LUZERNE COUNTY
SAFETY ACTION PLAN

Prepared for Luzerne County, Pennsylvania

by Kittelson & Associates, Inc.

April 6, 2026

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ACKNOWLEDGEMENTS

The project team wishes to thank the members of the Luzerne Safety Working Group for their valuable contributions to the development of this Safety Action Plan.

Luzerne County, County Manager ..... Romilda Crocamo

Luzerne County, County Planning and Zoning ..... Daniel Reese

Luzerne County, County Engineering ..... Nick Vough

City of Wilkes-Barre Representative ..... Jay Delaney

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1 INTRODUCTION

1.1 OVERVIEW

Luzerne County received a Safe Streets and Roads for All (SS4A) grant from the Federal Highway Administration (FHWA) in fiscal year (FY) 2024 to prepare a Comprehensive Safety Action Plan. The purpose of this Safety Action Plan (SAP) is to develop strategies to reduce fatal and serious injury crashes.

Luzerne County is located in northeastern Pennsylvania and has a population of 325,594 based on the 2020 Census. Wilkes-Barre is the city with the largest population in the County, at 44,277. There are major highways that run through Luzerne County, including Interstates 80, 81, and 476. US 11 and PA Route 309 also run through the County. In addition to these interstates and highways, Luzerne County has a large network of urban streets and suburban and rural roads connecting its 76 municipalities. The relationship between the County's urban and rural roadway networks is important context for developing the SAP.

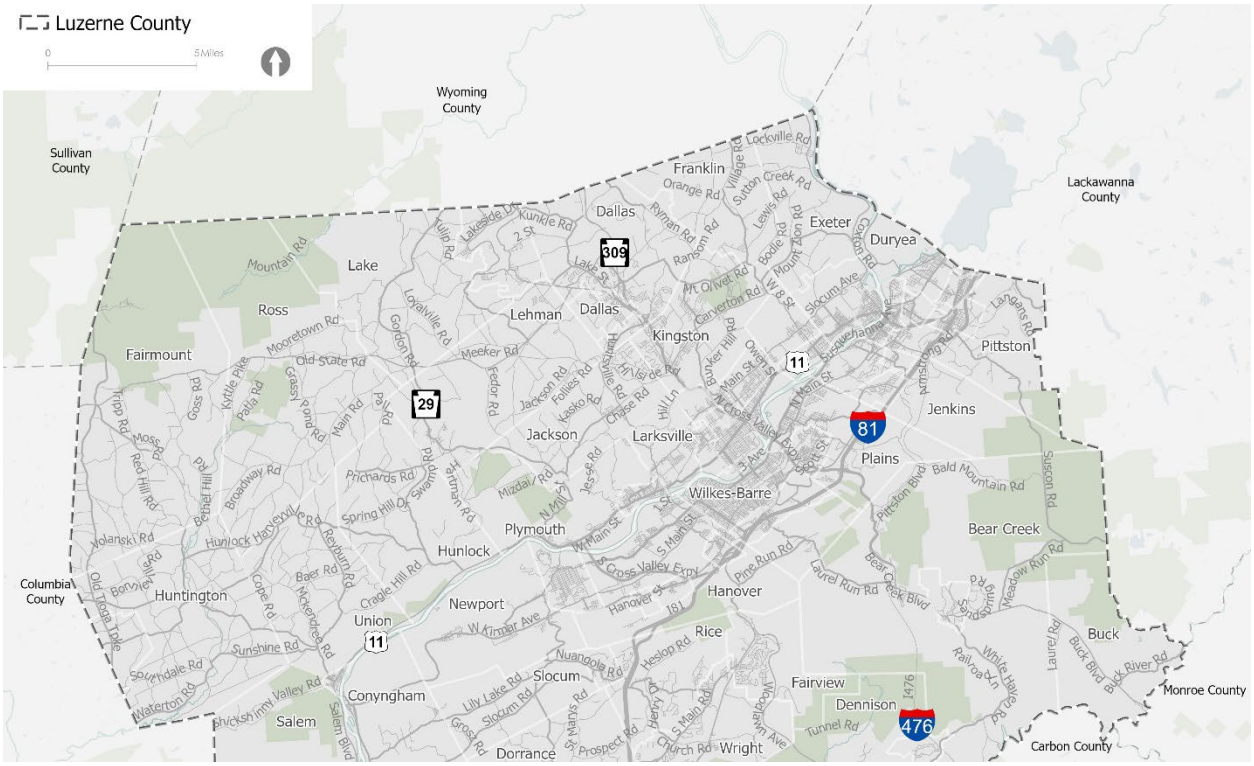

Figure 1 Northern Luzerne County

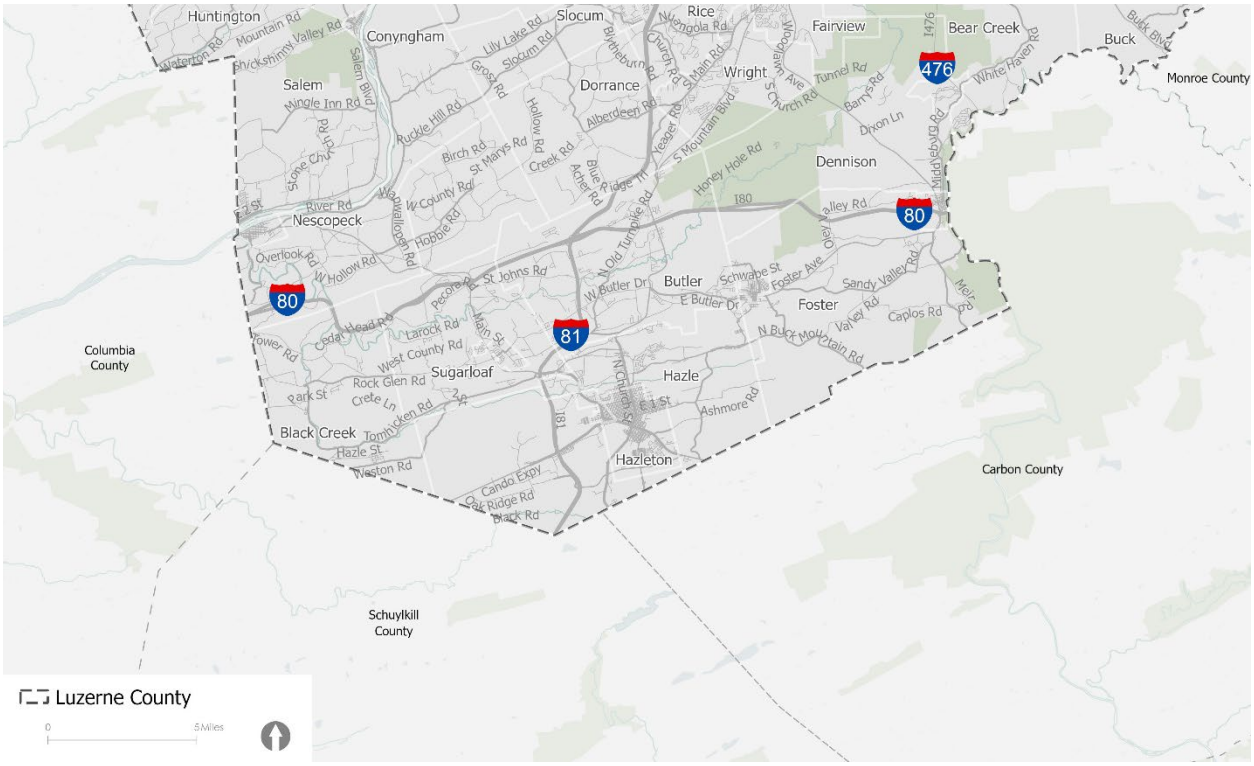

Figure 2 Southern Luzerne County

From 2019 – 2023, the median household income for Luzerne County was $62,321, with a total of 16.4% of the population living below the poverty line. Currently, retail, manufacturing, and healthcare are major employment sectors for Luzerne County residents.

Traffic crashes are concentrated along state routes and within denser urban areas of the County. From 2019 – 2023 there were a total of 170 fatal crashes.

Figure 3 shows that fatal crashes are somewhat spread throughout the County, with some concentrations in denser urban areas. Importantly, there are opportunities to reduce the occurrence of fatal and serious crashes throughout Luzerne County's roadway network, in both urban and rural areas.

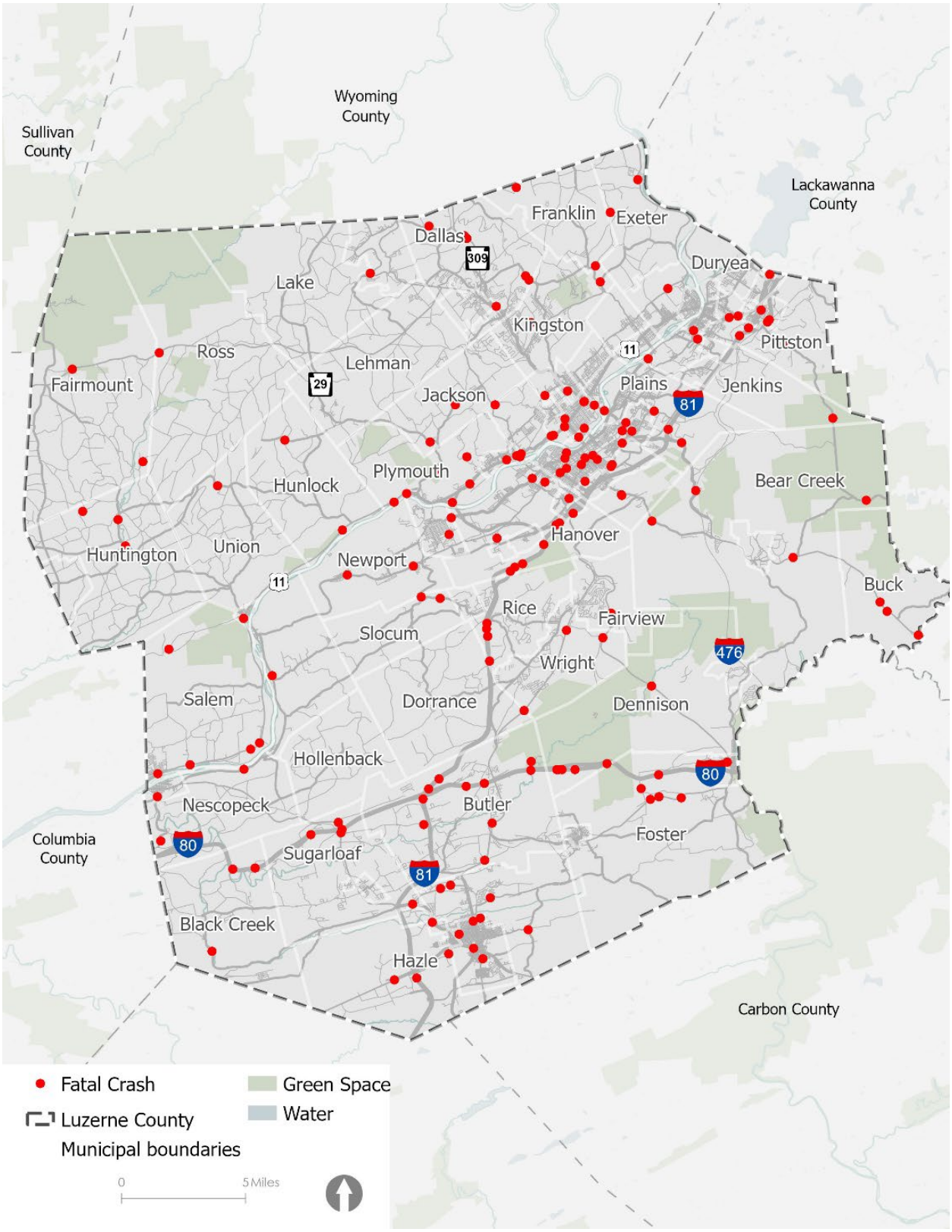

Figure 3 Fatal Crashes in Luzerne County (2019 - 2023)

A Safety Working Group composed of interdisciplinary agency staff was formed to inform this Safety Action Plan's mission of reducing roadway fatalities and injuries. This Safety Action Plan is built on using a Safe System Approach, as discussed later in this plan.

Safe Streets and Roads for All (SS4A)

The Safe Streets and Roads for All (SS4A) program is a Federal discretionary program with $5 billion in appropriated funds over five years from 2022–2026. The program is overseen by the Federal Highway Administration (FHWA) and funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries. SS4A supports the U.S. Department of Transportation's National Roadway Safety Strategy and the goal of zero roadway deaths using a Safe System Approach. SS4A grants are available for safety planning, implementation, and demonstration activities and programs.

1.2 HOW TO USE THE SAFETY ACTION PLAN

The SAP is organized into eight chapters. The following list summarizes the content and purpose of each section and how it is intended to be used.

- **Chapter 1: Introduction**—Provides an overview of the SAP's goals and leadership commitment.
- **Chapter 2: Planning Structure**—Explains the Safe System Approach and Vision Zero as concepts and gives a summary of how the Steering Committee shaped the development of the SAP.
- **Chapter 3: Safety Analysis**—Describes the crash data analysis and highlights the top systemic crash profiles identified.
- **Chapter 4: Engagement and Collaboration**—Summarizes both phases of the public engagement process throughout the SAP's development, including ideas for ongoing collaboration that the County can implement.
- **Chapter 5**: **Policy and Process Changes** –Reviews current MPO and County plans for their relevance to the SAP, assesses PennDOT's statewide safety efforts, and provides recommendations for new or revised policies.
- **Chapter 6: Projects and Strategies**—Describes a toolkit of safety countermeasures tailored to the County's identified safety gaps and additional infrastructure safety improvements. Educational, enforcement, programmatic, and other non-infrastructure safety solutions are included to support the engineering recommendations of the SAP.
- **Chapter 7: Implementation Plan**—Provides an actionable process for implementing the recommended safety countermeasures.
- **Chapter 8: Conclusions and Next Steps**—Summarizes the report and discusses next steps for implementation.

1.3 LEADERSHIP COMMITMENT AND GOAL SETTING

As part of the SAP process, the County's leadership needs to define a goal to reach or make progress towards Vision Zero by a specific year. Luzerne County recognizes the importance of protecting all road users and its leadership is committed to reducing fatal and serious injury crashes by 50%, by 2035. Vision Zero and the Safe System approach are fundamental strategies for the County to reach this goal.

1.3.1 Safe System Approach

In January 2022, the United States Department of Transportation released its National Roadway Safety Strategy that adopts the Safe System Approach as its core practice.[1] As opposed to traditional road safety practices, which attempt to modify human behavior and prevent crashes, the Safe System Approach modifies the transportation system design to anticipate human errors, proactively reduce crash severity, and save lives.

The Safe System Approach (see Figure 4) acknowledges that the human body is vulnerable to the amount of kinetic energy transfer it can withstand. This vulnerability is considered when designing and operating a transportation network to minimize serious injuries and fatalities. Therefore, it is crucial that the responsibility is shared by those who design and operate the transportation system. In a Safe System, all stakeholders work together and include, but are not limited to, road users, transportation system managers, planners, designers, policy makers, elected officials, law enforcement, emergency responders, and vehicle manufacturers.

By applying the Safe System Approach, roadway system managers use a proactive approach to safety to address safety concerns before crashes occur, contrasting with traditional road safety practices that are reactive after crashes occur. This involves using crash data and roadway design characteristics and employing a data-driven approach to identify crash patterns and trends associated with crash risk. Transportation system managers then systemically implement proven safety countermeasures at all locations matching those crash risk factors to mitigate against future crashes.

This approach contrasts substantially with traditional methods of reducing risk and exposure by limiting access for people not in motor vehicles. Instead, solutions are sought which reduce exposure and risk through design and engineering rather than policies that restrict freedom of movement and access.

[1] United States Department of Transportation. *National Roadway Safety Strategy*. January 2022 https://www.transportation.gov/sites/dot.gov/files/2022-02/USDOT-National-Roadway-Safety-Strategy.pdf

Finally, this approach assumes that redundancy is key to reducing crash frequency in a transportation system. All parts of the system should be strengthened so that if one part fails, other parts of the system still protect roadway users. This also puts greater emphasis on layered engineered solutions rather than focusing just on individual behavior change or personal protective gear. A simple example of this would be rumble strips that protect people when their own ability to be safe road users is compromised by distractions or drowsiness.

Figure 4. Safe System Approach

1.3.2 Vision Zero

According to the Vision Zero Network, Vision Zero is a strategy for eliminating all fatal and suspected serious injury crashes on the transportation network. Vision Zero also aims to contribute to safe, healthy, and equitable mobility for all people.[2]

As shown in Figure 5, Vision Zero is different from the more traditional approach to thinking about transportation safety because it is proactive, integrated, multidisciplinary, and systematic. [2] Vision Zero places critical value on the lives lost or permanently impacted by crashes and challenges agencies and communities to invest in prevention.

The following strategies are key to achieving Vision Zero and are core elements of this SAP:

- Build and sustain partnerships.
- Analyze data.
- Prioritize community engagement.
- Manage traffic speeds.
- Set implementation timelines.
- Ensure transparency.

VISION ZERO GOAL

Luzerne County is committed to reducing fatal and suspected serious injuries by 50% by 2035.

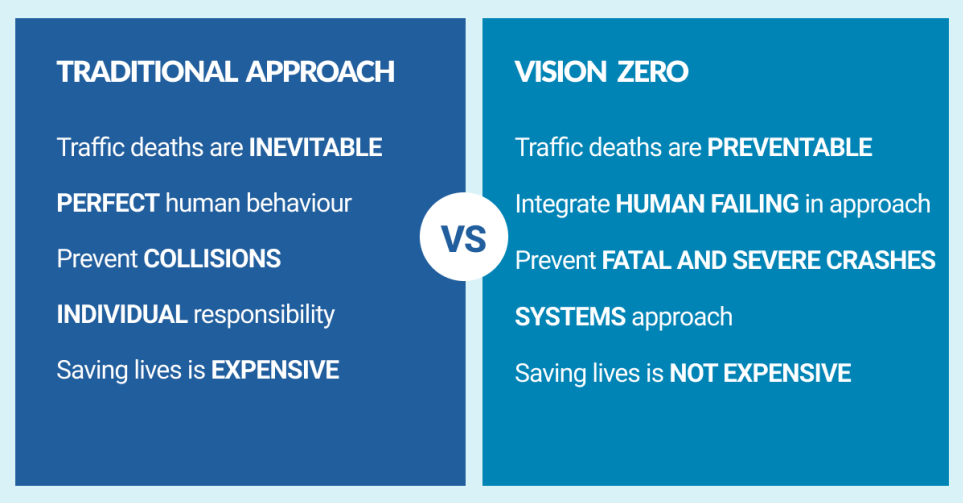

Figure 5. Traditional vs Vision Zero safety approach

[2] Vision Zero Network. *What is Vision Zero?* 2025. https://visionzeronetwork.org/about/what-is-vision-zero/

2 PLANNING STRUCTURE

2.1 SAFETY WORKING GROUP

A Safety Working Group guided the development of this SAP. Members of the Safety Working Group are listed below, and were drawn from entities representing a wide range of transportation and related interests across Luzerne County. This interdisciplinary team of agency staff and community leaders collaborated to further the cause of reducing roadway fatalities and serious injuries through accountability. The Safety Working Group can continue to be leveraged during future implementation of the SAP.

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The Safety Working Group convened four meetings throughout the process of developing the SAP, as described below. The purpose of these meetings was to introduce the principles of the SAP, provide status updates, seek suggestions on engagement approaches, present analysis results, and seek feedback on recommendations.

Meeting No. 1: Introducing the Safety Action Plan

The first Safety Working Group meeting, held on April 30, 2025, discussed the purpose and contents of a Safety Action Plan, including the tasks involved in developing it as well as the federal requirements that must be met for the SAP to be eligible for SS4A implementation funding. The meeting included a presentation of initial crash analysis results and a discussion of the potential Vision Zero goal.

Meeting No. 2: Introducing the High Injury Network

The second Safety Working Group meeting was held on June 30, 2025. This presentation introduced the draft High Injury Network, reviewed upcoming engagement approaches, covered an additional discussion of goals, and an introduction to safety countermeasures. (A High Injury Network, described in more detail later in the document, is a set of streets or corridors in a community where the majority of severe and fatal crashes have occurred.)

Meeting No. 3: Ideas for Improvement

In the third Safety Working Group meeting, held on October 3, 2025, a recap of the first round of engagement was presented. There was also a presentation of the High Injury Network (HIN) priority corridors and intersections, which involved using a more detailed crash classification process. Priority corridors and intersections were categorized by urban and rural areas.

Additionally, the HIN was aligned with existing TIP programming for Luzerne County. A draft toolbox of infrastructure countermeasure recommendations was presented based on Luzerne County's emphasis areas of lane departure crashes and vulnerable road users (VRUs). A Systemic Safety planning process was introduced in this meeting that also touched upon the team's approach for conducting this process. The Group discussed the approach to the next round of community engagement, refining recommendations based on public feedback, and introduced the approach for implementation planning.

Meeting No. 4: Refining Recommendations

The final Safety Working Group meeting was held on December 15, 2025. The meeting covered revised draft plan recommendations broken down into four categories, draft recommendations for all sites on the HIN, the Systemic Safety Toolkit, a review of the second round of public engagement, and the implementation planning process. The Group discussed the timeline and approach for finalizing the Safety Action Plan and recommendations, as well as the next steps for identifying SS4A grant opportunities in the following year.

2.2 PLAN DEVELOPMENT PROCESS

The plan development process for this SAP was built upon several key elements, including:

- Aligning the plan with the **Safe System Approach**,
- Reflecting the mission of **Vision Zero**,
- Developing a **Safety Working Group** who provided ongoing guidance
- Accounting for statewide safety efforts, and
- Reviewing current MPO and County plans.

The Safe System Approach and Vision Zero were discussed in detail in the introduction of this SAP. The previous section also outlined the role of the Safety Working Group and their impact on shaping the plan. Later sections will provide more information around the policy and process changes, including the relevant role of current MPO and County plans in shaping the SAP. Each part of the process was a crucial part of developing this SAP.

3 SAFETY ANALYSIS

This chapter describes the analysis methods for and results of crash patterns, trends, and systemic evaluation for Luzerne County. The crash patterns and trends analysis was conducted to identify behavioral and roadway patterns associated with fatal and severe injury crashes. A systemic evaluation was conducted to identify locations for systemic safety improvements related to fatal and suspected serious injury crashes. Findings from these analyses have been vetted with the Safety Working Group and the community, and they have informed the development of safety countermeasures and strategies as well as the implementation plan.

3.1 DATA ANALYZED

Through coordination with PennDOT, the project team assembled crash data for analysis. The crash database provides reported crash characteristics such as date, time, crash type, light conditions, and roadway conditions. These characteristics were used to analyze and document factors associated with crashes. Crash data included:

Crash Data

Crash data was collected from the Pennsylvania Crash Information Tool (PCIT) database, which represents a complete picture of total reportable crashes in the study area.

- **2019–2023 crashes:** This PennDOT dataset was retrieved from the Pennsylvania Crash Information Tool (PCIT), including five complete years of reported crashes (from January 1, 2019, through December 31, 2023). It is a standard practice to analyze the most recent five years of crash data.
- **2023 PennDOT Vulnerable Road User (VRU) Safety Assessment:** The PennDOT dataset included the top locations in the state that are high-risk areas for VRUs, defined as non-motorists such as pedestrians, bicyclists, other cyclists, people on personal conveyances, or people who are injured or disabled while walking or pedalcycling.

3.2 CRASH PATTERNS AND TRENDS

This section presents crash patterns and trends for Luzerne County. The analysis focuses on identifying behavioral and roadway patterns associated with fatal and suspected serious injury crashes. By analyzing reported crashes together, systemic trends can be identified across locations. Findings from this analysis helped inform the systemic evaluation and countermeasure considerations to be determined in later phases of the project.

The project team analyzed reported crashes across motor vehicles, pedestrians, and bicyclists. Trends and findings are organized into these sections:

- Crash analysis findings
- High Injury Network
- Systemic safety considerations
- Recommendations from PennDOT safety efforts

3.2.1 Crash Analysis Findings

The project team conducted a countywide historical trends analysis to identify characteristics associated with more frequent crashes and more severe outcomes as well as to provide a contextual understanding of roadway safety in Luzerne County. Analyzing crashes at the countywide level provided sufficient observations to identify trends and allowed for identification of issues that occurred frequently across the network in similar locations but may not have occurred repeatedly at the same locations.

Reported Crashes

"Reported crashes" are traffic crashes that are included in PennDOT's PCIT database. Since some crash types (like bicycle and pedestrian crashes) are underreported, reported crashes do not necessarily represent total crashes. All crash data in this section is based on reported crashes.

Overrepresented Crash Type

An "overrepresented" crash type is a crash attribute (crash type, driver contributing circumstances) that has a higher proportion of crashes in Luzerne than statewide.

General Trends

Across the five-year study period (2019–2023), Luzerne County experienced a relatively steady annual number of crashes, with a noticeable dip during the pandemic period. Total reported crashes ranged from a low of 2,958 in 2020 to a high of 3,402 in 2019, averaging about 3,260 crashes per year, as shown in Figure 6. In total, the county recorded 16,302 police-reported crashes during the study period. Of these, 7,237 crashes (44%) involved at least one fatality or injury, while 8,553 crashes (52%) involved property damage only and 512 (3%) had unknown injury status.

Key takeaways

- Crash totals dropped in 2020 and increased afterward.
- Fatal and injury crashes remain consistent each year.
- Hit fixed object, angle, and rear-end crashes dominate the crash profile.
- Pedestrian and bicycle crashes are few but highly severe.
- The afternoon peak period (2:00–5:00 p.m.) has the highest crash concentration.
- Evening hours show a higher share of severe crashes.
- Speeding and unrestrained occupants strongly elevate crash severity.
- Seat belt usage and lack of compliance with traffic control devices are major concerns in terms of severe crash frequency.

Crash severity remained relatively steady year to year, with fatal and suspected serious injury (FSSI) crashes accounting for about 4% to 5% of all crashes annually (121–167 FSSI crashes per year). Countywide, there were 722 FSSI crashes during the study period, including 170 fatal crashes (1% of all crashes) and 552 suspected serious injury crashes (3% of all crashes). While overall crash totals fluctuated slightly, the persistent share of severe outcomes reinforces the need for strategies that directly target fatal and serious injury risk–not just crash frequency.

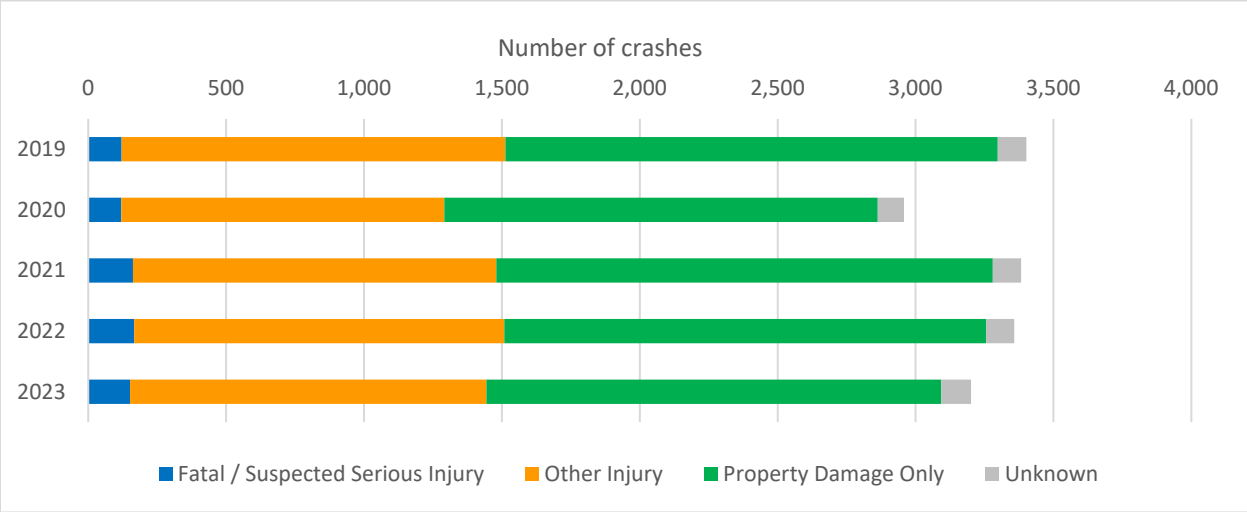


Figure 6 Annual crashes by severity (2019-2023)

Crash type patterns help clarify where the most consequential safety issues are concentrated. Three crash types dominate overall crash occurrence: hit fixed object (4,982 crashes; 31%), angle crashes (4,534; 28%), and rear-end crashes (3,063; 19%) – together accounting for about 78% of all reported crashes (see Figure 7). These same crash types also make up the majority of injury-producing crashes, generating approximately 77% of all fatal-and-injury crashes in the county. These dominant crash types are consistent with Luzerne County's mix of dense urban street grids and high-speed regional corridors.

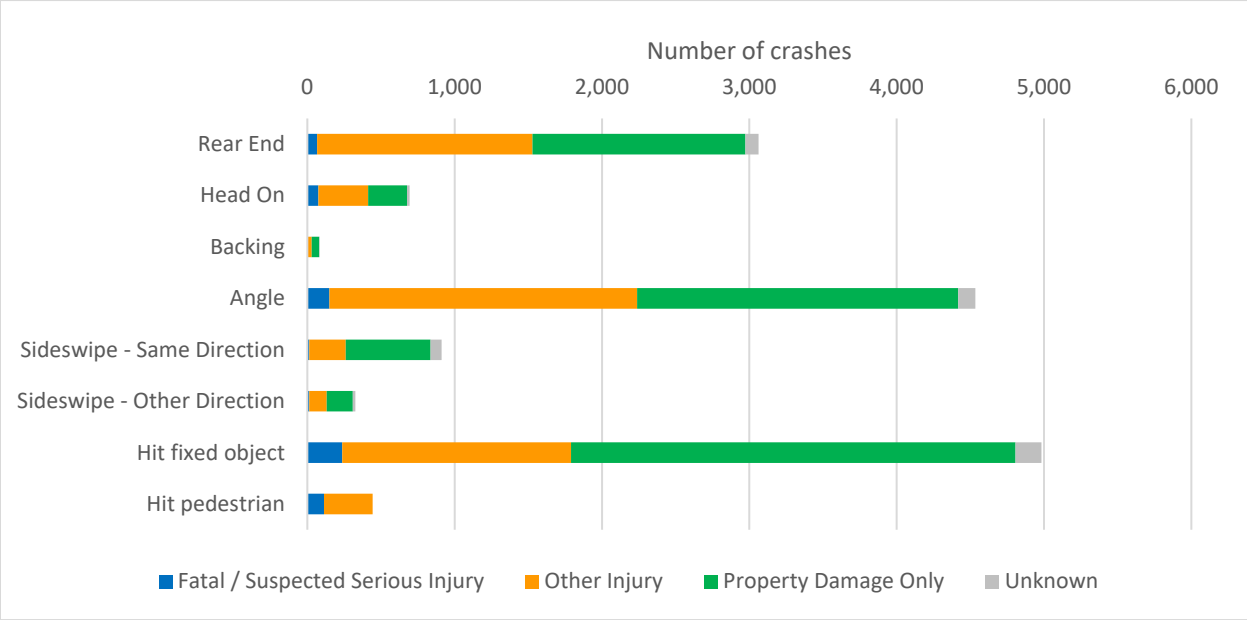


Figure 7 Total reported crashes by type and severity (2019-2023)

The County's two largest population centers – Wilkes-Barre (County seat and most populous city) and its surrounding municipalities, along with Hazleton (second most populous city) – function as dense activity hubs where closely spaced intersections and frequent turning movements increase opportunities for angle crashes, while recurring congestion, signals, and queueing on primary corridors contribute to rear-end crashes. In contrast, hit fixed object crashes are commonly associated with higher-speed segments and roadway environments with limited recovery area (e.g., roadside trees/poles, curves, and embankments), which are prevalent across the county's broader network.

When focusing specifically on severe outcomes, five crash types account for nearly all FSSI crashes: hit fixed object (237 FSSI; 5% of all hit fixed object crashes), angle (150 FSSI; 3% of all angle crashes), rear-end (66 FSSI; 2% of all rear end crashes), head-on (75 FSSI; 11% of all head-on crashes), and pedestrian crashes (details in the next section). Notably, pedestrian crashes are relatively infrequent but are disproportionately severe – 100% of pedestrian-involved crashes resulted in a fatality or injury, and more than one-quarter of them involved a fatal or suspected serious injury outcome. While head-on crashes represent a small share of total crashes (4%), they show elevated severity (60% of these crashes involved a fatality or an injury).

These patterns indicate that Countywide safety efforts should prioritize countermeasures that reduce severe run-off-the-road/hit-fixed-object crashes, intersection-related angle crashes, and the most severe conflict types affecting VRUs.

Crashes by Mode

Table 1 summarizes crash severity by roadway user type. The vast majority of reported crashes in Luzerne County involved motor vehicles (97%). Crashes involving people walking (2%) and bicycling (1%) made up a small share of total crashes, but they were disproportionately severe. Pedestrian-involved crashes accounted for 99 fatal and suspected serious injury (FSSI) outcomes (14% of all FSSI crashes), and bicycle crashes accounted for 25 FSSI crashes (3% of all FSSI crashes). This indicates that pedestrian- and bicyclist-involved crashes represented 17% of all FSSI crashes despite having a total crash share of only 3%.

Table 1 Total reported crashes by severity and mode (2019–2023)

	Fatal / Suspected Serious Injury	Other Injury	Property Damage Only	Unknown	Total
Pedestrian	99 (14%)	279 (4%)	0 (0%)	0 (0%)	378 (2%)
Bicycle	25 (3%)	68 (1%)	0 (0%)	0 (0%)	93 (1%)
Vehicle	598 (83%)	6,168 (95%)	8,553 (100%)	512 (100%)	15,831 (97%)
Total	722	6,515	8,553	512	16,302

Severity differences across modes are also stark. For vehicle-only crashes, FSSI outcomes represented 4% of total crashes. In contrast, more than one-quarter of pedestrian- and bicycle-involved crashes resulted in FSSI (26% and 27%, respectively). Additionally, all pedestrian- and bicycle-involved crashes in the dataset resulted in at least one injury or fatality, reinforcing that people walking and bicycling face substantially higher risk of severe outcomes when crashes occur.

Temporal Patterns

Temporal patterns describe how crashes vary over time – such as by time of day or by season – and can help identify when crash risks are highest. For Luzerne County, temporal patterns in crashes were reviewed by hour of day and month of year to highlight recurring peaks in crash frequency and severity.

Figure 8 presents the distribution of crashes by hour of day. Luzerne County shows a clear afternoon peak in crash frequency. Higher number of crashes occur from late morning into the afternoon, with the highest concentration occurring between 2:00 p.m. and 5:00 p.m. (about 29% of all crashes), including the single highest crash hour at 3:00 p.m. (8%). This pattern aligns with periods of heavier traffic demand – school dismissal, work commutes, and higher levels of local trip-making – when turning movements, queueing, and speed differentials are more common. Investigations into crash severity also provide meaningful insights: roughly half of the crashes from late morning through the afternoon resulted in a

fatality or injury, indicating that the peak hours not only lead to more frequent crashes but are also associated with substantial injury burden.

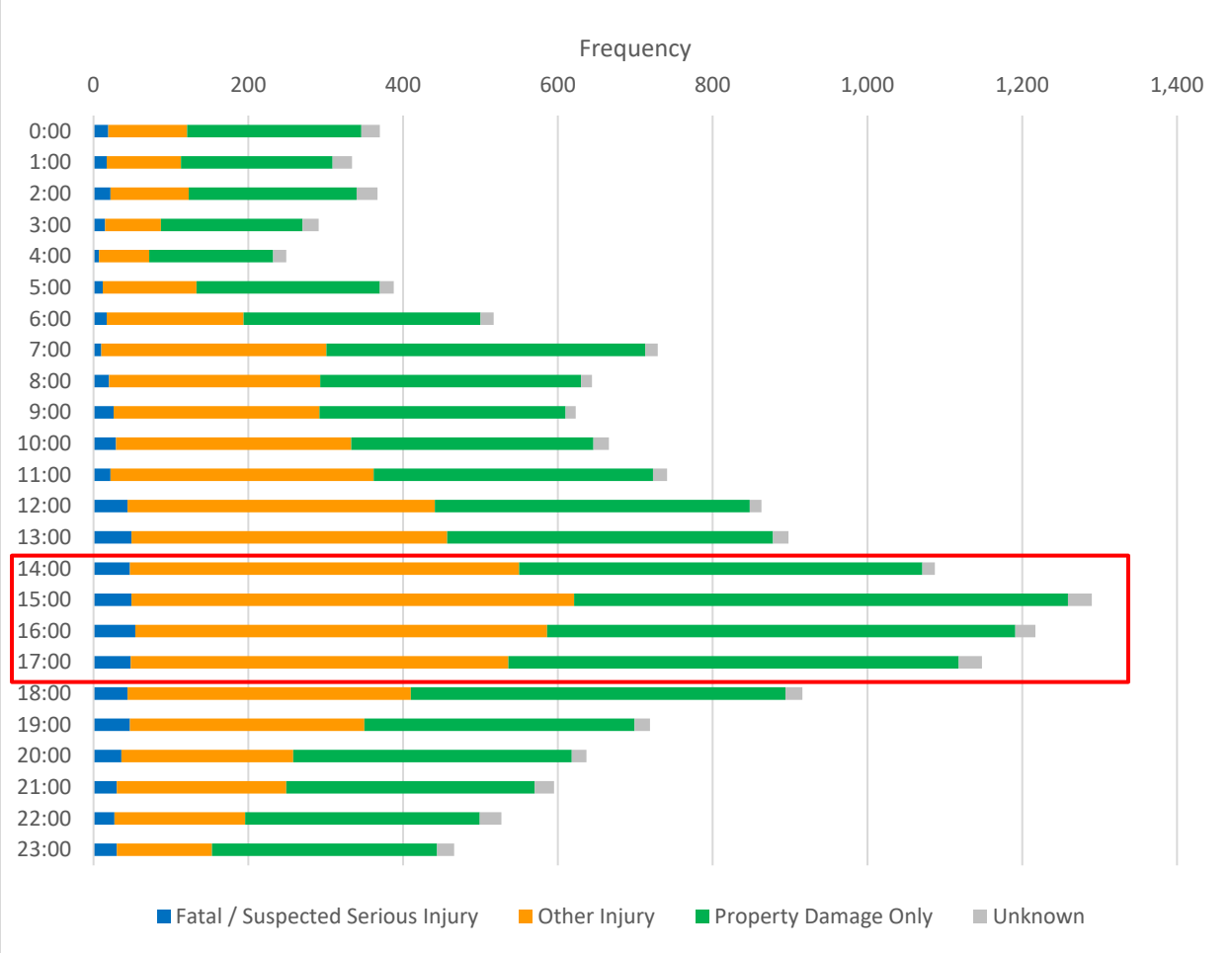


Figure 8 Crashes by time of day (2019–2023)

A second pattern emerges in the evening hours, where crashes are less frequent than the afternoon peak but tend to be more severe. For example, 7:00 p.m. has the highest share of FSSI within the hour (7%), and several late-day hours (e.g., 8:00–11:00 p.m.) also show elevated FSSI proportions (about 5–6%). This combination – lower volumes but higher severity – is consistent with conditions that can amplify injury risk, such as reduced visibility, fatigue, and higher operating speeds on some facilities.

Crash frequency by month is presented in Figure 9. Seasonally, crashes occur throughout the year, with the highest monthly totals observed in November and December (around 10% each month), and secondary concentrations in January, February, and October (about 9% each month). These late-fall and winter peaks likely reflect more challenging driving conditions (e.g., darkness, precipitation, and variable pavement friction) and holiday/seasonal travel.

At the same time, the highest severity shares (as measured by the percentage of crashes that are FSSI) occur from May through August (6% FSSI each month), when travel demand tends to increase and higher-speed operation is more common. In short, winter months appear to drive higher frequency, while late spring and summer show a higher share of the most severe outcomes – both of which are important for targeting countermeasures.

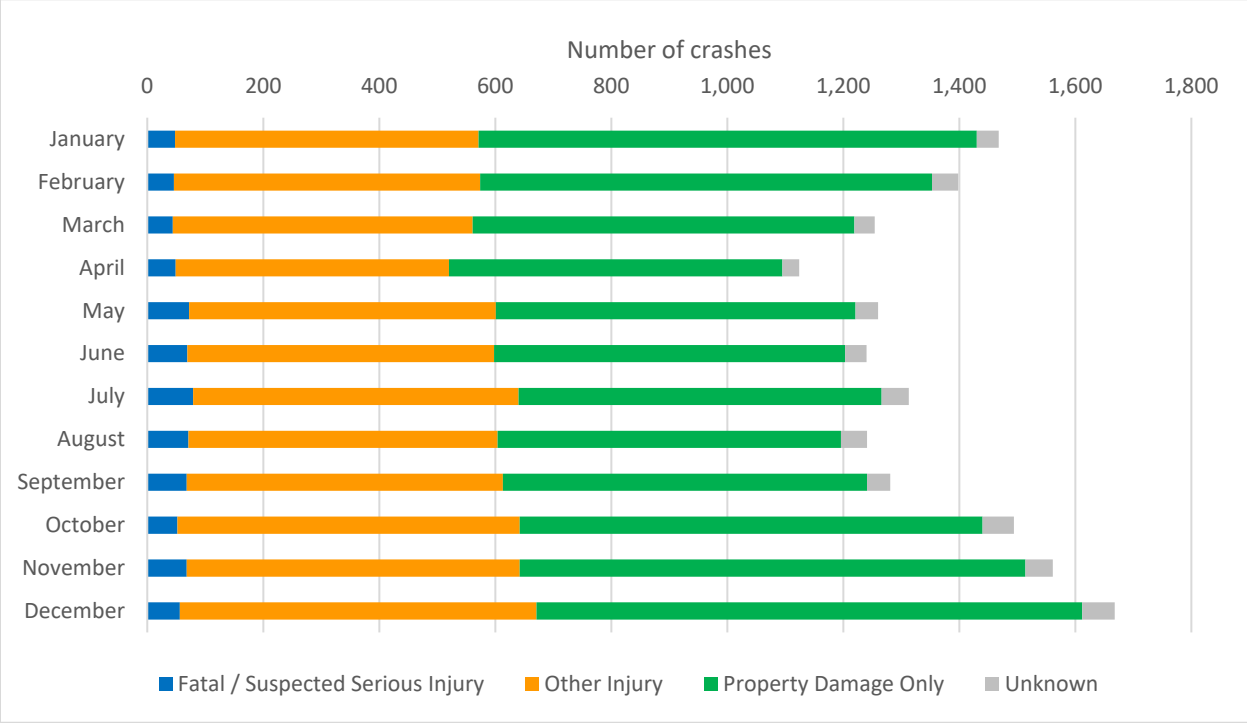


Figure 9 Crashes by month (2019–2023)

Contributing Factors

Contributing factors describe the circumstances or conditions that played a key role in a crash. More than one factor may be linked to a single crash. Figure 10 summarizes several key contributing factors for crashes in Luzerne County.

The most frequently cited contributing factors were speeding and dark conditions (with or without streetlights). Speeding shows up in roughly one out of five crashes, which is consistent with Luzerne County's mix of higher-speed facilities and long regional travel corridors. Dark condition crashes were also common in situations with and without streetlights, reflecting a Countywide roadway network that includes dense urban streets as well as less illuminated suburban and rural segments. This may also reflect in the mix of downtown lighting and high pedestrian activity during evening hours and may be an indication that streetlights are not adequately illuminating key intersections. The winter season likely contributes as well – northeastern Pennsylvania experiences extended periods of darkness and frequent winter-weather conditions that can reduce visibility and prompt the need for increasing stopping sight distance.

Several factors stand out because they are less about frequency and more about severity. Unrestrained occupant crashes have the strongest severity signal (with a notably high share of FSSI), which aligns with broader seatbelt usage concern and that non-use dramatically increases injury risk. Impaired driving is also disproportionately severe and is often concentrated during nighttime periods – overlapping with the same low-visibility conditions where the County sees many crashes. In addition, heavy-vehicle-involved crashes are a concern in Luzerne County given the County's freight activity, including logistics/distribution activity near Hazleton, as well as recent national trend of users' preference toward heavier vehicles.

Finally, while running red lights and running stop signs make up a smaller portion of crashes, they tend to be highly injurious because they often involve high-energy intersection conflicts (e.g., angle crashes). Rain and snow are cited less often than the top factors, but they remain important because they can amplify risk through reduced friction and visibility – especially during the late-fall and winter months when the County experiences frequent snow/ice condition. When large-vehicle mass is involved, crash forces and injury consequences can be much greater.

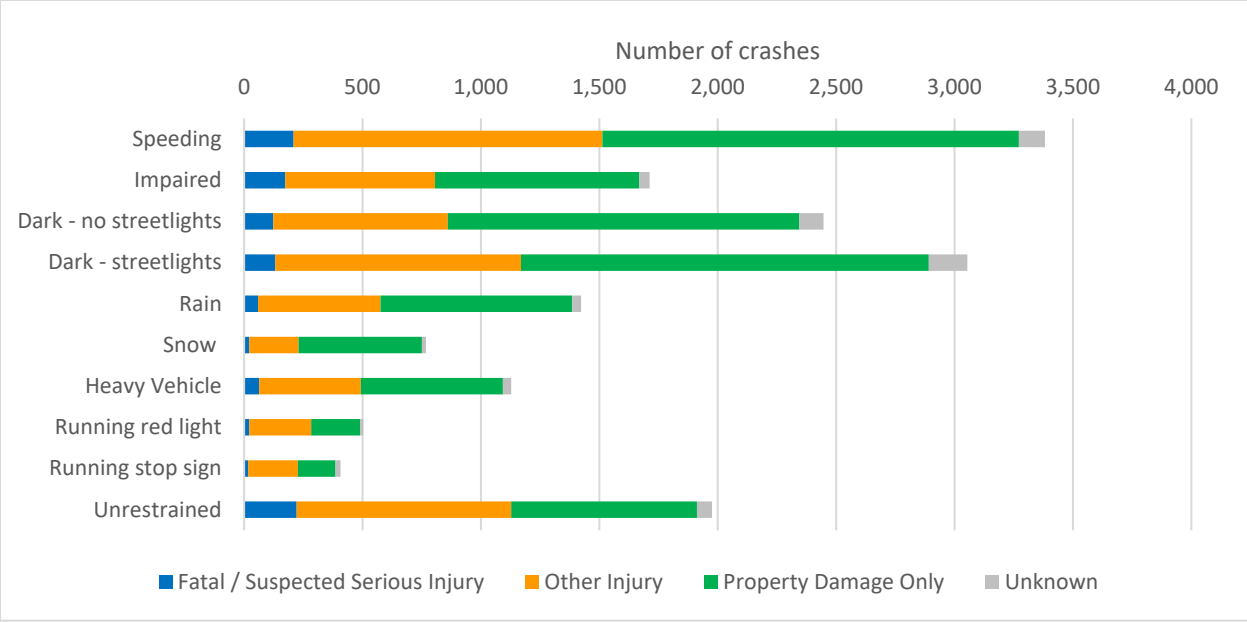


Figure 10 Crashes by contributing factors (2019–2023)

3.3 HIGH INJURY NETWORK

After identifying emphasis areas from the crash analysis, the project team used a network screening process to identify and rank roadway locations where safety countermeasures may provide the greatest benefit. Network screening evaluates both crash frequency and crash severity across the roadway system to pinpoint intersections and roadway segments that warrant further review.

For Luzerne County, the screening was completed using the Equivalent Property Damage Only (EPDO) method. EPDO assigns greater weight to more severe crashes so that locations with fatal and serious injury outcomes rise to the top of the prioritization list. Focusing on severe crashes in safety is especially important because these incidents have the most significant impact on the public and addressing them can lead to the greatest reduction in fatalities and serious injuries. Crash severities from the PennDOT PCIT dataset were converted to the KABCO scale for the EPDO analysis. The relationship is provided below:

- K – Severity level 1 (Fatal)
- A – Severity level 2 (Suspected Serious Injury)
- B – Severity level 3 (Suspected Minor Injury)
- C – Severity level 4, 8, and 9 (Possible Injury, Injury – Unknown Severity, and Unknown if Injured)
- O – Severity level 0 (Property Damage Only)

Simply ranking locations by total crash counts can be misleading because it treats all crashes as equal. A location with many PDO crashes would outrank a location with fewer crashes but multiple fatal or serious injury outcomes, even though the second location represents a much greater safety concern. EPDO addresses this by converting injury crashes into PDO equivalents, allowing severity to be reflected directly in the scoring and prioritization.

EPDO Analysis

Using crash count alone treats every crash equally important. That can cause a location with many PDO crashes to rank above a location with fewer crashes but multiple fatal or serious injury outcomes. EPDO analysis corrects this by applying severity weights – converting injury crashes into "PDO equivalents" – so locations with more severe outcomes rise in the priority ranking.

Applying different weights to crash severity levels allows more severe crashes to be given greater emphasis while still accounting for crashes of all types. This weighting process is part of the EPDO network screening, which normalizes the societal cost of crashes by converting injury crashes into their PDO equivalents. After crashes are weighted by severity, each location is assigned a total EPDO score, which is then used to rank locations within the county.

For the Luzerne County SAP intersection and segment screenings, EPDO weights were developed by comparing the societal crash costs used by the Pennsylvania Department of Transportation (PennDOT). The crash costs compared were simplified for this analysis to reflect a three-tier system that accounts for the societal costs of fatal and serious injury crashes versus non-severe injury crashes. The assigned weights are shown in Table 2.

Table 2 EPDO weights

Collision Severity	Weighting
Fatal and Suspected Serious Injury	500x
Other Injury	15x
PDO	1x

HIN locations in Luzerne County were identified using the top results from the EPDO-based network screening and then verified through online window shield surveys. As part of this process, crash data were joined and evaluated by severity and crash type, and current TIP projects were reviewed to identify overlap with the candidate HIN locations. The resulting HIN was organized into tiers (Tiers 1 through 3) to help guide prioritization and implementation planning.

A key refinement for Luzerne County was the way the network was screened and organized before selecting top locations. Because crash patterns and roadway context differ across the County, the analysis was first separated geographically (Northern vs. Southern Luzerne County) and then further separated by context (Rural vs. Urban roads and intersections). This approach supports a more balanced identification of high-injury locations across the County's different settings and ensures that both rural roadway risks and urban crash concentrations are represented in the final HIN.

3.3.1 Rural Areas

The HIN screening identified ten priority segments (corridors) and eight priority intersections/ramps that rose to the top within rural context (see Figure 11 and 12). The rural corridors are spread across multiple municipalities, but several locations cluster along SR 115 and SR 309 (reflecting the role of these higher-speed rural facilities in the northern part of the county). In southern Luzerne County, several of these locations recur in a small set of municipalities—especially Sugarloaf Township and Hazle Township – and include multiple interstate-related ramp terminals and connecting state routes (e.g., I-80/I-81 ramp locations and SR 93/SR 424 connections). A list of segments coded by number is provided in Table 3, and Table 34 shows a list of intersections coded by letter.

Table 3 List of high injury network segments in rural Luzerne County

ID	Segment	Jurisdiction
Rural-1	SR 93 from Saint Johns Road to north of Sugarloaf Road	Sugarloaf Township
Rural-2	SR 115 / Bear Creek Boulevard from just before Laurelbrook Drive to just after Meadow Run Road	Bear Creek Township
Rural-3	E Northampton Street from Pine Run Road to Lehigh Street	Borough of Laurel Run
Rural-4	SR 940/Foster Ave from east of Veterans Road to east of Hillary Drive	Foster Township
Rural-5	SR 115 / Buck Boulevard from south of Buck Birch Lane to north of Buck Pine Lane	Buck Township
Rural-6	Mountain Road from Weavertown Road and Huntsville Road intersection to north of Warman Street	Borough of Larksville
Rural-7	SR 93 from Banks Avenue to I-81	Sugarloaf Township
Rural-8	SR 309 from Stredney Road to Country Pines Estates	Dallas Township
Rural-9	Stockton Mountain Road from north of Hazle Brook Road to south of Ashmore Road	Hazle Township
Rural-10	SR 92 from north of Rindgen Lane to south of Apple Tree Road	Exeter Township

Table 4 List of high injury network intersections in rural Luzerne County

ID	Intersection	Jurisdiction
Rural-A	Northbound on-ramp to SR 93 at I-80 and SR 93	Sugarloaf Township
Rural-B	Northbound off-ramp to Church Road at I-81 and Church Road	Rice Township
Rural-C	Weavertown Road and Mountain Road	Borough of Larksville
Rural-D	SR 309 and Church Road	Wright Township
Rural-E	SR 118 and SR 29	Lake Township
Rural-F	SR 118 and Idetown Huntsville Road	Lehman Township
Rural-G	Club 40 Road and Stockton Mountain Road	Hazle Township
Rural-H	Eastbound off-ramp to SR 93 from I-80	Sugarloaf Township

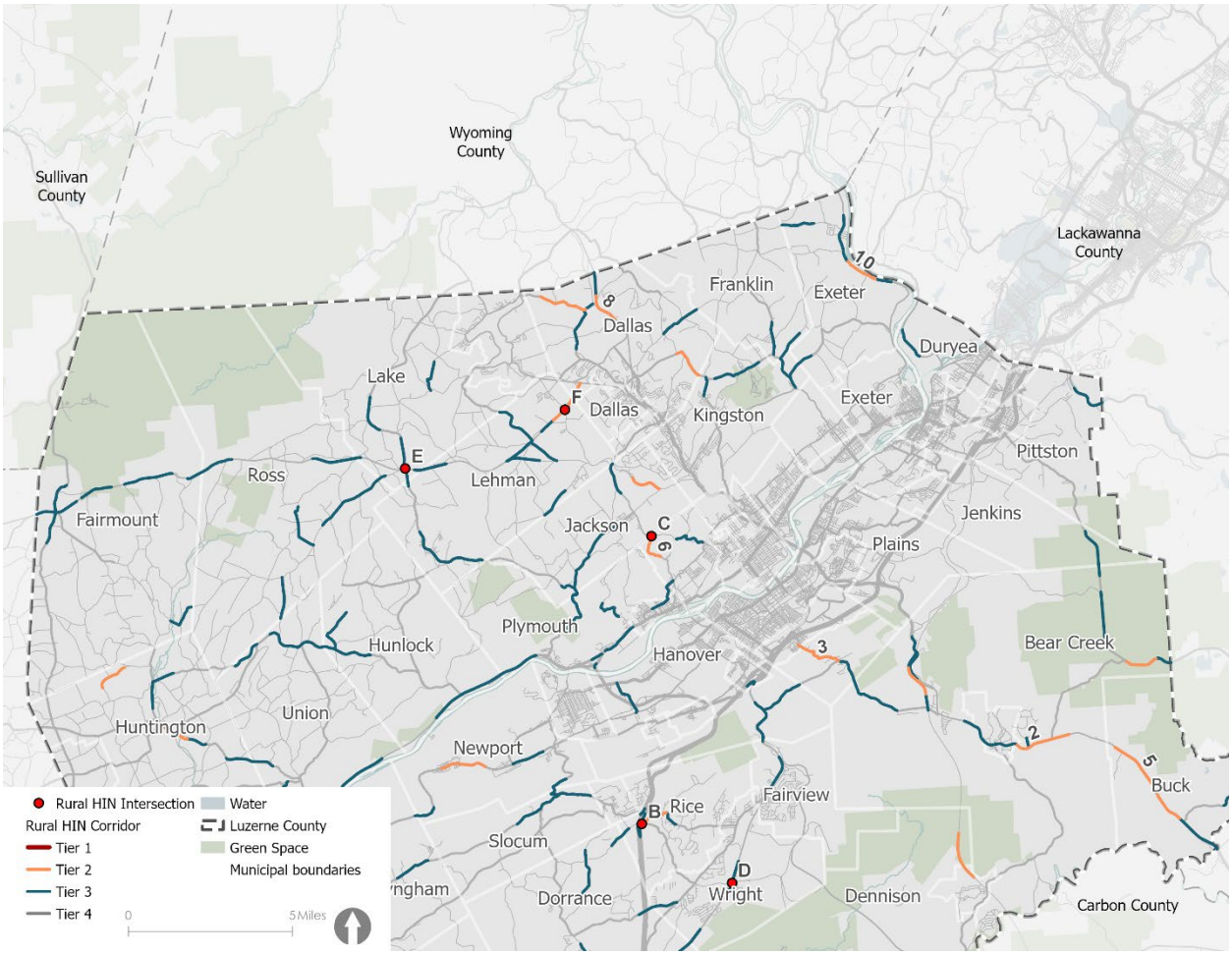


Figure 11 Rural HIN segments and intersections in northern Luzerne County

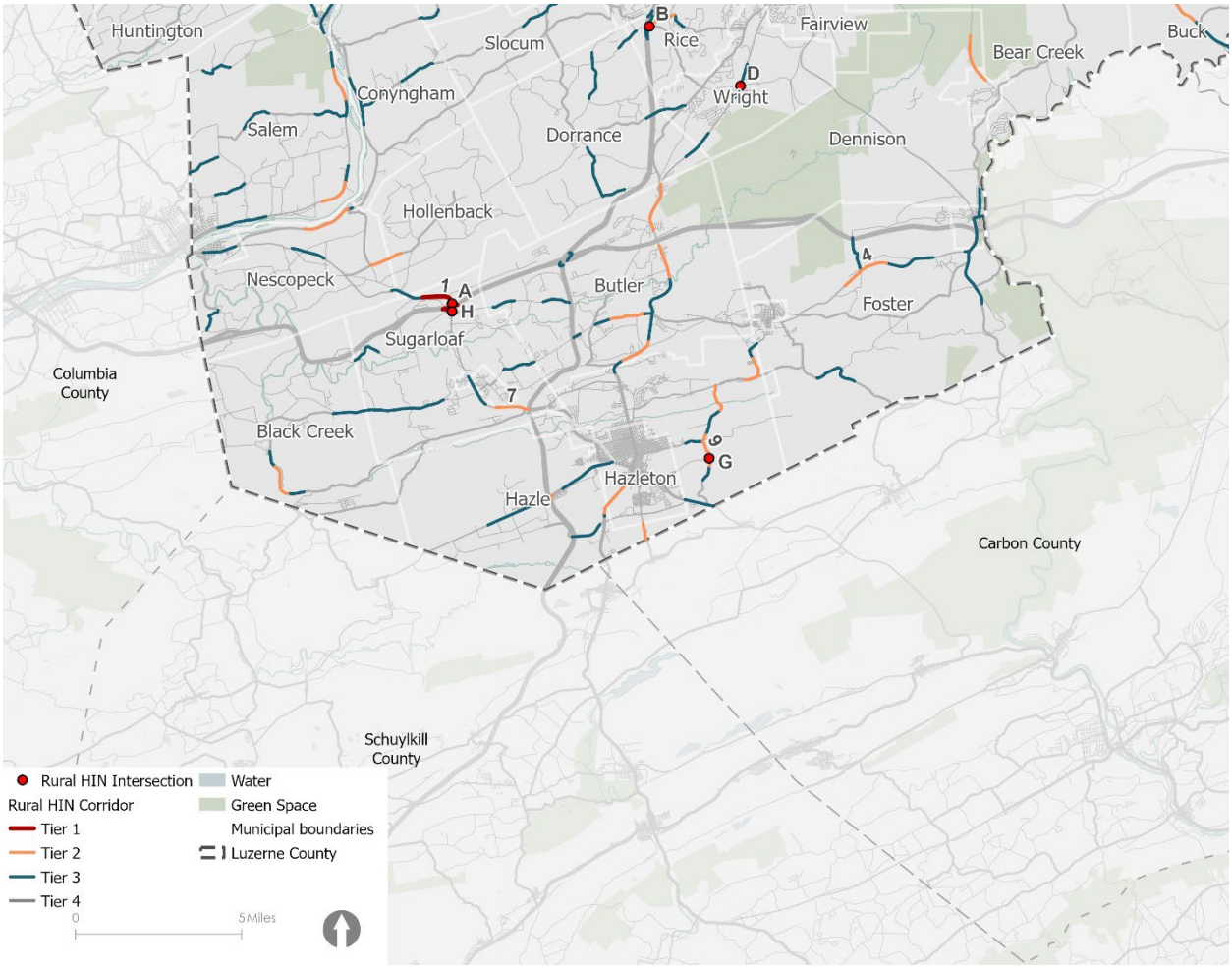


Figure 12 Rural HIN segments and intersections in southern Luzerne County

3.3.2 Urban Areas

The screening identified 13 priority segments (corridors) and seven priority intersections within urban contexts (see Figure 13 and 13). These results are heavily concentrated in the Wilkes-Barre and Hazleton areas, with the City of Wilkes-Barre (and adjacent municipalities such as Wilkes-Barre Township and Kingston) and the City of Hazleton (and nearby Hazle Township and West Hazleton Borough) appearing repeatedly across both the priority corridors and intersections. This pattern is consistent with denser urban networks where closely spaced intersections, higher access density, and mixed land uses increase conflict opportunities – especially along major urban routes. A list of segments coded by number is provided in Table 3, and Table 36 shows a list of intersections coded by letter.

Table 5 List of high injury network segments in urban Luzerne County

ID	Segment	Jurisdiction
Urban-1	Washington Avenue/W 15th Street from west of Rose Street to N Church Street	City of Hazleton
Urban-2	Wilkes-Barre Township Boulevard from south of Casey Ave to north of Coal Street	Wilkes-Barre Township
Urban-3	N Church Street from south of W 13rd Street to north of W Juniper Street	City of Hazleton
Urban-4	S River Street from Academy Street to Jackson Street	City of Wilkes-Barre
Urban-5	W Broad Street from W Diamond Avenue to S Poplar Street	City of Hazleton
Urban-6	E Main Street from Girard Avenue to Chestnut Street	Borough of Plymouth
Urban-7	S Wyoming Avenue from Market Street to E Dorrance Street	Borough of Kingston
Urban-8	Kidder Street from north of Schoolhouse Lane to Mundy Street	City of Wilkes-Barre & Wilkes-Barre Township
Urban-9	SR 315 from north of Pethick Street to south of Pocono Downs	Plains Township
Urban-10	Carey Avenue Bridge/West End Road from Main Street to east of Plymouth Avenue	Hanover Township & Borough of Larksville

Table 5 List of high injury network segments in urban Luzerne County (continued)

ID	Segment	Jurisdiction
Urban-11	Airport Beltway from Laurel Mall Drive to Goodwill Industries	Hazle Township
Urban-12	Market Street from Wyoming Avenue to River Street	Borough of Kingston & City of Wilkes-Barre
Urban-13	Main Street from Fort Jenkins Bridge to south of Chapel Street	City of Pittston

Table 6 List of high injury network intersections in urban Luzerne County

ID	Intersection	Jurisdiction
Urban-A	SR 93/Broad Street and Monroe Avenue	Borough of West Hazleton
Urban-B	N Wilkes-Barre Boulevard and Butler Street	City of Wilkes-Barre
Urban-C	Market Street and US 11/Wyoming Avenue	Borough of Kingston
Urban-D	SR 315 and Jumper Road	Plains Township
Urban-E	Wilkes-Barre Boulevard and southbound on-ramp to SR 309	City of Wilkes-Barre
Urban-F	Hazle Street and Pennsylvania Boulevard	City of Wilkes-Barre
Urban-G	N River Street and W North Street	City of Wilkes-Barre

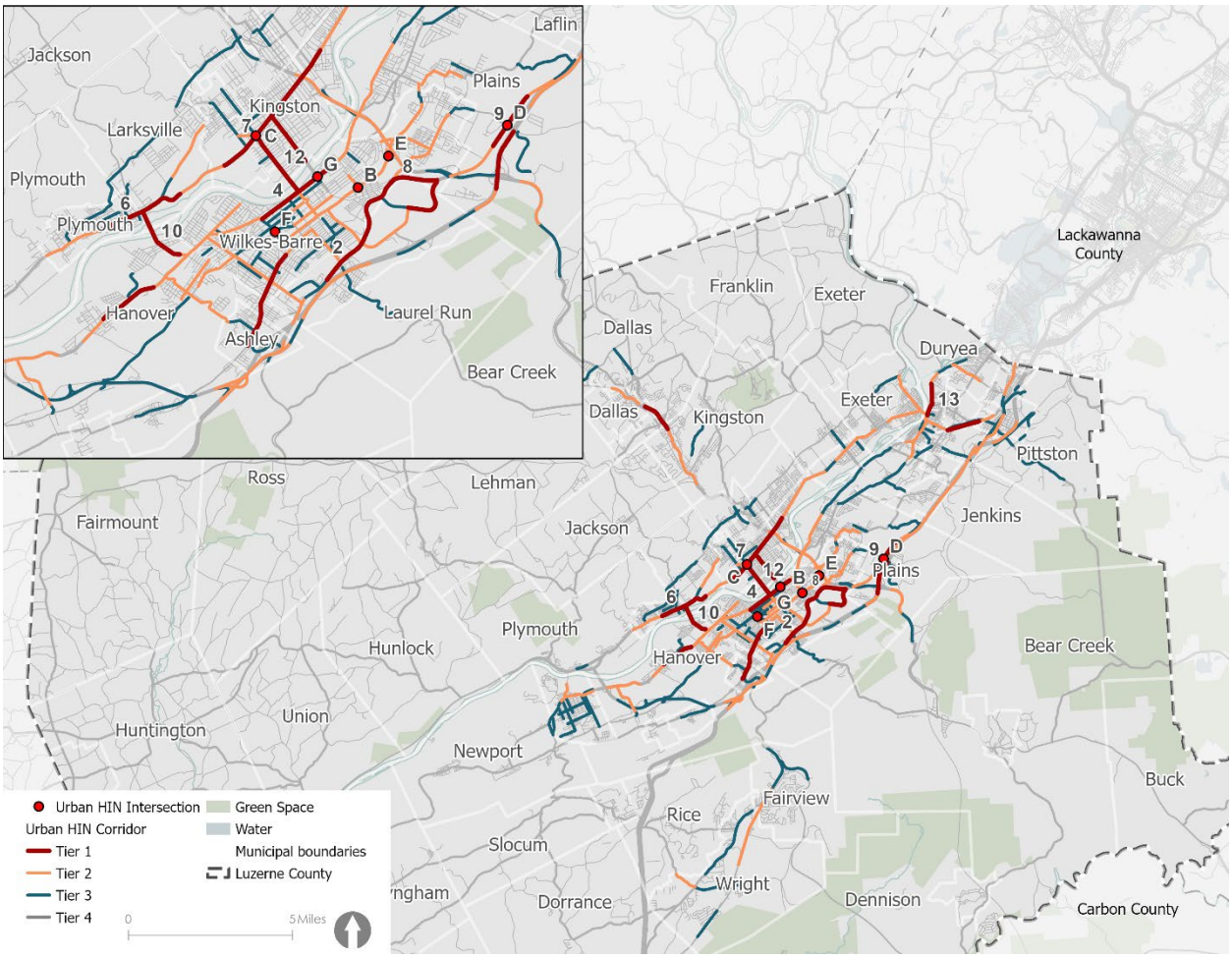


Figure 13 Urban HIN segments and intersections in northern Luzerne County

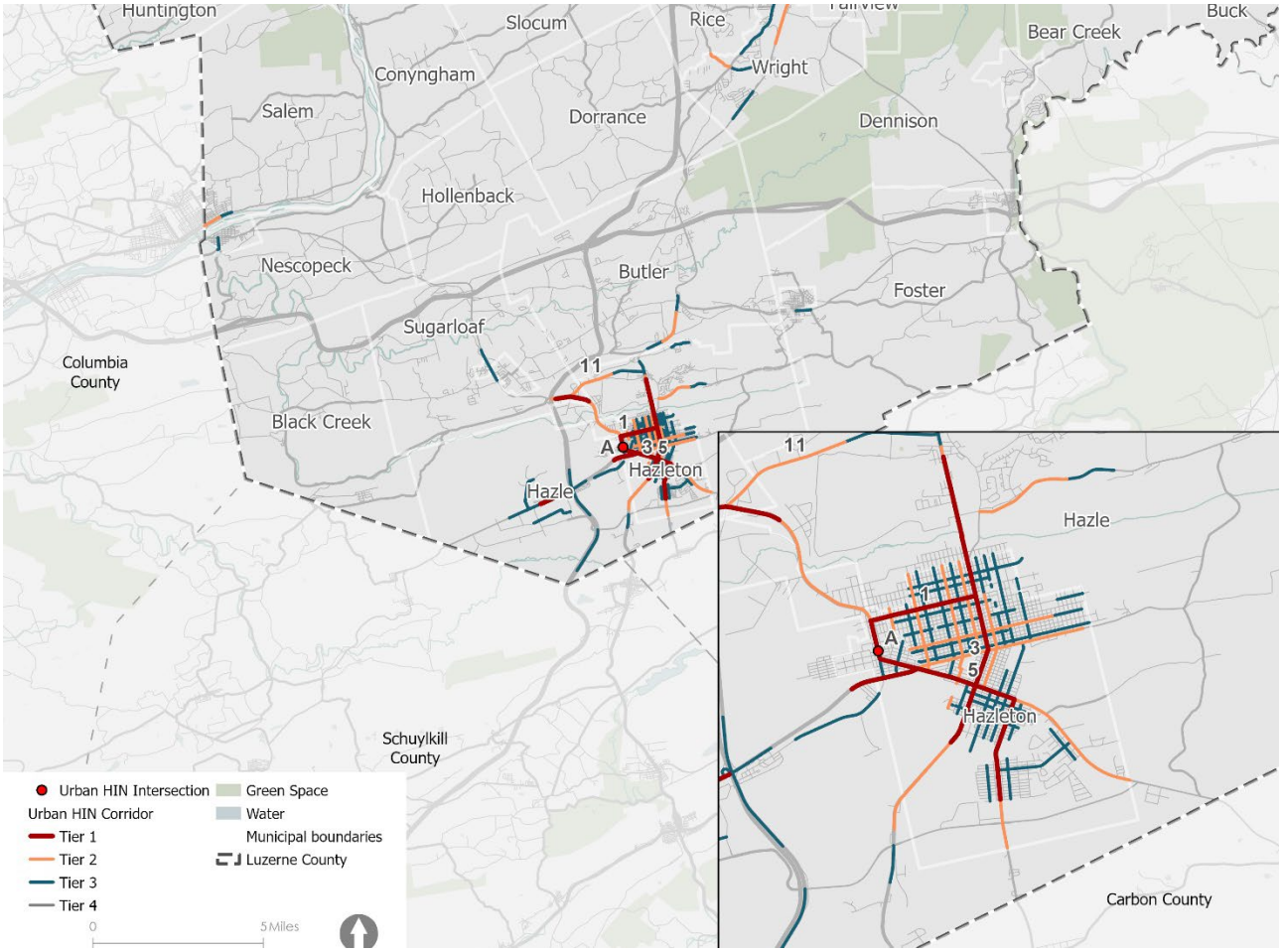


Figure 14 Urban HIN segments and intersections in southern Luzerne County

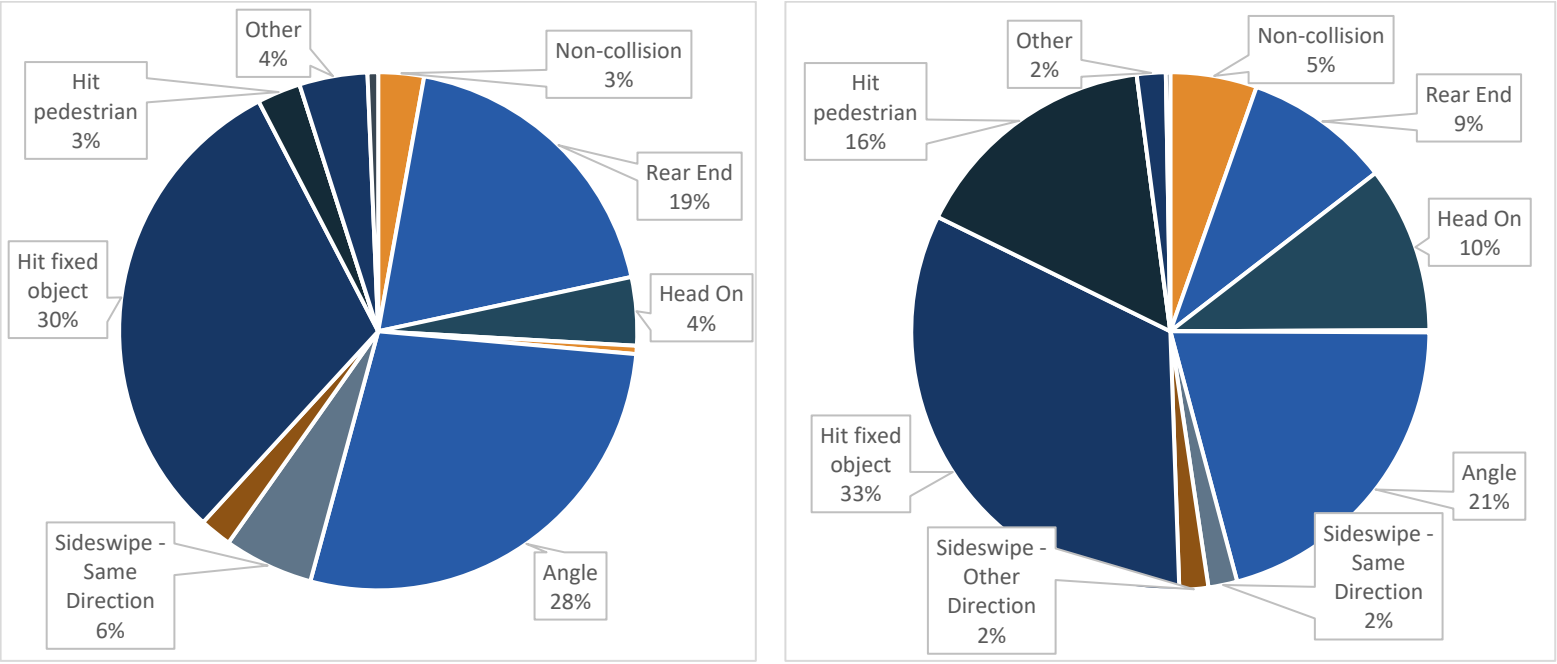
3.4 SYSTEMIC SAFETY CONSIDERATIONS

Systemic safety analysis is a proactive way to identify where safety improvements are most needed, especially in locations that may not yet show up as traditional "high-crash" hot spots. Instead of focusing only on sites with the highest crash totals, the systemic approach looks across the roadway system to identify crash types that drive the most fatal and serious injury outcomes and the roadway risk factors that commonly occur at those crash locations. Agencies can then prioritize and apply proven, typically low- to moderate-cost countermeasures at locations that share those high-risk characteristics – helping prevent severe crashes before they occur. This Luzerne County analysis follows PennDOT District 4-0 District Highway Safety Plan's (DHSP) three task methodology:

1. Select focus crash types
2. Select focus facilities
3. Identify and evaluate risk factors

3.4.1 Select Focus Crash Types

Focus crash types were selected by comparing each crash type's share of all crashes to its share of fatal and suspected serious injury (FSSI) crashes. This comparison helps identify crash types that are both frequent and strongly associated with severe outcomes. Based on Luzerne County's crash profile (see Figure 15), a few crash types were found to have contributions across both measures.



a) All crash share

b) FSSI crash share

Figure 15 Focus crash type selection

Angle crashes were selected as a focus crash type because they represent a substantial share of Luzerne County's severe crashes and are a consistent systemic priority in PennDOT District 4-0. Hit Fixed Object (HFO) also emerged as a leading contributor to fatal and serious injury outcomes in Luzerne County. However, rather than treating HFO as a standalone focus crash type, the systemic safety toolkit frames it within the broader Lane Departure emphasis area. This approach matches the way PennDOT and FHWA define and address these crashes: the District 4-0 DHSP identifies lane departure as the primary focus crash type for districts, and Pennsylvania's Strategic Highway Safety Plan likewise elevates Lane Departure Crashes as a statewide emphasis area.

Accordingly, this memo carries forward Angle and Lane Departure as the two systemic focus crash types to shape the facility screening and risk-factor evaluation.

3.4.2 Select Focus Facilities

To identify the facility types where the focus crashes are most concentrated, the analysis used a crash tree approach. A crash tree is a stepwise breakdown of crashes that starts with all crashes of a given focus type and then successively splits those crashes into roadway and intersection characteristics. At each split, the crash tree shows how the focus crashes are distributed across the categories, allowing the team to identify the subset of facilities that captures the largest share of focus crashes and, importantly, a large share of FSSI crashes. In other words, the crash tree helps narrow a broad crash type into a practical "focus facility" where systemic countermeasures can be targeted most effectively.

Each box (node) in the tree represents a subset of focus crashes defined by the split shown by the arrows. Within each node, the top number is the total number of focus crashes in that subset, and the percentage next to it is the share of focus crashes within the parent node. The bottom number is the number of FSSI focus crashes on that subset, and the percentage next to it is the share of FSSI crashes within the parent node. In this way, the crash tree shows how both overall crashes and severe crashes are distributed as the analysis narrows from all focus crashes to more specific facility characteristics.

Angle Crashes

The crash tree for angle crash is presented in Figure 16. The tree shows that angle crashes are primarily an intersection issue. Approximately three-quarters of angle crashes occurred at intersections, and within intersections, most occurred in urbanized areas. Within the urban intersection subset, angle crashes were most concentrated at four-legged intersections, which accounted for roughly two-thirds of all urban intersection angle crashes. The crash tree also indicated that angle crash contribution was similar between signalized and stop-controlled intersections, meaning the focus facility should include both control types rather than limiting the screening to only one. Based on this concentration pattern, the final focus facility for angle crashes was defined as urban four-legged intersections.

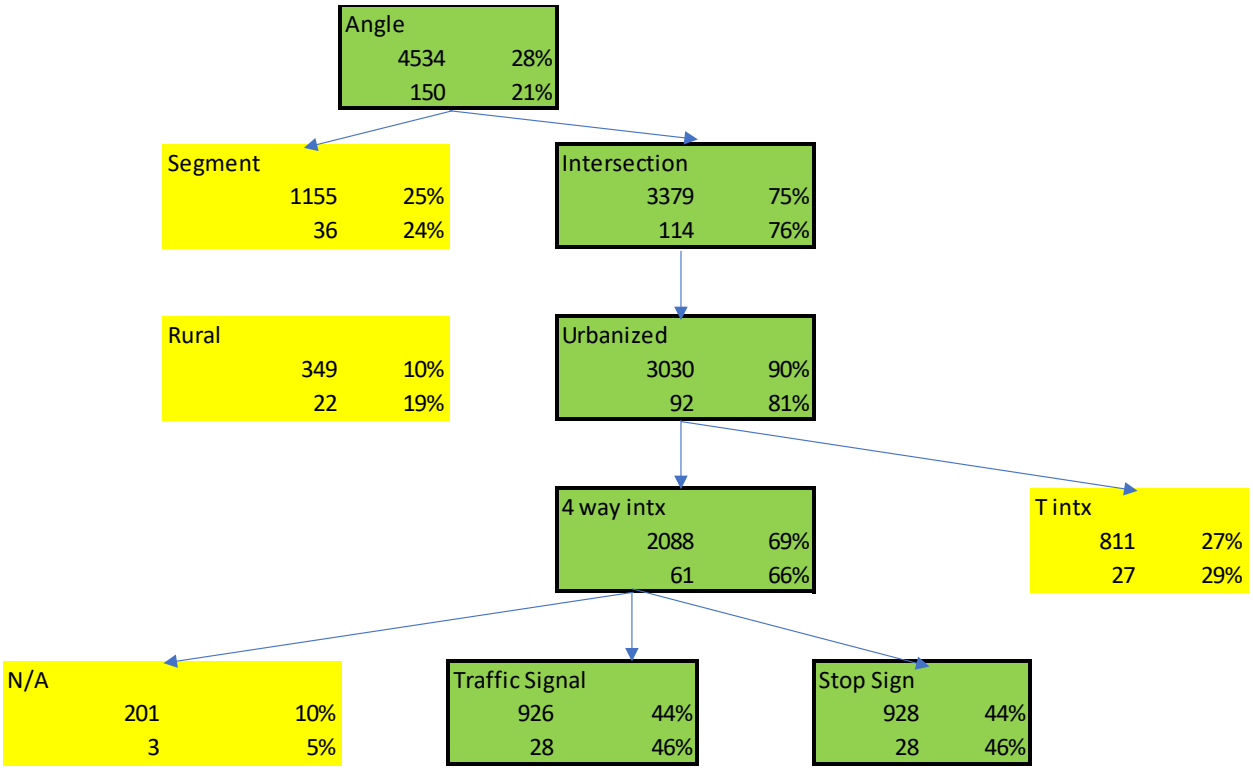


Figure 16 Crash tree for angle crashes

Lane Departure Crashes

The crash tree for lane departure crashes is presented in Figure 17. The tree indicates these crashes are concentrated on 2-lane roadways, particularly undivided facilities. Within the 2-lane undivided subset, lane departure crashes were most common on roadways with posted speeds in the 25–35 mph range, with a substantial share also occurring on 40–50 mph facilities. The crash tree further indicates that both urban and rural contexts contribute meaningfully within these speed/lane categories, supporting a focus facility definition based on roadway form and speed environment rather than a single land use context. Based on this concentration pattern, the final focus facility for lane departure crashes was defined as 2-lane undivided segments with speed limit within 25 to 35 mph.

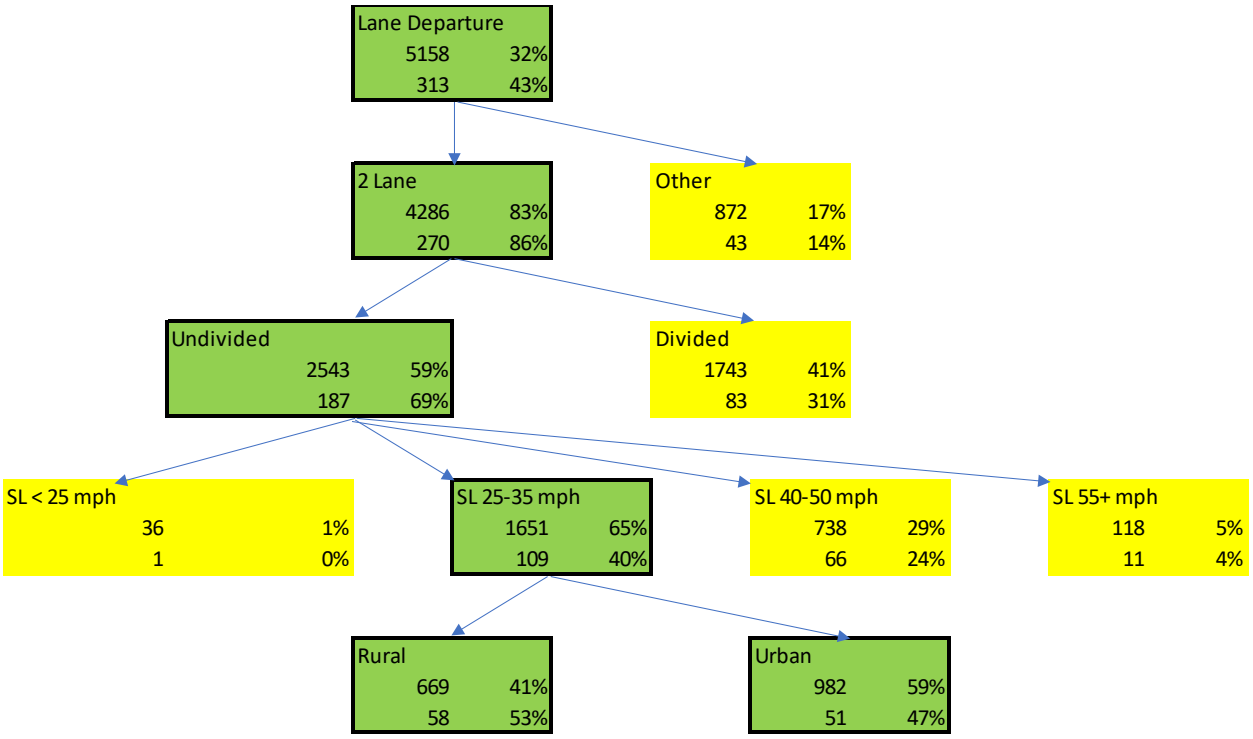


Figure 17 Crash tree for lane departure crashes

3.4.3 Identify and Evaluate Risk factors

Task 3 identifies the roadway and contextual characteristics that are most strongly associated with the focus crashes. This step helps move from "where crashes happened" to "where risk is likely elevated," which supports a systemic (risk-based) prioritization approach. Two complementary methods were used to identify risk factors:

Option 1 – Overrepresentation analysis: This method is documented in District 4-0 DHSP. It compares the share of focus crashes with a given attribute to the share of the focus facility network with that same attribute (i.e., an exposure measure such as number of sites, mileage, or VMT). Attributes where the crash share exceeds the facility share are treated as risk factors. These risk factors are then converted into a simple scoring method – each site receives a 1 if it contains a given risk factor and 0 if it does not, and the scores are summed across all risk factors to produce a total risk score used for ranking.

Option 2 – Statistical modeling: This method follows FHWA's Systemic Safety User Guide guidance. It starts with developing a crash frequency regression model for the focus crashes on the focus facility types. Variables that are statistically associated with higher crash frequency/probability can be treated as risk factors. The model outputs are used to generate predicted crash frequency values that can be used directly to prioritize sites based on modeled risk.

Angle Crashes

As the angle crash dataset includes sufficient site-level variables to support regression analysis, the study applied statistical modeling to estimate how intersection characteristics relate to expected angle crash frequency at the focus facilities. A negative binomial model was developed for estimating crash frequency at urban four-legged intersections. In this model, each variable has an estimated coefficient and a corresponding p-value (statistical significance). The coefficient indicates the direction and strength of the relationship between a factor and the expected crash frequency: a positive coefficient means the expected number of angle crashes increases as that factor increases, while a negative coefficient means the expected number of crashes decreases. The p-value indicates whether the relationship is unlikely to be due to random variation in the data; variables with statistically significant p-values were retained as reliable predictors, while variables that were not statistically significant were excluded from the final model to avoid drawing conclusions from unstable relationships. The final model includes major and minor road AADT, distance from parks, distance from bars, and distance from hospitals. For the proximity variables, distances to parks, bars, schools, and hospitals were converted to categorical indicators to support a consistent interpretation across sites. Each site was classified as Near, Mid, or Far from the nearest activity generator using the following thresholds: parks (Near < 1,500 ft; Mid 1,500–3,000 ft; Far > 3,000 ft), hospitals (Near < 6,000 ft; Mid 6,000–12,000 ft; Far > 12,000 ft), bars (Near < 45,000 ft; Mid 45,000–90,000 ft; Far > 90,000 ft), and schools (Near < 20,000 ft; Mid 20,000–100,000 ft; Far > 100,000 ft). The model output indicates the following:

- **Traffic exposure matters:** Both major-road AADT and minor-road AADT have positive and highly statistically significant coefficients, indicating that angle crash frequency is expected to increase at intersections with higher entering volumes on either approach.
- **Proximity to activity generators matters:** Several distance-category variables – such as proximity to parks and bars – were statistically significant. Relative to the reference ("far") condition, being nearer to these activity generators is associated with a higher expected angle-crash frequency, which is consistent with more turning movements, access activity, and complex driver interactions typical of busier urban environments.
- **Some proximity relationships are associated with lower predicted risk:** Distance to hospital "far" category was statistically significant with a negative coefficient, indicating a lower expected angle-crash frequency for that category relative to the reference condition. This may reflect differences in roadway context that are correlated with hospital proximity, but the model result should be interpreted as an association rather than a direct causal effect.

Consistent with the User Guide, variables retained in the final model were treated as risk factors because they were statistically correlated with increased crash frequency. The model output was then used to compute a predicted crash frequency for each intersection, and intersections were ranked by predicted frequency.

Table 7 Top intersections with high probability of angle crashes

Rank	Intersection RID	Major Road	Minor Road	Municipality	Predicted Crash Frequency
1	3888	Franklin St	Memorial Highway	Kingston	209.26
2	8460	Main Road	Memorial Highway	Dallas	130.23
3	8524	PA 315	Chestnut St	Pittston	100.45
4	3101	Wilkes-Barre Blvd	New Hills St	Wilkes-Barre	92.12
5	205	Market Street	N River St	Wilkes-Barre	74.44
6	8637	Main St	Horton St,	Wilkes-Barre	50.58
7	8570	Broad St	Winters Ave	Hazleton	49.38
8	8358	Broad St	Church St	Hazleton	39.78
9	3050	Hoyt St	Wyoming Ave	Kingston	38.35
10	6761	Market Street	Pennsylvania Ave	Wilkes-Barre	37.45
11	8507	Pennsylvania Ave	North St, Scott St	Wilkes-Barre	35.66
12	8510	Pennsylvania Ave	Northampton St	Wilkes-Barre	31.39
13	8606	Northampton St	Wyoming Ave	Kingston	27.37
14	8600	8 St	Wyoming Ave	Wyoming	27.30
15	8603	Wyoming Ave	Union St	Kingston	27.01
16	8369	Washington Ave	Broad St	Hazleton	25.91
17	170	Wilkes Barre Blvd,	High St	Wilkes-Barre	23.20
18	72	Sans Souci Pkwy	Oxford St	Hanover	22.94
19	8328	Academy St	River St	Wilkes-Barre	21.43
20	8604	Wyoming Ave	Hedge Pl	Kingston	21.29

Lane Departure Crashes

For lane departure crashes, risk factors were identified using overrepresentation analysis, consistent with the District 4-0 DHSP approach. For each candidate variable, the analysis compared the distribution of the focus facility network and lane departure crashes on that network. As shown in the example charts (see Figure 18), the first two bars represent the facility "exposure" (the percent of segment count and the percent of segment length) within each category, while the third and fourth bars represent the percent of total lane departure crashes and the percent of lane departure FSSI crashes in that category. Categories were selected as systemic risk factors when the crash bars – particularly the FSSI crash share – were meaningfully higher than the facility exposure bars, indicating that lane departure crashes are occurring disproportionately often (and/or disproportionately severely) in that subset of facilities.

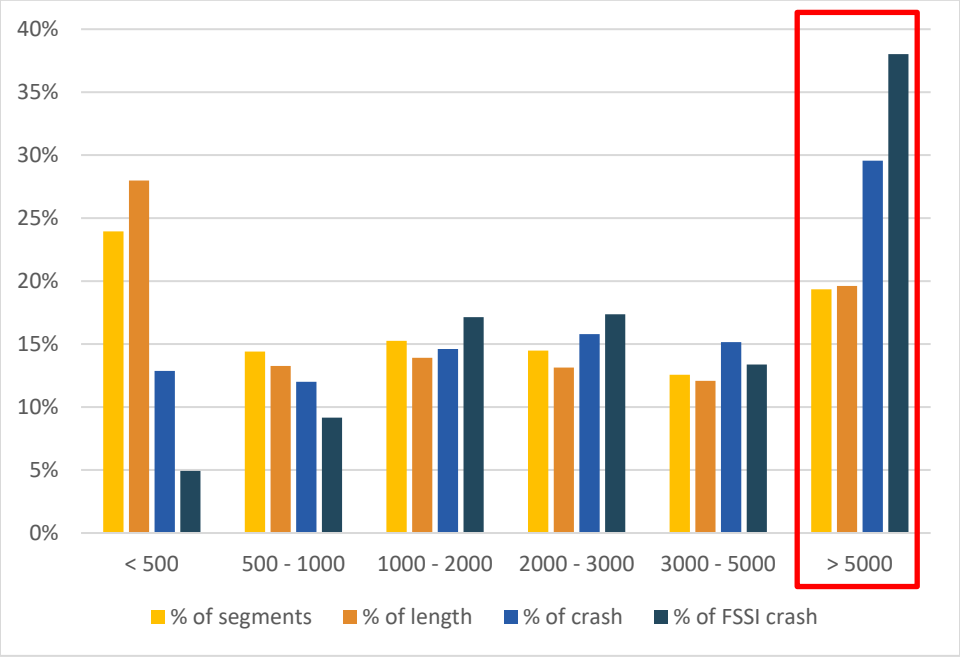


Figure 18 Overrepresentation analysis of AADT

Based on this comparison, four lane departure risk factors were identified for Luzerne County's focus facilities:

- AADT > 5,000
- Total roadway width of approximately 26–34 feet
- No shoulder
- Posted speed limit of 25 mph

These risk factors were then used to score and prioritize candidate roadway segments. Each segment received a score of 1 for each risk factor present, and the factor scores were summed up to compute a total risk score. Segments were initially ranked based on total risk score, and all segments with the highest score were carried forward for reporting because they represent the locations with the greatest concentration of systemic risk characteristics.

Top segments that have the highest total risk score are presented in Table 8. As the analysis uses a limited set of risk factors, multiple segments receive the same top score. In this case, total 37 segments had the highest risk score (of 4). To support implementation discussions and provide a more concise, actionable shortlist, the table also includes an additional ordering based on total lane departure crash count among segments with the same risk score. This supplemental ordering (presented in the last column of Table 9) is provided only as an aid for more precise screening; the primary systemic prioritization remains the risk-factor score derived from the overrepresentation analysis.

Table 8 Top segments for lane departure crashes

Rank	Route No	Segment No	Street name	Municipality	Total risk score	Secondary rank
1	309	110	Church St	Hazleton	4	1
1	1007	20	Main St	Edwardsville	4	1
1	2002	20	Main St	Hanover	4	3
1	11	740	William St	Pittston	4	4
1	11	490	W Main St	Plymouth	4	4
1	2020	20	Scott St	Wilkes-Barre	4	6
1	1011	10	North St	Wilkes-Barre	4	7
1	2004	20	Carey Av	Wilkes-Barre	4	7
1	2004	10	Carey Av	Wilkes-Barre	4	9
1	2006	50	Main St	Duryea	4	10
1	2006	60	Main St	Duryea	4	10
1	2010	120	Main St	Ashley	4	10
1	11	750	William St	Pittston	4	10
1	93	100	Broad St	West Hazleton	4	10
1	93	101	Broad St	West Hazleton	4	10
1	2002	10	Main St	Nanticoke	4	10
1	2004	60	N River St	Wilkes-Barre	4	10
1	K144	20	Broad St	West Hazleton	4	10
1	2020	40	Scott St	Wilkes-Barre	4	19
1	3001	130	Lower Broadway	Nanticoke	4	19
1	2024	20	Maffett St	Plains	4	19
1	93	71	Broad St	Hazleton	4	22
1	93	80	Broad St	Hazleton	4	22
1	93	91	Broad St	West Hazleton	4	24
1	K090	10	North St	Wilkes-Barre	4	24
1	3001	120	Main St	Nanticoke	4	26
1	93	90	Broad St	West Hazleton	4	26
1	K139	10	Buttonwood St	Hazleton	4	26
1	2020	50	Main St	Plains	4	29
1	K079	60	George Av	Wilkes-Barre	4	29
1	K062	10	Hazle St	Wilkes-Barre	4	31
1	K068	120	Washington St	Plains	4	31
1	K071	10	Northampton St	Wilkes-Barre	4	31
1	K008	10	Broadway St	Nanticoke	4	34
1	11	10	E Front St, Main St	Duryea/Old Forge (Lackawanna Co)	4	35
1	3013	10	Main St, Valley Rd	Duryea/Moosic (Lackawanna Co)	4	35
1	2006	46	Main St	Duryea	4	35

3.5 RECOMMENDATIONS FROM PENNDOT SAFETY EFFORTS

In addition to the County-led emphasis area work, PennDOT has completed several safety efforts that help inform Luzerne County's priorities and near-term implementation planning. These efforts provide externally vetted candidate locations – focused on vulnerable road users (VRU) and on higher-crash intersections and corridors –that can be considered alongside the SAP's High Injury Network and systemic safety results.

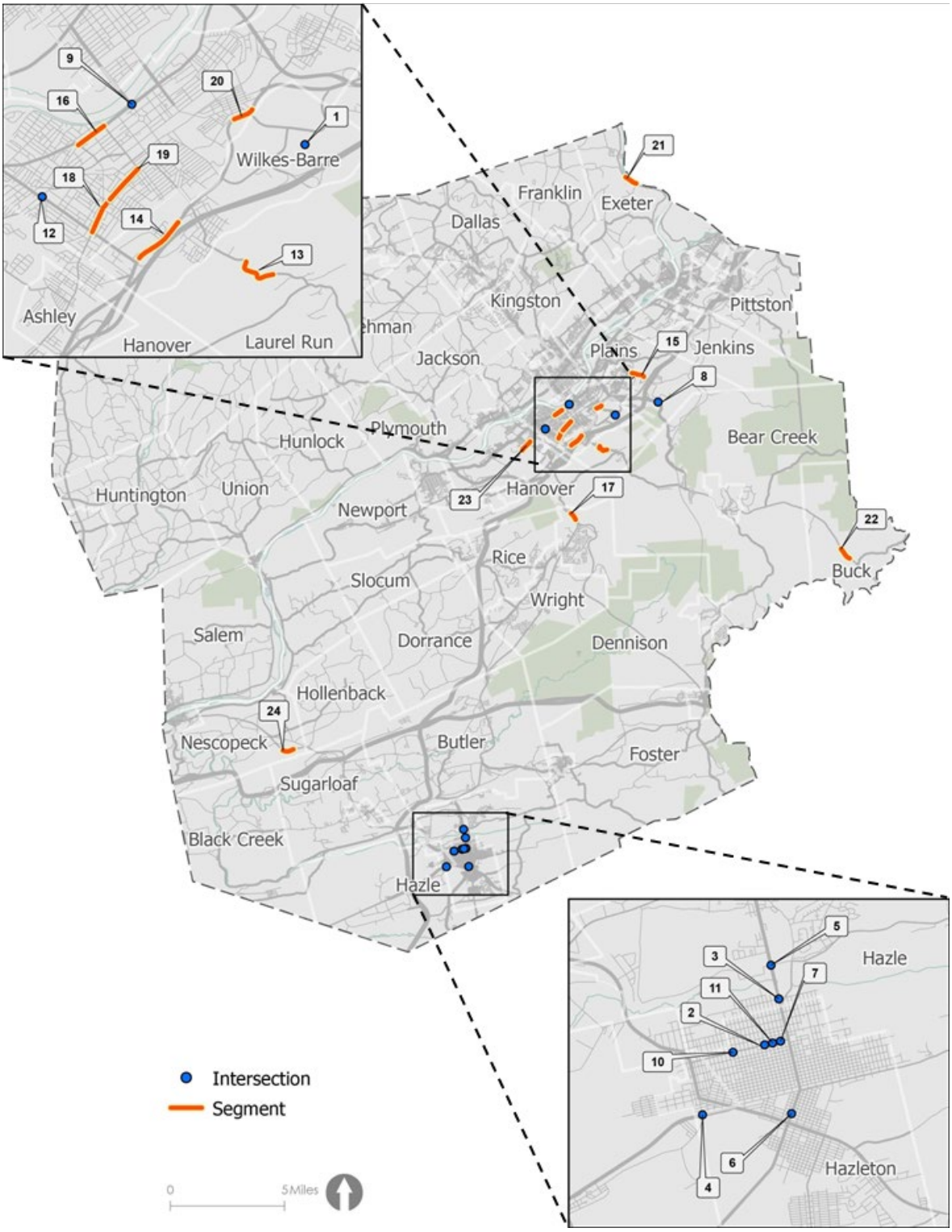
3.5.1 Highway Safety Network Screening Top Sites

PennDOT's network screening identifies roadway locations with comparatively elevated crashes to help agencies focus limited resources where safety countermeasures may have the greatest benefit. For Luzerne County, PennDOT screened and compiled a list of top intersection and segment sites (with roadway names, traffic volumes/speeds, and total crashes) to support follow-up evaluation and action planning. A total of 12 intersections are in Luzerne County (see Figure 19). The top intersections identified through network screening are:

Table 9 - Highway Safety Network Screening Top Sites intersections

ID	Intersection	Municipality
1	Highland Park Blvd / Coal St and Wilkes Barre Twp Blvd	Wilkes-Barre Township
2	Fifteenth St and Locust St	City of Hazleton
3	Church St and Twenty Third St	City of Hazleton
4	Can Do Expressway and Wayne St / S Broad St	City of Hazleton and Borough of West Hazleton
5	Church St and Hazle Township Blvd / Twenty Eighth St	Hazle Township
6	Church St and Maple St	City of Hazleton
7	Fifteenth St and Vine St	City of Hazleton
8	Bear Creek Blvd and East Mountain Blvd	Plains Township
9	Market St and River St	City of Wilkes-Barre
10	Fifteenth St and Lincoln St	City of Hazleton
11	Fifteenth St and Alter St	City of Hazleton
12	Blackman St and Main St	City of Wilkes-Barre

Figure 19 Network Screening top intersections



Additionally, a total of 12 segments fall in Luzerne County. The top segments identified through network screening are:

Table 6 - Highway Safety Network Screening Top Sites intersections

ID	Segment	Municipality
13	E Northampton St, SR 2007, Segment 100	Borough of Laurel Run
14	Wilkes-Barre Twp Blvd, SR 6309, Segment 570	Wilkes-Barre Township
15	Main St, SR 2020, Segment 50	Plains Township
16	S River St, SR 2004, Segment 30	City of Wilkes-Barre
17	Mountain Blvd, SR 0309, Segment 480	Fairview Township
18	Hazle St, SR 2010, Segment 140	City of Wilkes-Barre
19	Park Ave, SR 2010, Segment 150	City of Wilkes-Barre
20	Spring St, SR 6309, Segment 600	City of Wilkes-Barre
21	Sullivan Tr, SR 0092, Segment 130	Exeter Township
22	Buck Blvd, SR 0115, Segment 40	Buck Township
23	Main St, SR 2008, Segment 120	Hanover Township
24	Berwick–Hazleton Hwy, SR 0093, Segment 290	Nescopeck Township

3.5.2 VRU Safety Assessment

PennDOT's VRU Safety Assessment process highlights corridors where pedestrian and bicyclist risk is elevated, helping local partners focus on locations that may benefit from proven VRU countermeasures and corridor-level treatments. For Luzerne County, PennDOT previously identified seven VRU high-risk corridors that are concentrated in the County's primary urban activity centers (see Figure 20). The high-risk areas in Luzerne are:

1. US 11, Main St from Washington Ave to Chestnut St, Plymouth and Larksville Boroughs
2. PA 2005, Horton St/Blackman St from Barney St to Beech St, City of Wilkes-Barre
3. PA 1009, Market St from River St to Northampton St, City of Wilkes-Barre and Kingston Borough
4. Market St (K066) from Wilkes Barre Blvd to Market St/Public Sq, City of Wilkes-Barre
5. Pierce St (K057) from Tioga Ave to 3rd Ave, Kingston Borough
6. Wilkes Barre Blvd (K072) from Butler St to Scott St, City of Wilkes-Barre
7. PA 3017, Poplar St from Elm St to Broad St, City of Hazleton

Figure 20 Luzerne County VRU high risk areas

These corridors are included in this memo as PennDOT-identified VRU priority areas to be considered alongside the SAP's HIN and systemic safety screening results.

3.5.3 Road Safety Audit Areas

A Road Safety Audit (RSA) is a structured, multidisciplinary review used to identify safety concerns and practical countermeasures based on roadway context, user behavior, and field-observed conditions. RSAs are especially useful where the crash history suggests recurring risk patterns that may be addressed through targeted, implementable improvements.

For Luzerne County, PennDOT identified one priority corridor: 15th Street/SR 924 corridor from the intersection of Broad Street on the western end to Grant Street on the eastern end. Broad Street to Allen Street is in West Hazleton while the rest of the study corridor is in Hazleton. The site is represented by rank number 8 in Figure 20. This RSA corridor is carried forward as a PennDOT-validated focus area and is consistent with the County's emphasis on prioritizing actionable locations with documented safety need.

4 ENGAGEMENT AND COLLABORATION

4.1 SAFETY WORKING GROUP

Public and stakeholder engagement was conducted throughout the development of this SAP. These engagement activities were critical to locating the County's areas of concern and to developing safety recommendations and strategies. Community engagement was conducted in two phases:

Phase 1: Identify Issues and Opportunities

Phase 1 engagement occurred alongside early project tasks, including data collection, equity review, and existing conditions analysis. The purpose of this phase was to identify safety concerns, understand local context, and confirm focus areas for analysis.

- **Safety Working Group Meeting #1 (April 30, 2025)** The first Safety Working Group meeting introduced the project approach, reviewed initial data sources, and gathered input on known safety concerns, priority corridors, and populations of concern.
- **Surveys (June 30-December 15, 2025)**
  Surveys were used to collect input on perceived safety issues and locations of concern. Survey results were used to supplement crash data and inform the existing conditions and safety analysis.
- **Safety Working Group Meeting #2 (June 30, 2025)**
  The second Safety Working Group meeting reviewed preliminary findings from the existing conditions and safety analysis and summarized key themes from survey input. Participants helped confirm emphasis areas, validated priority corridors and observed safety issues, and provided input on potential focus areas to inform subsequent development of safety strategies.
- **Public Workshop #1 (July 30 and 31, 2025)**
  The first public workshop focused on identifying issues and opportunities. Participants provided input on safety challenges, travel behaviors, and locations perceived as unsafe. Feedback helped confirm emphasis areas and informed the subsequent safety analysis.

Phase 2: Review and Refine Draft Recommendations

Phase 2 engagement focused on sharing findings and draft recommendations and gathering feedback to refine strategies, countermeasures, and implementation priorities.

- **Safety Working Group Meeting #3 (October 3, 2025)**
  At this meeting, participants reviewed results of the safety analysis, discussed emerging trends and systemic issues, and provided technical feedback on draft strategies and countermeasure approaches.
- **Public Workshop #2 (November 17, 2025)**
  The second public workshop presented draft recommendations and implementation concepts. Participants provided feedback on proposed strategies, priority actions, and areas for refinement.
- **Safety Working Group Meeting #4 (December 15th, 2025)**
  The final Safety Working Group meeting focused on reviewing the near-final plan, confirming implementation priorities, and ensuring consistency with ongoing programs and policies.

Input collected through these engagement activities was used to validate analysis results, refine recommendations, and shape the implementation matrix included in the final Safety Action Plan.

4.2 ENGAGEMENT OVERVIEW

Public engagement was conducted in two phases, one to obtain information about the public's transportation safety concerns and the other to obtain feedback on draft recommendations. Each phase contained both in-person and online components to provide ample opportunities for participation.

4.2.1 Phase 1

Phase 1 of the public engagement process focused on introducing the SAP to the public, sharing initial safety analysis data, and gathering information on participants' traffic safety experiences. This round of the engagement process included a public open house, an online survey, and an online interactive map.

4.2.2 Phase 2

The purpose of the second round of public engagement was to get feedback on the draft SAP's recommendations and countermeasures. This round of the engagement process used an online and in-person community open house, key stakeholder interviews, and updates to countermeasure recommendations and locations.

4.3 ONLINE SURVEYS

Summary

The Luzerne County safety action plan survey (September 2025) collected input from **221 participants** and **351 comments points via the online map**. Most respondents were white (89.7%), over the age of 50 (nearly 60%), and had household incomes above $50,000. No respondents were under 21. Responses came from Bear Creek Village, Wilkes-Barre, Kingston, Forty-Fort, and Dallas

Of the of **221 respondents** that completed the survey, approximately 53 percent were aged 50 or older, and 89 percent self-identified as White. Seventy-one percent indicated a household income exceeding $50,000. The majority of responses originated from Wilkes-Barre, Bear Creek, Kingston, and Dallas, collectively representing the largest proportion of survey participants.

4.3.1 Key Traffic Safety Concerns:

The online surveys revealed some key traffic safety concerns. These include:

- Distracted driving: **5.1%**
- Intersection safety: (not directly quantified in the survey, but frequently mentioned in comments)
- Impaired driving: **3.6%**
- Emergency medical services: (not directly quantified)
- Speeding/aggressive driving: **15.3%**
- Pedestrian safety: **6.1%**

Lower-priority issues included:

- Vehicle-train safety: (not directly quantified)
- Railroad crossing safety: (not directly quantified)
- Seatbelt usage: **2.0%**
- Bicyclist safety: (not directly quantified)
- Mature driver safety: (not directly quantified)

4.3.2 Themes from Open-Ended Questions:

Open-ended questions were asked as part of the online survey to extract any additional information that the survey instrument may not have captured but could be useful as additional information for the project team and the County. Based on a qualitative scan of these questions, several themes emerged, which have divided into top concerns, mid-level concerns, and lower-level concerns. These are presented below:

Top concerns:

- Lane departure crashes: **10.7%**
- Multiple factor crashes: **10.7%**
- Speeding/aggressive driving: **15.3%**
- Pedestrian safety: **6.1%**
- Close calls/near misses: **2.6%**

Mid-level concerns:

- Distracted driving: **5.1%**
- Poor road/infrastructure conditions: **3.6%**
- Impaired driving: **3.6%**
- Other crash behaviors: **8.2%**

Lower concerns:

- Seatbelt usage: **2.0%**
- Hit-and-run incidents: **1.5%**
- Commercial vehicle involvement: **1.5%**
- Poor enforcement/lack of police presence: **2.6%**
- Weather-related crashes: **1.0%**

When asked about priorities for action, respondents gave the highest support to enforcement and speed management, followed by engineering improvements. Paving/road maintenance, legislation/regulation changes, bicycle infrastructure, and pedestrian safety received moderate support, while education, roundabouts/traffic calming, truck/commercial vehicle restrictions, and distracted driving were rated lower.

4.3.3 Effectiveness of Safety Measures:

When asked which safety measures were most effective according to the respondents, a wide variety of themes were obtained. They are as below:

Most effective

- Dedicated bike lanes: **76%** rated effective
- More lighting at intersections: **81%** rated effective
- Changes to traffic signal timing: **76%** rated effective

Mixed views

- Speed humps / raised crosswalks: **65%** rated effective
- Lower neighborhood speed limits **56%** rated effective)
- Roundabouts: **46%** rated effective

Least effective

- Narrower roads to reduce speeding: **25%** rated effective

A public comment map elicited 344 comments, with a major share of these responses focusing on more densely populated areas such as Wilkes-Barre and Hazleton. Common themes included visibility issues, speeding, pedestrian safety, signage, intersection safety, roadway conditions, and bicyclist safety. For example, one comment highlighted the lack of sidewalks and lighting near Wilkes-Barre High School, describing it as especially dangerous for students walking at night.

4.3.4 Perceived Safety by Mode

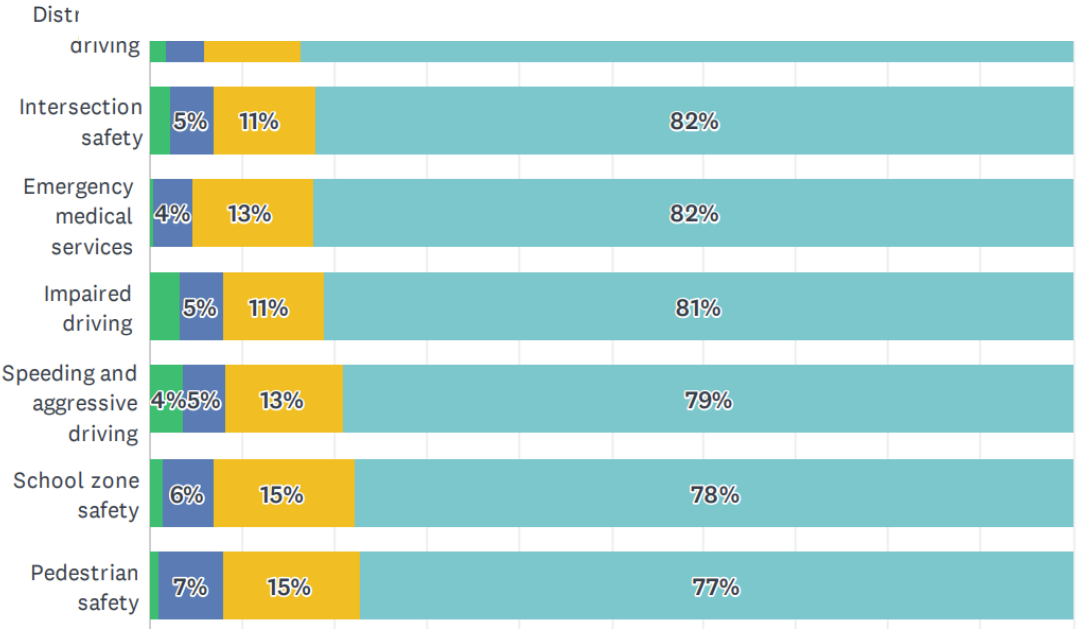
When asked about the safest transportation modes they used (based on their perception), respondents expressed challenges with walking at night and biking on roads without bike lanes. Overall, the perceived safety findings are below:

- Safest:
  - Walking during the day
  - Driving
- Least safe:
  - Bicycling on roads without bike lanes
  - Walking at night

Finally, the public's top concerns—lane departure crashes, pedestrian safety, and impaired driving—align with PennDOT District 4-0's emphasis areas, except for seatbelt usage, which was ranked lower by the public.

Over 80% of respondents said they feel **unsafe or very unsafe biking** on roads without bike lanes in Luzerne County. **Nearly 62%** of respondents said they feel **unsafe or very unsafe walking at night** in Luzerne County.

Figure 21 Question 6 - Transportation Safety Issues Importance

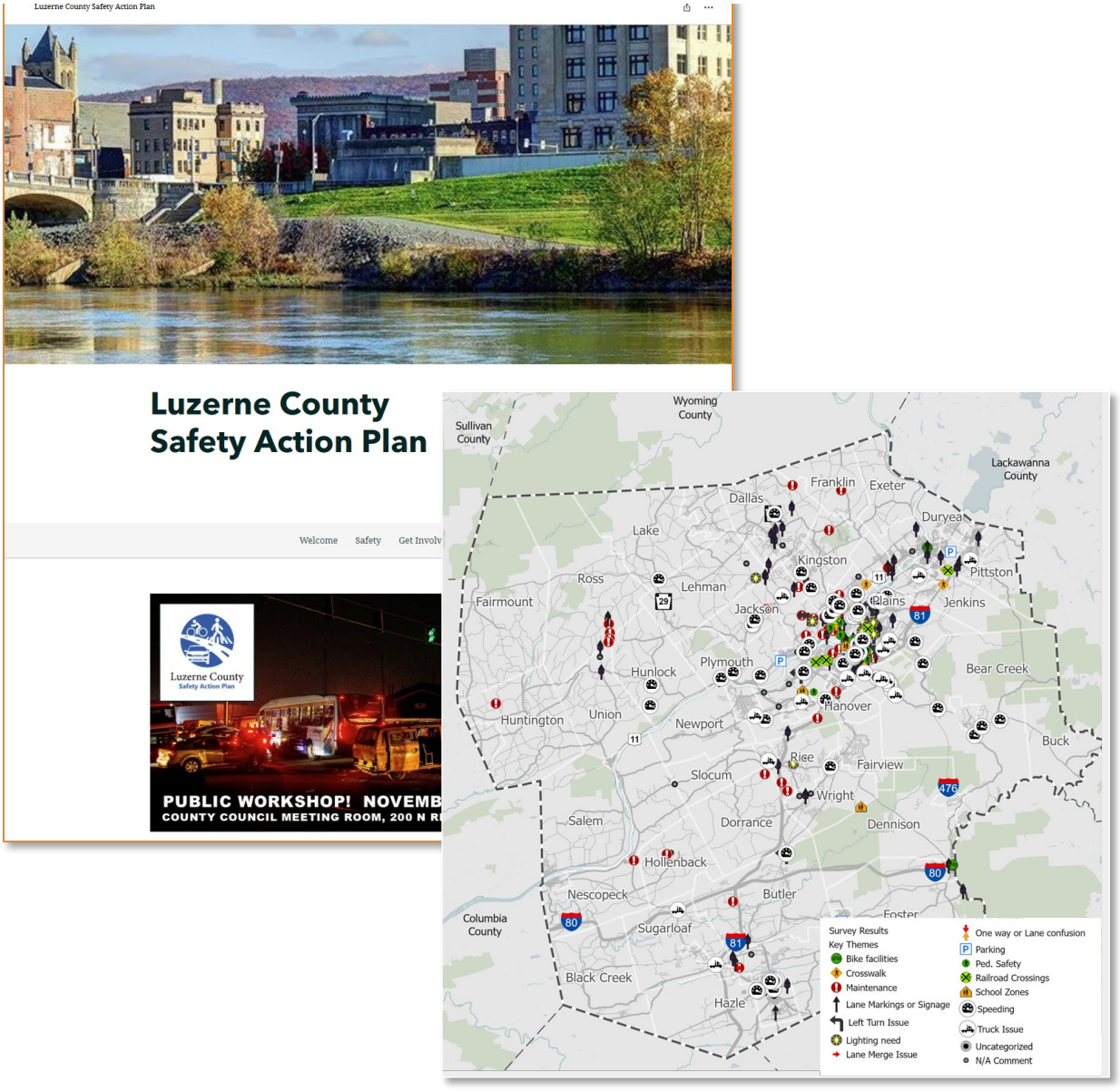


4.3.5 Project Website

The project website was listed at the following URL: **https://www.luzernecounty.org/1541/Safe-Streets-For-All-SS4A**. Residents were encouraged to visit the sites to view the project's story map and learn more about the significance and need for this project. Additionally, the project site posted information on public events and engagement opportunities such as links to the online surveys and interactive comment map.

A total of 351 points and comments were collected through the online map and were used to help evaluate project locations and inform the selection of countermeasures across Luzerne County. The feedback highlighted widespread concerns about speeding, as well as recurring issues related to pedestrian safety and the need for improved lighting, particularly in urban areas.

Figure 22 Project Website and Comment Map results



4.4 PUBLIC WORKSHOPS

4.4.1 Public Open Houses/Workshop Round 1

Round 1 of the Public Open House/Workshops was conducted over two days on July 30 and July 31, 2025, to provide multiple opportunities for community participation and to improve geographic accessibility.

Day 1 – Hazleton

Day 1 of the first open house session was held in Hazleton and focused on gathering public input related to local traffic safety concerns, perceived crash risk, and priority locations. Open house attendees were invited to share feedback on safety issues affecting all modes, with particular emphasis on speeding, pedestrian safety, intersection conditions, and visibility.

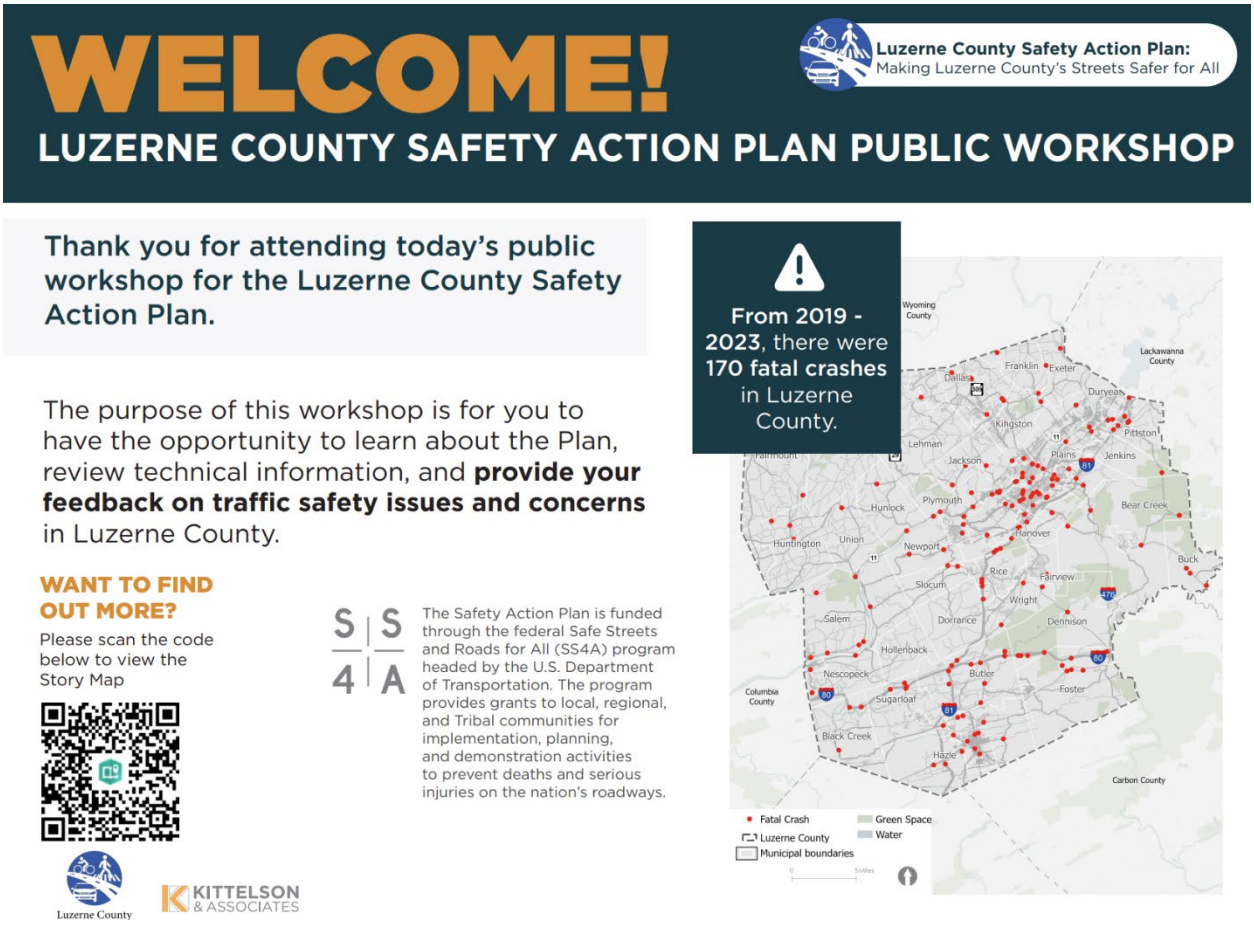
Day 2 – Kingston

Day 2 of the first open house session was held in Kingston and once again and focused on gathering public input related to local traffic safety concerns, perceived crash risk, and priority locations. Day 2 provided an additional opportunity for residents to engage in the process and share location-specific safety concerns. Input from this session complemented feedback received in Hazleton and helped capture perspectives from different parts of the County.

Open house attendees were invited to share feedback on safety issues affecting all modes, with particular emphasis on speeding, pedestrian safety, intersection conditions, and visibility.

Figure 23 Public Workshop Day 2

Figure 24 Public Workshop Board



4.4.2 Public Open Houses/Workshop Round 2

The second round of the Public Open House/Workshop was conducted as a single public workshop on November 17, 2025, to present draft Safety Action Plan recommendations and gather public feedback prior to plan finalization. The workshop was held from 4:30 to 6:30 p.m. at the Luzerne County Council Meeting Room in the County Courthouse. Participants reviewed draft recommendations and provided input on proposed safety strategies, countermeasures, priority areas, and the overall approach. Feedback collected during this workshop was used to refine recommendations and inform development of the final implementation matrix.

Feedback collected during both sessions was used to validate survey results, identify recurring safety themes, and inform the existing conditions assessment and subsequent safety analysis.

4.5 ONGOING COLLABORATION RECOMMENDATIONS

Continued collaboration and public engagement will be essential to maintaining momentum, refining priorities, and supporting effective implementation of the Safety Action Plan. Based on participation trends, engagement outcomes, and identified gaps, the following recommendations are intended to guide ongoing and future engagement efforts.

4.5.1 Safety Working Group Continuation

The County should continue to convene the Safety Working Group on a periodic basis to support implementation and coordination. The Working Group will:

- Monitor progress toward safety goals and review performance measures.
- Coordinate implementation across County departments, partner agencies, and PennDOT.
- Revisit emphasis areas and priorities as new safety data become available.

4.5.2 Implementation-Focused Public Engagement

Future engagement should focus on supporting implementation and transparency by:

- Sharing information on planned and completed safety improvements.
- Seeking targeted input on project locations, countermeasure selection, and phasing, as appropriate.
- Communicating how public input informs decision-making.

4.5.3 Broaden and Diversify Participation

Future engagement efforts should prioritize outreach to populations underrepresented during plan development, including older and younger residents, non-traditional households, lower-income households, and communities of color. Engagement approaches should be adjusted to improve accessibility, representation, and geographic coverage.

4.5.4 Ongoing Use of Communication Tools, Surveys and Mapping Tools

The County should continue to use surveys and interactive mapping tools to:

- Track changes in perceived safety over time.
- Identify emerging safety concerns and priority locations.
- Supplement crash data with community-reported issues, particularly related to speeding, pedestrian safety, lighting, and intersection conditions.

The County should use the project website and other communication tools to:

- Provide regular updates on implementation progress.
- Summarize engagement findings and how input is being used.
- Maintain transparency and public awareness throughout plan implementation.

4.5.5 Alignment with Performance Monitoring

Ongoing public engagement should be coordinated with the County's performance monitoring and evaluation framework to ensure that implementation efforts are both data-driven and responsive to community experience. Public input should be used to complement quantitative safety data, provide context for observed trends, and help identify emerging or persistent safety concerns over time. Some additional suggestions include:

- Aligning ongoing engagement efforts with performance monitoring and evaluation activities, using public feedback to supplement crash data and observed trends.
- Using engagement results to contextualize quantitative findings, particularly for issues such as perceived safety while walking at night or bicycling on roads without dedicated facilities.
- Revisiting engagement priorities as performance data indicate progress or highlight areas requiring additional attention.

5 POLICY AND PROCESS CHANGES

5.1 ASSESSMENT OF CURRENT MPO AND COUNTY PLANS

The Lackawanna-Luzerne Metropolitan Planning Organization has produced two planning documents that inform the development of this Safety Action Plan.

5.1.1 2050 Long-Range Transportation Plan

The joint 2050 Long Range Transportation Plan (LRTP) for Lackawanna and Luzerne Counties was prepared by the Lackawanna-Luzerne Transportation Study (LLTS) MPO, a joint initiative of both counties, and was adopted in January 2026.

The Long-Range Transportation Plan mentions roadway safety in its regional profile, noting that "safety is a top priority of both the LLTS MPO and PennDOT." It also references this plan and Lackawanna County's safety plan, Safe Streets Lackawanna. The LRTP also documents progress toward safety performance measures. However, it does not provide safety countermeasures, instead relying on the individual county plans for those recommendations.

5.1.2 Bicycle and Pedestrian Study

The Bicycle and Pedestrian Study for the Central Business Districts of Scranton and Wilkes-Barre was completed in 2020. Wilkes-Barre is of interest for the Luzerne County Safety Action Plan. Safety concerns are divided into two categories: conflicts with vehicles on roadways, and conflicts with vehicles at intersections.

Conflicts with vehicles on roadways

The plan recommends creating bicycling facilities which are separated from the roadway. These may be separated by flex posts, greenspace, vehicle parking, roadway paint markers, or even bollards. Types of separate bicycling facilities include:

- Shared-use paths
- Cycle tracks (especially on River Street, Franklin Street, Jackson Street, and Northampton Street between River and Franklin Streets)
- Protected bike lanes

The plan also recommends bike lanes on portions of South Street, the Market Street Bridge, Public Square, East Market Street, and the North Street Bridge.

Although shared-lane markings, or "sharrows," are not a type of bicycle facility, they may have value as connections on low-speed, low volume streets or as an interim measure until bicycle facilities can be provided. The plan recommended sharrows on portions of Main Street, Pennsylvania Avenue,

Northampton Street (between Franklin and Main Streets), West Union Street, East Bennett Street, and North Street.

Conflicts with vehicles at signalized intersections

Signalized intersections can be particularly dangerous for vulnerable road users due to interactions among cyclists, pedestrians, and vehicles. Providing dedicated bicycle signals, and clear signage of where cyclists should wait at signals, can improve cyclist safety. Signals specifically for bicyclists, similar to pedestrian crossing signals, and bike boxes between the stop bar and pedestrian crossing, allowing cyclists to stop in front of vehicles, making them more visible. The plan proposes these treatments on Pennsylvania Avenue.

5.2 STATEWIDE SAFETY EFFORTS

State-supported safety initiatives also helped set the stage for the Safety Action Plan process in Luzerne County.

5.2.1 Highway Safety Network Screening

In 2024, PennDOT produced its most edition of network screening locations for all 67 counties in Pennsylvania. Network screening identifies specific roadway segments and intersections that would benefit from safety improvements.

The network screening process established lists of priority intersections and segments based on "excess crash cost." This figure is calculated by comparing the crash history at the location with the expected crash frequency based on the characteristics at the site. Locations where more crashes occur than expected have an excess crash cost. The greater the difference between crashes that actually occurred and the expected number of crashes, the higher the excess cost.

This process identified 24 "top sites" in Luzerne County, which are the highest priorities in the County based on excess crash cost. The 12 intersections and 12 segments on this list are described in Section 3.5.1 of the Plan.

PennDOT prepared specific countermeasure recommendations for each of these top sites, which are included in the Appendix. These recommendations are incorporated into Section 6 of the Plan.

5.2.2 Vulnerable Road User Safety Assessment

In fall 2023, PennDOT completed its Vulnerable Road User (VRU) Safety Assessment Report. This assessment was required under the Infrastructure Investment and Jobs Act (IIJA) and is an appendix to Pennsylvania's Strategic Highway Safety Plan.

The assessment developed a plan for improving the safety of pedestrians and cyclists through targeted and systemic improvements. It identified seven locations in Luzerne County as "high-risk areas"— among

nearly 200 statewide—indicating that these are important locations for safety investment, especially for people walking and biking. These locations are listed in Section 3.5.2 of the Plan.

High-risk areas are corridors that have historically experienced a greater frequency and severity of VRU crashes. Because PennDOT needs to dedicate a percentage of the Federal Highway Safety Improvement Program (HSIP) funds that it receives to VRU safety, designation of these road segments as high-risk areas increases the likelihood that safety funding may be available for improvements identified by this SAP.

5.2.3 District Highway Safety Plan

PennDOT completed a series of District Highway Safety Plans in early 2023. These plans identified safety emphasis areas for each of PennDOT's eleven Engineering Districts. The emphasis areas for District 4-0, in which Luzerne County is located, were:

- Lane departure crashes
- Pedestrian safety
- Impaired driving
- Seatbelt usage

The District 4-0 Highway Safety Plan also provides information on coordination between PennDOT and Pennsylvania MPOs and municipalities, road safety audit recommendations, opportunities for low-cost safety improvements, and activities of the District's Safety Press Officer, among other elements.

5.3 POLICY RECOMMENDATIONS

Specific policy recommendations are described in section 6.4 of the Plan. They include:

- Education for drivers, families, children, teenagers, and vulnerable road users, as well as high-visibility messaging campaigns
- Enhanced enforcement operations
- Reassessed speed limits
- Municipal Complete Streets policies
- Neighborhood traffic calming
- Safe Routes to School
- Road safety audits

6 PROJECTS AND STRATEGIES

Through the project team's collaboration with the Safety Working Group, the comprehensive crash analysis, and community outreach, a series of recommendations were developed to help Luzerne County reach its Vision Zero goal. There are three categories of recommendations, including:

1. **A safety countermeasure toolkit** that can be applied systemically to locations across the county,
2. Specific **infrastructure safety improvement recommendations** along key corridors, and
3. **Non-infrastructure safety solution recommendations** that include education initiatives, enforcement directives, and policies and programs.

6.1 SAFETY COUNTERMEASURE TOOLKIT

The Luzerne Safety Action Plan Toolkit, detailed in Appendix A, provides infrastructure and non-infrastructure treatments that can be implemented to address severe crashes on Luzerne County's roadway network. The treatments are classified as follows:

- Intersection Countermeasures
- Segment Countermeasures
- Pedestrian and Bicyclist Countermeasures

The toolkit includes a photo and description for each treatment and lists the various contexts where it best applies. The toolkit also includes very general planning-level cost guidance.

Tools for the SAP are aligned with the Safe System Approach. They are primarily drawn from two key sources: the FHWA's Proven Safety Countermeasures[3] and the National Highway Traffic Safety Administration's Countermeasures That Work[4]. Crash modification factors (CMFs) are available for many of the tools. CMFs estimate the potential for each tool to reduce crashes and may be tied to increased funding availability. The tools presented in the toolkit are in no order regarding priority of implementation.

[3] Federal Highway Administration. *Proven Safety Countermeasures.* 2025. https://highways.dot.gov/safety/proven-safety-countermeasures
[4] National Highway Traffic Safety Administration. Countermeasures That Work. 2023. https://www.nhtsa.gov/book/countermeasures/countermeasures-that-work

Intersection Countermeasures

Turning Movements & Conflict Reduction

- Implement flashing yellow arrows
- Modify left-turn phasing
- Modify yellow change intervals
- Extend turn lanes
- Install channelized islands for right turns
- Install raised medians
- Reduce intersection skew angles

Stop-Controlled Approaches

- Placed advanced stop bars on approaches to intersections
- Install "stop ahead" pavement markings
- Convert to all-way stop control (from 2-way or yield control)
- Increase intersection warnings with signing and striping
- Provide flashing beacons

Traffic Signals

- Install traffic signals
- Install signal backplates
- Implement electronic red-light enforcement

Other Treatments

- Improve intersection lighting
- Improve sight distance (clear sight triangles)
- Install transverse rumble strips on intersection approaches

Segment Countermeasures

Delineation and Visibility

- Install raised or recessed pavement markers
- Install or widen edge lines
- Install shoulder rumble strips
- Install centerline rumble strips
- Install profiled lane pavement markings
- Install raised medians

Roadside and Clear Zone Improvements

- Install new guiderail
- Install or widen paved shoulder
- Flatten rural side slopes
- Provide Safety Edge for rural pavement edge drop-offs
- Remove, relocate, protect, or increase distance to fixed objects
- Install flexible delineator posts
- Install retroreflective signs / markers
- Install reflective pavement markers

Warning Signs

- Install chevron signs on horizontal curves
- Install oversized, doubled, and/or fluorescent yellow sheeting for advance curve warning signs
- Provide static combination horizontal alignment/advisory curve warning signs
- Install advance curve warning flashers

Speed Management

- Install dynamic speed feedback signs
- Install rural variable speed limit signs

Other Treatments

- Install high friction surface treatment
- Reallocate roadway cross-section

Pedestrian and Bicyclist Countermeasures

Traffic Calming and Turn Conflict Resolution

- Implement traffic calming measures
- Remove channelized right-turn lanes
- Install hardened centerlines and slow turn corners
- Construct curb extensions

Pedestrian Visibility

- Install pedestrian or bicycle warning signs
- Install lighting at crosswalks and intersections

Pedestrian Crossings

- Provide crossing enhancements at uncontrolled locations
- Install pedestrian refuge islands
- Install rectangular rapid flashing beacons
- Install raised pedestrian crossings

Pedestrian Signals and Timing

- Install pedestrian signals
- Install pedestrian countdown signals
- Implement leading pedestrian intervals (LPIs)
- Implement exclusive pedestrian phases
- Restrict right turns on red

Sidewalks, Paths, and Bicycle Facilities

- Install sidewalks
- Construct shared use paths
- Install bike lanes
- Construct separated bike lanes
- Implement shared space and bicycle boulevards

Intersection Treatments for Bicyclists

- Install two-stage left-turn boxes
- Construct protected intersections

6.2 INFRASTRUCTURE SAFETY IMPROVEMENTS

6.2.1 Spot-Specific Safety Improvements

The section provides the infrastructure safety improvements for High Injury Network locations based on the locations identified through the safety analysis. This section presents potential spot-specific safety improvements. Detailed study will be needed at each location to confirm appropriate countermeasures prior to programming improvements. A summary of the countermeasures is presented in this section, while detailed sheets for each location can be found in Appendix B.

Table 7. Potential Recommendations Summary - HIN Rural Segments

Location	Improved sight distance	Advance warning signs	Chevron/curve warning signs	Edgeline rumble strips	Centerline rumble strips	Guiderail	HFST	Flexible delineators/RPMs	Retroreflective signs/markers	Dynamic speed signs	Improved lighting	Education/enforcement
Rural 1: SR 93 from Saint Johns Road to north of Sugarloaf Road	●	●	●	●			●		●		●	●
Rural 2: SR 115 / Bear Creek Boulevard from just before Laurelbrook Drive to just after Meadow Run Road		●	●	●		●	●		●	●		●
Rural 3: E Northampton Street from Pine Run Road to Lehigh Street		●	●	●		●	●		●			●
Rural 4: SR 940/Foster Ave from east of Veterans Road to east of Hillary Drive	●	●	●	●				●	●			●
Rural 5: SR 115 / Buck Boulevard from south of Buck Birch Lane to north of Buck Pine Lane	●	●	●					●	●		●	●
Rural 6: Mountain Road from Weavertown Road and Huntsville Road intersection to north of Warman Street		●	●	●					●			●
Rural 7: SR 93 from Banks Avenue to I-81	●	●	●	●			●		●			●
Rural 8: SR 309 from Stredney Road to Country Pines Estates		●	●	●				●	●	●		●
Rural 9: Stockton Mountain Road from north of Hazle Brook Road to south of Ashmore Road	●	●	●					●	●	●		●
Rural 10: SR 92 from north of Rindgen Lane to south of Apple Tree Road	●	●		●	●			●				●

Table 82. Potential Recommendations Summary - HIN Rural Intersections

Location	Reduced left-turn conflicts	Stop lines	Advance stop signs/AWSC	Improved lighting	HFST	Advance warning signs/beacons	Signal phasing/timing changes	Geometric/access changes	Channelizing islands	Warning/speed limit signs	Crossing treatments	Education/enforcement
Rural A: Northbound on-ramp to SR 93 at I-80 and SR 93	●	●		●		●		●		●		●
Rural B: Northbound off-ramp to Church Road at I-81 and Church Road				●		●		●				●
Rural C: Weavertown Road and Mountain Road			●			●		●				●
Rural D: SR 309 and Church Road	●			●		●	●	●		●		●
Rural E: SR 118 and SR 29		●		●					●		●	●
Rural F: SR 118 and Idetown Huntsville Road		●		●		●		●		●		●
Rural G: Club 40 Road and Stockton Mountain Road		●	●			●		●		●		●
Rural H: Eastbound off-ramp to SR 93 from I-80		●	●			●				●		●

Table 93. Potential Recommendations Summary - HIN Urban Segments

Location	Improved sight distance	Remove objects in clear zone	Upgraded signs/markings	Signal phasing/timing	Signal backplates	Driveway turn restrictions	Improved lighting	Sidewalk/crosswalk imps.	Ped signal improvements	RRFBs/beacons	Imps. to address speeding	Education/enforcement
Urban 1: Washington Avenue/W 15th Street from west of Rose Street to N Church Street	●	●	●	●	●	●						●
Urban 2: Wilkes-Barre Township Boulevard from south of Casey Ave to north of Coal Street				●	●		●	●	●			●
Urban 3: N Church Street from south of W 13rd Street to north of W Juniper Street	●		●				●	●				●
Urban 4: S River Street from Academy Street to Jackson Street	●			●	●	●	●	●	●	●		●
Urban 5: W Broad Street from W Diamond Avenue to S Poplar Street	●	●	●	●	●		●	●	●			●
Urban 6: E Main Street from Girard Avenue to Chestnut Street	●	●		●				●	●			
Urban 7: S Wyoming Avenue from Market Street to E Dorrance Street	●	●	●	●	●			●	●			●
Urban 8: Kidder Street from north of Schoolhouse Lane to Mundy Street			●	●	●		●				●	●
Urban 9: SR 315 from north of Pethick Street to south of Pocono Downs				●				●	●	●		●
Urban 10: Carey Avenue Bridge/West End Road from Main Street to east of Plymouth Avenue		●	●	●	●							●
Urban 11: Airport Beltway from Laurel Mall Drive to Goodwill Industries			●	●	●		●	●	●	●		●
Urban 12: Market Street from Wyoming Avenue to River Street			●	●	●		●	●	●			●
Urban 13: Main Street from Fort Jenkins Bridge to south of Chapel Street		●	●				●			●	●	●

Table 104. Potential Recommendations Summary - HIN Urban Intersections

Location	New signal, if warranted	HFST	Upgraded signs/markings	Signal phasing/timing	Signal backplates	Driveway turn restrictions	Improved lighting	Sidewalk/crosswalk imps.	Ped signal improvements	RRFBs/beacons	Imps. to address speeding	Education/enforcement
Urban A: SR 93/Broad Street and Monroe Avenue		●	●	●				●	●		●	●
Urban B: N Wilkes-Barre Boulevard and Butler Street			●	●				●			●	●
Urban C: Market Street and US 11/Wyoming Avenue				●			●	●	●			●
Urban D: SR 315 and Jumper Road				●			●	●	●			●
Urban E: Wilkes-Barre Boulevard and southbound on-ramp to SR 309	●						●			●	●	●
Urban F: Hazle Street and Pennsylvania Boulevard				●				●	●		●	●
Urban G: N River Street and W North Street				●			●	●	●		●	●

6.2.2 Systemic Safety Improvements

Based on the systemic safety considerations identified in the previous sections, the following countermeasures/systemic safety improvements are identified for angle crashes and lane departure crashes. Detailed description of countermeasures are in Section 6.1 and Appendix A.

Countermeasures for Angle Crashes

All Intersections

- Install flashing beacons as advance warning signs for signalized intersections
- Install exclusive right-turn lane
- Install raised medians on intersection approaches (signalized intersections)
- Convert intersection to a roundabout
- Install/upgrade existing signs to larger or additional stop signs or other intersection warning/regulatory signs
- Improve sight distance at the intersections (clear sight triangles)

Signalized Intersections Only

- Signal intersection improvements including new LED lighting, signal back plates, retroreflective border tapes for signal heads, relocation of signal heads
- Install left-turn lane and add turn phase (signal has no left-turn lane or phase before)
- Change permitted left-turn to permitted-protected/protected left-turn phase (left turn lane already exists)

Unsignalized Intersections Only

- Convert to all-way STOP control (from 2-way or Yield control)
- Install traffic signal
- Install channelizing islands on the minor road approaches

Countermeasures for Lane Departure Crashes

- Install new or repaint edge-line and centerline pavement markings
- Widen shoulder
- Install roadside barriers
- Install median barriers
- Install centerline and shoulder rumble strips
- Install chevron signs on horizontal curves
- Install advance curve warning signs
- Install new or upgrade existing guiderail
- Install Safety edge
- Improve Horizontal Alignment of Curve (flatten curves)
- Improve Superelevation of Horizontal Curve
- Flatten side slopes

6.3 NON-INFRASTRUCTURE SAFETY SOLUTIONS

Non-infrastructure safety solutions include recommendations on education, enforcement, maintenance, and operations in the form of programs, policies, and other initiatives. The Safe System Approach suggests these types of strategies are important to implement in conjunction with infrastructure solutions to create a safe transportation culture in Luzerne County.

Further detail on the implementation of these strategies is provided below.

6.3.1 Education Strategies

Education strategies focus on enhancing how people learn to travel more safely in Luzerne County. These strategies can be relatively low in cost, but transformative in culture.

Enhance Driver Education

To the extent feasible, Luzerne County should complete a review of the existing County's driver education programs and policies. The proportion of crashes involving young (drivers of age 25 years or under) among the total crashes is greater than 30 percent particularly at rural locations. It is especially important that drivers understand the costs of speeding and impaired driving. Prioritized driver education resources for younger drivers and speeding/impaired driving may also be useful.

Education and Outreach with Families, Children, and Teenagers

Transportation safety should begin being taught at a young age, including at all school levels. The County's education approach should consider how children and families are discussing transportation safety. SafeAcross is a

SafeAcross – National Pedestrian Safety Campaign

SafeAcross is a national pedestrian safety campaign that Luzerne County could implement. The campaign uses approachable language and focuses on the five Es (Education, Enforcement, Evaluation, Engineering, and Encouragement) to help communities increase pedestrian safety.

Communities that participate in the SafeAcross campaign commit to maintaining existing crosswalks and working towards crosswalk enhancements.

national pedestrian safety campaign with educational resources[5]. Communities can host bicycling events that teach children how to bike on streets in Luzerne County municipalities. A walking or biking school bus[6] could gather students together to take active modes of transportation to school. High school level education campaigns about speeding and impaired driving are also important.

Vulnerable Road User Safety Education

Road safety education regarding vulnerable road users like pedestrians and bicyclists includes strategies involving education from police officers. For example, if a police officer pulls a driver over for encroaching into a bike lane or failing to yield to a pedestrian at a crossing, the officer can provide information to the driver explaining how to adapt their behavior towards all road users. Community classes could be recommended instead of or in addition to a citation. The County can also offer programs to teach bicyclists safe practices.

High-Visibility Cell Phone and Text Messaging Media Campaign

The High Visibility Enforcement model combines dedicated law enforcement with paid and earned media supporting the enforcement activity. Paid media includes advertisements on TV, radio, online, and via billboards, while earned media includes things like press events and news releases covering the efforts. Both types of media can be helpful for ensuring the public is aware of enforcement activity, and to create the impression that violators will be caught.

PennDOT High Visibility Media example

6.3.2 Enforcement Strategies

Enforcement is another important tool in controlling roadway behaviors for safer outcomes. It is imperative that enforcement approaches be equitable and contribute to safer outcomes for all.

Enhance Enforcement Operations

Police enforcement can increase driver awareness and consequently reduce crashes. Any directed enforcement strategies should be undertaken with great care to avoid inequitable enforcement activities.

The most effective enforcement strategies tend to be those that can be done transparently, consistently, and in coordination with education or outreach campaigns such as enforcement in school zones during school hours. The County should review enforcement operations to avoid enforcement that targets

[5] SafeAcross. https://safeacross.com/
[6] Safe Routes to School Guide. http://guide.saferoutesinfo.org/walking_school_bus/

marginalized communities. Crash data can help officers undertake enforcement in appropriate locations, beginning with warnings and education, followed by ticketing and fees.

Adjust Speed Limits

Adjusting speed limits may be an effective way of reducing traffic speeds, especially when combined with infrastructure measures. Streets with more people walking and biking should be evaluated for lower posted limits, such as 25 mph. A speed study is required for each street where lowering the speed limit is considered, with a specific PennDOT process used for streets owned and maintained by the state.

6.3.3 Policy Strategies

Policies are an important way to codify commitments to cultural change. Policies help dedicate funding and resources.

Encourage Municipal Complete Streets Policies

A Complete Streets policy is a set of planning and engineering principles that provide safe access to all road users, not just drivers. Such a policy sets a standard framework for prioritizing multimodal safety as part of private and public investment. Formalized guidelines for implementing active transportation policies and infrastructure help to create a uniform approach and avoid an inequitable distribution of resources.

LLTS MPO has a Complete Streets Policy as part of its Joint County Comprehensive Plan and Long-Range Transportation Plan. More broadly applying this policy at the municipal level would encourage agency buy-in to the concept of Complete Streets and further improvement safety on city, borough, or township streets. Luzerne County should establish a model municipal Complete Streets policy consistent with the the MPO's policy that municipalities may modify to suit their needs.

Enhance Street Maintenance Operations

Maintenance of asphalt, pavement markings, signs, trees, and lighting are important to facilitating a safe driving culture. Pavement markings and proper signage enable wayfinding throughout the County. Sidewalk infrastructure is critical for pedestrian safety by reducing conflicts with vehicles. Several community members stressed the need to improve sidewalk maintenance and repair. Increased budgets for these efforts may be necessary.

6.3.4 Programmatic Strategies

Programs are another tool in combination with engineering solutions to reduce speeding and improve driver behavior.

Implement Neighborhood Traffic Calming Program

A County program focused on implementing traffic calming treatments can prioritize residential streets where there are speed concerns. Treatments may include speed humps, mini traffic circles, hardened centerlines, and daylighting. The County can use an objective, data-driven process and collect community feedback to identify streets for these types of targeted, quicker-implementation traffic calming improvements. Many other tools in the SAP toolbox fit into this category as well.

Implement a Safe Routes to School Program

Safe Routes to School (SRTS) is a national and international movement to create safe, convenient, and healthy opportunities for students to walk, bike or roll to school. The Commonwealth of Pennsylvania's Safe Routes to School websites resources about the SRTS program and PennDOT will fund the activities (such as a bicycle rodeo, educational assembly, safety outreach program, etc.) or items (e.g., crossing guard equipment, encouragement, or safety items). [7] Luzerne County can implement the SRTS program by working with schools and partners to identify priority routes, provide safety education, and pursue PennDOT funding for improvements and activities.

Conduct Road Safety Audits

Conducting focused safety audits at key crash locations can help communities identify specific approaches. This is especially pertinent at high priority intersections identified through crash analysis and systemic safety analysis. As relevant, doing audits in darker or especially busy conditions might reveal root crash causes. Road safety audits are a flexible program and can be conducted on a range of corridor widths and lengths. Potential recommendations from the road safety audits can be implemented incrementally as time and budget allows.

[7] https://www.pa.gov/agencies/penndot/research-planning-and-innovation/transportation-alternatives-set-aside-program/safe-routes-to-school#accordion-5df47b231f-item-9dabe5d944

6.4 US 11 CORRIDOR SAFETY STUDY

As illustrated in Section 3.3 of this plan, nearly all of the urbanized portions of US 11 in Luzerne County is part of the top two tiers of the High Injury Network. This portion of US 11, called Wyoming Avenue for most of its 12.5-mile length, travels through nine municipalities and through a wide range of urban and suburban land use contexts. As a result, traffic volumes vary from 9,100 to 20,000 vehicles per day and the character of the roadway changes accordingly. There is inconsistency among the number and width of travel lanes, presence of left-turn lanes and on-street parking, and speed limits from municipality to municipality. These changes in roadway characteristics can surprise travelers, especially those who are not familiar with the area, and anecdotal information gathered through plan development suggests that this may contribute to safety concerns along the corridor.

For these reasons, and because US 11 forms the de facto "Main Street" of municipalities along the west shore of the Susquehanna River, this plan recommends a follow-up corridor safety study along the following portions of US 11:

- Main Street in the Borough of Plymouth
- Narrows Road in the Borough of Larksville
- Wyoming Avenue in the Boroughs of Edwardsville, Kingston, Forty Fort, Wyoming, Exeter, and West Pittston
- The Fort Jenkins Bridge, William Street, and connecting streets in the City of Pittston

The purpose of the corridor safety study is to delve into crash patterns along US 11 in great detail than can be considered in this countywide plan, as well as for the participating municipalities to develop a more consistent shared vision for the corridor.

7 IMPLEMENTATION PLAN

Implementation planning for projects is informed by planning-level cost opinions, potential funding sources, prioritization, and coordination with any necessary stakeholders. The priority level and scoring for each project was developed by a data-driven process and informed by public feedback during the engagement process.

7.1.1 Potential Funding Sources

Several agencies and organizations may be involved in implementing the corridor projects and spot-specific improvements. Every project must consider not only the capital cost of installing the countermeasures, but the operational and maintenance budgets as well.

County and Municipal Funding Sources

County Funding: This includes the County's general fund as well as programmatic funding like Liquid Fuels from the Commonwealth of Pennsylvania. These funds are typically used for routine maintenance and are only applicable at the municipal level.

Municipal-Level M&R: Simple improvements, like signs and pavement markings, could be achieved by folding them into preplanned street resurfacing and maintenance activities, or by folding them into projects planned by other departments, such as utility, stormwater, and parks projects. This funding source would require coordination with local agencies and stakeholders for implementation.

Private Development: Improvements to the transportation system can be realized through private investment and public-private partnerships within a municipality. Depending on development scale and land use, private construction could build out curb extensions, improved crosswalks, and other multimodal accommodations.

State Funding Sources

PennDOT Multimodal Transportation Fund (MTF): This program provides funding to local agencies to enhance communities, improve pedestrian and bicyclist safety, and revitalize transit service. Link: *https://www.penndot.pa.gov/ProjectAndPrograms/MultimodalProgram/pages/default.aspx*

Green Light-Go (GLG): This is a is a competitive state grant program designed to improve the efficiency and operation of existing traffic signals in Pennsylvania. Link: *https://docs.penndot.pa.gov/Public/Bureaus/BOO/TSPortal/FUNDGLG.html*

PennDOT Automated Red Light Enforcement (ARLE): This program is a competitive grant program generated from the net revenue of fines collected through Automated Red Light Enforcement Systems and Automated Speed Enforcement Systems. Grant applications are accepted annually during the month of June. Link: *https://docs.penndot.pa.gov/Public/Bureaus/BOO/TSPortal/FUNDARLE.html*

PennDOT Transportation Improvement Program (TIP): PennDOT assigns funding to planned projects on the TIP over a short-range, four-year period. The Lackawanna and Luzerne MPO helps facilitate this process every 2 years. Link: *https://www.lltsmpo.com/2027-2030-tip-started/*

Department of Community and Economic Development (DCED) Multimodal Transportation Fund: This fund (different from PennDOT's fund of the same name) provides grants for a variety of transportation improvements that "encourage economic development and ensure … a safe and reliable system of transportation." Link: *https://dced.pa.gov/programs/multimodal-transportation-fund/*

Federal Funding Sources Administered by the State

PennDOT Transportation Alternatives Set-Aside (TASA): PennDOT administers federal funding for transportation facilities focused on walking, bicycling, and access to public transportation. Funding for PennDOT's Safe Routes to School (SRTS) program falls under TASA. Link: *https://www.penndot.pa.gov/ProjectAndPrograms/Planning/Pages/Transportation%20Alternatives%20Set-Aside%20-%20Surface%20Trans.%20Block%20Grant%20Program.aspx*

PennDOT Highway Safety Improvement Program Funding (HSIP): Each year, PennDOT invests in low-cost safety improvements as well as in larger-scale projects that address multimodal safety. PennDOT Engineering District 4-0 and the LLTS MPO should be consulted, as they collaborate on HSIP applications annually. Link: *https://www.pa.gov/agencies/penndot/about-penndot/strategic-planning-and-operations/safety-infrastructure-improvement-programs*

PennDOT VRU Rule Funding (VRU): PennDOT is required to allocate a portion of its HSIP funding toward projects in the state that impact the safety of VRUs, especially along corridors flagged as part of the statewide VRU Safety Assessment.

PennDOT Behavioral Highway Safety Grants (NHTSA): PennDOT utilizes federal funding administered by the National Highway Traffic Safety Administration (NHTSA) to provide traffic safety grants to local governments and other entities to improve highway safety and reduce crash-related deaths and serious injuries. Grant opportunities reflect evidence-based countermeasures proven to address the most critical traffic safety needs identified through data analysis. Available funds are distributed to projects using allocation formulas based on crash data. Link: *https://www.pa.gov/services/penndot/apply-for-penndot-behavioral-highway-safety-grants*

Other Federal Funding Sources

Safe Streets and Roads for All Funding: As part of the Bipartisan Infrastructure Law, this program offers planning, demonstration, and implementation grants to projects that reduce serious crashes. This SAP is designed to qualify the county for additional SS4A funding. Note that the spring 2026 application cycle is the last year under the original SS4A funding authorization, though it is always possible that the program could be continued under future federal transportation legislation and appropriations. Link: *https://www.transportation.gov/grants/SS4A*

- SS4A planning and demonstration grants **(SS4A-P)** are used for SAP development or updating, supplemental safety planning activities such as conceptual development of recommended safety improvements, or demonstration activities such as behavioral activity pilot programs or feasibility studies using temporary materials on the ground.
- SS4A implementation grants **(SS4A-I)** are used for the construction of engineering countermeasures or the implementation of education, enforcement, policy, or program strategies to enhance safety. Substantial staff capacity at the municipal level is needed to manage these implementation grants, so they are best suited for larger municipalities.

Better Utilizing Investments to Leverage Development Grant Program (BUILD): This grant program helps communities carry out surface transportation infrastructure projects that have a significant local or regional impact. Funding is available for capital projects as well as for planning efforts. Link: *https://www.transportation.gov/BUILDgrants*

More Information

The Pennsylvania Department of Health has additional grant opportunities for active transportation plans and Complete Streets policies from their WalkWorks program: *https://www.pa.gov/agencies/health/programs/healthy-living/walkworks/grant-opportunities*

The FHWA provides additional detail for federal funding initiatives focused on bicycle, pedestrian, and transit infrastructure: *https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.pdf*

7.1.2 Costs

Very rough planning-level ranges of potential cost have been developed for the projects recommended herein. Projects can also be broken into smaller, less costly portions.

Specific costs have not been identified for each project. Instead, approximate costs are provided on a scale from "low" to "medium" to "high." The approximate project costs are represented by a dollar sign, so "low" is shown by "$", "medium" is shown by "$$" and "high" is shown by "$$$". Generally, the project cost relates to the phasing timeline and complexity of the suggested safety countermeasures. For example, a short-term project spanning one to two years that includes relatively simple countermeasures would be labeled with one dollar sign denoting a simple project to implement.

Usually, non-infrastructure solutions are relatively low-cost efforts. Road safety audits are also typically low cost. Some of the non-infrastructure solutions outlined herein may require additional study or the hiring of consultant services for planning and administrative tasks. Allocating more resources to programs can be more costly, particularly for increasing enforcement resources and expanding maintenance operations.

7.1.3 Priority Level and Phasing Timeline

Infrastructure and Non-Infrastructure Projects

The priority levels help organize the safety recommendations by the relationship between high injury network corridors or intersections and ongoing PennDOT TIP projects. Priority for infrastructure projects is as follows:

- **Tier 1 (Higher Priority)—**Addresses HIN elements with TIP programming where a project is currently planned or under design. These locations are prioritized so that safety countermeasures can be incorporated into the design as quickly as possible.
- **Tier 2 (Medium Priority)—** Addresses HIN elements with no TIP overlap and the full range of countermeasures are in consideration for a future project.
- **Tier 3 (Lower Priority)—** Addresses HIN elements with TIP programming where a project is under construction or recently completed. These projects have a lower priority because the safety performance of the improvements that are under construction or recently completed should be evaluated before another project is proposed at these locations.

The phasing timeline for these projects is based on:

- **Short Term—**Anticipated for design and implementation in the next 0 to 5 years.
- **Medium Term—**Anticipated for design and implementation in the next 5 to 10 years.
- **Long Term—**Anticipated for design and implementation in more than 10 years from now.

Some projects may need to be implemented in ordered phases such as:

1. Environmental review
2. Preliminary design
3. Final design
4. Right-of-way acquisition
5. Construction
6. Maintenance

There may be separate funding sources for pre-design activities, design, and construction.

Luzerne County Implementation Plan

Implementation Matrix - Corridor and Intersection Projects

Project Priority Tiers (Priority determined by overlapping TIP project stage)

- Tier 1: TIP project In planning or design
- Tier 2: No overlap/relevant TIP project
- Tier 3: TIP project under construction or recently completed

PROJECT INFORMATION							PROJECT IMPLEMENTATION				
ID	**Project Components (HIN, or, Overlapping)**	**Project Type**	**Project Location**	**From**	**To**	**Municipality**	**Summary of Potential Infrastructure Safety Countermeasures (see details in Section 6.2.1 and Appendices B and C)**	**Priority**	**Potential Funding Sources (see page 78 for legend)**	**Potential Cost Range**	**Timeline**
Urban 1	Overlapping (includes PennDOT Sites 2, 7, 10, and 11)	Segment	Washington Avenue/W 15th Street	West of Rose Street	N Church Street	City of Hazleton	Improved sight distance, clear zone improvements, additional signage, signal modifications, backplates, turn restrictions at driveways	Tier 1	GLG, ARLE, TIP, HSIP, SS4A	$	Mid-term
Urban 2	Overlapping (includes PennDOT Site 14)	Segment	Wilkes-Barre Township Boulevard	South of Casey Avenue	North of Coal Street	City of Wilkes-Barre	Signal modifications, backplates, lighting, sidewalks, pedestrian crossing enhancements	Tier 1	MTF, GLG, ARLE, TIP, DCED, TASA, HSIP, SS4A	$$$	Long-term
Urban 4	HIN	Segment	S River Street	Academy Street	Jackson Street	City of Wilkes-Barre	Improved sight distance, signal modifications, turn restrictions, backplates, pedestrian crossing enhancements, lighting	Tier 1	MTF, GLG, ARLE, TIP, DCED, HSIP, SS4A	$$	Mid-term
Urban 5	HIN	Segment	Broad Street	W Diamond Avenue	S Poplar Street	City of Hazleton	Improved sight distance, clear zone improvements, signal modifications, upgraded pavement markings, lighting, backplates, enhanced pedestrian crossings	Tier 1	M&R, MTF, GLG, ARLE, TIP, DCED, HSIP, SS4A	$$	Mid-term
Urban 6	HIN	Segment	Main Street	Girard Avenue	Chestnut Street	Borough of Plymouth	Improved sight distance, signal modifications, enhanced pedestrian crossings, clear zone improvements	Tier 1	M&R, MTF, GLG, ARLE, TIP, DCED, HSIP, SS4A	$	Mid-term
Urban 8	HIN	Segment	Kidder Street	Schoolhouse Lane	Mundy Street	City of Wilkes-Barre and Wilkes-Barre Township	Speed management, signal modifications, backplates, stop signs at driveways, dynamic/variable speed signs, lighting	Tier 1	GLG, ARLE, TIP, HSIP, SS4A	$$	Long-term
Urban G	HIN	Intersection	N River Street and W North Street	--	--	City of Wilkes-Barre	Signal modifications, pedestrian crossing enhancements, speed limit signs, lighting	Tier 1	GLG, ARLE, TIP, HSIP, SS4A	$$	Mid-term
Rural 1	HIN	Segment	SR 93	Saint Johns Road	North of Sugarloaf Road	Sugarloaf Township	Improved sight distance, advance intersection warning signs, chevron/curve warning signs, edgeline rumble strips, advisory speed placard, lighting	Tier 2	M&R, ARLE, TIP, HSIP	$$	Short-term
Rural 7	HIN	Segment	SR 93	Banks Avenue	I-81	Sugarloaf Township	Improved sight distance, edgeline rumble strips, high-friction surface treatment, retroreflective strips on warning and stop signs, chevron/curve warning signs, install speed placard	Tier 2	M&R, ARLE, TIP, HSIP	$$$	Mid-term
Rural 9	HIN	Segment	Stockton Mountain Road	North of Hazle Brook Road	South of Ashmore Road	Hazle Township	Improved sight distance, additional signage, enhanced curve delineation, reflective pavement markers, dynamic/variable speed signs	Tier 2	M&R, ARLE, TIP, HSIP	$	Mid-term
Rural B	HIN	Intersection	Northbound off-ramp from I-81 to Church Road	--	--	Rice Township	Advance flashing beacons, improved sight distance, lighting, potential roundabout	Tier 2	ARLE, TIP, HSIP	$$$	Long-term

Luzerne County Implementation Plan

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PROJECT INFORMATION							PROJECT IMPLEMENTATION				
ID	**Project Components (HIN, or, Overlapping)**	**Project Type**	**Project Location**	**From**	**To**	**Municipality**	**Summary of Potential Infrastructure Safety Countermeasures (see details in Section 6.2.1 and Appendices B and C)**	**Priority**	**Potential Funding Sources (see page 78 for legend)**	**Potential Cost Range**	**Timeline**
Rural D	HIN	Intersection	SR 309 and Church Road	--	--	Wright Township	Left turn lanes on SR 309, signal modifications, backplates, advance flashing beacons, access management, lighting	Tier 2	M&R, GLG, ARLE, TIP, HSIP	$$$	Long-term
Rural E	HIN	Intersection	SR 118 and SR 29	--	--	Lake Township	Channelizing islands, stop lines, pedestrian crossing enhancements, lighting	Tier 2	M&R, MTF, ARLE, TIP, DCED, TASA, HSIP	$$$	Long-term
Rural F	HIN	Intersection	SR 118 and Idetown Huntsville Road	--	--	Lehman Township	Improved sight distance, stop lines, advance flashing beacons, larger/additional stop signs, lighting	Tier 2	M&R, ARLE, TIP, HSIP	$	Mid-term
Urban 12	HIN	Segment	Market Street	North of Landon Avenue	River Street	Borough of Kingston and City of Wilkes-Barre	Signal modifications, stop signs at unsignalized intersections, backplates, pedestrian crossing enhancements, lighting	Tier 2	MTF, GLG, ARLE, TIP, DCED, TASA, HSIP, SS4A	$$	Mid-term
Urban 13	HIN	Segment	Main Street	South of Chapel Street	Fort Jenkins Bridge	City of Pittston	Clear zone improvements, advance flashing beacons, reflective pavement markers, lighting, speed limit re-evaluation	Tier 2	M&R, ARLE, TIP, HSIP, SS4A	$$	Mid-term
Urban A	HIN	Intersection	SR 93 and Monroe Avenue	--	--	Borough of West Hazleton	Signal modifications, dynamic/variable speed signs, line extensions for left turns, pedestrian crossing enhancements, HFST	Tier 2	M&R, MTF, GLG, ARLE, TIP, DCED, TASA, HSIP, SS4A	$$$	Mid-term
Urban B	HIN	Intersection	Wilkes-Barre Boulevard and Butler Street	--	--	City of Wilkes-Barre	Signal modifications, line extensions for left turns, pedestrian crossing enhancements, speed limit signs	Tier 2	M&R, MTF, GLG, ARLE, TIP, DCED, TASA, HSIP, SS4A	$	Short-term
Urban D	HIN	Intersection	SR 315 and Jumper Road	--	--	Plains Township	Signal modifications, line extensions for left turns, pedestrian crossing enhancements, lighting	Tier 2	M&R, MTF, GLG, ARLE, TIP, DCED, TASA, HSIP, SS4A	$$	Mid-term
Urban E	HIN	Intersection	Southbound on-ramp to SR 309 and Wilkes-Barre Boulevard	--	--	City of Wilkes-Barre	Potential traffic signal, advance flashing beacons, speed limit signs, lighting	Tier 2	GLG, ARLE, TIP, HSIP, SS4A	$$$	Long-term
Urban F	HIN	Intersection	Hazle Street and Pennsylvania Boulevard	--	--	City of Wilkes-Barre	Signal modifications, pedestrian crossing enhancements, speed limit signs	Tier 2	MTF, GLG, ARLE, TIP, DCED, TASA, HSIP, SS4A	$	Short-term
Rural 2	HIN	Segment	SR 115 / Bear Creek Boulevard	Laurelbrook Drive	Meadow Run Road	Bear Creek Township	Edgeline rumble strips, chevrons/curve warning signs, guiderail, advance warning signs, advisory speed placard, dynamic/variable speed signs	Tier 3	M&R, ARLE, TIP, HSIP	$$	Mid-term

Luzerne County Implementation Plan

Implementation Matrix - Corridor and Intersection Projects

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PROJECT INFORMATION							PROJECT IMPLEMENTATION				
ID	**Project Components (HIN, or, Overlapping)**	**Project Type**	**Project Location**	**From**	**To**	**Municipality**	**Summary of Potential Infrastructure Safety Countermeasures (see details in Section 6.2.1 and Appendices B and C)**	**Priority**	**Potential Funding Sources (see page 78 for legend)**	**Potential Cost Range**	**Timeline**
Rural 3	Overlapping (Includes PennDOT Site 13)	Segment	E Northampton Street	Pine Run Road	Lehigh Street	Borough of Laurel Run	Edgeline rumble strips, enhanced curve delineation, guiderail, shoulder pavement improvements, advisory speed placard	Tier 3	M&R, ARLE, TIP, HSIP	$$	Mid-term
Rural 4	HIN	Segment	SR 940/Foster Ave	East of Veterans Road	West of Hillary Drive	Foster Township	Edgeline rumble strips, improved sight distance, flexible delineators, enhanced curve delineation	Tier 3	M&R, ARLE, TIP, HSIP	$	Short-term
Rural 5	HIN	Segment	SR 115 / Buck Boulevard	South of Buck Birch Lane	North of Buck Pine Lane	Buck Township	Chevron/curve warning signs, enhanced curve delineation, improved sight distance, flexible delineators, lighting, advisory speed placard	Tier 3	M&R, ARLE, TIP, HSIP	$$	Mid-term
Rural 6	HIN	Segment	Mountain Road	Weavertown Road and Huntsville Road	North of Warman Street	Borough of Larksville	Chevron/curve warning signs, edgeline rumble strips, advisory speed placard	Tier 3	M&R, ARLE, TIP, HSIP	$	Short-term
Rural 8	HIN	Segment	SR 309	Stredney Road	Country Pines Estates	Dallas Township	Edgeline rumble strips, enhanced curve delineation, reflective pavement markers, dynamic/variable speed signs	Tier 3	M&R, ARLE, TIP, HSIP, SS4A	$	Mid-term
Rural 10	Overlapping (includes PennDOT Site 21)	Segment	SR 92 (Sunset Drive)	North of Rindgen Lane	South of Apple Tree Road	Exeter Township	Advisory speed signs, improved sight distance, edgeline/centerline rumble strips, flexible delineators	Tier 3	M&R, ARLE, TIP, HSIP	$$	Short-term
Urban 3	Overlapping (includes PennDOT Site 6)	Segment	Church Street	W 13rd Street	North of W Juniper Street	City of Hazleton	Improved sight distance, stop signs on minor street approaches, enhanced pedestrian crossings, lighting	Tier 3	MTF, ARLE, TIP, DCED, TASA, HSIP, SS4A	$$	Mid-term
Urban 7	HIN	Segment	Wyoming Avenue	Market Street	E Dorrance Street	Borough of Kingston	Improved sight distance, clear zone improvements, signal modifications, upgraded pavement markings, backplates, enhanced pedestrian crossings	Tier 3	M&R, MTF, GLG, ARLE, TIP, DCED, TASA, HSIP, SS4A	$$	Short-term
Urban 9	HIN	Segment	SR 315	North of Pethick Street	South of Pocono Downs	Plains Township	Signal modifications, advance flashing beacons, stop signs on minor street approaches, enhanced pedestrian crossings	Tier 3	MTF, GLG, ARLE, TIP, DCED, TASA, HSIP, SS4A	$$	Short-term
Urban 10	HIN	Segment	Carey Avenue Bridge	Main Street	East of Plymouth Avenue	Hanover Township and Borough of Larksville	Speed management, clear zone improvements, upgraded pavement markings, backplates, signal modifications, reflective pavement markers	Tier 3	M&R, GLG, ARLE, TIP, HSIP, SS4A	$	Mid-term
Urban 11	HIN	Segment	Airport Beltway	Laurel Mall Drive	Goodwill Industries	Hazle Township	Signal modifications, advance flashing beacons, stop signs on minor street approaches, backplates, enhanced pedestrian crossings, lighting	Tier 3	M&R, MTF, GLG, ARLE, TIP, DCED, TASA, HSIP	$$	Long-term

Luzerne County Implementation Plan

Implementation Matrix - Corridor and Intersection Projects

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PROJECT INFORMATION							PROJECT IMPLEMENTATION				
ID	**Project Components (HIN, or, Overlapping)**	**Project Type**	**Project Location**	**From**	**To**	**Municipality**	**Summary of Potential Infrastructure Safety Countermeasures (see details in Section 6.2.1 and Appendices B and C)**	**Priority**	**Potential Funding Sources (see page 78 for legend)**	**Potential Cost Range**	**Timeline**
N/A	PennDOT Top Site 1	Intersection	Highland Park Blvd / Coal St and Wilkes-Barre Boulevard	--	--	City of Wilkes-Barre	Enhanced pedestrian crossings, signal modifications, line extensions for left turn lanes, advance warning signs (see detailed recommendations in Appendix C)	N/A*	M&R, MTF, ARLE, TIP, DCED, TASA, HSIP, SS4A	$$	Short-term
N/A	PennDOT Top Site 3	Intersection	Church Street and Twenty Third Street	--	--	Hazle Township	Sight distance study, access management, relocated stop lines, enhanced signage, advance warning signs and advisory speed placard, street name signs, pavement markings (see detailed recommendations in Appendix C)	N/A*	M&R, ARLE, TIP, HSIP	$$	Long-term
N/A	PennDOT Top Site 5	Intersection	Church Street and Hazle Township Boulevard/Twenty Eighth Street	--	--	Hazle Township	Backplates, signal modifications and coordination, enhanced pedestrian crossings, upgraded pavement markings (see detailed recommendations in Appendix C)	N/A*	M&R, MTF, GLG, ARLE, TIP, DCED, TASA, HSIP	$$	Mid-term
N/A	PennDOT Top Site 12	Intersection	Blackman Street and Main Street	--	--	City of Wilkes-Barre	Backplates, signal modifications and coordination, traffic control device maintenance, left-turn feasibility study, lane use control signs (see detailed recommendations in Appendix C)	N/A*	M&R, GLG, ARLE, TIP, HSIP, SS4A	$	Mid-term
N/A	PennDOT Top Site 15	Segment	E Main Street	Huff Street	Tamarac Road	City of Wilkes-Barre, Plains Township	Ball-bank studies at curves, wider edge lines and shoulders, curve pavement markings, clear zone improvements, centerline/edgeline rumble strips, lighting, speed management, curve signing (see detailed recommendations in Appendix C)	N/A*	M&R, ARLE, TIP, HSIP, SS4A	$$$	Long-term
N/A	PennDOT Top Site 17	Segment	N Mountain Blvd	Woodlawn Avenue	North of Brown Street	Fairview Township	Ball-bank studies at curves, retroreflective strips on sign posts, oversize warning signs, curve pavement markings, edgeline/centerline rumble strips, high friction surface treatment, wider edgelines, clear zone improvements, delineators, access management, potential exclusive left turn lane at SR 0437, signs and pavement markings at Brown Street left-turn lane (see detailed recommendations in Appendix C)	N/A*	M&R, ARLE, TIP, HSIP	$$$	Long-term
N/A	PennDOT Top Site 19	Segment	Ricci Way / Park Ave	Blackman Street	South Street	City of Wilkes-Barre	Speed management, enhanced pedestrian crossings, backplates, signal modifications and coordination, upgraded signs and pavement markings, edgelines, lighting, removal of conflicting signs, left-turn feasibility study (see detailed recommendations in Appendix C)	N/A*	M&R, MTF, GLG, ARLE, TIP, DCED, TASA, HSIP, SS4A	$$$	Long-term
N/A	PennDOT Top Site 20	Segment	Spring Street	Pine Street	Schoolhouse Lane	City of Wilkes-Barre	Speed management, backplates, signal modifications, upgraded signs and pavement markings (see detailed recommendations in Appendix C)	N/A*	M&R, GLG, ARLE, TIP, HSIP, SS4A	$	Mid-term

Luzerne County Implementation Plan

Implementation Matrix - Corridor and Intersection Projects

Project Priority Tiers (Priority determined by overlapping TIP project stage)

- Tier 1: TIP project In planning or design
- Tier 2: No overlap/relevant TIP project
- Tier 3: TIP project under construction or recently completed

PROJECT INFORMATION							PROJECT IMPLEMENTATION				
ID	**Project Components (HIN, or, Overlapping)**	**Project Type**	**Project Location**	**From**	**To**	**Municipality**	**Summary of Potential Infrastructure Safety Countermeasures (see details in Section 6.2.1 and Appendices B and C)**	**Priority**	**Potential Funding Sources (see page 78 for legend)**	**Potential Cost Range**	**Timeline**
N/A	PennDOT Top Site 22	Segment	Buck Boulevard (SR 0115)	0.46 miles south of Buck Pine Lane	North of Buck River Road	Buck Township	Ball-bank studies at curves, retroreflective strips on sign posts, oversize warning signs, flashing beacons, curve pavement markings, wider edgelines, illuminated chevrons, speed reduction markings, clear zone improvements, centerline rumble strips, delineators, signage improvements (see detailed recommendations in Appendix C)	N/A*	M&R, ARLE, TIP, HSIP	$$	Long-term
N/A	PennDOT Top Site 23	Segment	S Main Street	Countrywood Drive	Vine Street	Hanover Township	Ball-bank studies at curves, curve pavement markings, retroreflective strips on sign posts, wider edgelines, delineators, clear zone improvements, backplates, speed management, signage improvements, feasibility study for left-turn lane at signal (see detailed recommendations in Appendix C)	N/A*	M&R, GLG, ARLE, TIP, HSIP, SS4A	$$	Long-term
N/A	PennDOT Top Site 24	Segment	Berwick–Hazleton Hwy	0.44 miles south of E Hollow Road	0.71 miles west of Old Berwick Highway	Nescopeck Township	Ball-bank studies at curves, retroreflective strips on sign posts, curve pavement markings, wider edgelines, clear zone improvements, delineators, signage improvements, cleaned/regraded ditches and pipes (see detailed recommendations in Appendix C)	N/A*	M&R, ARLE, TIP, HSIP	$$	Long-term

**Priority tiers were not assigned for PennDOT Top Sites.*

Potential funding sources:

M&R: Maintenance and rehabilitation
MTF: PennDOT Multimodal Transportation Fund
GLG: PennDOT Green Light-Go
ARLE: PennDOT Automated Red Light Enforcement
TIP: PennDOT Transportation Improvement Program
DCED: Department of Community and Economic Development Multimodal Transportation Fund
TASA: PennDOT Transportation Alternatives Set-Aside
HSIP: PennDOT Highway Safety Improvement Program
VRU: PennDOT VRU Rule Funding under HSIP
SS4A: Safe Streets and Roads for All implementation

8 CONCLUSION AND NEXT STEPS

8.1 CONCLUSION

There were 170 fatal crashes in Luzerne County during the five-year period from January 2019 through December 2023. The SAP has been developed to make strategic transportation safety investments in Luzerne County to meet the plan goal of reducing fatal and suspected serious injury crashes by 50% by 2035. The SAP is based on the Safe System Approach to address severe crashes, and it includes context specific countermeasures for priority corridors, systemic safety improvements, and non-infrastructure solutions to transform transportation safety culture in Luzerne County.

As noted above, the SAP relies on crash data from January 2019 to December 2023. This crash data has been analyzed to identify trends related to crash types, locations, and conditions. The SAP has been developed in collaboration with the Safety Working Group, which met four times to discuss approaches, results, and recommendations. There were two phases of public outreach, including an online StoryMap, surveys, workshops, community meetings, and popup events.

Recommendations in the SAP are especially focused on the High Injury Network and on locations identified through PennDOT's Highway Safety Network Screening process. This plan recommends making investments in safety countermeasures where key crash-related conditions and patterns exist.

Implementing the SAP will help Luzerne County progress toward its goal of reducing the most severe crashes by 50% by 2035. As outlined in the implementation plan, both infrastructure and non-infrastructure solutions, such as enhancing education around transportation safety, will help Luzerne County reach its goal.

For next steps, partner agencies should:

- Continue consulting with the Safety Working Group, or a subset of that group, through regular meetings and correspondence, adapting attendees, roles, and procedures as appropriate.
- Identify priority projects to begin seeking funding, including for spot specific projects, systemic improvements, and non-infrastructure projects, some of which can be carried out in parallel through different funding pathways.
- Assign project champions, define implementation and collaboration roles, and determine immediate action items.
- Continue to engage community leaders and residents in conversations about transportation safety.
- Continue to engage agency representatives and other key stakeholders at municipalities within the county for potential project impacts and opportunities.
- Solicit support (as needed) to perform additional studies, analyses, and design work.

8.2 UPDATING THE SAFETY ACTION PLAN

Implementing the SAP's recommendations should result in measured decreases in fatal and serious injury crashes. Measuring safety benefits will require reassessing crash data to consider the effectiveness of the SAP and then generating revised programs to meet future identified safety performance needs. Luzerne County should reassess the SAP in three to five years as new crash data becomes available and sufficient time has passed to measure the effectiveness of countermeasure implementation.

Luzerne County
Safety Action Plan

KITTELSON & ASSOCIATES