beautification and signage.

Pavement Markings



Painting lines and markings on the road's surface to guide traffic.

Crosswalk Installation



Installing a crosswalk with continental markings that is more visible to approaching drivers through the use of thermoplastic tape instead of paint.

High Friction Surface Treatment



Installing a High Friction Surface Treatment to locations with curves and high speeds can help to prevent roadway departure, intersection, and pedestrian-related crashes.

Separated Multi-use Path



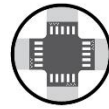
Installing a completely separated path for walking and bicycling offers low stress bicycle travel due to minimal cross-flow traffic conflict points.

Targeted Enforcement Sign



Installing targeted signage in areas to control and reduce dangerous behaviors such as speeding, distracted, aggressive and impaired driving.

Raised Intersection



Installing an elevated intersection brings vehicles to the sidewalk level, and serves as a traffic calming measure to encourage motorists to travel at slower speeds.

Freight Restriction Sign



Installing signage in areas to control and reduce freight trucks from accessing local roadways.

Intersection 3-Way Crosswalk



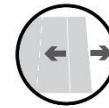
Installing a 3-way intersection with crosswalks, smaller turn radii, and signalization focused at locations without or skewed to improve travel for motorists and pedestrians at crossings.

New Sidewalk



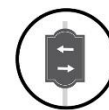
Installing a new sidewalk where sidewalks are missing or damaged provides people with space to travel within the public right-of-way and to separate pedestrians from motorists.

Widen Shoulder



Installing wider shoulders creates a separated space for bicyclists and also to provide motorists with additional space for pullouts of the travel lane.

Wayfinding



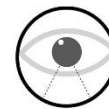
Installing a network of signage highlighting nearby pedestrian and bicycle connections helps reduce unwanted crossings and improves mobility.

Signal Head



Installing new traffic signals can help to organize travel of all modes at an intersection and limiting conflicting travel movements.

Sight Lines



Removing objects that may prevent drivers and pedestrians from having clear sightlines, which would include trimming and removing landscaping.

Rapid Flashing Beacons (RRFB)



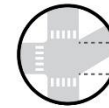
Installing pedestrian activated rapid flashing light signals with pedestrian warning signage at crosswalks enhances visibility of marked crosswalks and alerts motorists to crossings.

Intersection 4-Way with Crosswalk



Installing a 4-way intersection with crosswalks, smaller turn radii, and signalization focused at locations without or skewed to improve travel for motorists and pedestrians at crossings.

Intersection Alignment



Adjusting geometry at intersections by eliminating acute or obtuse angles between the intersection roadways, improves sight visibility for users.

Advance Stop Bar



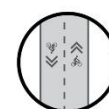
Painting an advance stop bar at 4 to 10 feet before the crosswalk helps to reduce vehicular encroachments on the crosswalk.

Rumble Strips



Installing at edge or center lines rumble strips can increase the visibility and durability of the pavement markings during wet, nighttime, or on roads with snowplowing operations. The intention is to alert drivers through vibrations and sounds that their vehicle has left the travel lane.

Sharrows



Installing white pavement markings showing a bicycle symbol with two chevrons on top. It indicates that bicyclists may ride in the middle of the travel lane. Sharrows serve as a reminder and guides a bicyclist to the center of the lane.

Section 7. Project Prioritization

To prioritize the identified project areas for implementation, a 100-point scoring system was developed using six criteria that align with the CSAP’s vision statement and goals. The scoring system also considers the project’s readiness and whether it was identified by the public as an area of concern.



Project Readiness - The criterion considers the readiness of the project, awarding points if the project has begun the project development process and if it has funding on a local Capital Improvement Program (CIP) or the regional Transportation Improvement Program (TIP).



Public Input - The criterion considers concerns raised by individuals who mentioned a project corridor or need during community participation activities, such as the online survey or mapping exercise, stakeholder interviews, and public meetings.



Improve Safety Conditions - The criterion considers the locations of serious injuries and fatalities, safety for VRU’s, and dangerous intersections. The criterion will advance the goal of improving safety conditions for all system users.



Promote Local Culture and Collaboration - The criterion considers how a project or program facilitates a regional, coordinated effort to address safety concerns through enforcement and education, with the goal of transforming public attitudes and behavior as well as organizational culture.



Improvements in Existing and New Developments - The criterion considers how a project advances safety for all system users in connecting existing and new residential development with economic development, access to jobs, goods and services.



Improve Quality of Life - This criterion considers how a project improves quality of life through multimodal improvements that prioritize VRU’s and calm traffic.

TABLE 7.1 – PROJECT PRIORITIZATION SCORING

Criterion	Sub-Criteria	Possible Points	Maximum Points
Project Readiness	Project is identified in local or regional plan	5	10
	Project has allocated funding (local CIP or regional TIP)	5	
Public Input	Project identified as a priority or need during plan engagement	10	10
Improve Safety Conditions	Fatality occurred at project location between 2019-2023	5	20
	Serious injury occurred at project location between 2019-2023	5	
	Project improves conditions for vulnerable roadway users	5	
	Project is on top ten list for FSI Crash Rates for intersections or roadways	5	
Promote Local Culture and Collaboration	Project or program is a multi-municipal or multi-agency initiative	5	20
	Project has ability to reduce emergency response times	5	
	Project promotes safety around a school or educational institution	5	
	Project has ability to reduce speeding	5	
Improvements in Existing and New Development	Project targets reduction of fixed object crashes on rural roads	5	20
	Project addresses safety issues near a planned development	5	
	Project has ability to reduce VRU crashes	5	
	Project includes systematic safety improvements	5	
Improve Quality of Life	Project improves ADA accessibility	5	20
	Project increases sidewalk and trail connections	5	
	Project includes streetscape or main street improvements	5	
	Project Includes traffic calming measures	5	
Total Points		100	100

TABLE 7.2 – HARMONY PROJECT PRIORITIZATION MATRIX

Project	Readiness	Public Input	Safety Conditions	Local Collaboration	Development	Quality of Life	Total Score
SR 68 & Main Street Improvements	5	10	5	10	10	20	50

TABLE 7.3 – ZELIENOPLE PROJECT PRIORITIZATION MATRIX

Project	Readiness	Public Input	Safety Conditions	Local Collaboration	Development	Quality of Life	Total Score
West Beaver Street (SR 68) Improvements	5	10	10	10	10	20	65
New Castle Street/SR 288 Intersection Improvements	5	10	10	5	10	20	60
SR 288/SR 588 Intersection	0	10	10	10	5	15	50

TABLE 7.4 – CRANBERRY TOWNSHIP PROJECT PRIORITIZATION MATRIX

Project	Readiness	Public Input	Safety Conditions	Local Collaboration	Development	Quality of Life	Total Score
Powell Rd. Complete Street	5	10	10	10	15	20	70
Franklin Rd.: Callery Rd. to N. Boundary Rd.	0	10	10	15	15	15	65
Freshcorn Rd.: Heights Dr. to Glen Eden Rd.	0	0	15	5	20	15	55
Cranberry Square Dr.: Executive Dr. to U.S. 19	0	0	10	10	10	20	55
U.S. 19: I-76 Ramps to Freeport Rd.	0	10	15	15	5	5	50
Franklin Rd. at Ehrman Rd.	0	10	10	10	15	5	50

Project	Readiness	Public Input	Safety Conditions	Local Collaboration	Development	Quality of Life	Total Score
Franklin Rd.: N Boundary Rd. to T309	0	10	5	15	15	5	50
Rowan Rd. Bridge over I-79	5	10	5	5	10	10	45
Graham School Rd. at Unionville Rd.	0	10	15	5	10	5	45
Franklin Rd. at Rowan Rd./Hope Rd.	0	10	10	15	5	5	45
Thorn Hill Rd at Rolling Rd.	0	0	0	10	15	15	40
Glen Eden Rd.: Carlye Dr. to Powell Rd.	0	0	15	5	10	5	35
Freshcorn Rd. at Heights Dr.	0	0	5	5	10	5	25

TABLE 7.5 – JACKSON TOWNSHIP PROJECT PRIORITIZATION MATRIX

Project	Readiness	Public Input	Safety Conditions	Local Collaboration	Development	Quality of Life	Total Score
Gudekunst Rd. from US 19 to Zehner School Rd.	10	0	15	15	20	15	75
Tollgate School Rd.: U.S. 19 to Ridge Rd.	10	10	5	15	20	15	75
Lutz Rd: Zehner School Rd. to U.S. 19	0	10	5	15	20	15	65
Zehner School Rd: Steeb Rd. to U.S. 19	0	0	5	15	20	15	55
SR 528 Bridge over I-79	5	10	5	5	15	10	50
Fanker Rd.: Dutch Rd. to U.S. 19	0	0	5	10	20	5	45
Zehner School Rd. at Gudekunst Rd.	0	10	5	5	15	5	40

Section 8. Project Priority Areas & 20 Additional Areas

Based on community participation, crash data analysis, and RSAs, areas with correctable crash patterns in each municipality were identified that would benefit from safety countermeasures. This resulted in a list of approximately 25 segments or intersections paired with applicable safety countermeasures to reduce the severity and/or frequency of crashes.

Five detailed priority corridor concepts were developed from this list, representing areas with needs and particular interest from each community and PennDOT District 10-0. The recommended projects reflect opportunities where focused investments and coordinated action by roadway owners and partners can achieve meaningful community and safety improvements during the implementation phase of the CSAP.

Exhibit 8.1 shows the locations of the five project priority areas in Butler County. This section introduces each corridor and provides data and considerations, then presents a project concept sheet for each corridor.

Each project sheet shows the following information:

- Corridor Characteristics
- Crash and Severity Data (2019-2023)
- Location Map of Proposed Countermeasures
- Approximate Estimate of Project Costs
- 3D Visualizations of Key Intersections

Following the project sheets, **Exhibit 8.2** depicts the locations of an additional 20 project locations through the study area. **Table 8.1** lists the recommended countermeasures, cost estimates, implementation timeframe (short, mid, or long-term) and a list of applicable funding sources for each project. A table containing a full description of all funding sources can be found in **Appendix D**. Implementation timeframes were determined based on project costs, project complexity, required coordination, and prioritization ranking.

- Short-Term (0-5 years)
- Mid-Term (5-10 years)
- Long-Term (10+ years)

All of these recommendations are at a conceptual planning level and will need to undergo detailed design and engineering prior to implementation. During the project development process, the concepts will undergo detailed engineering and design, where the project

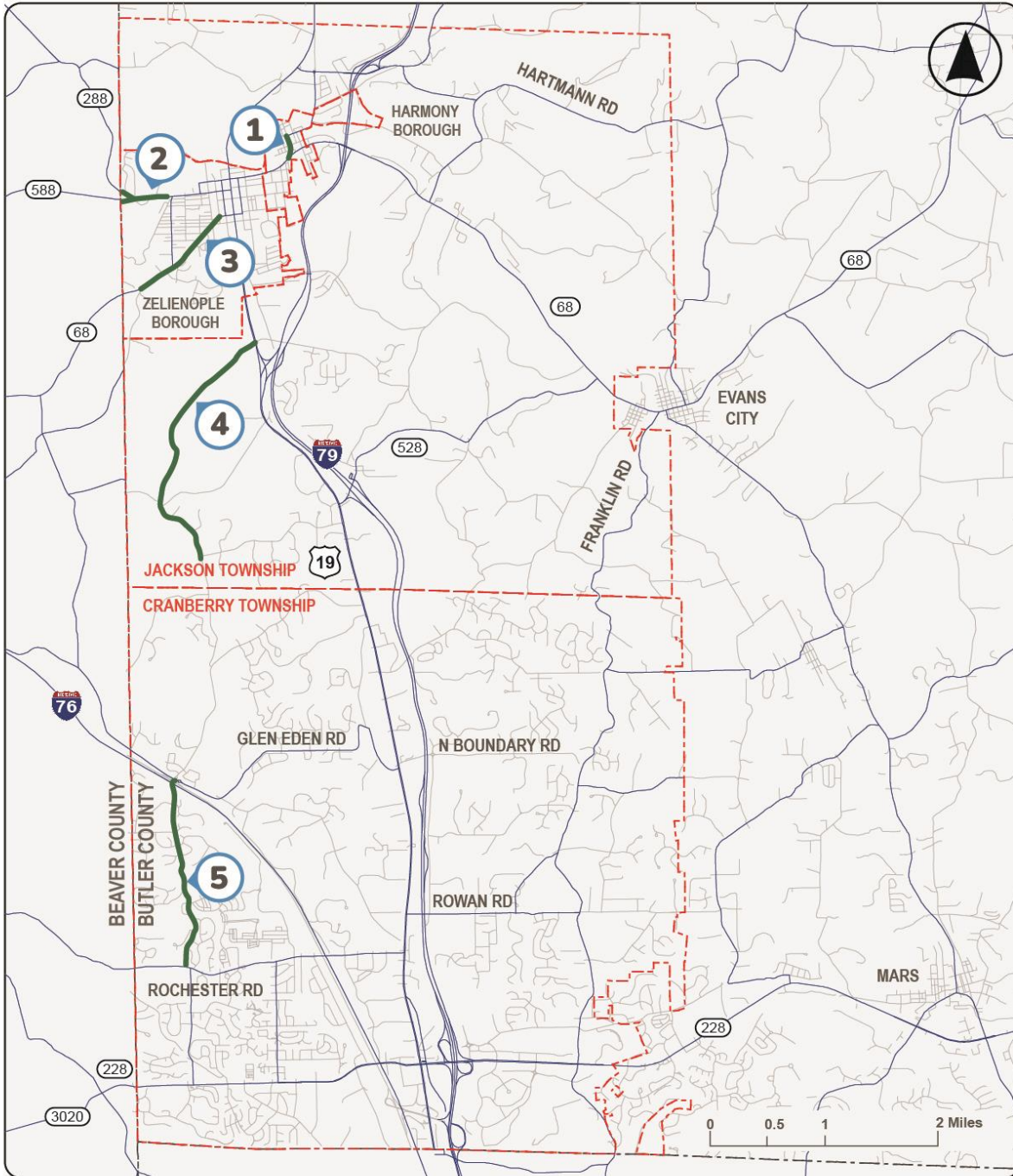
elements and specifications will be developed based on the project’s purpose and need as well as additional community input and needs. This is where details such as choosing between protected and unprotected bicycle lanes will take place. The final project could differ from the conceptual design found in this plan.

This plan is intended to provide a range of safety improvement options to benefit all roadway users. The improvements for vulnerable roadway users including pedestrians and cyclists are designed to accommodate a variety of ages and abilities. Furthermore, this plan recognizes that pedalcycles are vehicles (PA Title 75) and are fully entitled to use the full roadway travel lane. This plan recommends expanded shoulders, shared lane markings, bike lanes, and separate shared-use paths to provide options for users who are not comfortable or do not feel confident in their abilities to safely ride in mixed motor vehicle traffic.






It should also be noted that as communities evolve and community context changes surrounding these areas, additional elements and safety countermeasures may be needed for each location. The need for additional multimodal connections such as sidewalks, signage, bike lanes and shared-use paths should be evaluated when the proposed projects begin the project development and design process.

Improvements on PennDOT owned roads such as State Route 68 or Franklin Road will entail close coordination and collaboration with PennDOT District 10-0 from the planning and funding phase through engineering, right-of-way/utilities, and construction. If the improvements include sidewalks or off roadway improvements such as a shared-use path, it is the responsibility of the municipality to maintain those facilities through a maintenance agreement with PennDOT.

EXHIBIT 8.1 – FIVE PROJECT PRIORITY AREAS



Legend

-  County
-  Study Municipalities
-  State Roadways
-  Local Roadways
-  Priority Projects



SOUTHWEST BUTLER COUNTY
Multi-Municipal Safety Action Plan

Project Priority Areas

1: SR 68 (EVANS CITY ROAD) & MAIN STREET

This project will enhance the safety of pedestrians and personal vehicle and truck drivers by improving the pedestrian space and intersections along Evans City Road and Main Street in Harmony, PA.

This includes installing a 4-leg roundabout at the entrance to Harmony at the Evans City Road (SR 68) and Main Street intersection. The roundabout will allow for safe flow of truck traffic that uses Robinson Drive and Mercer Road and provide a formal entrance to Harmony's historic center. The roundabout would include a slip lane to allow traffic to flow eastbound along SR 68 without interruption, splitter islands that include pedestrian refuges, crosswalks, sidewalks, lighting, and placemaking art and signage to invite tourists and locals to the community. The project is intended to slow traffic on Route 68 as the surrounding land use transitions into the residential areas of Harmony and Zelienople, making it safer for VRUs and motorists alike. The roundabout will also offer a more direct route for trucks to access the manufacturing business on Robinson Drive.

To enhance the character of the historical town square at the intersection of Main and Mercer Streets, we propose a living street with various special paving materials, bollards, ADA curb ramps, signage, a flexible café/dining space and a reconfigured parking plan that provides additional ADA parking spaces. A living street is a street designed primarily for people, where pedestrians and cyclists have priority, and motor vehicles are allowed only at very low speeds. These shared spaces often lack curb separation and use traffic-calming features like landscaping and furniture to encourage social interaction and active transportation. By creating a living street, pedestrians and vehicular users will both be at-grade, providing a social space that is safe for all users. Vehicle users will be forced to reduce speeds through the center, creating a safer experience for all. This center with its roadway redesign can serve as a gathering area for special events in the community, adding to the versatility of the design.

Heavy truck traffic often uses Main and Mercer Streets to access manufacturing businesses at the end of Mercer Street. Trucks often hit and damage the monuments in the town square making the left turn onto Mercer Street. It is recommended that Harmony Borough work with the businesses to reroute trucks. An option could be to route trucks to the I-79 Little Creek Road Exit and use Little Creek and Mercer Roads to access the businesses. This would eliminate the left turn movement from Main Street to Mercer Street.

It is recommended that the two at-grade rail crossings at Liberty and Spring Streets in Harmony Borough are further examined for safety. They both currently lack rail crossing gates.

Potential funding sources for this project include federal funds administered through the Southwestern Pennsylvania Commission’s (SPC) discretionary programs such as TASA, CMAQ, CRP and the STLC program. Statewide discretionary programs include both the PennDOT and CFA Multimodal programs and the ARLE program. Federal discretionary programs that compete on a nationwide basis include the SS4A program. These potential funding sources, including eligibility and matching requirements, along with other funding opportunities, are described in detail in **Appendix D**.

Estimated Roundabout Project Cost

Engineering: \$652,000
 Right-of-Way and Utilities: \$435,000
 Construction: \$4,346,000
Contingency: \$1,087,000
Total: \$6,520,000

Estimated Main Street Project Cost

Engineering: \$216,000
 Right-of-Way and Utilities: \$146,000
 Construction: \$1,571,000
Contingency: \$357,000
Total: \$2,290,000

A potential avenue to advance this project is for the Borough to implement this concept as two separate projects. The Borough could work with PennDOT District 10-0 to fund the improvements to SR 68, a partnership where the Borough applies for state or local federal discretionary funding from the Commonwealth or SPC and PennDOT delivers the improvements. This approach could help to progress the project more efficiently. If the Borough desires to take this approach, it should discuss with PennDOT District 10-0 prior to initiating any funding requests. The Main St./Mercer Rd. town center project is better suited for local advancement through state discretionary funding from the PennDOT or CFA Multimodal program, the DCED LSA program, and the ARLE program.

If the Borough pursues a federal SS4A grant, it is recommended the application include all project elements for both SR 68 and the Town Square. The Borough should coordinate the application with SPC, PennDOT District 10-0, and Butler County. Local matching funds can come from a variety of non-federal sources such as local funds or developer fees, the Butler County Infrastructure Bank, state transportation funds, or other state grant programs that allow the funding to be used as match to federal funds.

2: SR 288/SR 588 ROUNDABOUT

This project will enhance the safety of vehicular traffic by improving by converting the 6-leg intersection to a single lane roundabout at the intersection of SR 588 and SR 288 (W. New Castle Street) in the Borough of Zelienople, PA.

This includes installing a 4-leg roundabout at the SR 588/SR 288 intersection. The roundabout will slow vehicular through traffic and provide better access and sight distances to residents of Marion and Zelig Drives. The roundabout eliminates the uncontrolled movements on westbound SR 288 and SR 588 and the eastbound uncontrolled on SR 288. The remaining legs of the intersection are currently controlled via stop signs (eastbound SR 588, Marion Drive, Zelig Drive, westbound SR 288, Madison Drive and Badger Drive).

This location was ranked #5 in the top 10 FSI crash intersections in the southwest Butler region. Between 2019-2023, one serious injury and several property damage only crashes occurred at this location, and a number of public comments were received regarding speeding, motorists not obeying traffic control signage and the safety of all users.

Estimated Roundabout Project Cost

Engineering:	\$746,000
Right-of-Way and Utilities:	\$497,000
Construction:	\$4,970,000
Contingency:	<u>\$1,243,000</u>
Total:	\$7,456,000

Potential funding sources for this project include federal funds administered through the Southwestern Pennsylvania Commission's (SPC) discretionary programs such as CMAQ, CRP and the STLC program. Federal HSIP funding could be an option; however, the project would have to meet PennDOT's HSIP funding program requirements, including positive benefit-cost ratio using the Highway Safety Benefit-Cost Analysis Tool. Statewide discretionary programs include both the PennDOT and CFA Multimodal programs and the ARLE program. Federal discretionary programs that compete on a nationwide basis include the SS4A program. These potential funding sources, including eligibility and matching requirements, along with other funding opportunities, are described in detail in **Appendix D**.

Given this is a state-owned roadway, PennDOT would implement this project. The Borough of Zelienople could work closely with PennDOT to assist in submitting grant applications and providing input into the project development process.

3: SR 68 (W. BEAVER STREET) SIDEWALK EXPANSION

This project will enhance the safety of pedestrians by improving the pedestrian space and intersections along the SR 68 (West Beaver Street) Corridor.

This project includes installing a series of intersections that correct the skewed connections at Hazel, Pine, and Spruce Streets, and to expand sidewalks to connect with the existing network at Jeremiah Village. The intersections will include high visibility crosswalks, ADA compliant curb ramps, sidewalks, and lighting. In areas with driveways that create additional conflict points, access management techniques may be implemented to consolidate driveway entrances and to provide safe, painted crosswalks.

Public input during the planning process also identified sight distance issues at the intersection of West Beaver Street and Clay Avenue. The plantings at the WesBanco are limiting sight for vehicles turning onto West Beaver Street from northern Clay Avenue. It is recommended that the Borough work with WesBanco to ensure plantings are maintained and sight distances are adequate.

Due to the corridor being constrained by existing development and topography challenges, the proposed countermeasures will need to be explored further at specific locations of the corridor during the preliminary engineering phase of the project.

Potential funding sources for this project include federal funds administered through the SPC's discretionary programs such as TASA, CMAQ, CRP and the STLC program. Statewide discretionary programs include both the PennDOT and CFA Multimodal programs, the PA DCED Local Share Account (LSA) program, and the ARLE program. Federal discretionary programs that compete on a nationwide basis include the SS4A program. These potential funding sources, including eligibility and matching requirements, are described in detail in **Appendix D**.

**Estimated Sidewalk and Intersection
Improvement Project Cost**

Engineering:	\$880,000
Right-of-Way and Utilities:	\$600,000
Construction:	\$6,500,000
Contingency:	\$1,400,000
Total:	\$9,380,000

SR 68 is a state-owned roadway and thus the implementation of this project will have to be closely coordinated with PennDOT District 10-0. The Borough could work with PennDOT District 10-0 to assist in the implementation of improvements to SR 68, as a partnership where the Borough applies for state or local federal discretionary funding from the Commonwealth or SPC. PennDOT could likely implement the project efficiently.

Matching funds can come from a variety of non-federal sources such as local financial contributions such as local funds or developer fees, developer fees, the Butler County Infrastructure Bank, or other state grant programs that allow the funding to be used as match to federal funds.

4: GUDEKUNST, LUTZ & ZEHNER SCHOOL ROADWAY ENHANCEMENT

This project will enhance the safety of pedestrians and vehicular users by realigning the intersection at US 19 and Gudekunst Road to create a safer intersection with crosswalks, sidewalks, a parallel separated walking path, better signalization, and ADA-compliant curb ramps.

At the Gudekunst Road, Zehner School Road, and Lutz Road intersection, intersection improvements will include a 4-way intersection with stop signs and stop bars. It should be noted that a roundabout could also be a potential solution to improve safety at this intersection. Due to the intersection being topographically challenging and potential right-of-way constraints, the proposed countermeasures will need to be explored further in the preliminary engineering phase of the project. At the Zehner School Road and Steeb Road (T300) intersection, a roundabout is proposed to allow for a safer flow of traffic.

Potential funding sources for this project include federal funds administered through the SPC's discretionary programs such as TASA, CMAQ and the STLC program. Statewide discretionary programs include both the PennDOT and CFA Multimodal programs and the ARLE program. Federal discretionary programs that compete on a nationwide basis include the SS4A program. These potential funding sources, including eligibility and matching requirements, are described in detail in **Appendix D**.

Estimated Roadway and Intersection Improvement Project Cost
Engineering: \$2,011,000
Right-of-Way and Utilities: \$1,342,000
Construction: \$14,747,000
<u>Contingency: \$3,350,000</u>
Total: \$21,450,000

A potential avenue to implement this project is for the Township apply for state or local federal discretionary funding from the Commonwealth or SPC. Considering Gudekunst Road is owned by Jackson Township and not on the federal-aid system, state discretionary programs such as the PennDOT or CFA Multimodal program or the ARLE program are less intensive to administer and therefore could be more attractive to the Township.

However, improvements to the intersection of US 19, Gudekunst Road, and Tollgate School Roads will have to be coordinated with PennDOT District 10-0, as U.S. 19 is a state-owned roadway. It may be beneficial if that intersection is broken out into a separate project to allow for more funding options and the potential for PennDOT to implement the project as a part of a larger U.S. 19 project with local financial support.

If the Township wants to pursue a federal SS4A grant, it is recommended the application should be coordinated with SPC and Butler County. Matching funds can come from a variety of non-federal sources such as local funds or developer fees, the Butler County Infrastructure Bank or other state grant programs that allow the funding to be used as match to federal funds.

5: POWELL ROAD COMPLETE STREET

This project will enhance the safety of pedestrians and vehicular users by improving the pedestrian space and intersections along the Powell Road Corridor.

To enhance the existing roadway to make it a more complete street, roadway shoulders would be expanded to allow bicycle users to have space to ride without conflict with motorists, the sidewalk network would be expanded, and two mid-block crossings would be introduced to enhance pedestrian visibility and safety.

Creating access to the Brush Creek Trail and the Commodore Perry Regional Trail Networks are a major focus along the northern portion of the corridor near Glen Eden Road and will include new signage, wayfinding, wider sidewalks, and an expanded trail connection to existing parking facilities. An existing parking lot south of the trailhead would be expanded to provide additional parking opportunities with a mid-block crossing with a Rectangular Rapid Flashing Beacon (RRFB) and advance warning signage to increase the visibility of pedestrians.

At the Bucktail Drive and Powell Road intersection, a 4-way intersection improvement will include smaller turn radii, high visibility crosswalks, and ADA compliant curb ramps. These

improvements will enhance the existing pedestrian infrastructure that exists and expands the network.

This project will complement Cranberry Township’s Missing Links sidewalk projects along Powell Road. A crosswalk was installed at Laurel Drive and sidewalk was extended between the Havenwood and Hunter’s Creek developments. The Township’s Missing Links Program is intended to connect missing gaps of sidewalk network annually as part of the capital plan. Cranberry has recently been working on two projects along Powell Road.

Potential funding sources for this project include federal funds administered through the SPC’s discretionary programs such as TASA, CMAQ and the STLC program. Statewide discretionary programs include both the PennDOT and CFA Multimodal programs, the DCED LSA program, and the ARLE program. The DCNR Greenways, Trails and Recreation Program could also be used for trailheads and trail connections. Federal discretionary programs that compete on a nationwide basis include the SS4A program. These potential funding sources, including eligibility and matching requirements, are described in detail in **Appendix D**.

Estimated Complete Street Project Cost

Engineering:	\$906,000
Right-of-Way and Utilities:	\$604,000
Construction:	\$6,641,000
<u>Contingency:</u>	<u>\$1,509,000</u>
Total:	\$9,660,000

A potential avenue to implement this project is for the Township apply for state or local federal discretionary funding from the Commonwealth or SPC. Considering Powell Road is owned by Cranberry Township and is not on the federal-aid system, state discretionary programs such as the PennDOT or CFA Multimodal program or the ARLE program are recommended as they are less intensive to administer and therefore could be more attractive to the Township; however they are competing at a statewide level as opposed to SPC discretionary programs competing at the regional level.

If the Township wants to pursue a federal SS4A grant, it is recommended that the application should be coordinated with State and Federal elected officials, SPC and Butler County. Matching funds can come from a variety of non-federal sources such as local funds or developer fees, the Butler County Infrastructure Bank or other state grant programs that allow the funding to be used as match to federal funds.

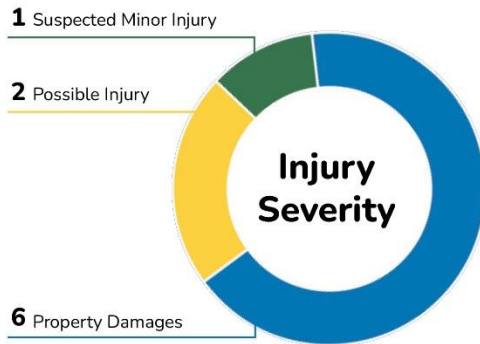
Harmony Borough – SR 68 (Evans City Road) & Main Street

Corridor Characteristics

+ Location: N. Charles St to Mercer Rd.	+ Number of Intersections: 3	+ Social Vulnerability: Yes
+ Length: 0.23 miles	+ Functional Classification: Minor Arterial (Evans City Rd.) Collector/Local (Main St.)	+ AADT (2025): 7,427 (Evans City Rd.) 1,921 (Main St.)
+ Municipality: Harmony	+ Posted Speed Limit: 35 mph (Evans City Rd.) 25 mph (Main St.)	+ Truck % (2025): 15% (Evans City Rd.) 4% (Main St.)
+ Road Owner: PennDOT (Evans City Rd.) Harmony (Main St.)	+ Context: Urban	

Crash and Severity Data (2019-2023)

-  **9**
Total Crashes
-  **0**
Fatal & Serious Injury Crashes
-  **0**
Vulnerable Road User Crashes

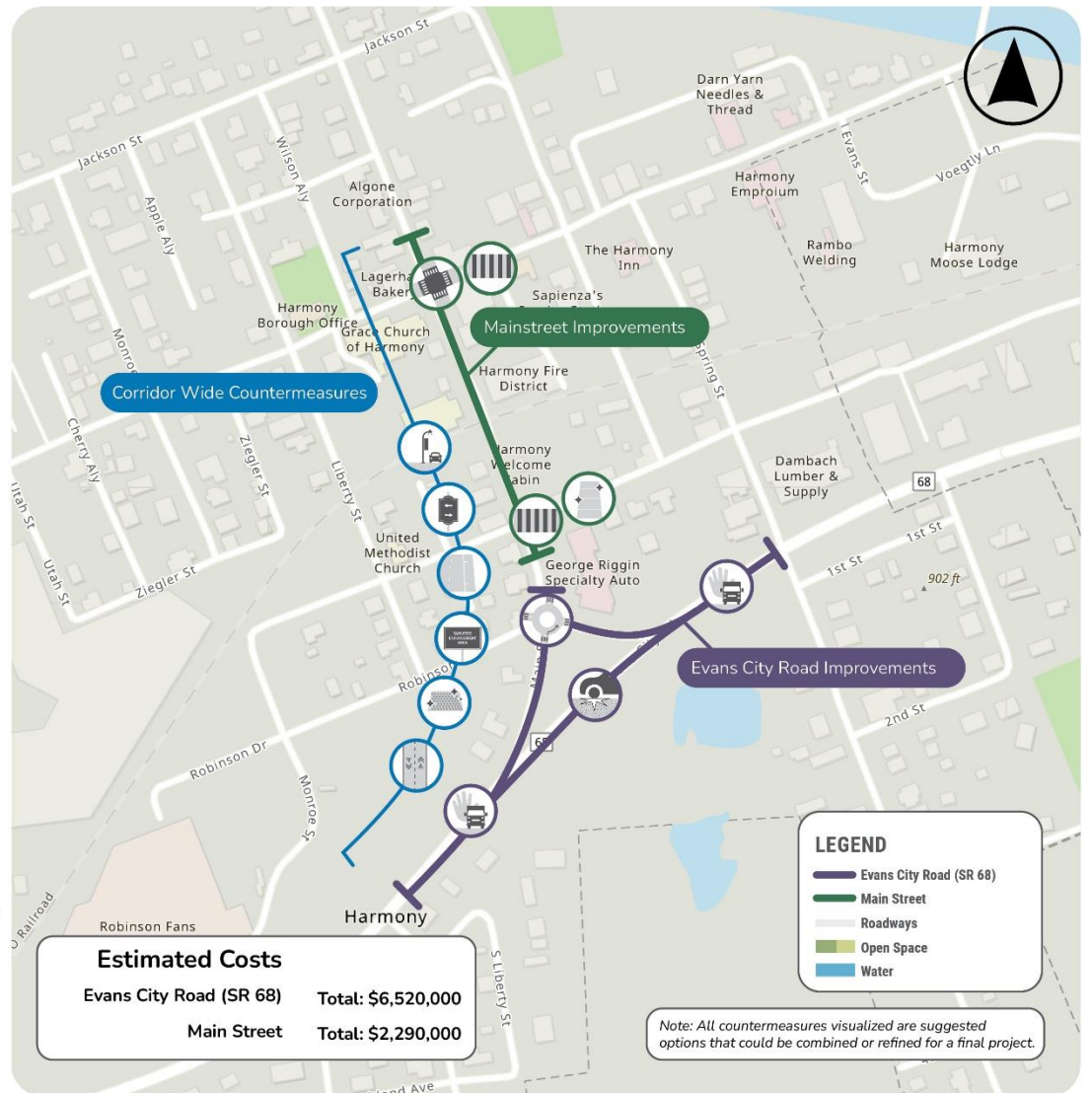


Collision Type

-  **44%** Angle
-  **22%** Fixed Object
-  **22%** Rear End
-  **11%** Non-Collision

Proposed Safety Countermeasures

- | | | |
|---|---|---|
|  Sidewalks |  4-Way Roundabout |  Raised Intersection |
|  Crosswalks |  High Friction Surface |  Streetscaping |
|  ADA Compliant Ramps |  Targeted Enforcement |  Freight Signage |
|  Wayfinding Signage |  Pavement Markings |  Sharrows |



Harmony Borough – SR 68 (Evans City Road) & Main Street – Concept Plan

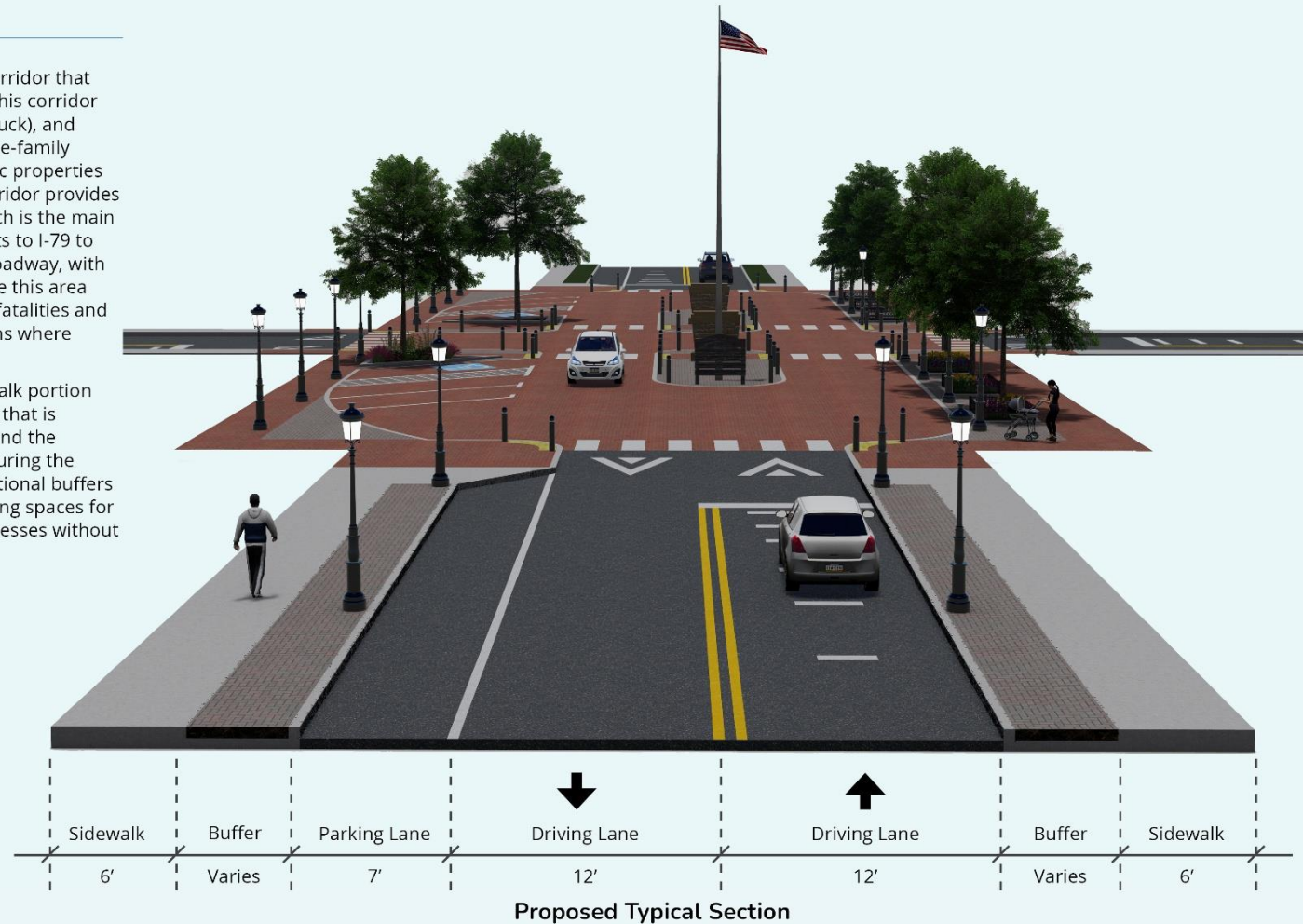


Harmony Borough – SR 68 (Evans City Road) & Main Street – Typical

Typical Description

Main Street is a PennDOT-owned north-south corridor that is the heart of the Historic Center of Harmony. This corridor handles vehicular traffic (personal vehicle and truck), and walking. The surrounding land uses include single-family residential, commercial, institutional, and historic properties serving museums/tourism destinations. This corridor provides a direct connection to SR 68 (Evans City Rd.) which is the main throughfare through the borough which connects to I-79 to the East. The current configuration is a 2-lane roadway, with wide driving lanes and narrower sidewalks. While this area has not experienced a high rate of crashes with fatalities and serious injury (FSI), there are numerous situations where property damages have occurred.

As part of the redesign of Main Street, the sidewalk portion will be expanded through a special paved buffer that is currently on the grass verge which helps to expand the sidewalk zone to 10 ft in specific areas. Reconfiguring the roadway for on-street parking will allow for additional buffers for pedestrians but also provide additional parking spaces for tourists or locals using the historic centers businesses without negatively affecting roadway capacity.



Zelienople Borough – SR 288 & SR 588

Corridor Characteristics

+ Location: SR 588 and SR 288	+ Number of Intersections: 3	+ Social Vulnerability: Yes
+ Length: 0.47 miles	+ Functional Classification: Minor Arterial	+ AADT (2025): 10,596
+ Municipality: Zelienople	+ Posted Speed Limit: 35 mph	+ Truck % (2025): 9.8%
+ Road Owner: PennDOT	+ Context: Urban	

Crash and Severity Data (2019-2023)



3 Total Crashes



1 Fatal & Serious Injury Crashes



0 Vulnerable Road User Crashes

1 Suspected Serious Injury

1 Possible Injury

1 Property Damage



Collision Type



67% Angle



33% Rear End

Proposed Safety Countermeasures



Sidewalks



Crosswalks



ADA Compliant Ramps



Wayfinding Signage



4-Way Roundabout



High Friction Surface



Access Management



Pavement Markings



Widen Shoulder



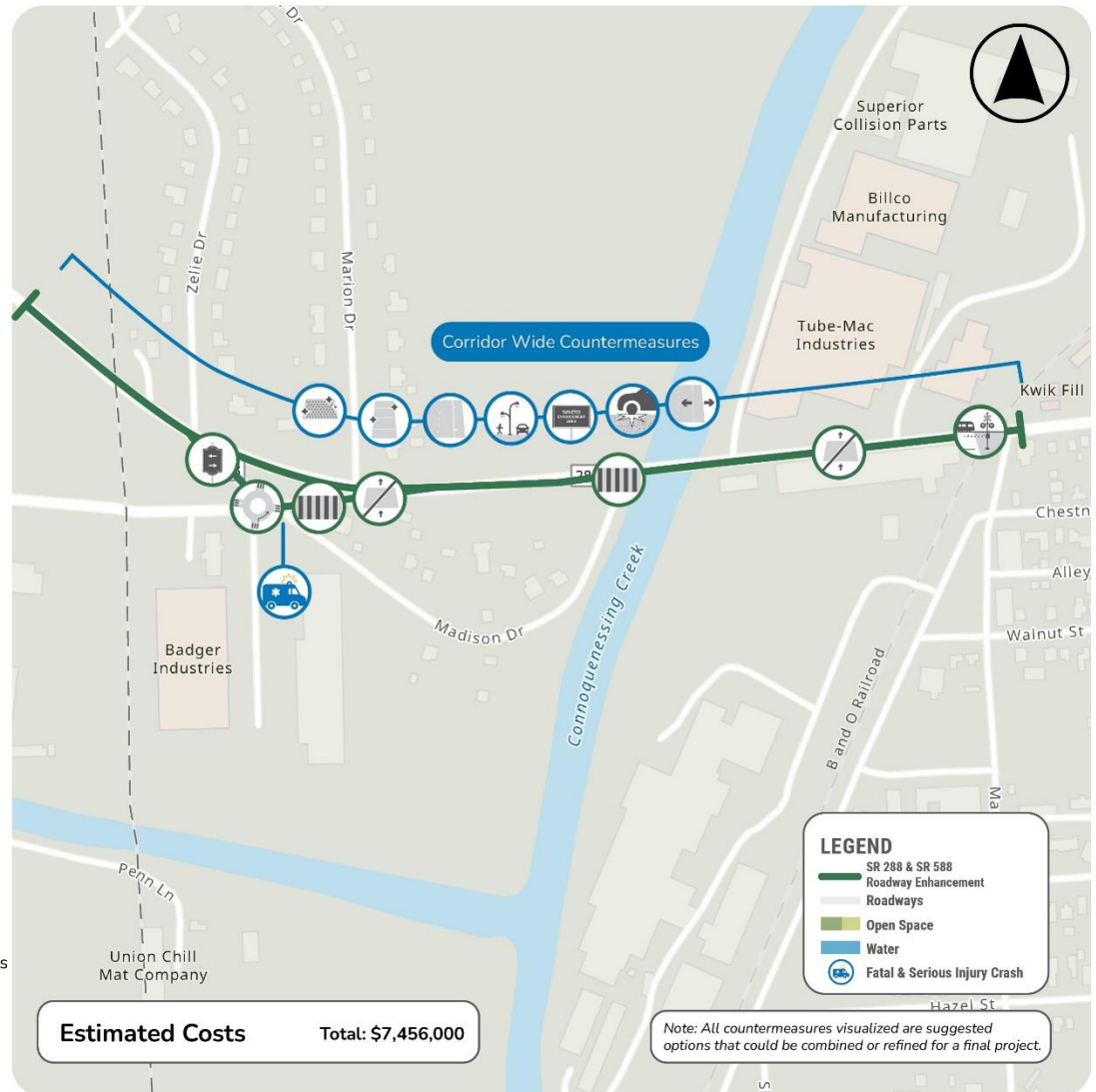
RR Signage & Arms



Lighting



Targeted Enforcement



Zelienople Borough – SR 588 & SR 288 – Concept Plan



Zelienople Borough – SR 68 (W. Beaver Street)

Corridor Characteristics


- | | | |
|---|---|---------------------------------------|
| + Location:
S. Green Lane to Settlers Grove Blvd. | + Number of Intersections:
12 | + Social Vulnerability:
Yes |
| + Length:
0.68 miles | + Functional Classification:
Minor Arterial | + AADT (2025):
4,242 |
| + Municipality:
Zelienople | + Posted Speed Limit:
25-35 mph | + Truck % (2025):
10% |
| + Road Owner:
PennDOT | + Context:
Urban | |

Crash and Severity Data (2019-2023)

-  **21**
Total Crashes
-  **1**
Fatal & Serious Injury Crashes
-  **0**
Vulnerable Road User Crashes



Collision Type

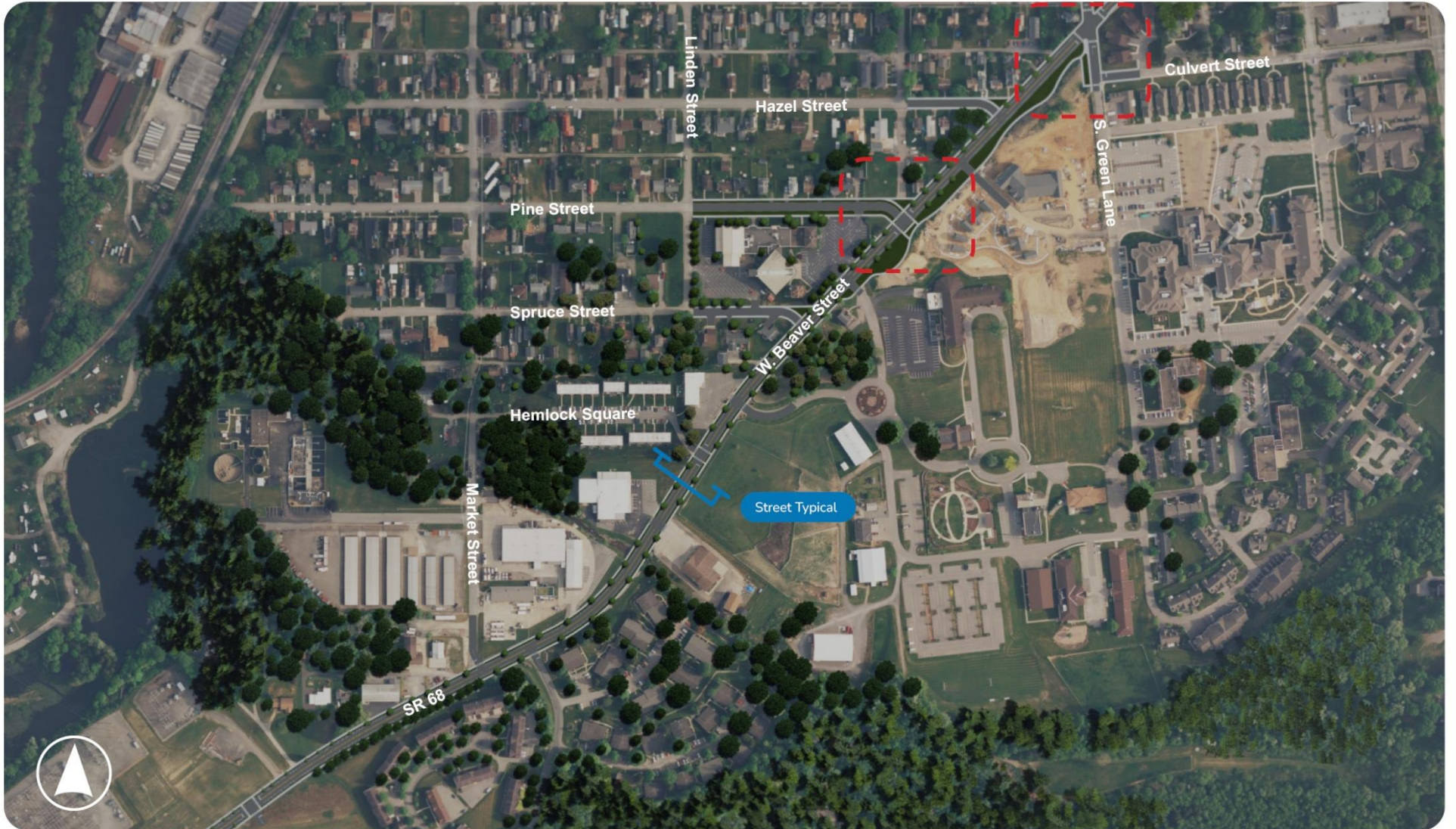
-  **71%**
Angle
-  **10%**
Side Swipe
-  **5%**
Rear End
-  **5%**
Head On

Proposed Safety Countermeasures

- | | | |
|---|--|--|
|  Sidewalks |  Access Management |  Separated Walking Path |
|  Crosswalks |  Lighting |  Targeted Enforcement |
|  ADA Compliant Ramps |  4-Way Intersection |  Sharrows |
|  Wayfinding Signage |  3-Way Intersection | |



Zelienople Borough – SR 68 (W. Beaver Street) – Concept Plan



Zelienople Borough – SR 68 (W. Beaver Street) – Concept Plan

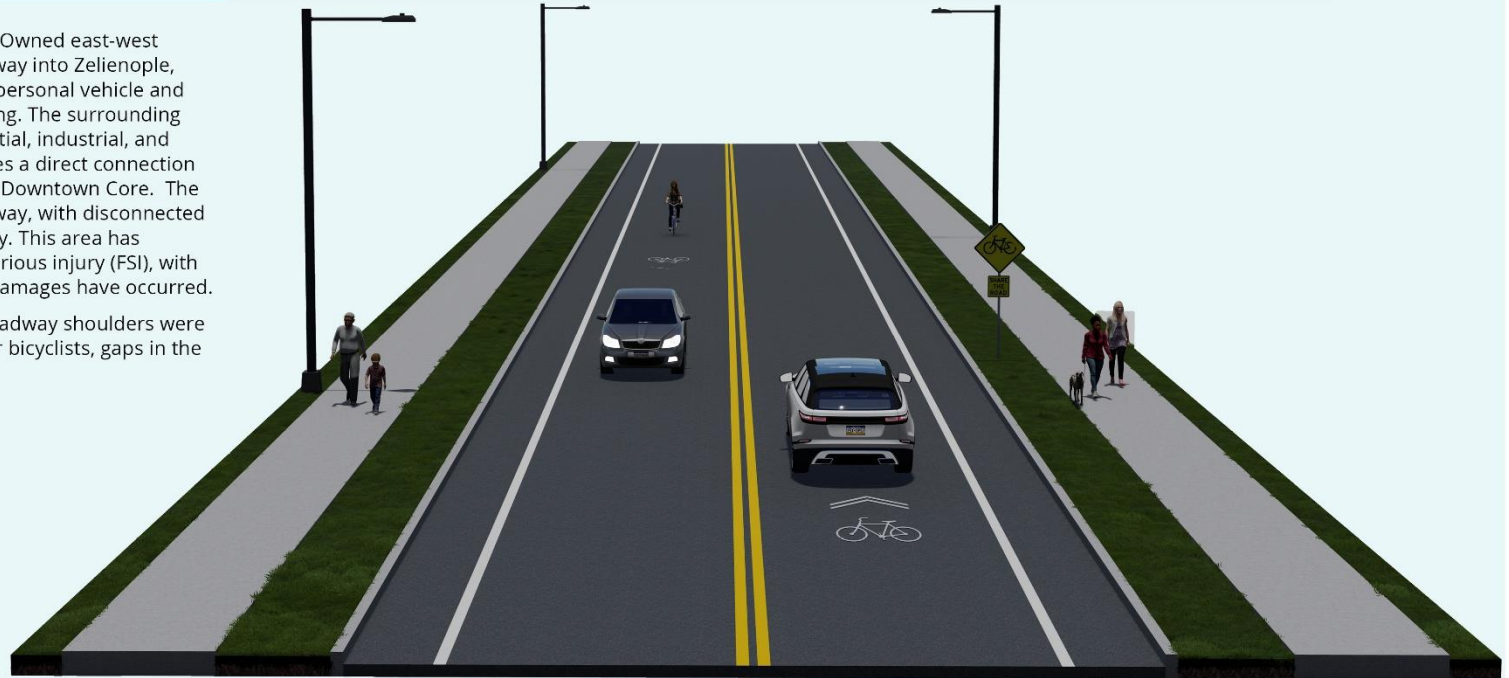


Zelienople Borough – SR 68 (W. Beaver Street) – Typical

Typical Description

SR 68 (W. Beaver Street) is a PennDOT-Owned east-west corridor that serves as a major accessway into Zelienople, this corridor handles vehicular traffic (personal vehicle and significant amount of truck), and walking. The surrounding land uses include single-family residential, industrial, and institutional uses. This corridor provides a direct connection to U.S. 19 (Perry Highway) Zelienople's Downtown Core. The current configuration is a 2-lane roadway, with disconnected sidewalks on either side of the roadway. This area has experienced an incident of fatal and serious injury (FSI), with numerous situations where property damages have occurred.

As part of the redesign of SR 68, the roadway shoulders were expanded to allow for a safer space for bicyclists, gaps in the sidewalk were filled and widened.



Proposed Typical Section

Jackson Township – Gudekunst, Lutz & Zehner School Roadway Enhancement

Corridor Characteristics

+ Location: U.S. 19 to Zehner School Rd.	+ Number of Intersections: 9	+ Social Vulnerability: No
+ Length: 1.76 miles	+ Functional Classification: Local	+ AADT (2025): 300-5,000
+ Municipality: Jackson Township	+ Posted Speed Limit: 35 mph	+ Truck % (2025): N/A
+ Road Owner: Jackson Township	+ Context: Rural	

Crash and Severity Data (2019-2023)



1 Fatal

7 Suspected Minor Injury

1 Possible Injury

2 Injury Unknown

5 Property Damage

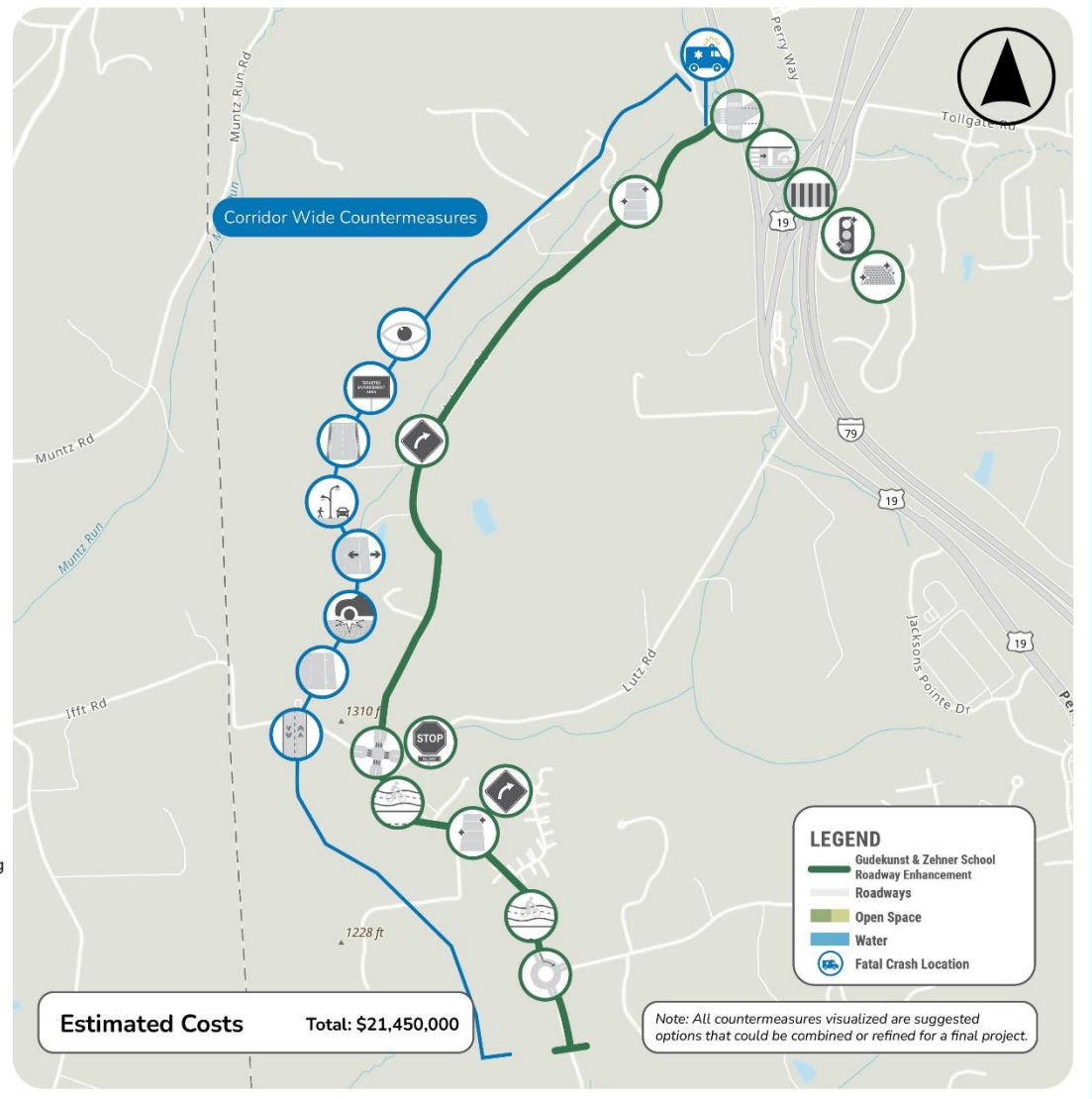


Collision Type



Proposed Safety Countermeasures

Sidewalks	Sight Lines (Tree Trimming)	Advanced Warning
Crosswalks	Pavement Markings	Stop Bar
4-Way Intersection	High Friction Surface	Widen Shoulder
3-Way Roundabout	Lighting	Separated Walking Path
Signal Head	Rumble Strips	Targeted Enforcement
All-Way Stop Control	Intersection Alignment	Sharrows



Jackson Township – Gudekunst, Lutz & Zehner School Roadway Enhancement – Concept Plan



Jackson Township – Gudekunst, Lutz & Zehner School Roadway Enhancement – Concept Plan

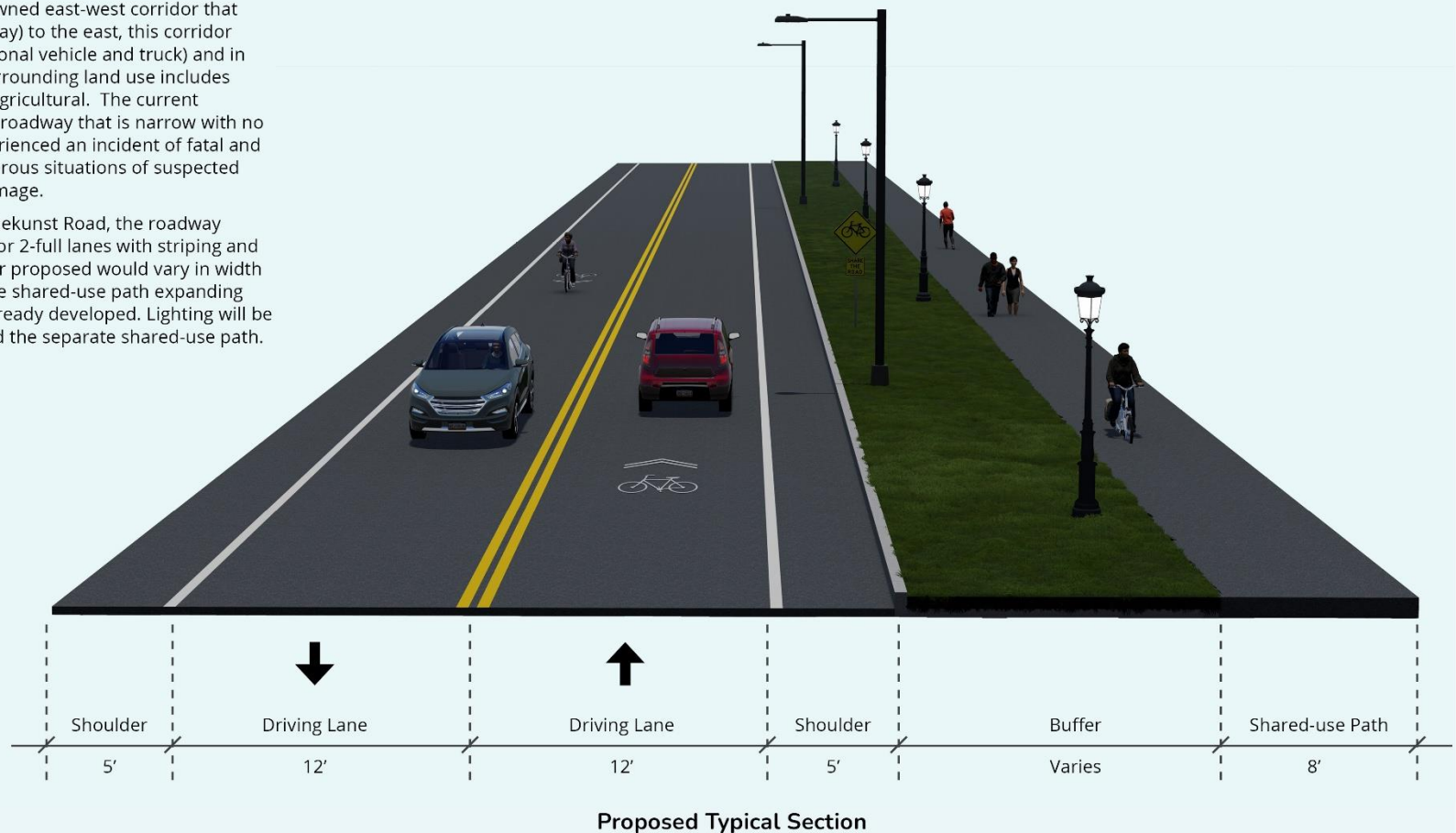


Jackson Township – Gudekunst, Lutz & Zehner School Roadway Enhancement – Typical

Typical Description

Gudekunst Road is a locally owned east-west corridor that connects U.S. 19 (Perry Highway) to the east, this corridor handles vehicular traffic (personal vehicle and truck) and in certain areas walking. This surrounding land use includes single-family residential and agricultural. The current configuration is a 2-lane rural roadway that is narrow with no shoulders. This area has experienced an incident of fatal and serious injury (FSI), with numerous situations of suspected minor injury and property damage.

As part of the redesign of Gudekunst Road, the roadway would be expanded to allow for 2-full lanes with striping and roadway shoulders. The buffer proposed would vary in width and would be along a separate shared-use path expanding the existing network that is already developed. Lighting will be proposed for the roadway and the separate shared-use path.



Cranberry Township – Powell Road Complete Street

Corridor Characteristics

+ Location: Glen Eden Rd. to Rochester Rd.	+ Number of Intersections: 11	+ Social Vulnerability: Yes
+ Length: 1.65 miles	+ Functional Classification: Local	+ AADT (2025): 300-5,000
+ Municipality: Cranberry Township	+ Posted Speed Limit: 35 mph	+ Truck % (2025): N/A
+ Road Owner: Cranberry Township	+ Context: Urban	

Crash and Severity Data (2019-2023)



13
Total Crashes



0
Fatal & Serious Injury Crashes



0
Vulnerable Road User Crashes

6 Suspected Minor Injury

1 Possible Injury

5 Property Damages

1 Injury Unknown



Collision Type



62%
Angle



38%
Fixed Object

Proposed Safety Countermeasures



Sidewalks



Pedestrian Refuge



4-Way Intersection



ADA Compliant Ramps



Targeted Enforcement



Crosswalks



Widen Sidewalk



Widen Shoulder



Sharrows



Mid-Block Crossing



Rapid Flashing Beacons (RRFB)



Cranberry Township – Powell Road Complete Street – Concept Plan

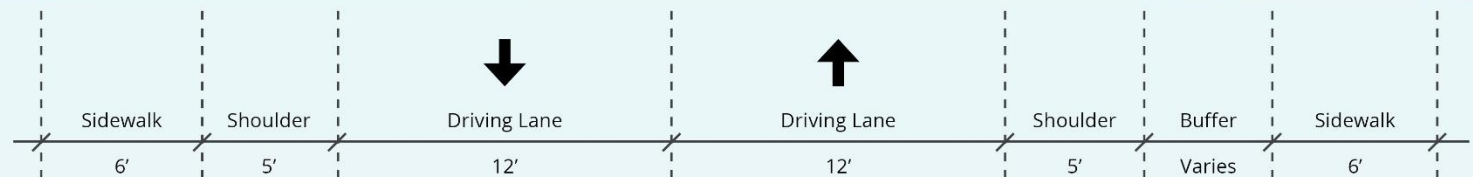


Cranberry Township – Powell Road Complete Street – Typical

Typical Description

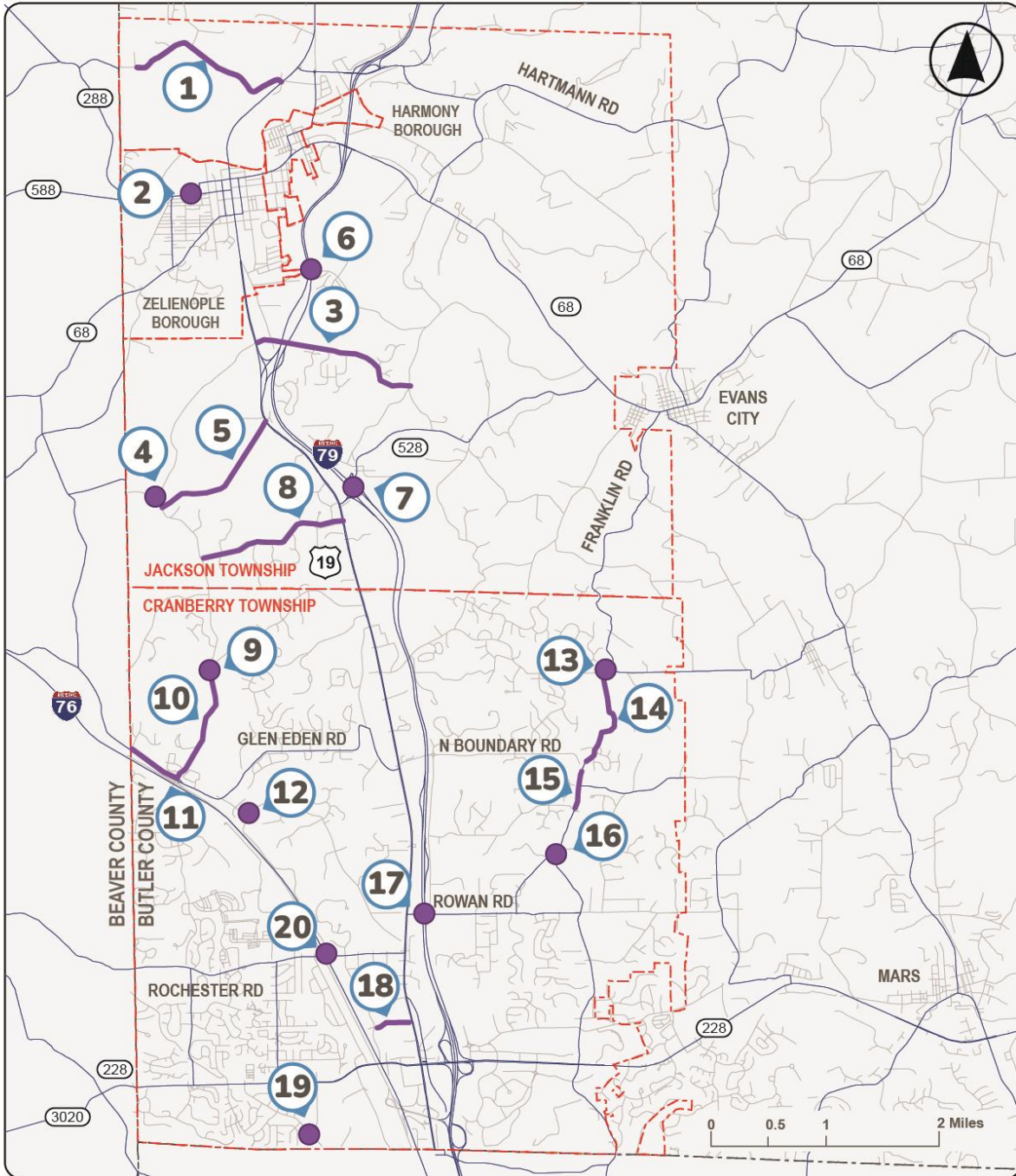
Powell Road is a locally owned north-south corridor that connects Glen Eden Road to Rochester Road, this corridor handles vehicular traffic (personal vehicle and truck), walking and biking. The surrounding land uses include mostly single-family residential and the Graham Park Trail in the northern section of the corridor. The current configuration is a 2-lane roadway with shoulders and a disconnected sidewalk network on various sides of the roadway. While this area has not experienced a high rate of crashes with fatalities and serious injuries (FSI), there are numerous situations of suspected minor injury and property damage.

As part of the redesign of Powell, the roadway shoulders were expanded to allow for a safer space for bicyclists choosing to use Powell Road, gaps in the sidewalk were reconnected, and sidewalks were widened to be ADA compliant.









Proposed Typical Section

EXHIBIT 8.2 – ADDITIONAL PROJECT AREAS



Legend

 County	 Additional Project Segments
 Study Municipalities	 Additional Project Intersections
 State Roadways	
 Local Roadways	



SOUTHWEST BUTLER COUNTY
Multi-Municipal Safety Action Plan

Project Areas

TABLE 8.1– ADDITIONAL PROJECT AREA COUNTERMEASURES

	Project	Countermeasures	Cost Estimate	Timeframe	Potential Funding Sources
1	Fanker Rd. from Dutch Rd. to U.S. 19	<ul style="list-style-type: none"> • Advance Warning Signage • Pavement Marking • Edgeline Rumble Strips • Signage 	\$110,000-\$220,000	Short-Term	<ul style="list-style-type: none"> • PennDOT Multimodal • ARLE • HSIP
2	New Castle St. at SR 288	<ul style="list-style-type: none"> • Pavement Marking • High Visibility Crosswalks 	\$10,000	Short-Term	<ul style="list-style-type: none"> • Locally Funded
3	Tollgate School Rd. from U.S. 19 to Ridge Rd.	<ul style="list-style-type: none"> • Pavement Marking • Add Shoulders • Add Sidewalks • Intersection Widening 	\$5M-\$5.25M	Long-Term	<ul style="list-style-type: none"> • PennDOT/CFA Multimodal • ARLE • TASA • Federal SS4A • SPC TIP (Intersection)
4	Zehner School Rd at Gudekunst Rd.	<ul style="list-style-type: none"> • Intersection Realignment 	\$300,000-\$350,000	Mid-Term	<ul style="list-style-type: none"> • PennDOT/CFA Multimodal
5	Lutz Rd. from Zehner School Rd. to U.S. 19	<ul style="list-style-type: none"> • Add Shoulders • Rumble Strips • Tree Removal 	\$670,000-\$810,000	Mid-Term	<ul style="list-style-type: none"> • ARLE • HSIP
6	Evans Rd. Bridge over I-79 (temporary ped markings until PennDOT I-79 project is implemented)	<ul style="list-style-type: none"> • Pedestrian Infrastructure 	\$40,000-\$80,000	Short-Term	<ul style="list-style-type: none"> • SPC STLC TASA • Federal SS4A • CRP • SPC TIP • ARLE
7	SR 528 Bridge over I-79 (temporary ped markings until PennDOT I-79 project is implemented)	<ul style="list-style-type: none"> • Pedestrian Infrastructure 	\$40,000-\$80,000	Short-Term	<ul style="list-style-type: none"> • SPC STLC TASA • Federal SS4A • CRP • SPC TIP • ARLE
8	Zehner School Rd. from Steeb Rd. to U.S. 19	<ul style="list-style-type: none"> • Advance Warning Signage • Shoulder Widening • Rumble Strips • Tree Removal 	\$710,000-\$1.2M	Mid-Term	<ul style="list-style-type: none"> • PennDOT Multimodal • ARLE • TASA • HSIP
9	Freshcorn Rd. at Heights Dr.	<ul style="list-style-type: none"> • Intersection Realignment • Relocation • Earthwork 	\$1.2M-\$1.56M	Long-Term	<ul style="list-style-type: none"> • PennDOT Multimodal
10	Freshcorn Rd. from Heights Dr. to Glen Eden Rd.	<ul style="list-style-type: none"> • Advance Warning Signage • High Visibility Crosswalks • Rumble Strips 	\$60,000-\$110,000	Short-Term	<ul style="list-style-type: none"> • PennDOT Multimodal • ARLE
11	Glen Eden Rd. from Carlye Dr. to Powell Rd.	<ul style="list-style-type: none"> • Advance Warning Signage • Pavement Markings • Rumble Strips 	\$30,000-\$80,000	Short-Term	<ul style="list-style-type: none"> • HSIP • ARLE

	Project	Countermeasures	Cost Estimate	Timeframe	Potential Funding Sources
12	Graham School Rd. at Unionville Rd.	<ul style="list-style-type: none"> • Advance Warning Signage • Tree Removal • Intersection Realignment • Horizontal Curve Straightening 	\$1.64M-\$1.72M	Long-Term	<ul style="list-style-type: none"> • PennDOT Multimodal • ARLE
13	Franklin Rd. at Garvin Rd.	<ul style="list-style-type: none"> • Intersection Realignment • Tree Removal • Access Management • Horizontal Curve Straightening • Signage 	\$2.4M-\$3.0M	Long--Term	<ul style="list-style-type: none"> • HSIP • ARLE • SPC TIP • Local or PennDOT Maintenance (Tree Removal)
14	Franklin Rd. from Callery Rd to N. Boundary Rd.	<ul style="list-style-type: none"> • Intersection Reconfiguration (Rowan to N Boundary) • Pavement Markings • Sidewalk Improvements 	\$1.67M-\$2.27M	Long-Term	<ul style="list-style-type: none"> • CMAQ • CRP • HSIP • TASA • ARLE • SPC STLC • SPC TIP
15	Franklin Rd. from N. Boundary Rd. to T309	<ul style="list-style-type: none"> • Advance Warning Signage • Pavement Markings • Traffic Signals 	\$900,000-\$930,000	Mid-Term	<ul style="list-style-type: none"> • CMAQ • GLG • ARLE • CRP • HSIP • SPC TIP
16	Franklin Rd. at Rowan Rd./Hope Rd.	<ul style="list-style-type: none"> • Roundabout • Advance Warning Signage • Pavement Markings 	\$3.75M-\$8.4M	Long-Term	<ul style="list-style-type: none"> • TASA • CMAQ • CRP • SPC STLC • SPC TIP
17	Rowan Rd. over I-79 Bridge (temporary ped markings until PennDOT I-79 project is implemented)	<ul style="list-style-type: none"> • Pedestrian Crossing – shoulder or sidewalks, signage, crosswalks 	\$30,000-\$40,000	Long-Term	<ul style="list-style-type: none"> • TASA • CRP • SPC STLC • Federal SS4A • SPC TIP
18	Cranberry Square Dr. from Executive Dr. to U.S. 19	<ul style="list-style-type: none"> • Restricting Intersection near U.S. 19 (Right-in/Right-Out Only) • Roundabout near AWSC Intersection 	\$3.75M-\$8.4M	Long-Term	<ul style="list-style-type: none"> • PennDOT/CFA Multimodal • CMAQ • CRP • HSIP
19	Thorn Hill Rd. at Rolling Rd.	<ul style="list-style-type: none"> • Advance Warning Signage • Pavement Markings • Shoulder Widening 	\$150,000-\$220,000	Mid-Term	<ul style="list-style-type: none"> • TASA • ARLE • PennDOT/CFA Multimodal
20	Rochester Underpass with Turnpike	<ul style="list-style-type: none"> • Pedestrian Crossing 	N/A	Long-Term	<ul style="list-style-type: none"> • Funded by PTC/PennDOT

SYSTEMIC SAFETY COUNTERMEASURES

In addition to the priority projects listed in this plan, a variety of systemic improvements may be incorporated on state or locally-owned roadways as development projects and maintenance activities occur in the future. These types of improvements may be incorporated into planned roadway betterments by PennDOT on state roads or routine maintenance by municipal forces on local roads.

Low-cost safety countermeasures are promoted by FHWA as proven, cost-effective strategies that can be implemented quickly and with little design burden to reduce crashes and improve roadway safety. These countermeasures may focus on common crash types at high-risk locations through relatively simple treatments such as enhanced retroreflective pavement markings, advance warning signage and wayfinding signage improvements, high visibility crosswalks, leading pedestrian intervals at signals, center and edgeline rumble strips, signal backplates, and improved lighting on existing poles. FHWA encourages the use of low-cost safety measures as they deliver high benefit to cost ratios and can achieve meaningful safety improvements even with limited funding.

FIGURE 8.1 HIGH VISIBILITY CROSSWALKS

Source: FHWA

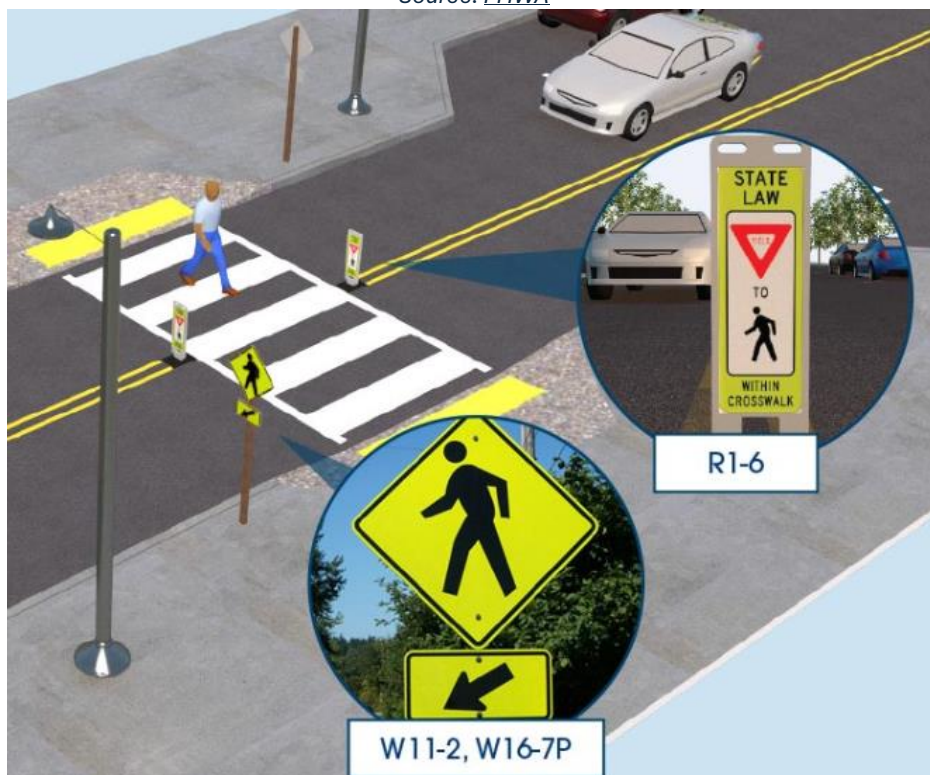


FIGURE 8.2 ENHANCED DELINEATION FOR HORIZONTAL CURVES

Source: FHWA



Cyclist safety throughout the southwest Butler County region emerged as a prominent theme from public input. Systemic safety measures for cyclists may include shared-lane pavement markings and signage, in addition to enforcement and policies for driver education.

A shared-lane marking, called a “sharrow”, is described in Section 9E.09 in the U.S. Department of Transportation Federal Highway Administration’s Manual on Uniform Traffic Control Devices for Streets and Highways 11th Edition, Revision 1 (MUTCD). The applicability and placement of sharrow pavement markings and supplemental roadway signage is typically determined during the preliminary engineering phase of a project and can also be done at the discretion of the roadway owner during routine maintenance. A sharrow is a pavement marking comprised of a bicycle symbol topped by two chevron arrows used to guide both cyclists and drivers in lanes shared by motor vehicles and bicycles. According to the MUTCD, the sharrow is an optional device used to:

- Assist bicyclists with lateral positioning when:
 - on-street parallel parking along a shared lane creates the chance for a bicyclist to impact the open door of a parked vehicle

FIGURE 8.3 SHARED-LANE MARKING

Source: MUTCD 11th Edition



- shared lanes are too narrow for a motor vehicle and a bicycle to travel side-by-side within the same traffic lane
- Assist bicyclists with lateral positioning in mixing zones
- Alert road users of the lateral location bicycles are likely to occupy within the traveled way
- Encourage safe passing of bicycles by motor vehicles
- Reduce the incidence of wrong-way bicycling in the roadway

The MUTCD states that sharrows may be considered when:

- Lane widths are insufficient to accommodate motor vehicles and bicycles riding safely side by side (generally less than 14-foot outside travel lanes).
- On-street parallel parking exists. Markings should be placed so the cyclist’s path is clear of opening car doors.
- It's infeasible to install dedicated bicycle lanes, buffer-separated, or physically separated bicycle facilities.
- Guiding cyclists through short segments near intersections or aiding navigation along shared routes.

The MUTCD suggests placement of sharrows on the roadway with spacing of 50 feet to 250 feet between sharrows on the same roadway segment, with more frequent markings near intersections.

Supplemental roadway signage (**Figure 8.4**) may reinforce the sharrow pavement marking. Bicycle warning signs may be used to enhance awareness of cyclists in the roadway and are typically recommended to be used in conjunction with sharrows. MUTCD Section 9B.14 describes that “Bicycles Allowed Use of Full Lane” signage may be used (sign R9-20).

FIGURE 8.4 SUPPLEMENTAL SIGNAGE



R9-20

Road Ownership: Sharrows and bicycle warning signage may be applied on state, county, or locally-owned roadways at the discretion of the roadway owner in line with their applicable roadway standards, including [PennDOT Publication 111, Traffic Control – Pavement Markings and Signing Standards](#).

Speed Applicability: Candidate roadways for sharrow and signage applications may vary. The MUTCD recommends that the shared-lane marking should not be placed on roadways that have a speed limit of 40 mph or greater.

Section 9. Community Impact Assessment

Purpose

The purpose of this Community Impact Assessment is to provide a data-driven overview of existing traffic safety and risk and its intersections with socioeconomic vulnerability in southwest Butler County, including Cranberry Township, Jackson Township, Zelenople Borough, and Harmony Borough, in alignment with SS4A goals related to community characteristics and protection of VRUs. The insights presented in this assessment are intended to inform strategy development and help ensure that future transportation investments benefit communities experiencing comparatively greater safety and socioeconomic risk. The assessment uses census-based measures of social vulnerability alongside data regarding FSI crashes within the study area.

Data Sources

2.1 Crash & Safety Data

The assessment draws on findings from the southwest Butler SS4A Crash Analysis and the Centers for Disease Control and Prevention (CDC) / Agency for Toxic Substances and Disease Registry (ATSDR) Social Vulnerability Index (SVI) to evaluate how transportation safety risk corresponds with socioeconomic vulnerability within the study area.

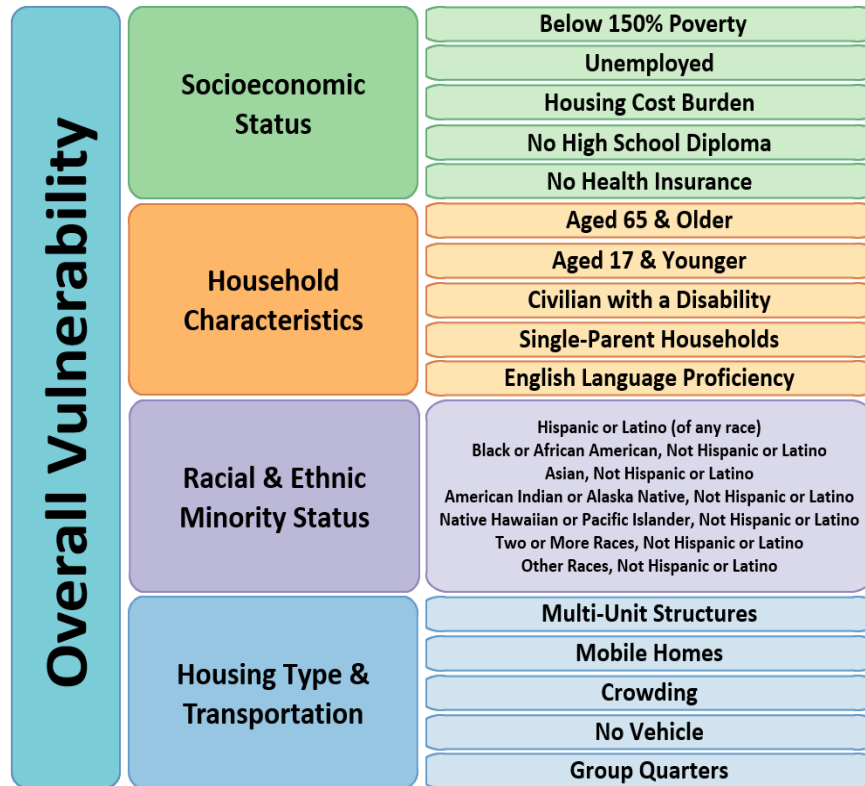
The Crash Analysis uses data from the Pennsylvania Department of Transportation (PennDOT) Pennsylvania Crash Information Tool for the five-year period from January 1, 2019, through December 31, 2023. The dataset includes information on crash severity, collision type, contributing factors, roadway conditions, and environmental characteristics. These data were used to identify the High Injury Network (HIN) at both intersection and roadway segment levels.

The HIN represents locations where severe crashes are most prevalent and where targeted safety strategies have the greatest potential to reduce fatal and serious injuries.

2.2 Socioeconomic Vulnerability Data

For the purposes of this assessment, social vulnerability is defined as the degree to which a community exhibits certain social conditions, such as higher poverty levels, limited access to vehicles, or crowded housing, that may affect the community’s ability to prevent human suffering and financial loss in the event of a disaster (CDC).

FIGURE 9.1 – SOCIAL VULNERABILITY INDEX (SVI)



The SVI evaluates social vulnerability using 16 variables grouped into four themes: Socioeconomic Status; Household Characteristics; Racial and Ethnic Minority Status; and Housing Type and Transportation. These variables are evaluated collectively to produce an overall social vulnerability score ranging from 0 to 1. Values closer to 1 indicate greater relative vulnerability. The SVI was used to assess factors relative to other census tracts to identify areas experiencing comparatively greater levels of socioeconomic vulnerability.

Methodology

The methodology combines crash history analysis with census-based measures of social vulnerability to identify areas where safety risks and socioeconomic factors may overlap.

3.1 High Injury Network Identification (HIN)

In the Crash Analysis, crash locations were analyzed using a combination of intersection-level and roadway segment-level methods. For intersections, a 250-foot buffer was applied to capture crashes occurring within each intersection’s area of influence. Roadway segments between intersections were evaluated using available traffic volume data to calculate crash rates where feasible.

The HIN was identified using the intersections and roadway segments with the highest concentrations and rates of FSI crashes. These locations represent areas where severe crashes are most prevalent and where targeted safety strategies may have the greatest potential to reduce injuries and fatalities.

Based on the intersection-level analysis, the three intersections with the highest FSI crash rates within the study area include:

1. Graham School Road at Unionville Road (0.30 FSI crashes per 1 MVMT)
2. Franklin Road at Rowan Road/Hope Road (0.16 FSI crashes per 1 MVMT)
3. Franklin Road at Ehrman Road (0.15 crashes per 1 MVMT)

Based on the roadway segment-level analysis, the three roadway segments with the highest FSI crash rates include:

1. Freshcorn Rd. from Heights Drive to Glen Eden Road (66.365 crashes per 100 MVMT)
2. Glen Eden Road from Carlyle Dive to Powell Road/Freshcorn Road (31.985 crashes per 100 MVMT)
3. Franklin Road from T 313/Callery Road to North Boundary Road (26.434 crashes per 100 MVMT)

3.2 Identification of Socioeconomic Vulnerability

Census tract-level SVI scores were reviewed for all tracts within the study area to support the comparative analysis. A summary of census tracts and corresponding SVI values is provided in **Table 9.1**.

TABLE 9.1 – CENSUS TRACTS AND OVERALL SOCIAL VULNERABILITY INDEX (SVI) SCORES

Census Tract	Municipality	Overall, SVI (2022)	Relative Vulnerability
420199118.00	Cranberry Township	0.1485	Low
420199120.01	Cranberry Township	0.0583	Low
420199120.02	Cranberry Township	0.2884	Low to Moderate
420199121.01	Cranberry Township	0.0747	Low
420199121.02	Cranberry Township	0.0377	Low
420199122.00	Cranberry Township	0.0511	Low
420199123.01	Cranberry Township	0.0102	Low
420199123.04	Cranberry Township	0.1126	Low
420199119.00	Zelienople Borough	0.4529	Low to Moderate
420199110.00	Jackson Township	0.1509	Low
420199111.00	Harmony Borough	0.1324	Low
420199117.00	Harmony Borough	0.1217	Low
420199124.03	Harmony Borough	0.0500	Low

SVI values are based on the CDC/ATSDR 2022 Social Vulnerability Index. Relative vulnerability classifications are qualitative and used for comparison within the study area.

TABLE 9.2 –OVERALL, SOCIAL VULNERABILITY INDEX (SVI) LEVELS

Overall, SVI Levels of Vulnerability
Low: 0.0 – .25
Low-Medium: .2501 – .5
Medium-High: .5001 – .75
High: .7501 – 1.0

Source: CDC/ATSDR

Overall, census tracts in the southwest Butler County study area show mostly low to low-medium levels of social vulnerability. There is some variation within the study area, with the lowest overall SVI of .0102 in Cranberry Township and the highest at .4529 in Zelienople Borough. The data shows that Zelienople Borough has a comparatively higher overall SVI score within the study area, which indicates relatively greater socioeconomic vulnerability when compared to other census tracts in southwest Butler County¹. While no census tracts within the study area exhibit high levels of social vulnerability, these differences remain relevant for understanding how traffic safety risks may disproportionately affect certain populations.

3.3 Comparative Overlay Analysis

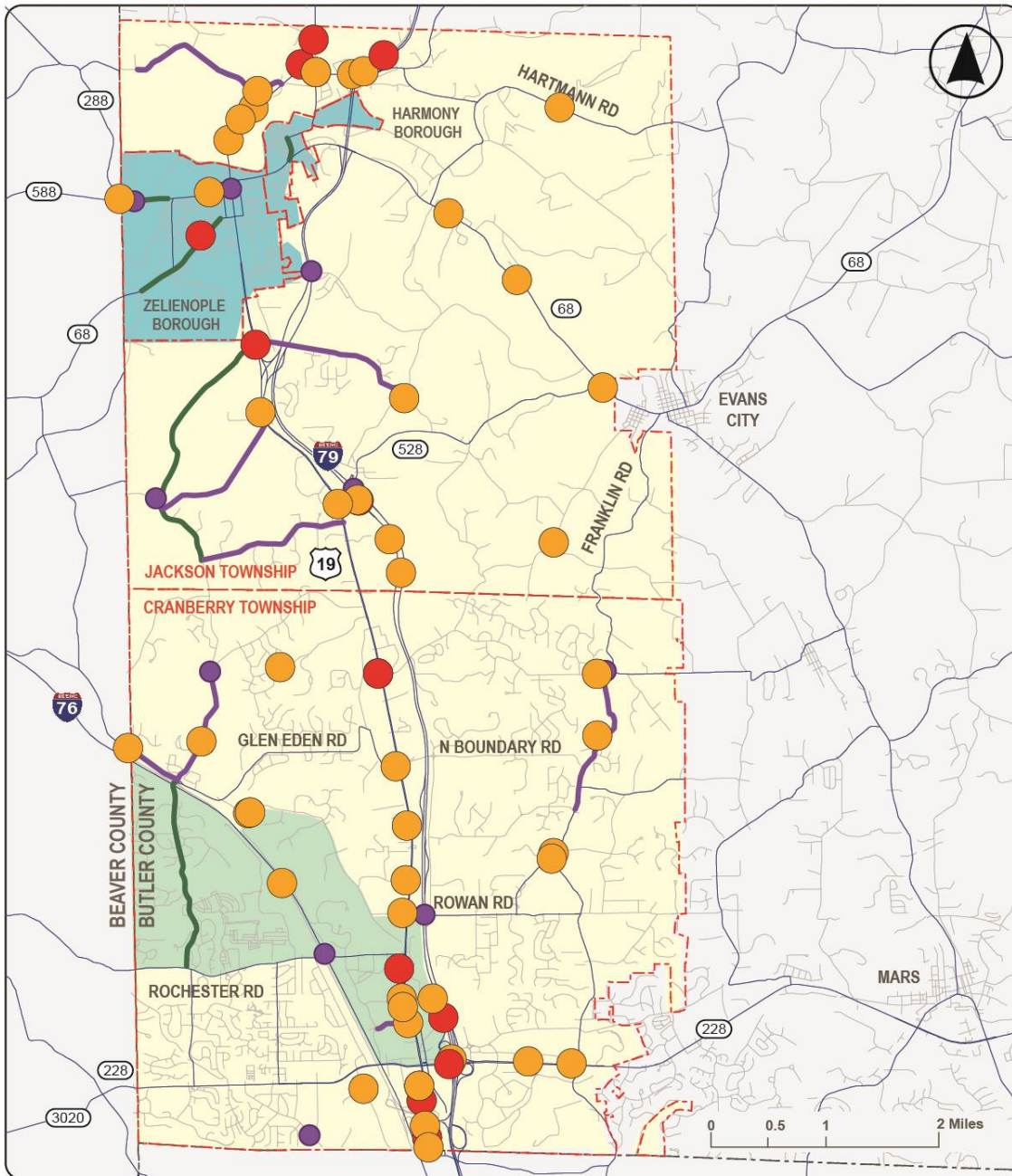
Census tracts with higher SVI scores were identified and compared with locations included in the High Injury Network. This comparison looks at where FSI crashes occur and whether those locations are within or near census tracts with higher levels of socioeconomic vulnerability.

The overlay analysis serves as a general screening step to help understand where traffic safety concerns and community conditions may intersect. The analysis is not intended to establish a direct relationship between socioeconomic characteristics and crash occurrence. Rather, it provides additional background information to help place crash locations in a broader community context.

The results of this comparison can inform the development of safety strategies and project recommendations for the CSAP. Both crash severity and community-level conditions were considered in this process.

¹https://svi.cdc.gov/Documents/CountyMaps/2022/Pennsylvania/Pennsylvania2022_Butler%20County.pdf

EXHIBIT 9.1 – FATAL AND SERIOUS INJURY CRASHES (FSI) & SOCIAL VULNERABILITY INDEX



Legend	Crash Severity	Levels of Vulnerability
County	Fatal	Medium-High
Study Municipalities	Serious Injury	Low-Medium
State Roadways	Priority Projects	Low
Local Roadways	Additional Projects	



SOUTHWEST BUTLER COUNTY
Multi-Municipal Safety Action Plan

FSI & Social Vulnerability Index

The SVI categories shown on this map reflect relative rankings within the study area and highlight variation across census tracts. These categories do not correspond directly to absolute SVI value ranges shown in **Table 9.2**.

Findings & Key Observations

4.1 Overlap of Safety and Socioeconomic Risk

There are areas of spatial overlap between census tracts with comparatively higher SVI and Southwest Butler County's High Injury Network (**Exhibit 9.1**). Census Tract 420199119.00, which corresponds to Zelenople Borough, contains multiple high-ranking fatal and serious injury (FSI) intersections and roadway segments. This census tract also had the highest SVI within the study area. This area represents the clearest overlap between higher relative social vulnerability and locations with elevated crash severity within the study area.

In Cranberry Township (Census Tract 420199120.02), high-injury locations are more closely associated with roadway segments than with individual intersections. Several roadway segments with higher fatal and serious injury crash rates run through or near this tract, particularly along major corridors.

These findings do not establish a direct link between socioeconomic conditions and crash occurrence but offer contextual insights to aid safety planning in conjunction with documented crash history.

Application for Strategy Development

Findings from the Community Impact Assessment were used to inform the development and prioritization of strategies and projects under the CSAP. The comparison of HIN locations with census tract-level socioeconomic vulnerability provides additional context for understanding where safety investments may have the greatest potential benefit.

While overall social vulnerability levels in the study area are mostly low to moderate, differences across municipalities and corridors emphasize the need to consider local context when advancing safety improvements. The results of this assessment support an approach that integrates crash severity, roadway characteristics, and community conditions to guide equitable and data-informed decision-making.

Section 10. Project Implementation

The Southwest Butler Multi-Municipal Safety Action Plan supports the goal of reaching zero fatalities in the southwest Butler region by 2050. As of the 2026 publication of this Action Plan, there are 24 years remaining to complete implementation of recommended countermeasures with the project areas. With limited capital funding in municipal budgets, municipalities are constrained fiscally with many competing infrastructure and maintenance needs. As such, securing competitive funding will be a critical component in implementing the recommended safety countermeasures in this Plan.

Two overarching implementation categories have been identified. The first focuses on securing the necessary funding, completing the required pre-construction activities and project development phases, including NEPA documentation, completing roadway designs, project bidding, and awarding the construction contracts. The second is the proposed time range in which to initiate and complete construction of the improvements.

FUNDING

Securing funding for the strategies and projects outlined in this CSAP will be essential for project implementation and advancing roadway safety across the southwest Butler County region.

Currently, the only dedicated federal funding stream for safety improvements is the Highway Safety Improvement Program (HSIP). The southwestern Pennsylvania region, via the SPC, receives approximately \$13 million per year in HSIP funds; however, the need for safety improvements far outweighs the amount of dedicated HSIP funding available. Proposed HSIP projects must meet PennDOT requirements and demonstrate a favorable safety benefit/cost ratio in order to qualify for funding. Municipalities should consult with the Southwestern Pennsylvania Commission to determine the applicability of HSIP funding for their potential project.

This Plan serves as a strategic resource, guiding the integration of safety improvements with other infrastructure and development projects. When roadway and bridge maintenance or upgrades such as betterments or routine maintenance are scheduled, or there are proposed real estate development projects that require improvements to the surrounding transportation network, roadway owners, and those responsible for operating and maintaining traffic control devices and dedicated bicycle and pedestrian facilities are encouraged to consult this plan to identify opportunities for partnerships that address overlapping community safety goals and priorities.

Potential funding sources include, but are not limited to, the options listed in **Appendix D**. Federal, state, and local funding and programs as well as support from the development community should be leveraged as appropriate. Some sources may not focus exclusively on transportation yet offer support for projects that promote broader community and economic development. By utilizing a creative and flexible approach to funding, the southwest Butler County region can maximize opportunities to enhance roadway safety and community well-being.

PROJECT TIMING

The timing for pursuing each project is dependent on a number of factors including available funding and project delivery resources, project complexity, and opportunities for partnerships with other infrastructure owners. It is important that the municipalities remain in close coordination with implementation partners such as PennDOT, the Pennsylvania Turnpike Commission, Butler County, and SPC to capitalize on improvements that are already planned in long-range plans and/or that are already programmed in the regional TIP.

The SPC regularly monitors and aligns priority projects with available federal discretionary grant opportunities and communicates opportunities to infrastructure owners to accelerate implementation. SPC will continue to act as a resource to counties and municipalities in providing data, technical expertise, and letters of support to discretionary grant applications.

As previously stated, all of these projects are developed at a conceptual planning level and will be further developed and refined during the design and engineering phase of the project development process. The PennDOT Connects process allows municipalities and stakeholders to engage with and provide feedback into the project elements to PennDOT before projects begin the design and development process to communicate local priorities and needs and to build partnerships to implement those priorities along with the PennDOT project. All municipalities are encouraged to attend PennDOT Connects Municipal Outreach Sessions when they are held in their community. These sessions are also a valuable resource for municipal collaboration and to learn about available resources planning assistance and resources.

Section 11. Policy Review and Recommendations

A review of safety plans and policies from peer municipalities, metropolitan planning organizations, and state and national transportation agencies was conducted. Policy recommendations are suggested for safety concerns that are more broadly focused, programmatic, or behavioral in nature.

Policies, while not new infrastructure projects, can lay the governmental framework and foundation for future safety enhancements. These enhancements range from appropriate street design for all modes of transportation, maintenance and improvement of the existing transportation system, intergovernmental and agency cooperation, and public and private partnerships.

TABLE 11.1 – POLICY RECOMMENDATIONS

Policy Concern	Recommendation
<p>Residents and stakeholders strongly emphasized the need for a greater law enforcement presence on local roads.</p>	<p>Increase collaboration between municipal police departments. Consider development of a regional taskforce to develop strategies to cost effectively increase local police presence in the region.</p>
<p>Aggressive driver behavior in the region includes not yielding to pedestrians.</p>	<p>Include Pedestrian Friendly Traffic Signal Phasing: Reprogram signals to include a minimum 3-second Leading Pedestrian Interval (LPI) upon actuation at all signals to allow pedestrians time to get into the intersection and be more visible to turning traffic.</p> <p>Consider No Turn on Red restrictions. Assess Walk, Flashing Don't Walk, and Don't Walk times to allow time for slower moving pedestrians to cross the road. Assess Yellow and All-Red signal clearance intervals with consideration of prevailing speeds.</p>
<p>Aggressive driver behavior includes speeding, especially in residential areas.</p>	<p>Implement Neighborhood Traffic Calming Policy: Implement neighborhood-level improvements to calm traffic, including elements such as curb bump-outs, mini-roundabouts, and road diets. Evaluate speed limits and consider Safer Speeds as part of the Safe Systems Approach. Consider "20 is plenty" on neighborhood streets.</p>

Policy Concern	Recommendation
<p>Residents and stakeholders expressed concern that rapid residential and commercial growth is exceeding the capacity of local roads and intersections.</p>	<p>Expand linkages between land use decision making and transportation planning and programming.</p> <p>Consider expanding regional collaboration to help address development pressures impacting neighboring municipalities. The Southwest Butler Stormwater Authority could serve as a model to expand regional collaboration.</p>
<p>Local police departments lack tools (i.e. radar) to effectively enforce speeding.</p>	<p>Work with local, regional and state elected leadership to advocate for legislation allowing for the use of speed management tools such as radar, Light Detection and Ranging (LiDAR), automated speed cameras and sensors.</p>
<p>EMS and first responders raised concerns about delayed response times due to congestion and roadway design.</p>	<p>Implement access management on high traffic corridors and when in new developments.</p> <p>Require new developments to provide adequate fire lanes; avoid restrictive turning geometries; design private streets to NFPA/AASHTO access standards; while accounting for methods to slow general vehicle speeds without incurring major delays to emergency vehicles and require new developments to have inter-parcel connections and new commercial and residential developments to connect with one another and make connections to parallel routes. Avoid use of cul-de-sacs.</p>

Section 12. Measuring Progress

The Planning Committee will oversee the implementation and evaluation of the Safety Action Plan’s progress. The following strategies are recommended with respect to the implementation and evaluation stage of this plan:

- The Planning Committee should meet at least once per year to review the latest crash data, community participation information, and discuss shifting community needs, lessons learned, opportunities, and emerging technologies. The Planning Committee would provide input on an annual report. Expand the Planning Committee as necessary to include other municipal departments, emergency management and first responders, the school district, and others as appropriate.
- The Planning Committee should evaluate the metrics identified in **Section 7** to determine the best overall ones to track based on the criteria of being feasible, relevant, available, and understandable.
- The Planning Committee should conduct pedestrian counts in perceived high activity areas in each municipality, including bicycle rack counts or travel surveys at schools, at least once per year to facilitate planning and prioritization of nonmotorized system improvements. SPC could be a potential partner to assist with collecting pedestrian counts.
- The Planning Committee should conduct annual community participation (online survey) to solicit public input on progress and continued safety needs.
- The Planning Committee should publish an annual report summarizing implemented strategies and projects—including engineering, education, and enforcement measures—from this Action Plan and system performance with respect to expectations.

Appendices

APPENDIX A-FSI & VULNERABLE ROADWAY USER CRASH DETAILS

APPENDIX B-OUTREACH SUMMARY ROUND ONE

APPENDIX C-SAFETY ANALYSIS

APPENDIX D-FUNDING SOURCES

APPENDIX E-BEST PRACTICES

APPENDIX F-PLANS AND POLICIES REVIEW

APPENDIX G-ADOPTING RESOLUTIONS
