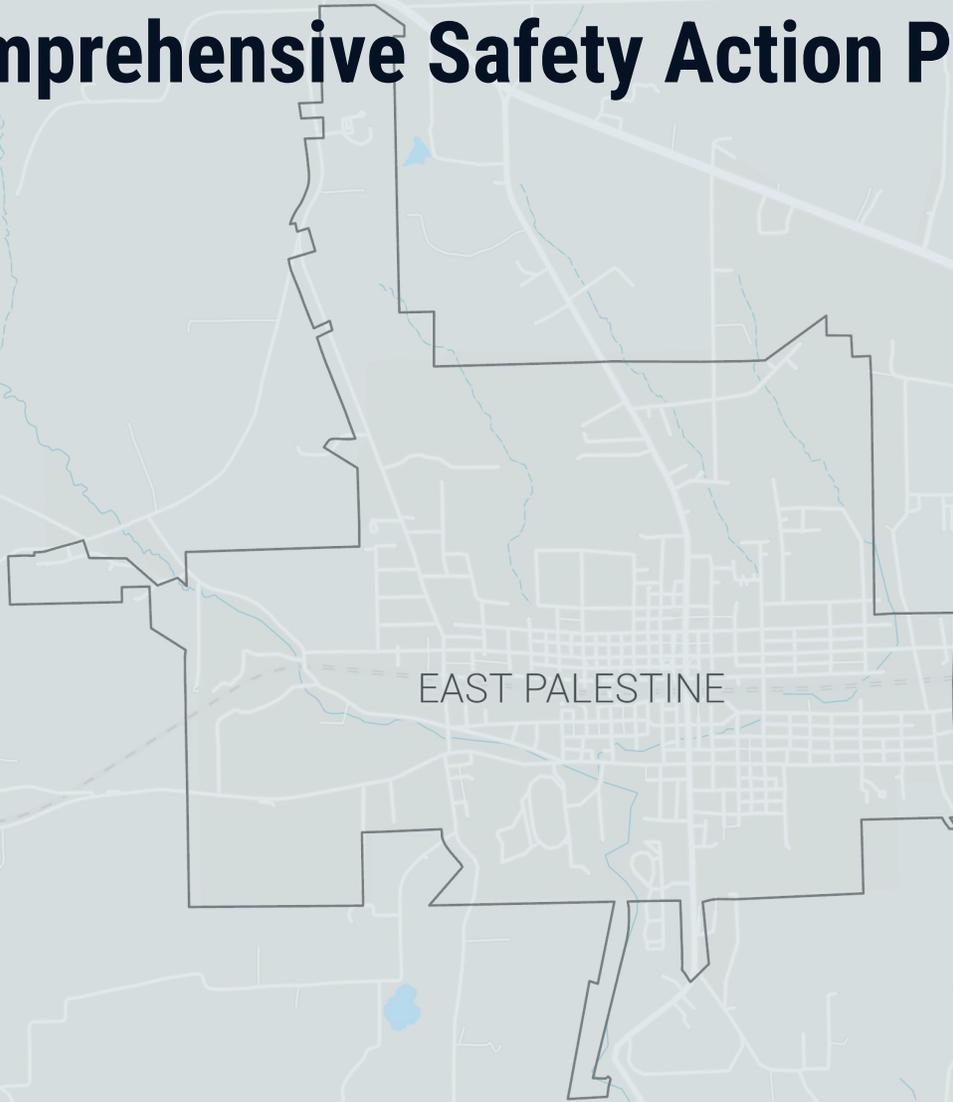




VILLAGE OF
EAST PALESTINE
OHIO

Safe Streets and Roads for All **Comprehensive Safety Action Plan**



Comprehensive Safety Action Plan
Prepared for the Village of East Palestine
January 2026



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EXECUTIVE SUMMARY

The Village of East Palestine Safe Streets and Roads for All (SS4A) Comprehensive Safety Action Plan demonstrates the agency's commitment toward achieving Vision Zero: eliminating all traffic fatalities and severe injuries in East Palestine by 2045. By analyzing historical crash data, identifying and prioritizing safety issues, and strategically developing safety improvement recommendations in line with FHWA Proven Safety Countermeasures, this plan establishes data-driven strategies to enhance roadway safety for all users.

Within the past decade, the Village of East Palestine has witnessed 457 crashes, resulting in one fatality, seven serious injuries, and 86 other injuries. Vehicle crashes make up 97.6% of all crashes and account for 50% of all fatal and serious injury (FSI) crashes. Pedestrian crashes, although comprising only 0.9% of all crashes, represent a disproportionately high 12.5% of FSI crashes, with one fatal crash. Similarly, bicycle crashes, accounting for 1.5% of all crashes, also represent 12.5% of FSI crashes with one serious injury crash. These statistics underscore the urgency of addressing vulnerable road user safety as a central component of our comprehensive safety strategy.

This plan exceeds the minimum requirements as stated by USDOT, integrating robust leadership commitment, a meticulous planning structure, and an exhaustive safety analysis. It identifies high-risk locations through a High-Injury Network and performs systemic safety assessments. The plan incorporates extensive community engagement and ensures that equity considerations are embedded in every aspect of its development. The plan also incorporates a comprehensive public transit review to further identify and resolve transportation safety disparities.

This plan is not just about identifying problems; it provides a clear path to action. It outlines policy and process changes necessary to prioritize safety and suggests comprehensive projects and strategies shaped by the best available evidence and stakeholder input. These include infrastructure enhancements, behavioral interventions, and operational safety measures. Each recommendation is prioritized with clear timeframes, from immediate to long-term implementation, ensuring sustained progress toward reducing roadway fatalities and serious injuries.

Transparency and accountability are cornerstones of this plan. It establishes mechanisms for measuring progress, with annual public reporting to track advancements toward safety goals. By leveraging detailed data analysis and engaging the community, this plan empowers us to build a transportation system that is safe, equitable, and accessible for all. Through collaborative efforts and a commitment to innovative solutions, we are poised to transform the Village of East Palestine into a leader in roadway safety, demonstrating the power of comprehensive planning in saving lives and enhancing the well-being of our communities.

HOW COMMUNITIES CAN USE THIS PLAN

The Village of East Palestine SS4A Comprehensive Safety Action Plan serves as a valuable resource for village administrators and community leaders looking to enhance roadway safety across the region. By providing a detailed analysis of crash data, identifying high-risk areas, and offering evidence-based strategies, this plan empowers the village to develop targeted interventions that address local safety concerns. This plan can be used to prioritize projects, secure funding, and engage stakeholders in efforts to reduce traffic fatalities and serious injuries. By implementing the recommended strategies and utilizing available resources, a safer and more accessible transportation system can exist for all road users. Below are recommendations on how to leverage this plan.

Utilizing the SS4A Comprehensive Safety Action Plan for Roadway Safety Improvements

1. Leverage the High Injury Networks and High-Risk Networks

- **Identify Priority Areas:** Use the High Injury Network and High-Risk Network outlined in the plan to pinpoint areas with high concentrations of fatal and serious injury crashes. Prioritize these locations for safety improvements.
- **Targeted Interventions:** Implement targeted interventions such as enhanced signage, intersection improvements, and pedestrian infrastructure in these areas to address the most critical safety concerns.

2. Implement Proven Safety Countermeasures

- **Adopt FHWA Proven Safety Countermeasures:** Utilize strategies from the Federal Highway Administration's Proven Safety Countermeasures, which includes measures like roundabouts, pedestrian crossing enhancements, and road diets to reduce crash severity and frequency.
- **Traffic Calming Measures:** Implement traffic calming measures such as speed humps, curb extensions, and chicanes to reduce vehicle speeds and improve safety for non-motorized users.

3. Engage in Comprehensive Planning and Data Analysis

- **Data-Driven Decision Making:** Utilize crash data and analysis from the plan to inform decision-making and prioritize projects that will have the greatest impact on safety.
- **Community-Specific Solutions:** Work with local stakeholders and community members to develop solutions tailored to specific needs and challenges identified in the plan.

4. Prioritize Equity in Safety Improvements

- **Addressing Underserved Communities:** Focus on improving safety in underserved communities, as identified in the plan, to ensure equitable distribution of resources and enhancements.

5. Pursue Funding Opportunities

- **SS4A Implementation Grants:** Apply for Safe Streets for All Implementation Grants to fund projects and strategies identified in the Action Plan.
- **State and Federal Funding:** Explore additional funding sources such as State safety improvement programs, federal transportation grants, and partnerships with local businesses and organizations.

Chapter 1

OVERVIEW

- 1.1 The Village of East Palestine
- 1.2 Commitment to Vision Zero
- 1.3 The Purpose of this Action Plan
- 1.4 The Need for Safety Improvements
- 1.5 Planning Structure



1. OVERVIEW

1.1 The Village of East Palestine

East Palestine is a village in northeastern Ohio, situated in Columbiana County near the Pennsylvania border. Covering 3.15 square miles, it is home to approximately 4,671 residents, according to the 2020 US Census. The village features residential neighborhoods, a commercial downtown, a city park, and East Palestine City Schools, which include the high school, middle school, and elementary school. Given its compact size, East Palestine presents strong potential for enhanced walkability and bike connectivity.

Historically, East Palestine developed as an industrial town, with the railroad playing a central role in its growth. Today, the rail line still runs through the heart of the village. In February 2023, a train derailment involving hazardous materials occurred in East Palestine, prompting emergency response and environmental cleanup efforts. Since then, the village has focused on recovery and long-term resilience. The SS4A Comprehensive Safety Action Plan is part of this broader effort to enhance transportation safety, support community well-being, and improve mobility for all users.

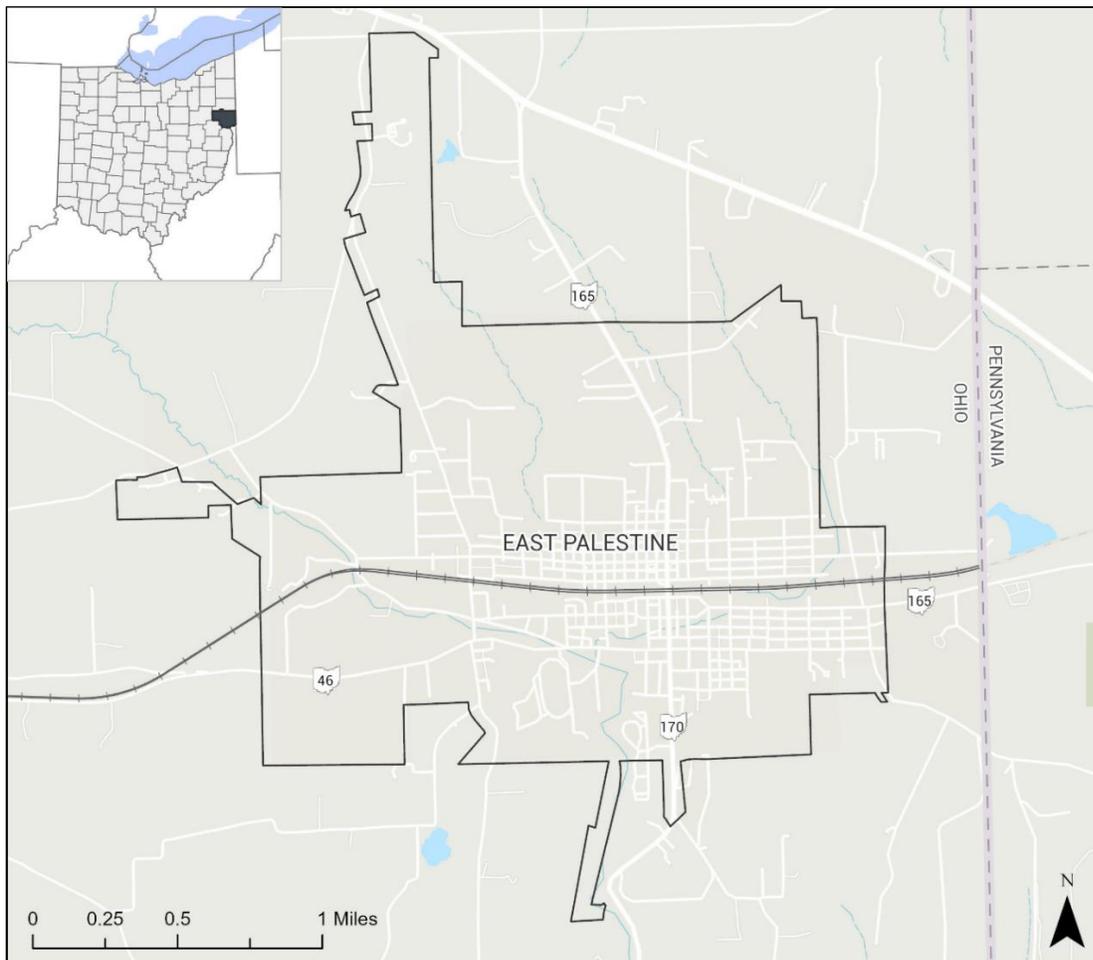


Figure 1: Overview of East Palestine, OH

1.2 Commitment to Vision Zero

As a part of this Action Plan, the Village of East Palestine will adopt a goal of zero traffic fatalities and serious injuries by 2045 and endorses the development, implementation, and monitoring of Vision Zero as a comprehensive and holistic approach to achieving this goal. East Palestine will further commit to:

- Significant time and resources to achieve this goal.
- Continuing to implement and evaluate this Comprehensive Safety Action Plan and Vision Zero and build upon existing education, enforcement, engineering, and policy strategies to reach this goal.
- Regularly reporting and assessing the progress, challenges, and successes of the Vision Zero commitment with current data and measurable metrics.
- Striving to improve the health and well-being of all travelers on East Palestine roads.

This resolution will be discussed in further detail in **Section 10.1 Leadership Commitment**.

Though **Vision Zero** and the **Safe System Approach** are both strategies aimed at eliminating traffic fatalities and serious injuries, they have different origins and focus areas. The relationships and key differences are described below:

Vision Zero

- **Origin:** Vision Zero originated in Sweden in 1997. It is based on the philosophy that no loss of life is acceptable in the transportation system.
- **Goal:** The primary goal of Vision Zero is to eliminate all traffic-related fatalities and severe injuries. It emphasizes that traffic deaths are preventable and focuses on achieving zero fatalities.
- **Approach:** Vision Zero is a people-centered approach that focuses on designing streets and systems that account for human error and vulnerability. It prioritizes safety over speed and convenience.
- **Strategies:** Vision Zero encourages the redesign of roadways to reduce speeds, improve visibility, and create safer environments for pedestrians and cyclists. It emphasizes the importance of collaboration among various stakeholders, including city planners, policymakers, and the public.



Figure 2: Traditional planning approach vs. Vision Zero

Safe System Approach

- **Origin:** The Safe System Approach has its roots in the Netherlands and Australia and has been adopted internationally. It is a comprehensive framework used by the U.S. Department of Transportation (USDOT) and other agencies.
- **Goal:** Similar to Vision Zero, the Safe System Approach aims to reduce traffic fatalities and serious injuries. It focuses on building a transportation system that is forgiving of human mistakes and reduces the risk of severe outcomes.
- **Approach:** The Safe System Approach is broader and encompasses all aspects of the transportation system, including road design, vehicle safety, speed, and road user behavior. It recognizes that human error is inevitable and designs systems to minimize the consequences of those errors. The USDOT encourages communities to use a Safe System Approach to reach Vision Zero.
- **Strategies:** This approach emphasizes five key elements: safe road users, safe vehicles, safe speeds, safe roads, and post-crash care. It integrates these elements to create a cohesive strategy for reducing traffic-related harm.

Through implementation of Proven Safety Countermeasures, transportation agencies can design safer roads that also induce slower driving speeds. Outside of road design, vehicles can also be designed to improve safety through technologically advanced safety features, such as automatic braking, blind-spot sensors, or lane-assist capabilities. By combining improved road design and safer vehicles with an informed public and improved post-crash care, human vulnerability is greatly reduced in anticipation of unpredictable and inevitable human error. As a result, a Safe System approach improves safety for all road users by incorporating change at every level of the transportation system.



Figure 3: FHWA Safe System Approach Principles

Relationships and Differences

- **Shared Goals:** Both Vision Zero and the Safe System Approach share the common goal of eliminating traffic fatalities and serious injuries. They both recognize the need for systemic changes to improve road safety.
- **Focus Areas:** Vision Zero is more focused on urban areas and often emphasizes the role of policy and urban design in improving safety. In contrast, the Safe System Approach takes a more holistic view, considering all aspects of the transportation ecosystem.
- **Implementation:** Vision Zero often involves setting specific targets and timelines for reducing fatalities, while the Safe System Approach provides a framework for continuous improvement in road safety across various domains.

In summary, while Vision Zero and the Safe System Approach share the overarching goal of enhancing road safety, Vision Zero focuses on setting clear targets and policies for urban areas, whereas the Safe System Approach provides a comprehensive framework for building inherently safer transportation systems.

1.3 The Purpose of this Action Plan

The purpose of this Action Plan is to conduct a systemic safety analysis that includes a High Injury Network (HIN), a High Risk Network (HRN), set performance measures for improving all modes of safety throughout the region, and provide policy recommendations for next steps that East Palestine can take in improving safety. After this Action Plan is developed and approved, East Palestine will then be eligible to apply for Safe Streets for All Implementation Grants or other Safety Improvement sources to achieve the recommendations listed in this Action Plan.

1.4 The Need for Safety Improvements

According to crash data obtained from the Ohio Department of Transportation (ODOT) Transportation Information Mapping System (TIMS), between 2015 and 2024, a total of 457 crashes occurred in East Palestine, with seven of these resulting in serious injuries, and one resulting in a fatality. Pedestrian crashes comprise 0.9% of all crashes, but 12.5% of FSI crashes. Similarly, bicycle crashes comprise 1.5% of all crashes, but represent 12.5% of FSI crashes. In the years analyzed, four pedestrian crashes occurred, with one resulting in a fatality, and seven bicycle crashes occurred, with one of these resulting in serious injury. Left Turn crashes were the leading crash type that resulted in fatal and serious injuries, accounting for 25% of FSI crashes.

Each FSI crash represents a preventable tragedy with lasting effects on individuals, families, and the community of East Palestine. As state, federal, regional, and local partners strive to achieve the vision of zero deaths on public roadways, decisive action must be taken to improve transportation safety.

1.5 Planning Structure

The consultant team was led by Environmental Design Group and supported by Envision. The leadership within the Village of East Palestine will proceed with implementation and monitoring the progress of the safety improvements recommended in this Action Plan, with continued assistance from the consultant team.

Chapter 2

PUBLIC ENGAGEMENT

- 2.1 Introduction**
- 2.2 Methodology**
- 2.3 Results**
- 2.4 Conclusion**



2. PUBLIC ENGAGEMENT AND STAKEHOLDER COLLABORATION

2.1 Introduction

Any successful planning process relies on a meaningful level of engagement with the public. This allows for a better understanding of both safety concerns and opportunities that exist to correct them. This Action Plan's process involved several levels of engagement with the Village of East Palestine, the Steering Committee, and the general public. Additionally, an interactive online safety survey was promoted through the Village of East Palestine's website.

2.2 Steering Committee

Throughout the public engagement process, Environmental Design Group worked collaboratively with the Steering Committee to coordinate the location, time, site needs, and invitations for public engagement events. Following the public engagement events, Environmental Design Group reviewed and analyzed any public comments received, with a focus on potential High-Risk Locations.

2.3 Public Engagement

Gathering public opinion was an integral part of this planning effort. Although crash data can provide decision-makers with precise data about what has already happened, it does not convey potential issues, near-misses, and areas of concern. Further, it is not able to provide the necessary information about how and why people are making their transportation decisions. Public engagement, therefore, becomes an important and complementary part of the safety planning process.

The Village of East Palestine website hosted an informative webpage for the Comprehensive Safety Action Plan at the following link: [Village of East Palestine – Comprehensive Safety Action Plan](#). This page included a great deal of information on the need, purpose, and process to create the Action Plan. The site provided a link to an online survey for feedback on existing roadway safety in the village. The Village of East Palestine Facebook Page introduced the Action Plan project and posted a link to the online survey.

Public feedback from East Palestine residents was gathered through an interactive online survey which included a series of mapping questions, allowing users to drop points and leave comments, as well as through several public outreach events in the Fall of 2025. The following events were held:

- East Palestine Varsity Football Game vs. Columbiana (Reid Memorial Stadium), October 17, 2025, 7:00 pm – 10:00 pm
- Displays at Village Hall (85 N Market Street, Ohio 44413), October 20 through 27, 2025

At each event, people who attended the meetings or approached the booths were provided a clipboard with location-specific maps and a marker and prompted to draw and make notes of locations where they experienced unsafe conditions, a crash, a near-miss crash, or other roadway safety issues. Several members of the safety plan team were available to listen and ask for more information about public safety concerns.

At all meetings, a large map of the village and pins were available for participants to physically place a numbered pin and write a note on an adjacent tablet.

The summarized feedback points from online interactive maps are presented in Figure 5 - Figure 9.

A total of 154 responses were collected from the online survey and from public events. Respondents were most concerned about bicycle, pedestrian, and e-scooter/e-bike safety throughout the village, as illustrated in Figure 4 below.

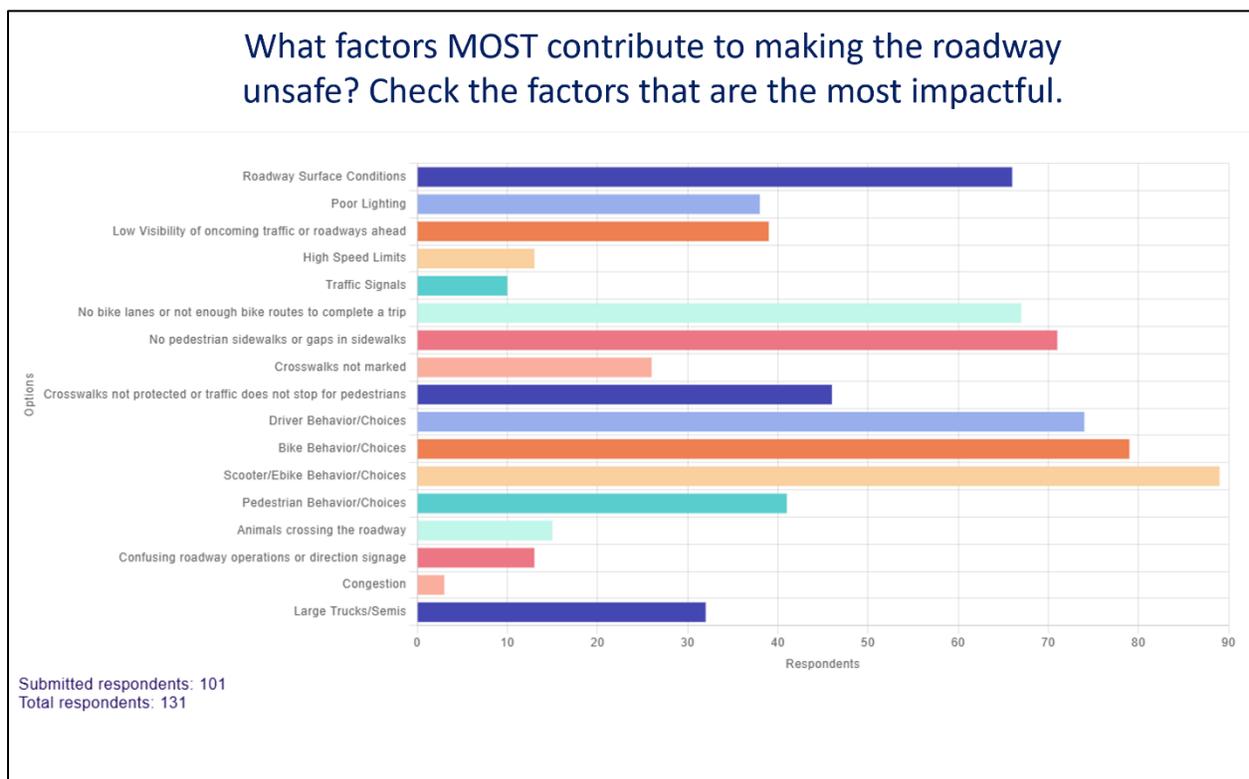


Figure 4: Survey Results East Palestine

In general, respondents most desired to see sidewalk connectivity and maintenance improvements, along with e-scooter/e-bike education throughout the village.

In terms of specific locations for improvements, respondents cited the following locations:

- Main St & Brookdale Ave & Park Ave intersection
- Main Street Corridor – Grant to Garfield
- Taggart St & Rebecca St & Liberty St intersection

The Main St & Brookdale Ave & Park Ave intersection received numerous comments identifying it as a dangerous area, characterized by poor visibility, challenging turns, and confusion due to the convergence of multiple roads and inadequate signage. The intersection also incorporates a multi-use path, and many

residents desired improved crosswalk signage and marking to better define the multi-use path through the intersection.

The Main Street corridor throughout the village center was identified as a location in need of traffic calming and improved traffic safety. Crosswalk and pedestrian enhancements were also desired by respondents. The corridor acts as the transportation center of the village with high volumes of vehicle and pedestrian traffic.

The Taggart St & Rebecca St & Liberty St intersection was identified as a confusing intersection based on a lack of directional signage. Respondents considered the intersection a dangerous intersection with poor visibility.

Below are several unedited comments from the online survey about roadway safety concerns throughout the Village of East Palestine:

- “There are no designated bike lanes in the village. Also, for walkability, sidewalks on side streets are uneven, unkempt or missing.”
- “With so many kids using scooters and e-bikes I think an informative/educational class needs to be given somehow. The kids don’t follow proper rules and it’s scary.”
- “Enforcing speed limits or finding a solution to the increased amount of traffic is vital for road safety in town.”
- “Get the golf carts off the road. They are a hazard. This is not an island. They slow traffic and get in the way. Golf carts on the road are not allowed anywhere else.”
- “Overnight parking is a big issue, especially around the schools.”

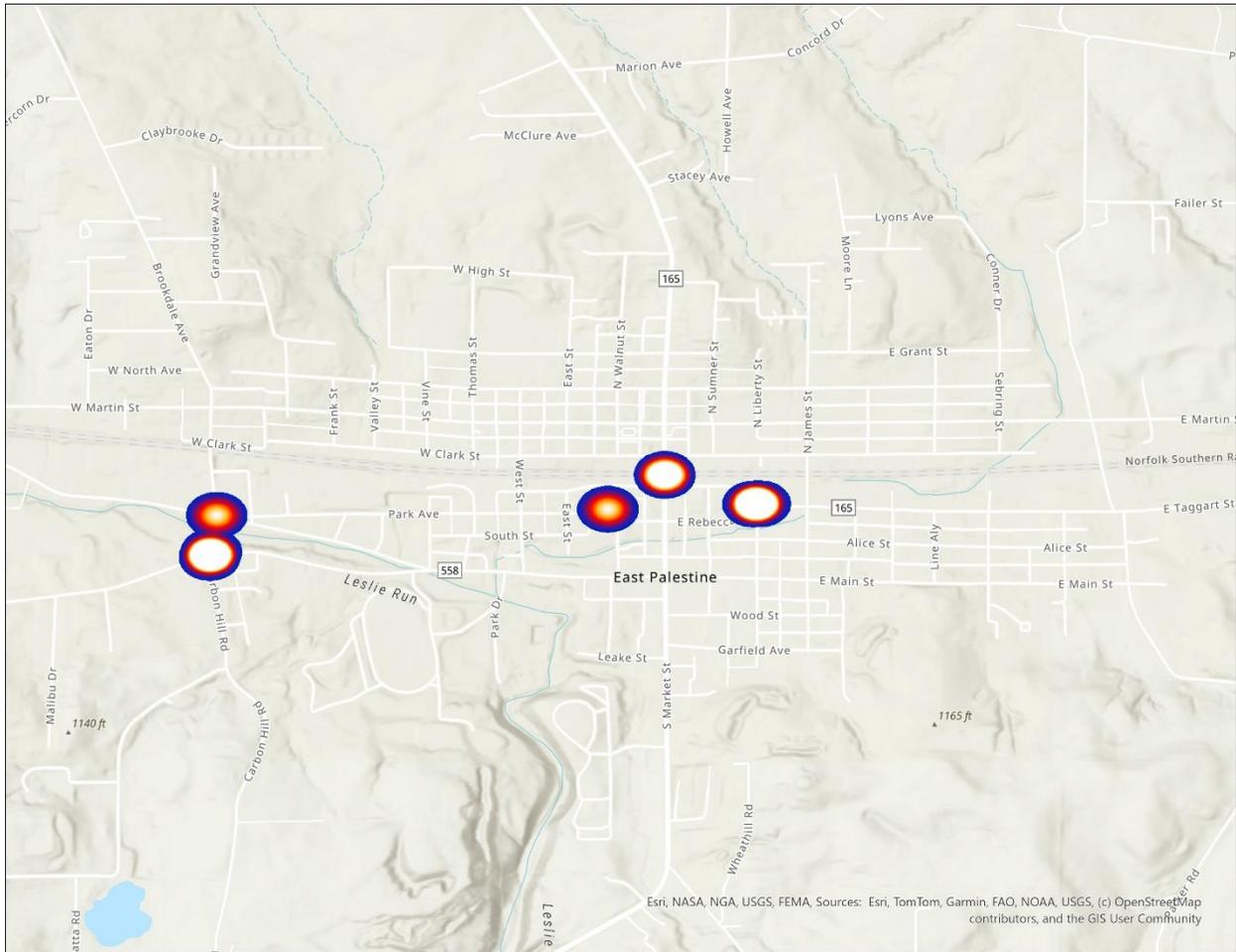


Figure 5: Confusing Roadway Operation or Signage Survey Results

Safe Streets and Roads for All Comprehensive Safety Action Plan

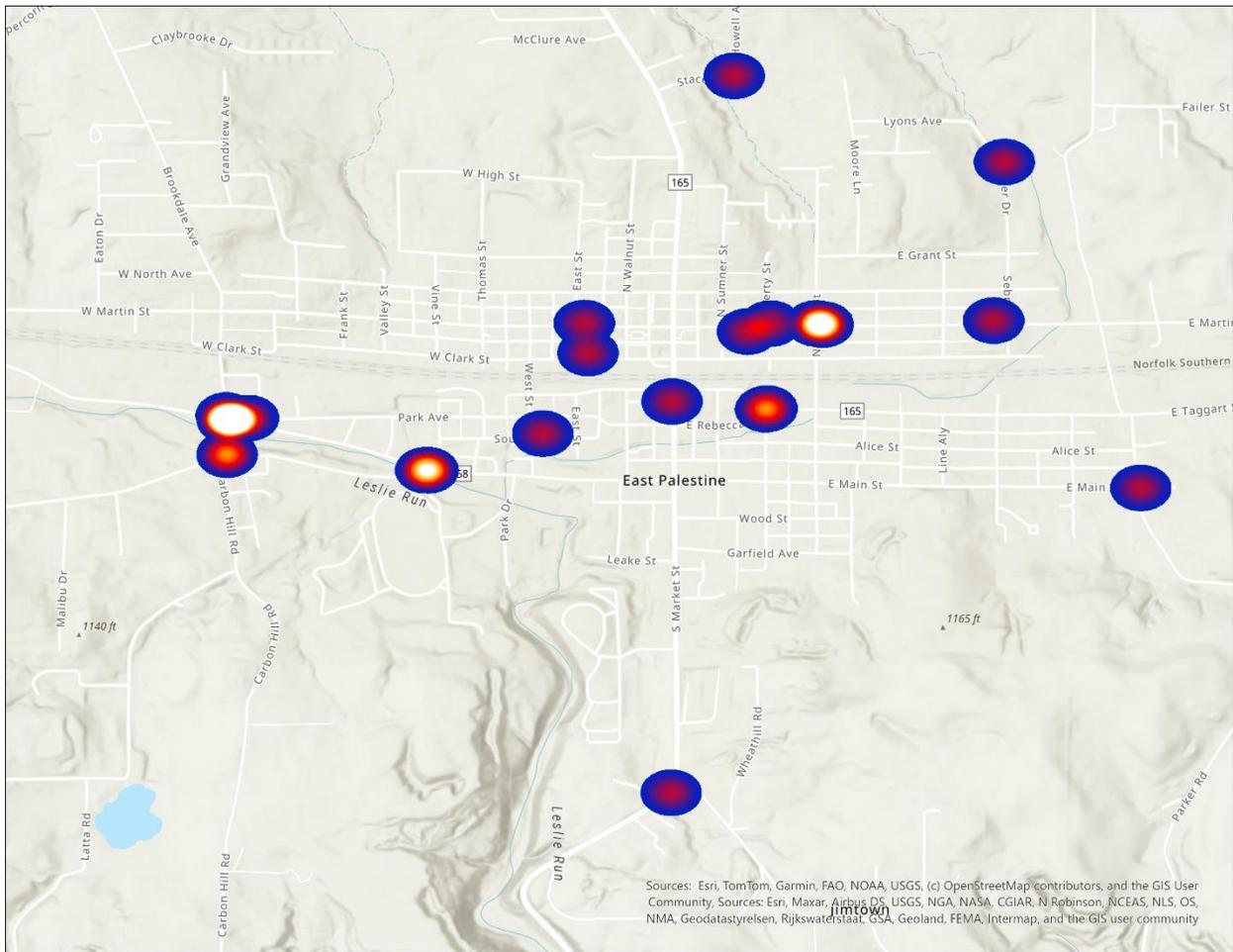


Figure 6: Low Visibility Locations Survey Results

Safe Streets and Roads for All Comprehensive Safety Action Plan

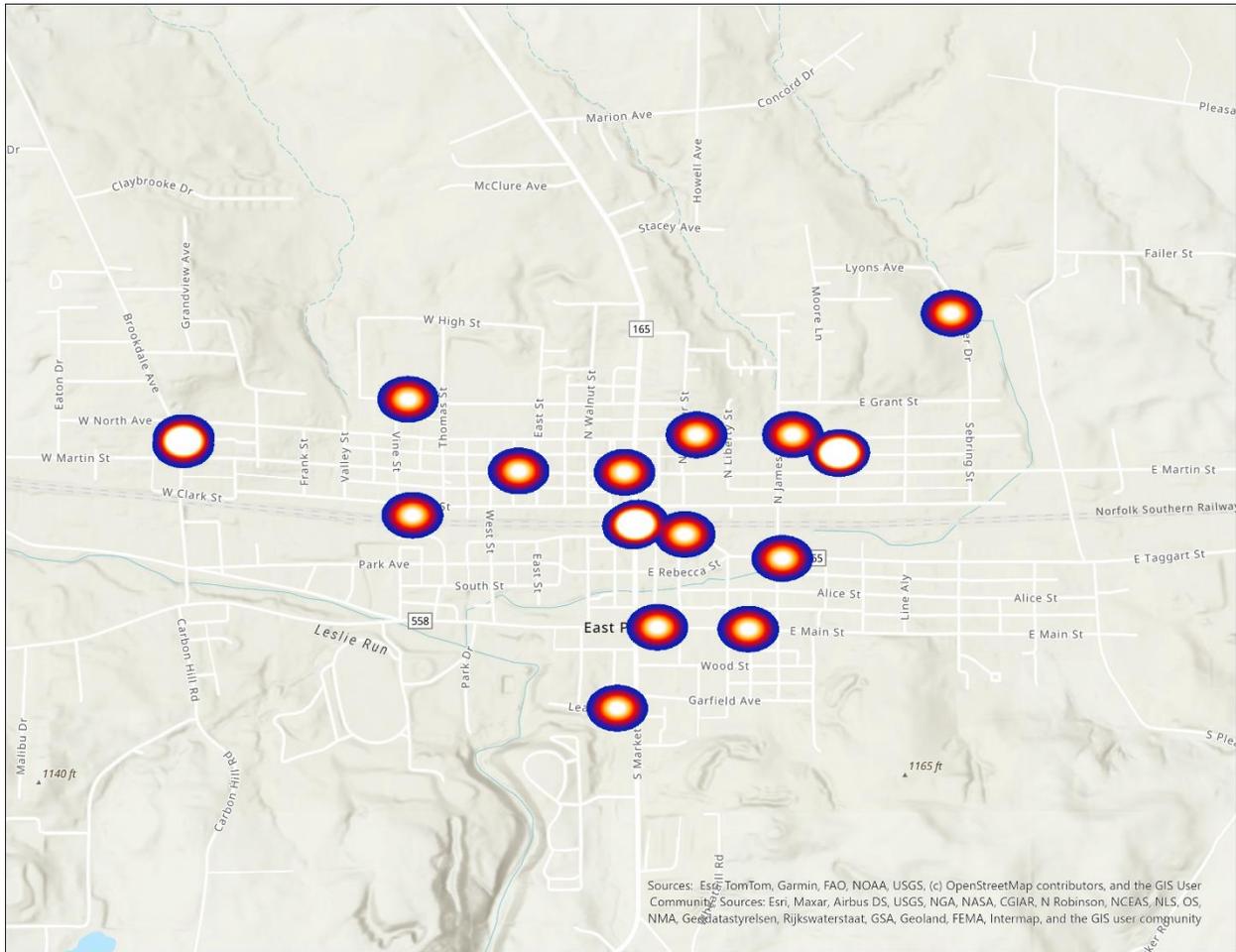


Figure 7: Safety Improvement Locations Survey Results

Safe Streets and Roads for All Comprehensive Safety Action Plan

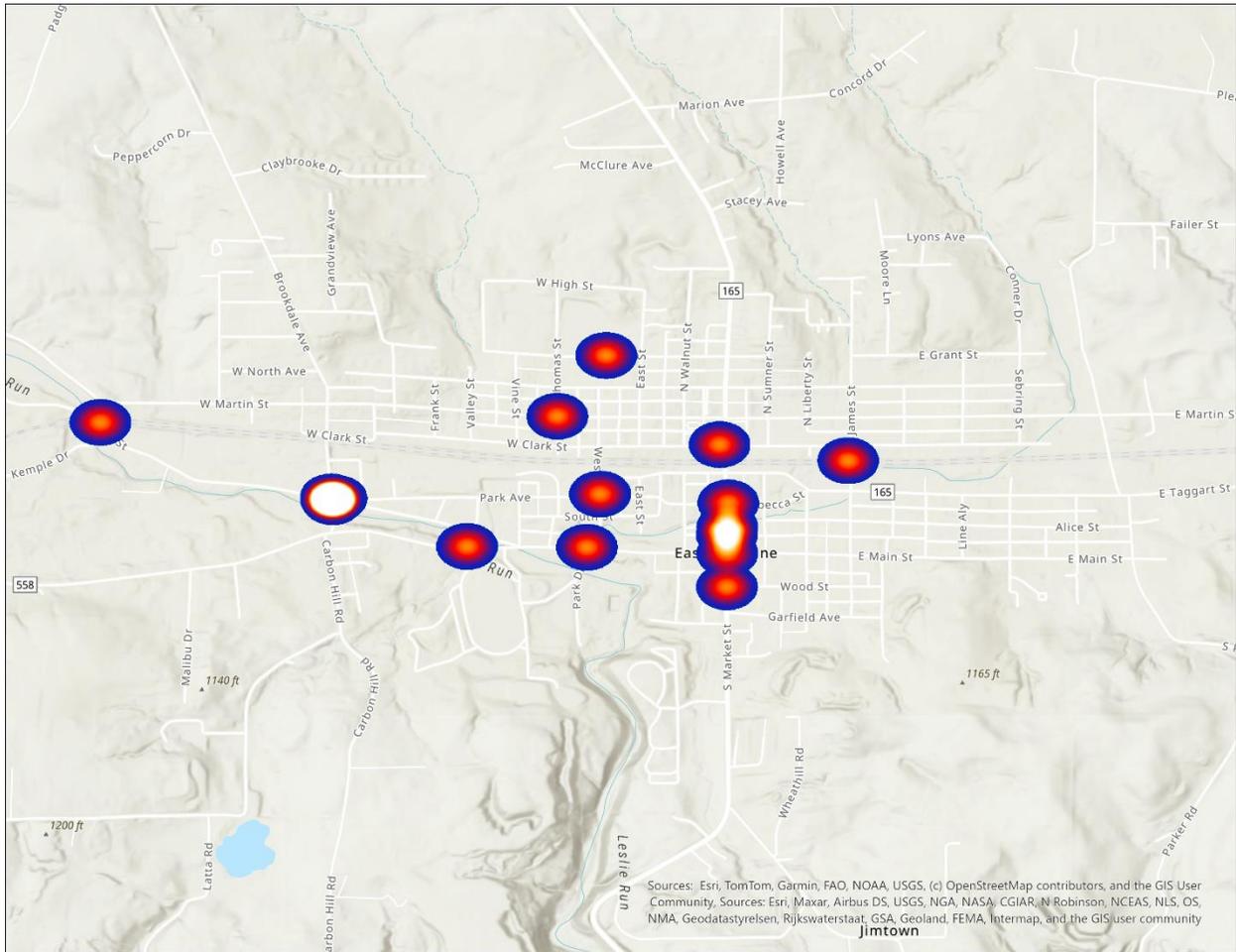


Figure 8: Poor Crosswalk or Pedestrian Facilities Survey Results

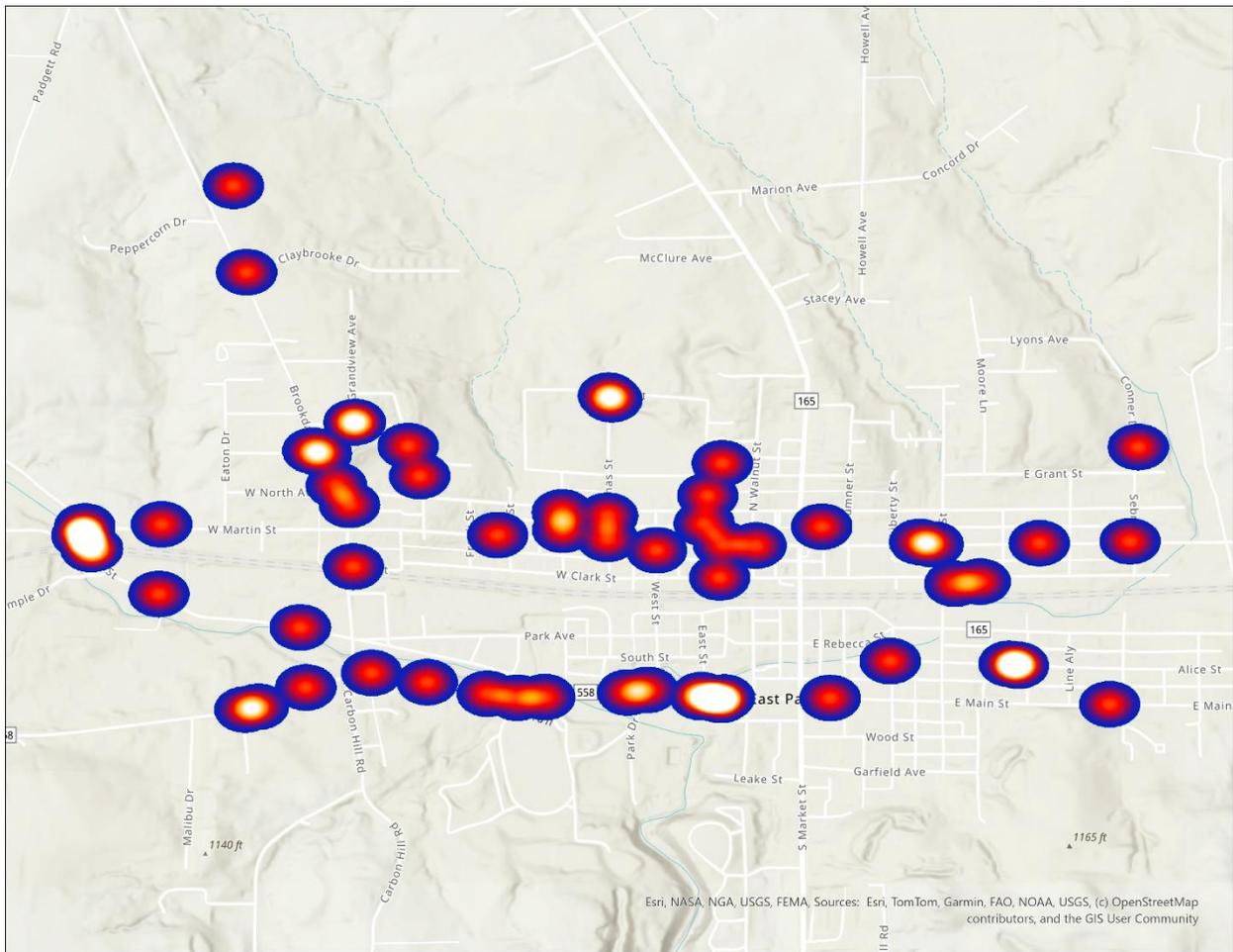


Figure 9: Sidewalk Improvement or Gap Locations Survey Results

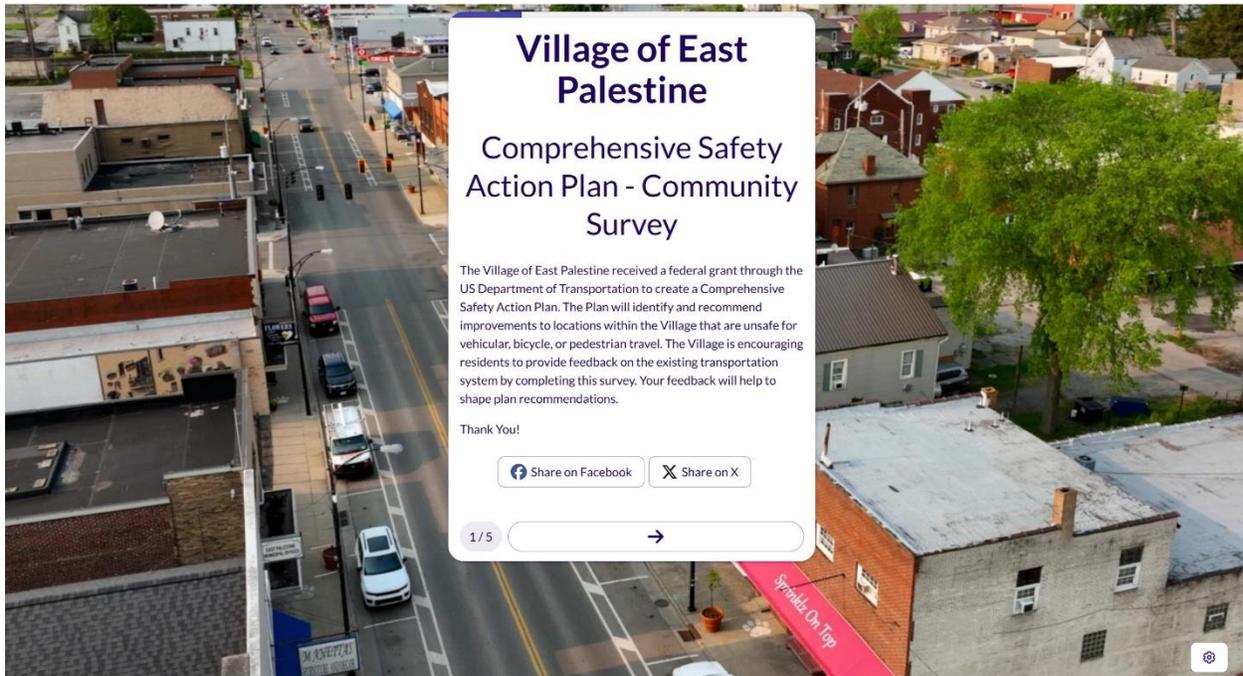


Figure 10: Online Survey East Palestine

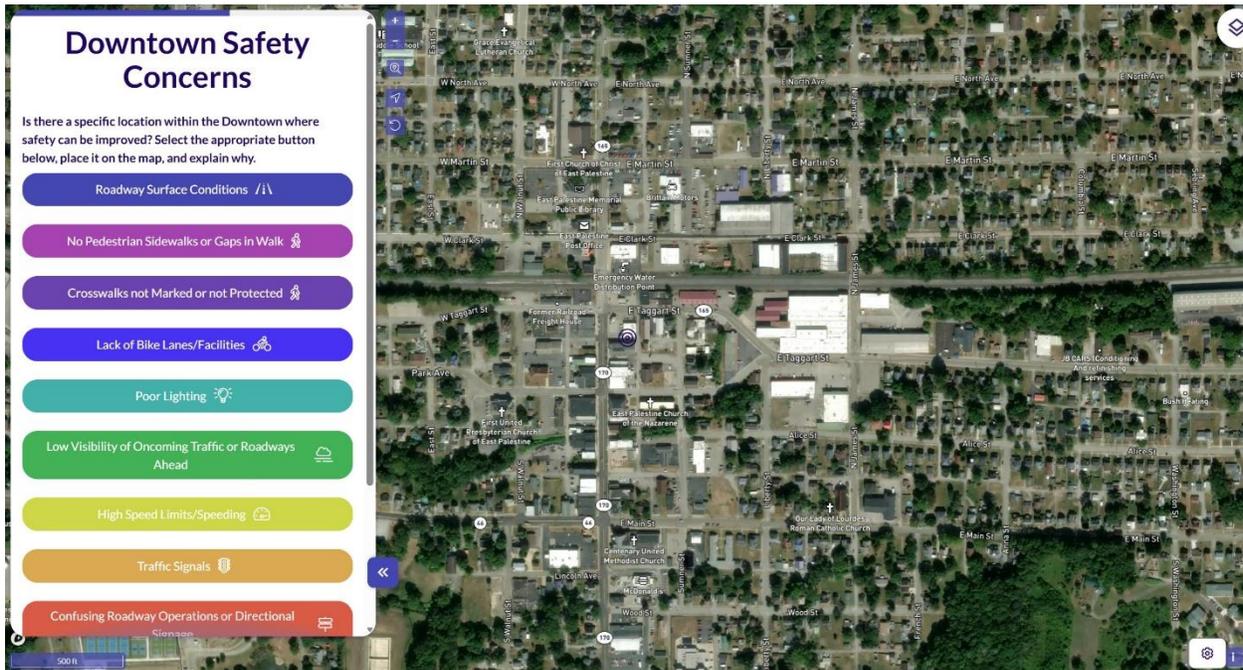


Figure 11: Example of Mapping Question Online Survey

Public Engagement Opportunities

East Palestine - Comprehensive Safety Action Plan Survey

The Village of East Palestine received a federal grant through the US Department of Transportation to create a Comprehensive Safety Action Plan. The Plan will identify and recommend improvements to locations within the Village that are unsafe for vehicular, bicycle, or pedestrian travel. The Village is encouraging residents to provide feedback on the existing transportation system by completing this survey. Your feedback will help to shape plan recommendations. Thank You!

[QUESTIONNAIRE IS NOT ACTIVE](#)



East Palestine Comprehensive Safety Action Plan
Upcoming Public Engagement

The Village is seeking public input to improve roadway safety for all modes of transportation. Please stop by our booth at the following events or take the community survey to provide input.

East Palestine Varsity Football Game vs. Columbiana
Friday, October 17th at 7PM
Reid Memorial Stadium

Take the Community Survey



Figure 12: Promotional Flyers for Public Engagement



Figure 13: East Palestine Varsity Football Game Event Outreach

Chapter 3

EXISTING SAFETY ANALYSIS

- 3.1 Introduction**
- 3.2 Summary of Key Findings**
- 3.3 Crash Analysis Methodology**
- 3.4 Crash Analysis Findings**
- 3.5 Pedestrian Crash Findings**
- 3.6 Bicycle Crash Findings**
- 3.7 Conclusion**



3. EXISTING SAFETY ANALYSIS

3.1 Introduction

A statistical analysis of all reported crashes was performed using data obtained from the American Association of State Highway Transportation Officials (AASHTO) AASHTOWare Safety Software. The results of the analysis are summarized herein. This section identifies crash trends within the Village of East Palestine over a ten-year period from 2015 through 2024. The purpose of this analysis is to provide a data-driven foundation upon which to develop a comprehensive safety action plan that addresses roadway safety challenges in East Palestine. There was a total of 457 reported crashes to analyze.

3.2 Summary of Key Findings

Years of crash data analyzed: 2015-2024

Total number of crashes: 457

Fatalities: 1

Serious injuries: 7

Fatal and serious injuries (FSI): 8

Injury Severity: Of the 457 crashes, 0.2% resulted in fatality, 1.5% resulted in serious injury, 7.4% resulted in minor injury, 5.9% resulted in possible injury, and 84.9% resulted in property damage only (PDO).

Crashes by Mode:

- **Motor Vehicles:** Motor vehicle crashes comprise the overwhelming majority (97.6%) of all crashes. There were 446 crashes that involved one vehicle only or multiple vehicles (vehicle-vehicle) crashes within the years analyzed; 6 of these resulted in a serious injury.
- **Pedestrians:** Crashes involving pedestrians comprise 0.9% of all crashes, and 12.5% of FSI crashes. There were 4 crashes involving pedestrians within the years analyzed; 1 resulted in a fatality.
- **Bicycles:** Bicycle crashes comprise 1.5% of all crashes, and 12.5% of FSI crashes. There were 7 crashes involving bicycles within the years analyzed; 1 of these resulted in serious injury.

Leading FSI Crash Type: Left Turn crashes accounted for two of the FSI crashes. The remaining six FSI crashes include one each of the following types: angle, pedestrian, bicycle, parked vehicle, overturning, and other non-collision.

Leading Crash Type of Total Crashes: Angle crashes account for 23% of the total crashes. Rear End and Backing crashes account for 16% and 15% of the total crashes, respectively.

Leading Crash Dynamics: Crash dynamics provide insight into why crashes occur. Angle crashes occur when the front of one vehicle strikes the side of another vehicle. These typically occur at intersections when a driver fails to yield the right of way. Of the 104 Angle crashes, the leading contributing factors were Failure to Yield (55%) and Ran Red Light (27%). In addition, 44 of the 104 Angle crashes involved a Young Driver (43%), 37 involved an Older Driver (36%), and 9 were Speed Related (9%). The weather was mostly Cloudy (45%) or Clear (38%) and the roads were mostly Dry (69%) and Wet (25%). Most Angle crashes occurred during Daylight

(86%), followed by Dark-Lighted Roadway (14%). Most of the Angle crashes occurred on Straight-Level roadways (89%).

Leading Contributing Factors: Contributing factors are variables that contribute to a crash. Failure to Yield is the leading Contributing Factor in the total 457 crashes. There were 95 Failure to Yield crashes accounting for 21% of the total crashes. The second and third contributing factors were Other Improper Action (18%) and Following Too Closely/ACDA (17%). In examining the Other Improper Action crashes, it was discovered that 36 of those involved side-swiping a parked vehicle.

Safety Emphasis Area Crashes: The Ohio Department of Transportation (ODOT) has identified 16 Emphasis Areas in the State Highway Safety Plan (SHSP) to focus the state's transportation safety improvement efforts on. In the Village of East Palestine, the top four leading Emphasis Areas are as follows: Intersection crashes (52%), Young Driver Involvement (34%), Older Driver Involvement (27%), and Roadway Departure (25%).

Roadway Characteristics: Slightly less than half of all crashes did not occur at intersections (47%). Four-Way intersections accounted for 33% of crashes and T-Intersections accounted for 10% of crashes. A majority of crashes occurred on the Major Collector Roads (67%) and the rest were on the Local roads (32%). Most crashes occurred on Straight Level Contour (79%), followed by Straight with Grade (14%).

Posted Speed Limits for Crashes: Because the study limit is the Village of East Palestine, most crashes occur within posted speed limits of 25 MPH (63%) and 35 MPH (16%).

Environmental Characteristics: The majority of crashes occurred during Clear (50%) and Cloudy (37%) conditions and on Dry (75%) or Wet (17%) road surfaces. Most crashes occurred during Daylight (76%) or Dark - Lighted Roadway (15%). The highest number of crashes occurred during the hour of 3:00 PM - 4:00 PM, accounting for 12% of all crashes. Hourly crash rates peaked between 9:00 AM and 11:00 AM with 25 crashes each hour, between 12:00 PM and 1:00 PM with 38 crashes, between 3:00 PM and 4:00 PM with 53 crashes, and between 6:00 PM and 7:00 PM with 36 crashes. 82% of all crashes occurred between 8:00 AM and 8:00 PM. Crash frequency ranged from 34 to 77 crashes per day of week, with Sundays hosting 34 crashes and Wednesdays and Thursdays each hosting 77 crashes. When excluding Sundays as an outlier, crash frequency ranged from 63 to 77 crashes per day of week, making each day relatively similar in crash frequency. Total crashes by month range from 32 to 45 crashes, with June being the highest at 45 crashes. September and April each had 32 crashes.

3.3 Crash Analysis Methodology

The methodology for conducting a comprehensive crash analysis included gathering, organizing, analyzing, and interpreting data from various sources including, but not limited to, crash reports and roadway characteristics. A set of summary tables and charts were created to depict the connections among crash data, roadway features, and contextual factors within the Village of East Palestine. These statistics provide valuable insight into overarching trends and patterns in crashes, aiding in the identification of variables meriting further investigation, the development of new roadway safety programs, policy adjustments, or the implementation of safety measures for future projects.

Crash Data Overview

Police officers complete the Ohio OH-1 Crash Report Form when investigating a roadway crash. The Report Form prompts responding officers to document information about the involved parties, location, crash factors, and vehicle types involved in the crash. Crash data was obtained for the most recent 10 years from 2015 through 2024 for the Village of East Palestine. This data was used for the descriptive analysis in this report.

Data Sources

Data for this analysis was obtained from the American Association of State Highway Transportation Officials (AASHTO) AASHTOWare Safety Software.

Study Limitations

Temporal Consistency Limitations

Crash and roadway data were analyzed for the years 2015-2024. Current conditions were reflected at the time the data was compiled. However, temporal consistency limitations could arise from changes in roadway conditions, traffic patterns, speed limits, and environmental conditions throughout the data period that might affect the occurrence and characteristics of crashes. These limitations may impact the comparison of data from different time periods or attribute observed changes solely to specific factors. However, it is anticipated that temporal changes will have a negligible impact on this comprehensive analysis of crash data.

Exposure Data

This report does not adjust data for roadway exposure rates. The data presented shows crash density but does not account for frequency or volumes of vehicles, pedestrians, or bicycles at a given location. For example, if a significant number of crashes were reported on a busy arterial, but that arterial receives significantly more traffic than a local road, then the frequency of traffic may account for the higher number of crashes as opposed to potentially dangerous roadway traits (such as limited sight distance, poor lighting, or uneven road surfaces).

3.4 Crash Analysis Findings

Fatal and Serious Injury Crashes

During the study years of 2015-2024, there were eight Fatal and Serious Injury (FSI) crashes: one fatal crash and seven serious injury crashes. Figure 14 shows the FSI crashes for each study year.

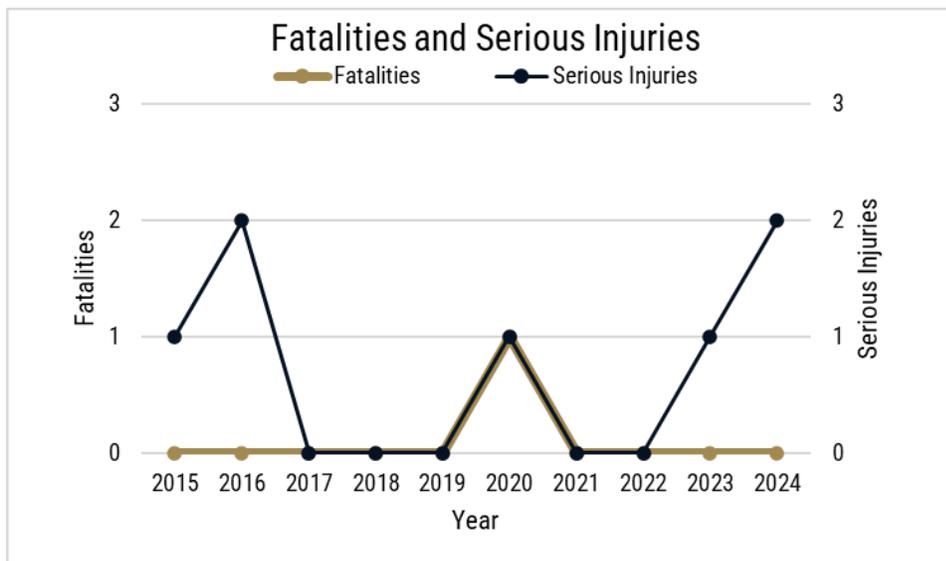


Figure 14. FSI Crashes by Year

Crashes by Year

The number of crashes per year increased significantly from 2015 to 2017, peaking with 59 crashes per year, but had an overall decrease in the following years. Crash frequency in 2021 was significantly lower than the other years with 26 crashes. This is likely due to the reduction in travel while COVID-19 policies were in place. Annual crash frequency rose again in 2022 to 45 crashes and remained relatively steady through 2024. Figure 15 illustrates the total number of crashes per year. This chart also includes the number of FSI crashes per year and indicates that there was not an overall increase or decrease in FSI crashes over the ten-year time period.

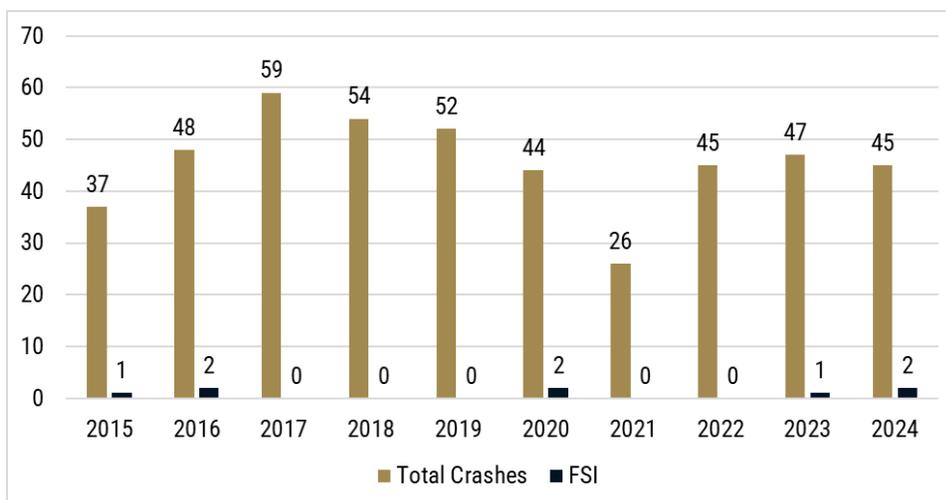


Figure 15. Total Crashes by Year 2015-2024

Crashes by Mode

Vehicle-Vehicle crashes were the leading mode, with 382 crashes and accounting for 84% of total crashes. Four of these Vehicle-Vehicle crashes resulted in serious injury, accounting for 50% of the FSI crashes.

Alternatively, Pedestrian-Vehicle and Bicycle-Vehicle accounted for 1% and 2% of total crashes, respectively. However, each of these modes accounted for 13% of FSI crashes. Table 1 provides data for all Mode types.

Table 1. Crashes by Mode

Mode	Total Crashes	Total Crashes%	FSI	FSI%
Vehicle - Vehicle	382	84%	4	50%
One Vehicle Only	64	14%	2	25%
Pedestrian - Vehicle	4	1%	1	13%
Bicycle - Vehicle	7	2%	1	13%
Total	457	100%	8	100%

Crash Causation

Leading Crash Types

Angle crashes were the leading crash type, being 23% of the total crashes. Rear End and Backing crashes were the second and third leading crash type, resulting in 16% and 15% of the total crashes, respectively. Table 2 lists all crash types by total crashes and FSI crashes.

Table 2. Crashes by Type

Error! Reference source not found. Table 3 provides the breakdown of severity among each crash type. There was one fatal crash, which involved a pedestrian. Left Turn crashes accounted for the highest frequency of serious injury crashes with two crashes. Angle crashes are the leading crash type among Minor Injury, Injury Possible, and No Injury/Property Damage Only.

Table 3. Crash Type by Severity

Total Crashes	Injury Level					Grand Total
Crash Type	(1) Fatal	(2) Serious Injury S	(3) Minor Injury Sus	(4) Injury Possible	(5) PDO/No Injury	
Angle	0	1	12	10	81	104
Rear End	0	0	1	8	68	77
Parked Vehicle	0	1	3	0	71	75
Backing	0	0	0	0	68	68
Fixed Object	0	0	4	2	31	37
Left Turn	0	2	2	1	20	25
Right Turn	0	0	0	3	13	16
Head On	0	0	4	0	10	14
Other Non-Collision	0	1	1	1	11	14
Sideswipe - Passing	0	0	1	0	11	12
Pedalcycles	0	1	3	1	2	7
Pedestrian	1	0	3	0	0	4
Overturning	0	1	0	1	0	2
Train	0	0	0	0	1	1
Other Object	0	0	0	0	1	1
Grand Total	1	7	34	27	388	457

Leading Contributing Factors

Failure to yield was the contributing factor in 95 crashes, accounting for 20.8% of total crashes. The second highest contributing factor was Following Too Closely/ACDA with 77 crashes (16.8%). The next leading contributing factor was Other Improper Action. An officer will select this entry in unique circumstances in which there isn't a common factor listed to choose from. Because this category is listed as the third highest contributing factor, with 74 crashes and accounting for 16.2% of total crashes, those crashes were examined closer to determine any patterns within the category. Within the category, 36 crashes involved a moving vehicle striking a parked vehicle in the same direction and 11 slid on ice/snow. Striking a parked vehicle in not a contributing factor, it is the result of a contributing factor. In these cases, the contributing factor is still considered Other Improper Action and the Parked Vehicle crashes are accounted for in Crash Type. Improper Backing accounted for 62 crashes and 13.6% of total crashes. Figure 16 depicts total crash frequency and FSI crash frequency according to contributing factor. Note that Failure to Yield is the leading contributing factor for both all crash types and FSI crashes.

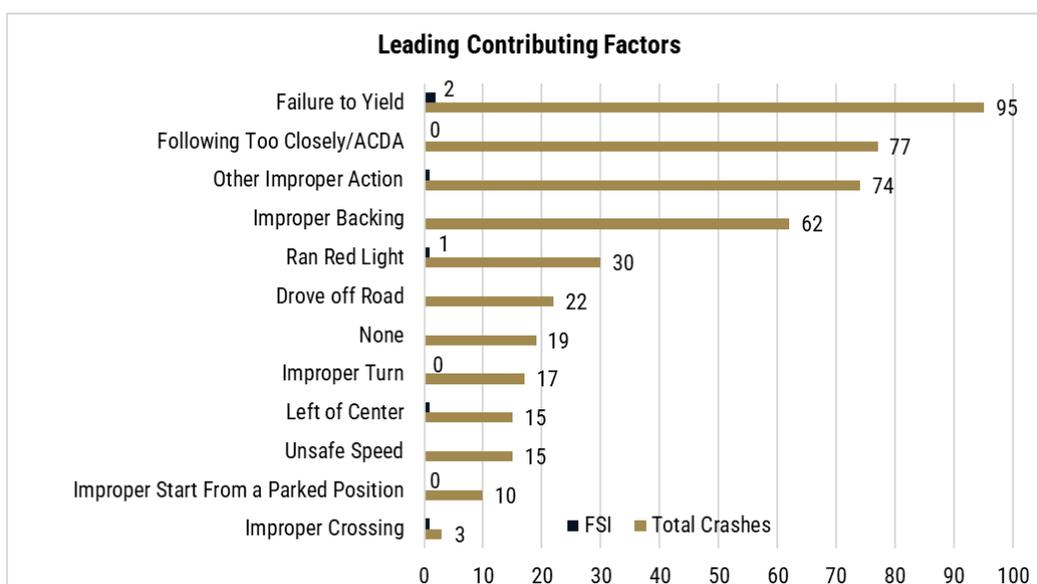


Figure 16. Contributing Factors in Total and FSI Crashes

Crashes by Safety Emphasis Areas

The Ohio Department of Transportation (ODOT) has identified 16 emphasis areas in the State Highway Safety Plan (SHSP) on which to focus the state's transportation safety improvement efforts. Six of these emphasis areas are considered behavior-related, and include road-departure, youth (under 25 years old), speeding, senior (65 years old and older), impairment (drugs or alcohol), and distracted driving. When officers complete the crash data form, they may check all that apply. Table 4 depicts factors related to the total crashes. Intersection related crashes account for 52% of total crashes. This would correlate to the Angle crashes and Failure to Yield contributing factor. Young Driver Involvement, those who are aged 15-25 years, and Older Driver Involvement, those who are aged 65 and older, are involved in 34% and 27% of crashes, respectively. Roadway Departure occurred in 25% of total crashes.

Table 4. Crashes by Emphasis Areas

OHIO SHSP EMPHASIS AREAS	Total Crashes	% of Total Crashes
Total Crashes	457	
Intersection	239	52%
Young Driver Involvement (15-25)	155	34%
Older Driver Involvement (65+)	124	27%
Roadway Departure	114	25%
Rear End	75	16%
Speed Related Involvement	40	9%
Distracted Drivers	21	5%
Alcohol Related Involvement	14	3%
Restraints Not Used Driver/Occupants	12	3%
Motorcycle Driver/Passenger	12	3%
Bicycle Involvement	7	2%
Pedestrian Involvement	4	1%
Drug Related Involvement	2	0%
Railroad Crossing	1	0%
Work Zone Related	0	0%
Marijuana Involvement	0	0%

Roadway Characteristics

Crash Location (Intersection vs. Mid-Block)

Figure 17 depicts crashes by location. Crashes that did not occur at an intersection accounted for 47% of total crashes. Crashes that occurred at a four-way intersection and a T-intersection accounted for 33% and 10%, respectively.

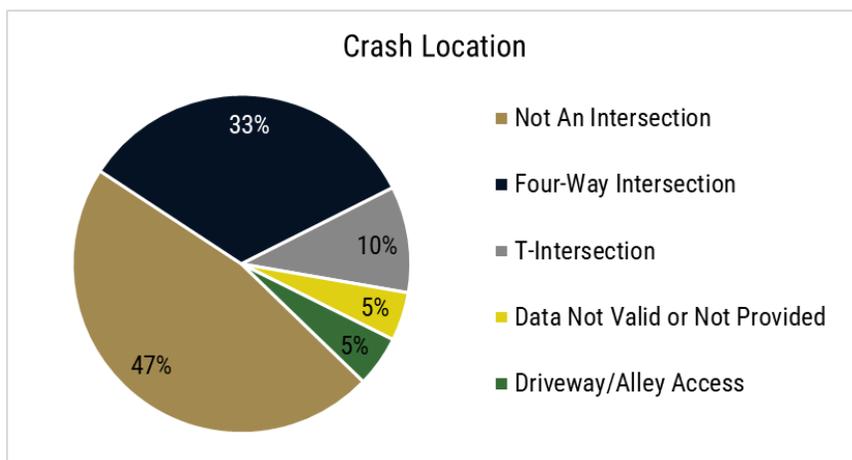


Figure 17. Crash Location

Crashes by Highway Functional Classification

The study area includes the Village of East Palestine in which most streets are considered Major Collectors or Local Roads. Some unlabeled classes may have been on private property or undetermined. Most crashes occurred on the more traveled streets of the Major Collector Roads (67%) and some crashes occurred on the Local Roads (32%). Table 5 provides data for the Functional Class of the crashes and is broken down by crash severity.

Table 5. Crashes by Functional Class

Functional Class	Fatal	Serious Inj	Minor Injur	Injury Pos	PDO/No Inj	Grand Total
	0	0	1	1	4	6
Local Roads	0	0	14	5	127	146
Major Collector Roads	1	7	19	21	257	305
Grand Total	1	7	34	27	388	457

Crashes by Roadway Jurisdiction

There are State Routes located in the center of the Village. State Route 165/170 runs north-south and is named Market Street within the Village. State Route 165 runs east-west on the east side of Market Street and is named Taggart Street within the Village. State Route 46 runs east-west on the west side of the Village and terminates at Market Street. A section from Everett Street to Market Street is named Main Street and to the west of Everett Street it is named Bacon Avenue. Much of the state routes within the Village are lined with commercial and community uses and on-street parking. Half of all crashes occur on the state routes and 39% occur on municipality streets. Table 6 breaks down the total and FSI crashes by jurisdictions.

Table 6. Crashes by Jurisdiction

Jurisdiction	Fatal	Serious Inj	Minor Injur	Injury Pos	PDO/No Inj	Grand Total
County	0	0	3	0	39	42
Municipality	1	1	12	9	157	180
State	0	6	18	18	187	229
Township	0	0	1	0	5	6
Grand Total	1	7	34	27	388	457

Crashes by Posted Speed Limit

Within the Village, most of the state route speed limits are reduced to 25 MPH and 35 MPH. Local streets would have a default speed limit of 25 MPH and alleys would have a default speed limit of 15 MPH. Most of the crashes occurred in 25 MPH and 35 MPH zones with 63% and 16%, respectively. Table 7 breaks down the total crashes by posted speed limit.

Table 7. Crashes by Posted Speed Limit

Unit 1 Posted Speed	Crashes	%
0	76	16.63%
5	2	0.44%
15	8	1.75%
25	288	63.02%
35	75	16.41%
45	2	0.44%
55	6	1.31%

Environmental Characteristics

Crashes by Month of Year

The number of total crashes by month ranges from 32 to 45 crashes, with June hosting 45 crashes while September and April each hosted 32 crashes. Figure 18 depicts the distribution of crashes by month.

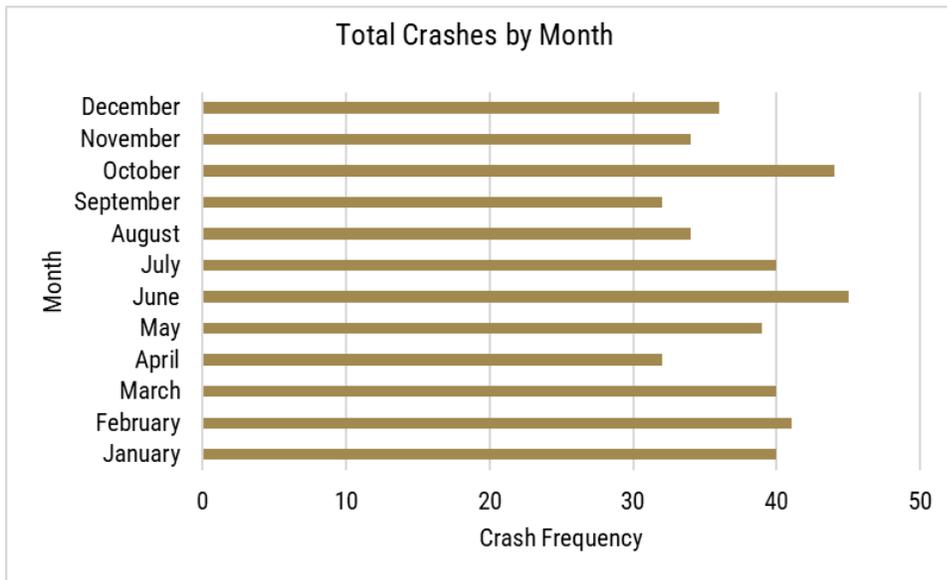


Figure 18. Crashes by Month

Crashes by Day of Week and Time of Day

Crash frequency ranged from 34 to 77 crashes per day of week, with Sundays hosting 34 crashes and Wednesdays and Thursdays hosting 77 crashes. When excluding Sundays as an outlier, crash frequency ranged from 63 to 77 crashes per day of week, making each day relatively similar in crash frequency. Figure 19 provides an illustration of the crashes by day of the week.

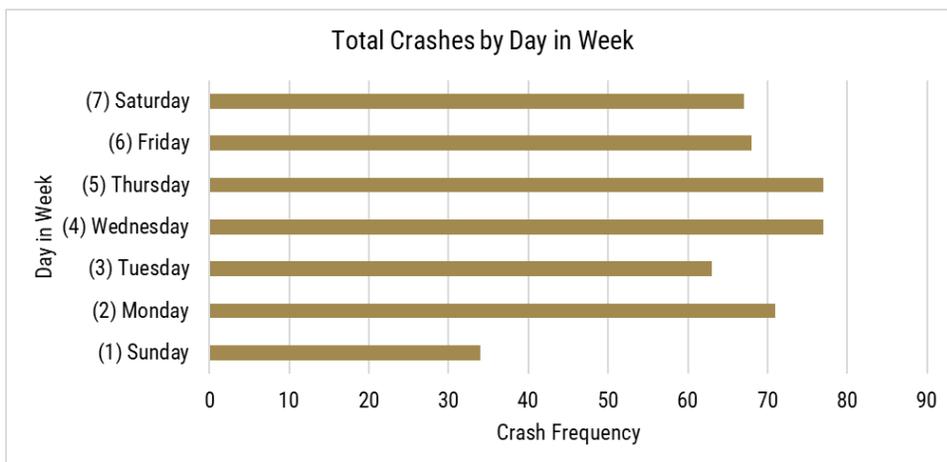


Figure 19. Crashes by Day of the Week

The highest number of crashes occurred during the hour of 3:00 PM – 4:00 PM. Additional peak hours include 12:00 PM – 1:00 PM (38 total crashes), 9:00 AM – 11:00 AM (25 total crashes each hour), and 6:00 PM – 7:00 PM (36 total crashes). Figure 20 illustrates the fluctuation in crash frequency throughout the day.

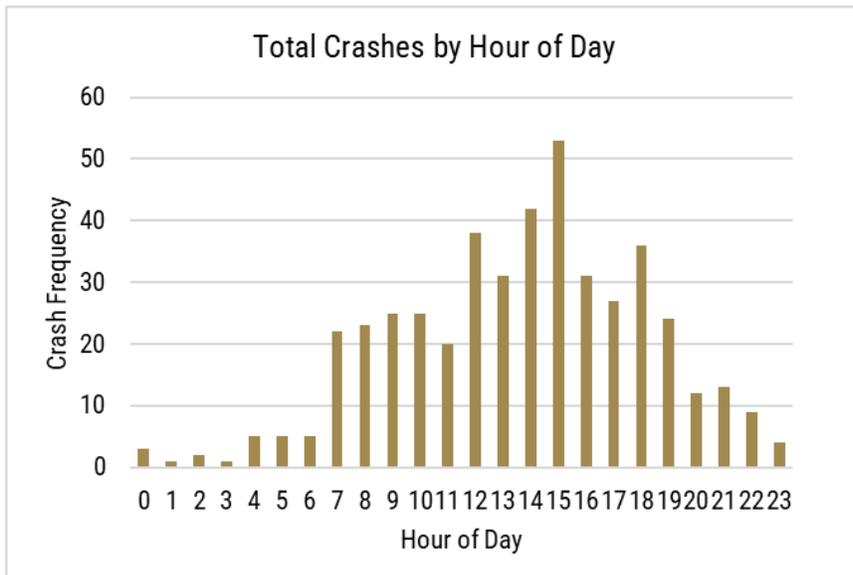


Figure 20. Crashes by Hour of the Day

Crashes by Weather Condition

Figure 21 depicts crashes by weather conditions. Half of the total crashes (50%) occurred under Clear weather conditions, followed by 37% of crashes occurring during Cloudy conditions.

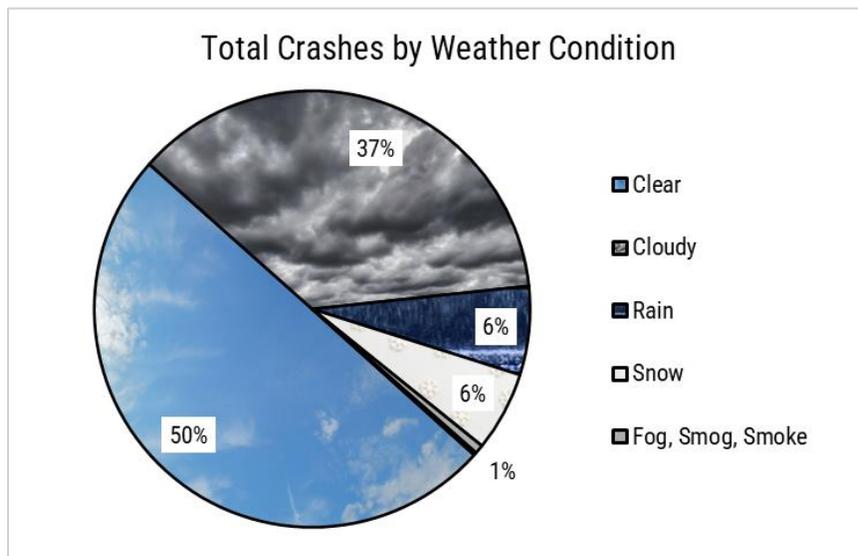


Figure 21. Crashes by Weather Condition

Crashes by Lighting Condition

Figure 22 depicts crashes by light conditions. The majority (76%) of crashes occurred during Daylight conditions, followed by Dark – Lighted Roadway with 15%.

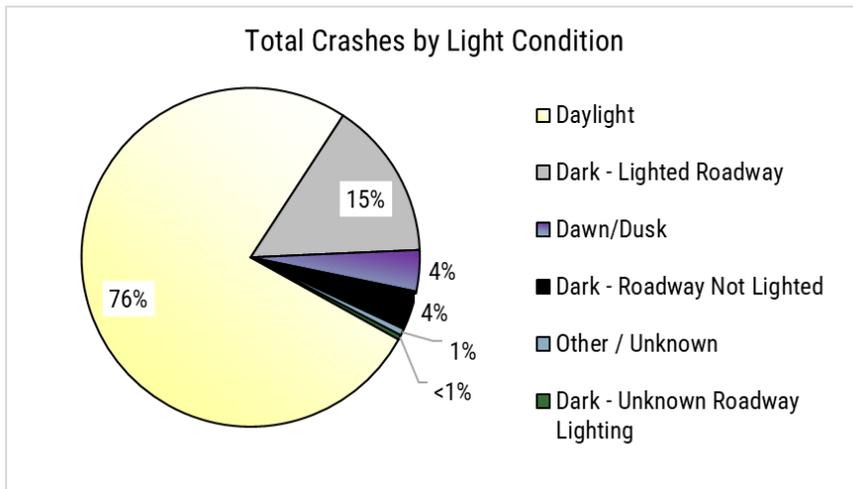


Figure 22. Crashes by Light Condition

Crashes by Road Surface Condition

Figure 23 depicts total crashes by road conditions. The majority of crashes (75%) occurred on Dry road conditions, followed by Wet road conditions (17%).

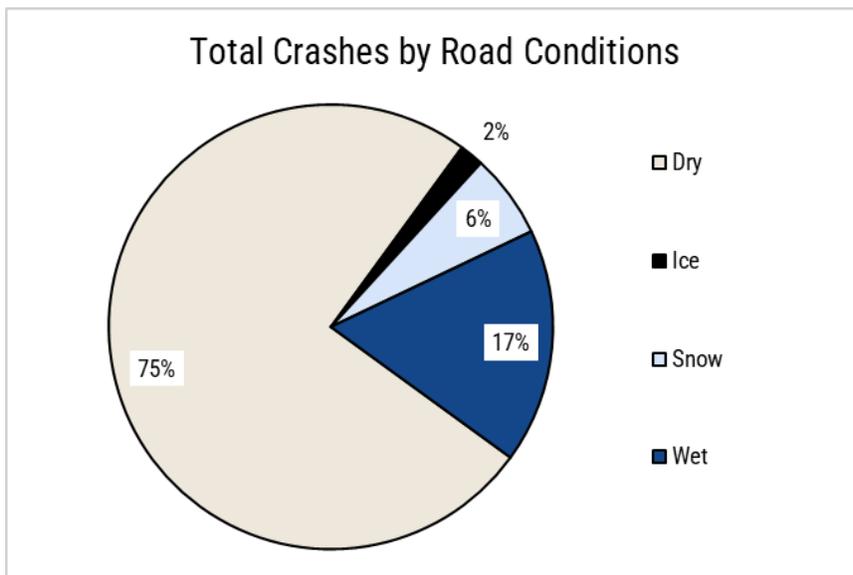


Figure 23. Crashes by Road Conditions

Crashes by Road Contour

Figure 24 depicts crashes by road contour. A majority (79%) of crashes occurred on Straight Level roadways, followed by Straight-Grade at 14%.

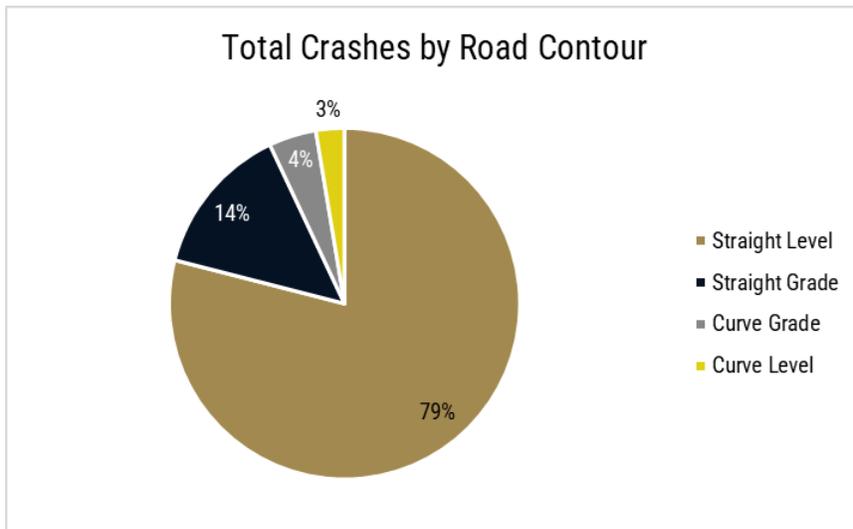


Figure 24. Crashes by Road Contour

Crashes by At-Fault Age and Gender

Figure 25 breaks down the At-Fault drivers by 5-year age groups. Age 20-24 had the highest occurrence of being the at-fault driver in all crashes, followed by the 15-19 age group. The 37 crashes in the less than 15 age group include 30 crashes in which the at-fault driver fled the scene and the officer entered a zero for the age. The other 7 crashes are accurate and involved children under the age of 15 who were on bicycles or were pedestrians and failed to yield the right of way.

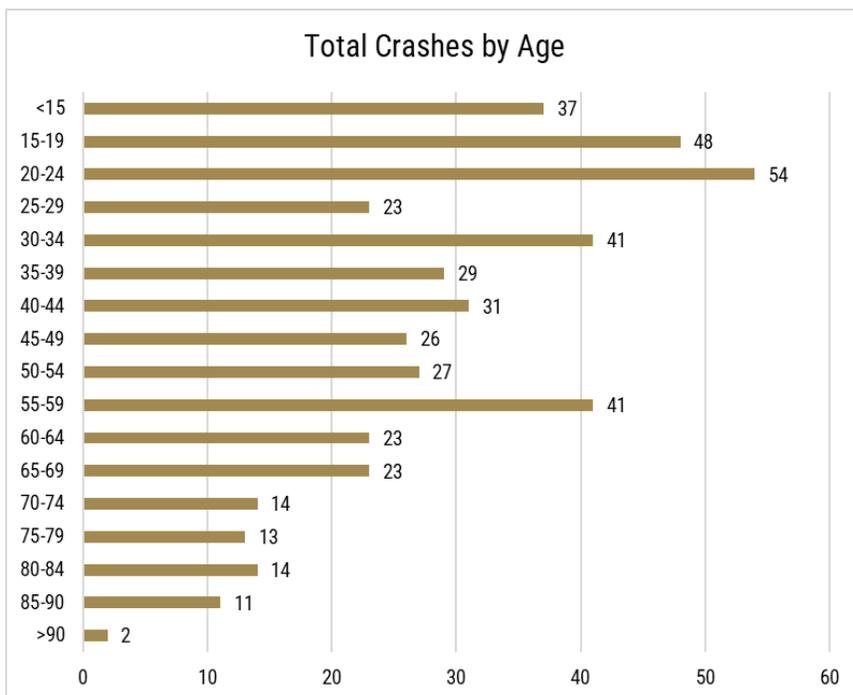


Figure 25. Crashes by Age

Figure 26 depicts the crashes by Gender. Of the total crashes, 54% of the at-fault drivers were male, 40% were female, and 6% fled the scene.

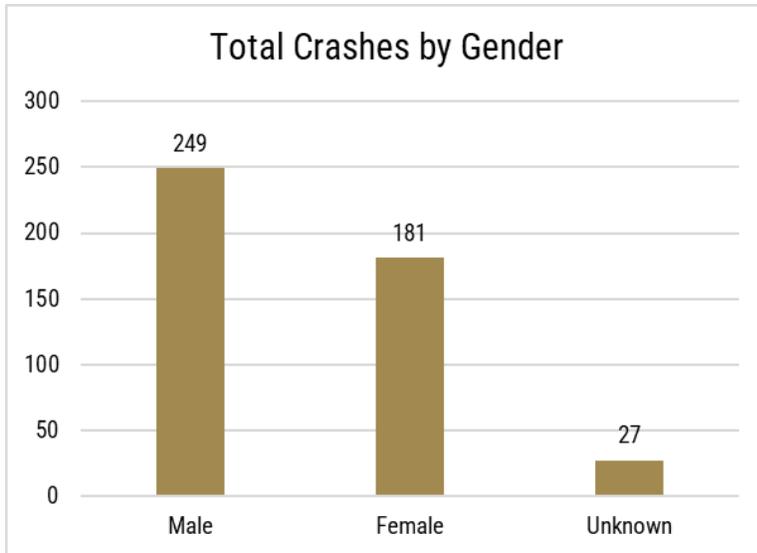


Figure 26. Crashes by Gender

3.5 Pedestrian Crash Findings

There was a total of four Pedestrian crashes in the ten-year study period, one of which resulted in a fatality. Figure 27 illustrates that 25% of the Pedestrian crashes resulted in a fatality. While Pedestrian crashes accounted for 1% of the total crashes, they accounted for 13% of the total FSI crashes, as shown in Table 1.

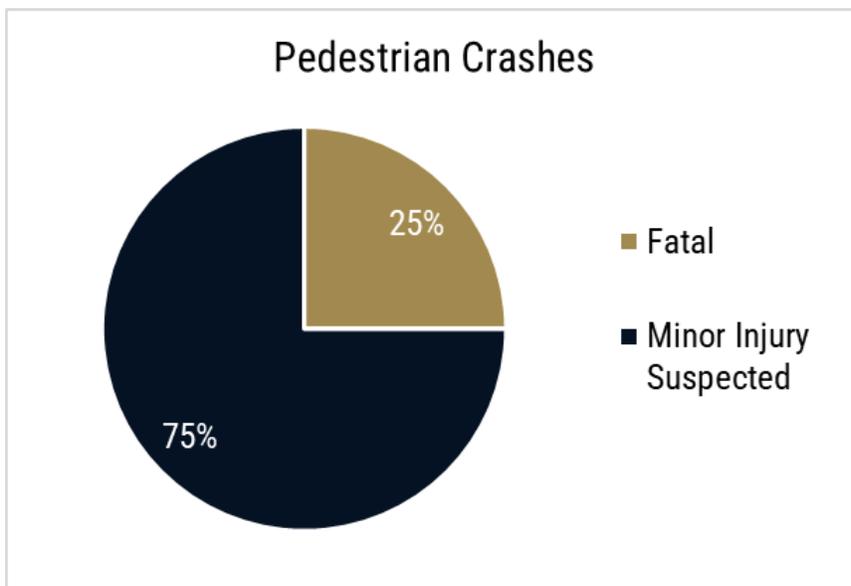


Figure 27. Pedestrian Crashes by Severity

Pedestrian-Related Crashes Per Year

There was a total of four Pedestrian crashes in the ten-year period. These Pedestrian crashes occurred in 2016, 2019, 2020, and 2024. There were zero pedestrian crashes in the other years, resulting in less than one Pedestrian crash per year. The pedestrian fatality occurred in 2020.

Roadway Characteristics of Pedestrian-Related Crashes

Pedestrian-Related Crash Location (Intersection vs. Mid-Block)

None of the Pedestrian crashes occurred at an intersection.

Pedestrian-Related Crashes by Functional Classification

All of the Pedestrian crashes occurred on Major Collector Roads. There was one on Rebecca Street, one on Taggart Street, and two on Market Street.

Pedestrian-Related Crashes by Roadway Jurisdiction

Three of the Pedestrian crashes occurred on a State Route and one occurred on a Municipal street.

Pedestrian-Related Crashes by Posted Speed Limit

Two of the Pedestrian crashes occurred within a 25 MPH speed limit zone and two occurred in a 35 MPH speed limit zone.

Pedestrian-Related Crashes by Month of Year

Three Pedestrian crashes occurred during the summer months: one in July and two in August. One occurred in December.

Pedestrian-Related Crashes by Day of Week and Time of Day

All of the Pedestrian crashes occurred on weekdays: two occurred on Thursdays, one on a Wednesday, and one on a Tuesday.

All of the Pedestrian crashes occurred in the afternoon or evening. There was one in each of the hours of 12:00 PM, 1:00 PM, 4:00 PM, and 8:00 PM.

Pedestrian-Related Crashes by Lighting Condition

Three of the Pedestrian crashes occurred during Daylight and one occurred during Dark – Roadway Not Lighted conditions.

Pedestrian-Related Crashes by Age and Gender

Three of the pedestrians involved in the Pedestrian crashes were female and were ages 7, 8, and 37. One of the pedestrians involved in the pedestrian related crashes was a male and was age 39.

3.6 Bicycle-Related Crash Analysis Findings

There was a total of seven Bicycle crashes during the ten-year study period, one of which resulted in a serious injury. Figure 28 illustrates that 14% of Bicycle crashes resulted in serious injury. While Bicycle crashes accounted for 2% of the total crashes, they accounted for 13% of the total FSI crashes, as shown in Table 1.

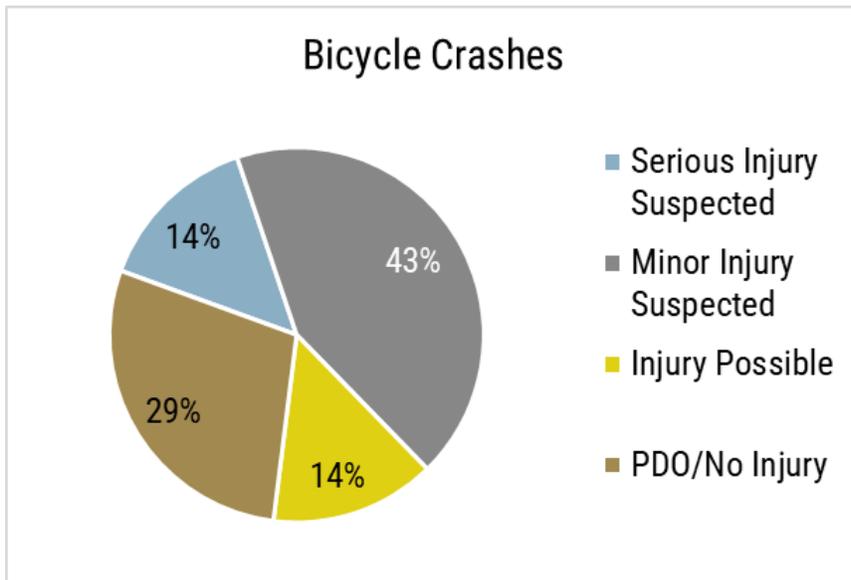


Figure 28. Bicycle Crashes by Severity

Bicycle-Related Crashes Per Year

There was a total of seven Bicycle crashes in the ten-year period from 2015 to 2024. There were two each in years 2015 and 2019, and there was one each in the years 2020, 2023, and 2024. There were zero crashes in the other years, resulting in less than one bicycle crash per year. The serious injury Bicycle crash occurred in 2015.

Roadway Characteristics of Bicycle-Related Crashes

Bicycle-Related Crash Location (Intersection vs. Mid-Block)

Six of the seven Bicycle crashes occurred at intersections. One crash did not occur at an intersection.

Bicycle-Related Crashes by Functional Classification

Of the seven Bicycle crashes, four occurred on Local Roads and three occurred on Major Collector Roads. Those locations are listed below:

- Park Avenue at West Street
- Park Avenue
- Sumner Street at Meadow Lane
- North Avenue at Sumner Street
- Sumner Street at Alice Street
- Sumner Street at School Alley
- Market Street at Rebecca Street

Bicycle-Related Crashes by Roadway Jurisdiction

Six Bicycle crashes occurred on Municipal roads and one occurred on a State road.

Bicycle-Related Crashes by Posted Speed Limit

Of the seven Bicycle crashes, four occurred in 25 MPH speed limit zones. Three Bicycle crashes did not document the speed limit. Since the crashes occurred on Local Roads and Major Collector Roads, we can assume that the speed limits ranged from 15 MPH for alleys to 35 MPH for Major Collector Roads.

Bicycle-Related Crashes by Month of Year

No Bicycle crashes occurred in winter, but there was one in each of the months of March, April, May, July, August, September, and October.

Bicycle-Related Crashes by Day of Week and Time of Day

Thursday was the most common day of the week for Bicycle crashes to occur. Three Bicycle crashes occurred on Thursdays, while one each occurred on a Monday, Tuesday, Wednesday, and Saturday.

The recorded Bicycle crashes occurred at varying hours of the day with one each occurring during the 11:00 AM, 12:00 PM, and 3:00 PM hours. Similarly, two crashes occurred during the 4:00 PM and 6:00 PM hours.

Bicycle-Related Crashes by Lighting Condition

All of the Bicycle crashes occurred during Daylight lighting conditions.

Bicycle-Related Crashes by Age and Gender

Of the seven cyclists who experienced crashes, one was female and six were male. The female cyclist was age 9, while the male cyclists were ages 9, 10, 14, 14, 15, and 28.

3.7 Conclusion

By performing a detailed examination of recent crash history and existing conditions in the Village, the SS4A team is better positioned to identify and pursue effective safety improvement recommendations. The most common crash type in the study area are Angle crashes, while Left Turn crashes accounted for the highest frequency of FSI crashes. Though Pedestrian and Bicycle crashes accounted for 1% and 2% of total crashes, respectively, they each accounted for 13% of FSI crashes in the Village. This overrepresentation of FSI crashes emphasizes a need for effective safety improvements for nonmotorized travel. The identified trends may be addressed through improvements such as providing adequate sight distance, updating signal timing, installing traffic calming roadway elements, and improving pedestrian and cyclist infrastructure. Safety improvement recommendations will be discussed in detail later in this Action Plan.

A street scape plan with improved parking, walking, and bicycle facilities can reduce Parked Vehicle, Sideswipe – Passing, Pedestrian, and Bicycle crashes. Parked Vehicle and Sideswipe – Passing were the fourth and fifth highest total crash type. Pedestrian and Bicycle crashes accounted for 25% of FSI crashes. All pedestrian crashes and five of the seven bicycle crashes resulted in at least minor injuries, demonstrating

that pedestrians and cyclists are vulnerable road users. Providing a streetscape that focuses on all modes of transportation not only reduces crashes but also reduces near misses and provides a better experience for its users.

Chapter 4

NETWORK SAFETY ANALYSIS

4.1 High Injury Network (HIN)

4.2 High Risk Network (HRN)



4. NETWORK SAFETY ANALYSIS

The High Injury Network (HIN) and High Risk Network (HRN) analyses utilize ODOT crash data from 2020 through 2024 to identify high injury and high risk locations in East Palestine. The High Injury Network is further categorized into segments and intersections. Performing these analyses can help transportation planners visualize crash history throughout the study region on a geographical basis. These networks can then assist planners in effectively prioritizing future safety-focused transportation projects.

The network safety analysis uses data from the past 5 years to provide a more current view of roadway conditions. This approach ensures that recent changes in infrastructure, traffic patterns, and safety measures are reflected in the analysis. Focusing on recent data allows for a more precise identification of high-risk areas, aiding in the effective prioritization of safety-focused transportation projects.

For all mode and motor vehicle crashes, fatal or serious injury (FSI) severity crashes are considered. However, for crashes involving bicyclists or pedestrians, fatal or injury (FI) severity crashes are considered. Going forward, the term 'FSI' will be used, but when referring to pedestrian or bicycle crashes, it will denote 'FI'.

An interactive Story Map, created using ArcGIS online, is available at this link: [East Palestine SS4A Network Safety Analysis Story Map](#). This Story Map presents the results of the HIN and HRN analyses through three types of maps: HRN, HIN Roadways, and HIN Intersections. Both the HIN and HRN include two specific analyses of All Mode crashes, and Vulnerable Road User (VRU) crashes, which include pedestrian and bicycle crashes. The methodology from which these maps were developed are detailed below with example maps. The full version of these maps, as well as other maps produced by this analysis are provided in **Appendix A**.

4.1 High Injury Network (HIN)

The High Injury Network (HIN) identifies areas with a history of frequent FSI crashes based on crash data from 2020-2024.

High Injury Segments

High injury segments refer to specific segments of roadways with a history of frequent crashes. Roadways in East Palestine were assessed using 0.1 mile segments.

In this analysis, FSI crashes were assigned to their corresponding road segment to determine the total number of crashes in each segment during the study period. Segments are ranked based on the number of FSI crashes per segment. To denote the approach of a high injury segment, adjacent segments receive a rank that is one value below that of the high injury segment. Segments that experienced two FSI crashes in the last five years are ranked as "High", while segments that experienced one FSI crash are ranked as "Low".

Figure 29 depicts the high injury segments for All Modes of travel.

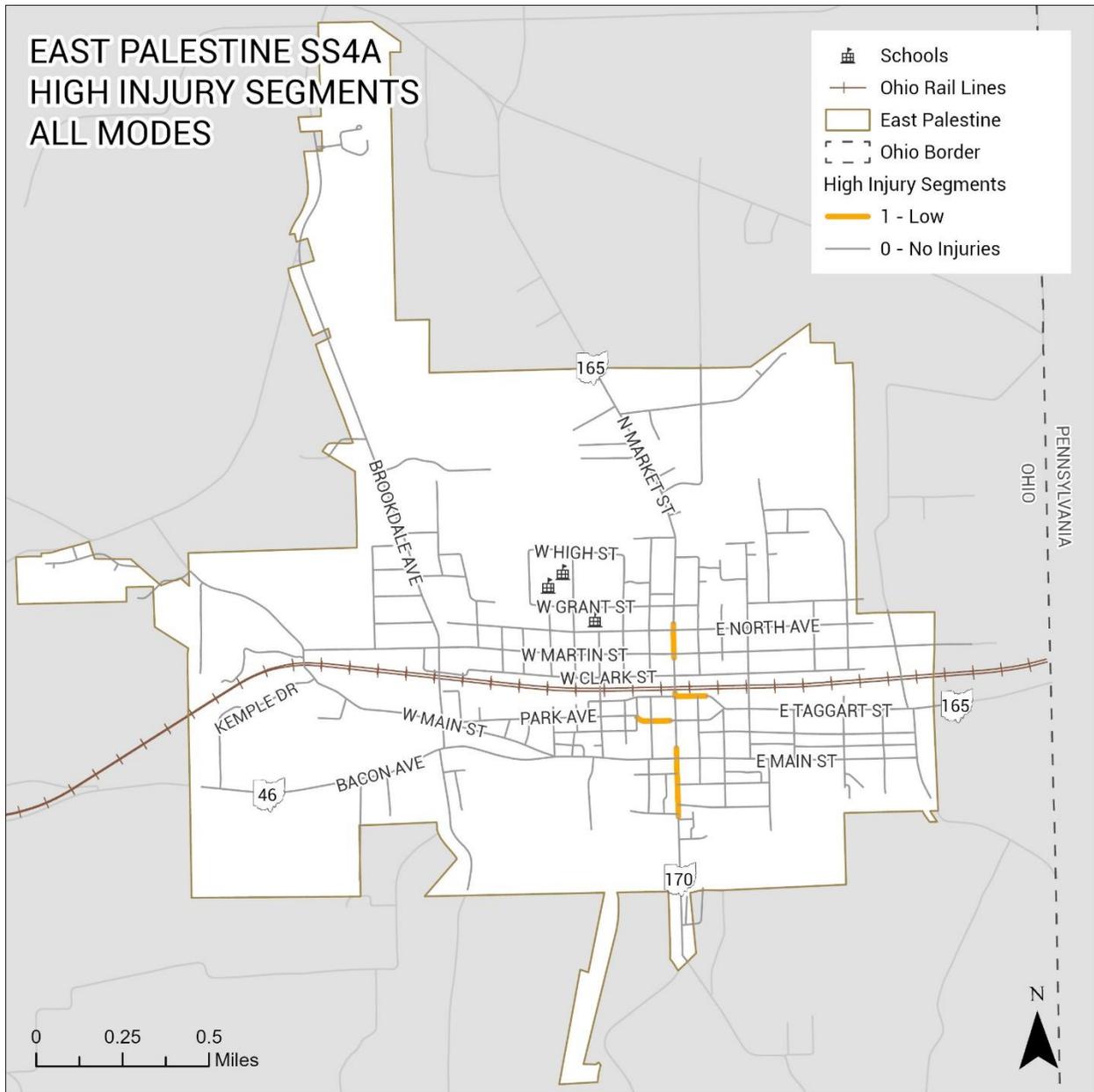


Figure 29: East Palestine High Injury Segments - All Modes

Table 8 lists the High Injury Segments for All Mode and VRU crash types.

Table 8: High Injury Segments

HIGH INJURY SEGMENTS					
ALL MODE					
NLFID	ROUTE	ROAD NAME	CTL BEGIN	CTL END	FSI CRASHES
SCOLSR00165**C	SR 165	E TAGGART ST	5.24	5.34	1
MCOLMR01036**C	MR 1036	W REBECCA ST	0	0.1	1
SCOLSR00165**C	SR 165	N MARKET ST	5.04	5.14	1
SCOLSR00170**C	SR 170	S MARKET ST	14.737	14.837	1
SCOLSR00170**C	SR 170	S MARKET ST	14.837	14.937	1
VRU					
NLFID	ROUTE	ROAD NAME	CTL BEGIN	CTL END	FSI CRASHES
SCOLSR00170**C	SR 170	N MARKET ST	14.937	15.037	2
MCOLMR00383**C	MR 383	N SUMNER ST	0	0.1	1
MCOLMR00394**C	MR 394	S SUMNER ST	0	0.075	1
MCOLMR01036**C	MR 1036	W REBECCA ST	0	0.1	1

High Injury Intersections

High injury intersections are those with a history of frequent FSI crashes based on crash data from 2020-2024. East Palestine intersections were analyzed using a 150-foot buffer.

In this analysis, crashes are assigned to their corresponding intersections to determine the total number of crashes in each intersection during the study period. Intersections are displayed based on the number of FSI crashes that occurred within the buffered distance.

Figure 30 depicts the high injury segments for All Mode crash types.

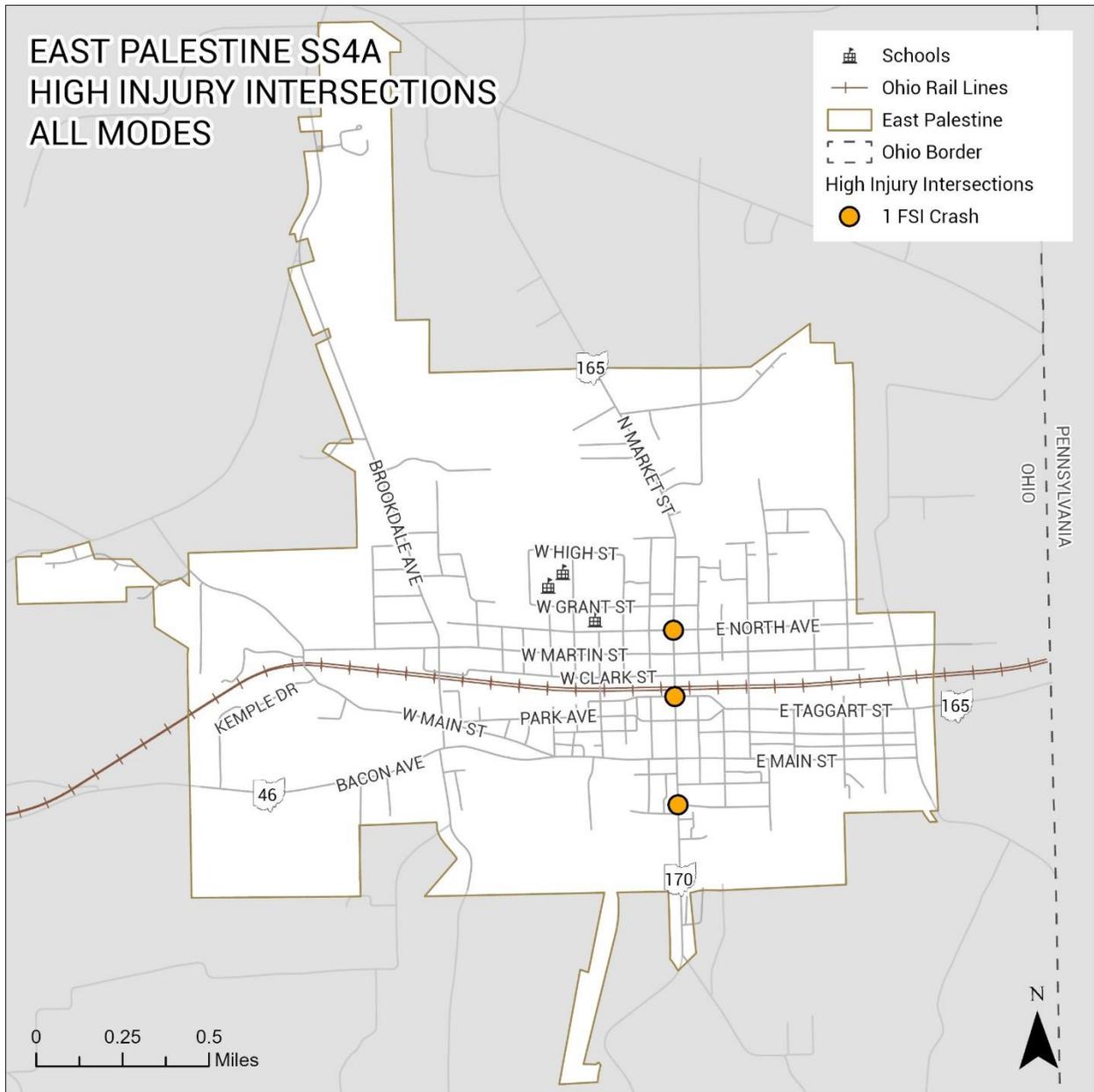


Figure 30: East Palestine High Injury Intersections - All Modes

Table 9 lists the High Injury Intersections for All Mode and VRU crash types.

Table 9: High Injury Intersections

HIGH INJURY INTERSECTIONS				
ALL MODE				
NLFID 1	NLFID 2	ROAD NAME 1	ROAD NAME 2	FSI CRASHES
SCOLSR00165**C	MCOLMR00413**C	N MARKET ST	NORTH AVE	1
SCOLSR00170**C	SCOLSR00165**C	N MARKET ST	E TAGGART ST	1
SCOLSR00170**C	MCOLMR00365**C	S MARKET ST	GARFIELD AVE	1
VRU				
NLFID 1	NLFID 2	ROAD NAME 1	ROAD NAME 2	FSI CRASHES
SCOLSR00170**C	MCOLMR01036**C	N MARKET ST	REBECCA ST	2
MCOLMR00383**C	MCOLMR00341**C	N SUMNER ST	ALICE ST	1

Note: The initial identification of priority intersections is based solely on the proximity of FSI crashes to intersections, within buffers of 150 feet. However, in subsequent detailed analysis, crash reports are reviewed thoroughly, and crashes originally identified in this analysis as "intersection-crashes" may be reassigned to one of the intersecting road segments. As a result, certain intersections initially flagged as high injury locations may not appear on priority lists later in this report, since their associated crashes were ultimately attributed to adjacent road segments.

4.2 High Risk Network (HRN)

The High Risk Network (HRN) identifies roadways within the study area that exhibit an elevated crash risk based on roadway characteristics and historical crash patterns. This analysis is both reactive and proactive, using historical crash data and identifying roadway features associated with FSI crashes to prevent future crashes.

Facility Profile Analysis

Roadways undergo a facility profile analysis to identify characteristics correlated with higher crash frequencies. This analysis assigns a risk score of High, or Low. The risk criteria vary for different transportation modes, due to their differing interactions with the road.

Several roadway characteristics are considered in identifying attributes correlated with high crash frequencies. These factors are not necessarily causes of higher FSI crash frequencies, but can be associated with them. Trends observed in roadways with high FSI crash occurrences help create criteria that categorize roads into different levels of risk based on these features. Some features, such as Road Functional Class, are categorized into groups to create groups with similar characteristics and help identify trends. Table 10 identifies the factors that were considered in this analysis. The factors that were most correlated with higher FSI crash frequencies were selected for risk categorization; therefore, not all factors were used.

Table 10: Factors considered in HRN analysis

FACTOR	DESCRIPTION
FUNCTIONAL CLASS	Roadway functional class is categorized into high functional class, and low functional class.
SPEED LIMIT	Posted speed limit.
AADT	Average annual daily traffic.
TRUCK ROUTE	Segment is designated as part of the National Truck Network
TRUCK TRAFFIC PROPORTION	Proportion of Truck AADT out of Total AADT
INTERSECTION DENSITY	Number of intersections within 150 feet of the road segment.
SIGNALIZED INTERSECTION DENSITY	Number of signalized intersections within 150 feet of the road segment.
COMPLEX INTERSECTION DENSITY	Number of complex intersections (intersections with skewed angle or more than 2 intersecting roads) within 150 feet of the road segment.
NUMBER OF LANES	Number of lanes are categorized into two-lane roadways and multilane roadways.
DEMOGRAPHIC FACTORS	Demographic factors are available from the US Census at the census tract level. East Palestine falls largely within a single tract, limiting the amount of insight these metrics can provide into crash risk. Therefore, these metrics were not used in this analysis.

Table 11 outlines the Facility Profile Criteria for All Mode crashes, and Table 12 shows the facility metrics associated with the assigned risk level. Figure 31 shows a map of the All Mode High Risk Network.

Table 11: Facility Profile Criteria for All Modes of Crashes

FACILITY PROFILE ANALYSIS - ALL MODES					
RISK LEVEL	FUNCTIONAL CLASS	AADT	SPEED LIMIT	TRUCK TRAFFIC PROPORTION	COMPLEX INTERSECTIONS
HIGH	HIGH	-	-	-	> 0
	HIGH / LOW	> 800	25 MPH	-	-
	HIGH / LOW	-	-	> 5%	-
LOW	HIGH	-	-	-	= 0
	HIGH / LOW	< 800	-	-	-

Table 12: Facility Metrics - All Modes

FACILITY METRICS BY RISK LEVEL - ALL MODE				
RISK LEVEL	MILES IN STUDY AREA	MILEAGE SHARE	FSI CRASHES	FSI CRASH SHARE
HIGH	5.2	15.8%	5	100.0%
LOW	27.8	84.2%	0	0.0%

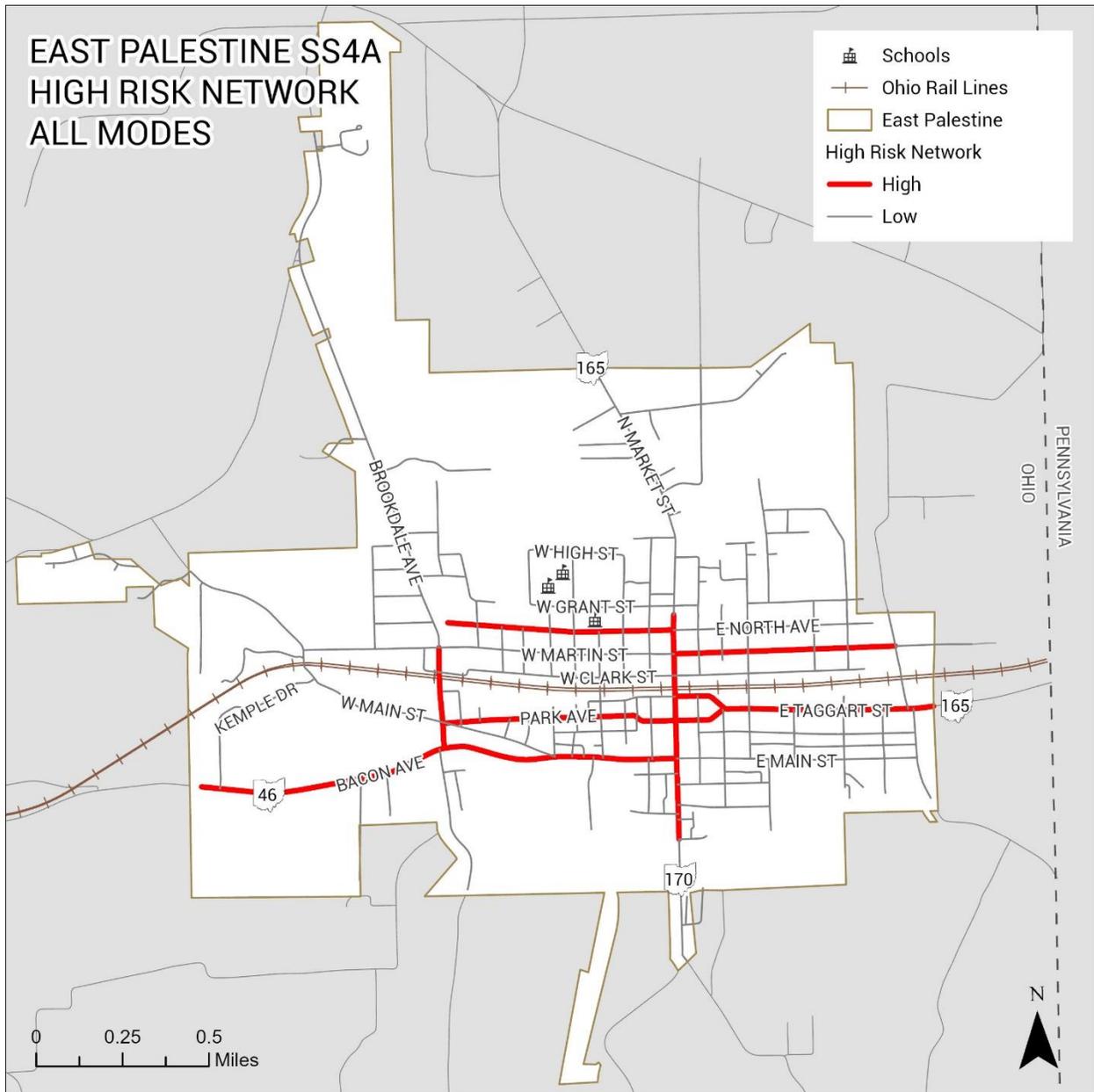


Figure 31: East Palestine High Risk Network - All Modes

Table 13 outlines the Facility Profile Criteria for VRU crash types, and Table 14 shows the facility metrics associated with the assigned risk level.

Table 13: Facility Profile Criteria for VRU Crashes

FACILITY PROFILE ANALYSIS - VRU			
RISK LEVEL	SPEED LIMIT	AADT	SIGNALIZED INTERSECTION DENSITY
HIGH	= 25	>500	> 0
LOW	-	<500	0

Table 14: Facility Metrics - VRU

FACILITY METRICS BY RISK LEVEL - VRU				
RISK LEVEL	MILES IN STUDY AREA	MILEAGE SHARE	FSI CRASHES	FSI CRASH SHARE
HIGH	3.5	10.6%	3	60.0%
LOW	29.5	89.4%	2	40.0%

Chapter 5

WALKING AND BIKING PRIORITY NETWORK



5. WALKING AND BIKING PRIORITY NETWORK

Creating a safe and accessible transportation system requires careful consideration of vulnerable road users (VRUs), or pedestrians and bicyclists, who are more susceptible to experiencing high severity crashes than those traveling in motor vehicles. Because VRUs are more exposed and less protected, providing designated pedestrian and bicycle facilities is essential for reducing conflicts with vehicles and improving overall safety. East Palestine’s compact size and existing sidewalk network offer a strong opportunity to develop a truly connected walking and biking system, where most key destinations are within a short distance and can be linked through safe, multimodal routes. A well-connected multimodal network also supports the diverse reasons people walk or bike: some do so for health and recreation, others because they do not own a vehicle or can no longer drive, and many choose active transportation as a more affordable or environmentally conscious option. Ensuring that these users have safe, direct, and comfortable routes is a critical component of a resilient and equitable transportation system.

With these considerations in mind, the project team identified priority routes for walking and biking, and developed a Walking and Biking Priority Network to highlight the most important corridors for active transportation in East Palestine. The network was informed by pedestrian and bicycle traffic data, crash history, and connecting key destinations—such as the city park, the East Palestine Walking Trail, schools, downtown, and other community assets. A full review of Active Transportation in East Palestine is provided in **Appendix B**.

Walking and Biking Activity

Streetlight Insight was utilized to gather walking and biking activity data in East Palestine. Streetlight Insight is a big data web platform that harnesses data from Bluetooth devices, such as those in your car and cell phone, and converts it to vehicle, transit, bike, and foot traffic. Average Daily Traffic (ADT) for pedestrians and bicyclists was obtained through a Zone Activity Analysis, which measures how much travel activity occurs within a defined area.

It is important to note that roadways with elevated levels of pedestrian and bicycle activity do not necessarily represent the only routes that people wish to use. In some cases, more direct or convenient routes lack designated facilities, making them difficult or uncomfortable to walk or bike. As a result, individuals may choose alternative routes that offer existing infrastructure or feel safer and more comfortable.

The results of the Pedestrian Zone Activity Analysis are presented below in Figure 32.

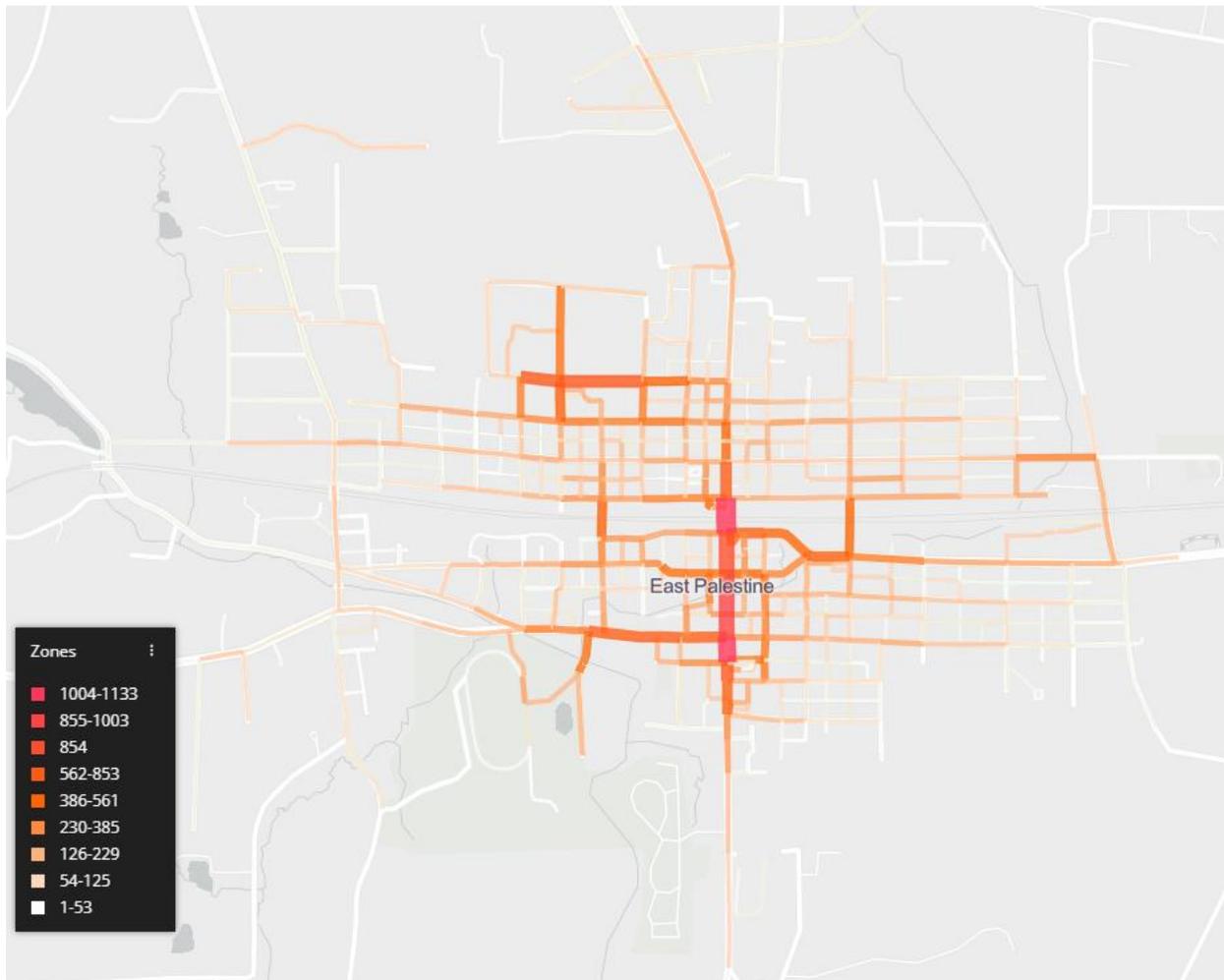


Figure 32: Pedestrian Zone Activity Analysis results

The highest pedestrian activity was observed along the following streets:

- Market Street
- W Grant Street
- W Main Street
- E Taggart Street
- Thomas Street
- West Street
- Rebecca Street
- James Street
- Park Drive
- North Avenue

The results of the Bicycle Zone Activity Analysis are presented below in Figure 33.

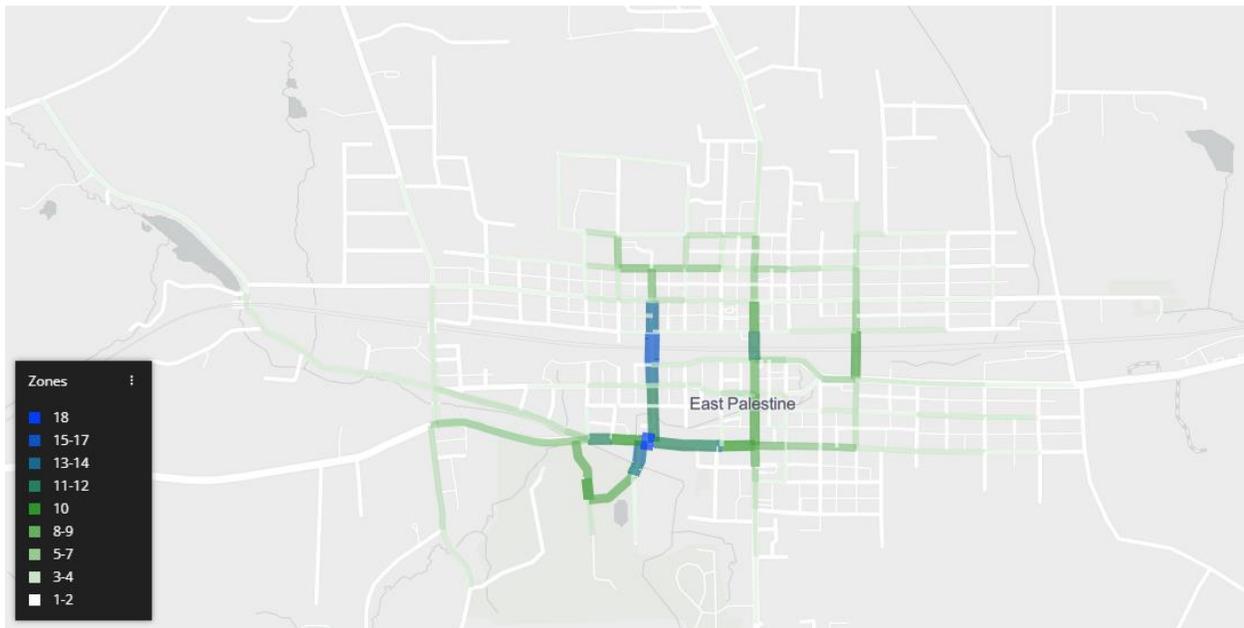


Figure 33: Bicycle Zone Activity Analysis results

The highest bicycle activity was observed along the following streets:

- West Street
- Main Street
- Park Drive
- Market Street
- James Street
- Bacon Avenue
- North Avenue
- Thomas Street

Network Connectivity and Facilities

Using zone activity patterns, crash history, and strategic linkages that connect high-activity walking and biking routes to key destinations, the project team identified priority walking and biking routes in East Palestine. These routes illustrate the corridors that support each mode and highlight where additional infrastructure can create safe, continuous routes for vulnerable road users. The priority walking and biking routes are displayed in Figure 34 and Figure 35, respectively.

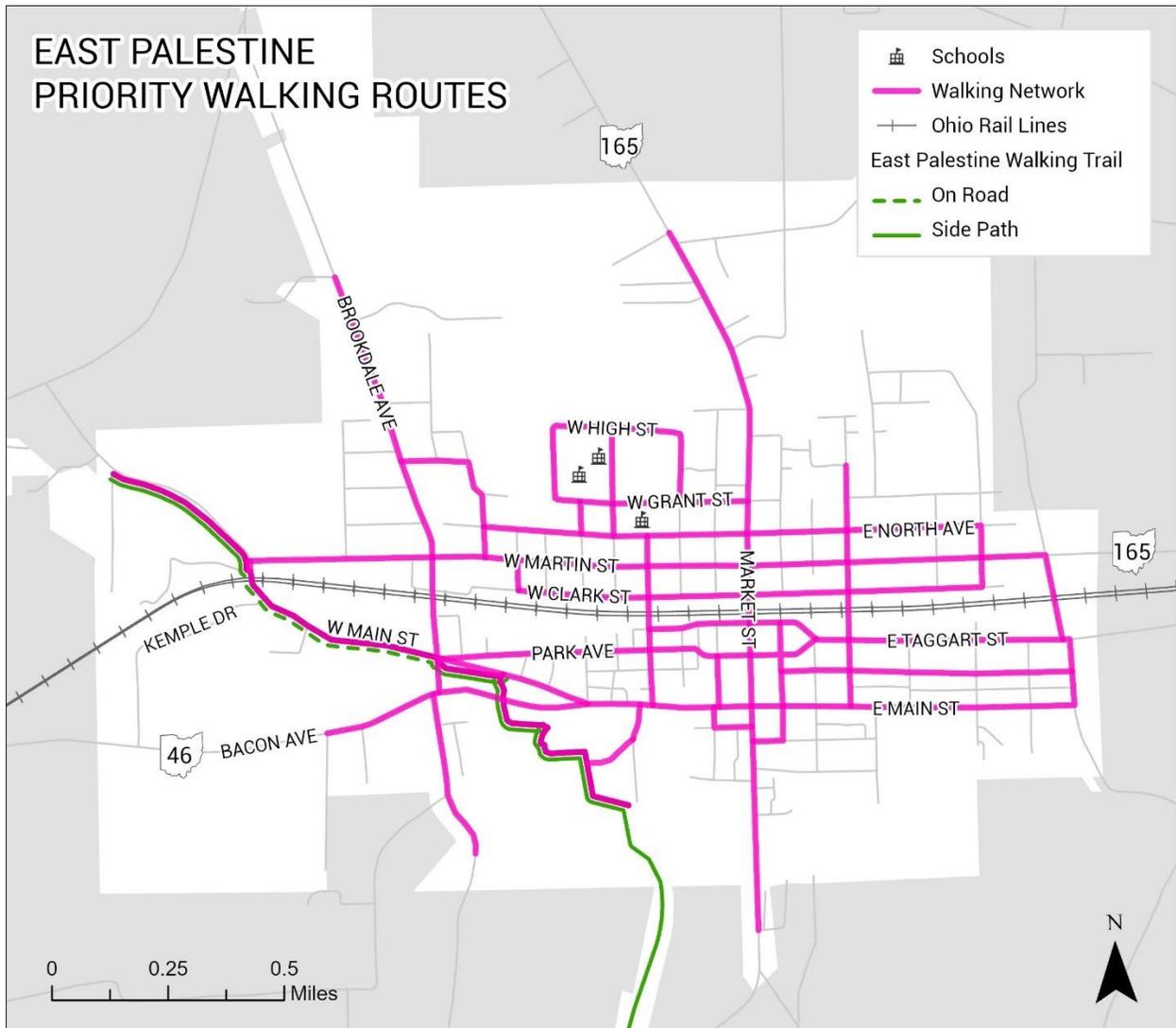


Figure 34: East Palestine Priority Walking Routes

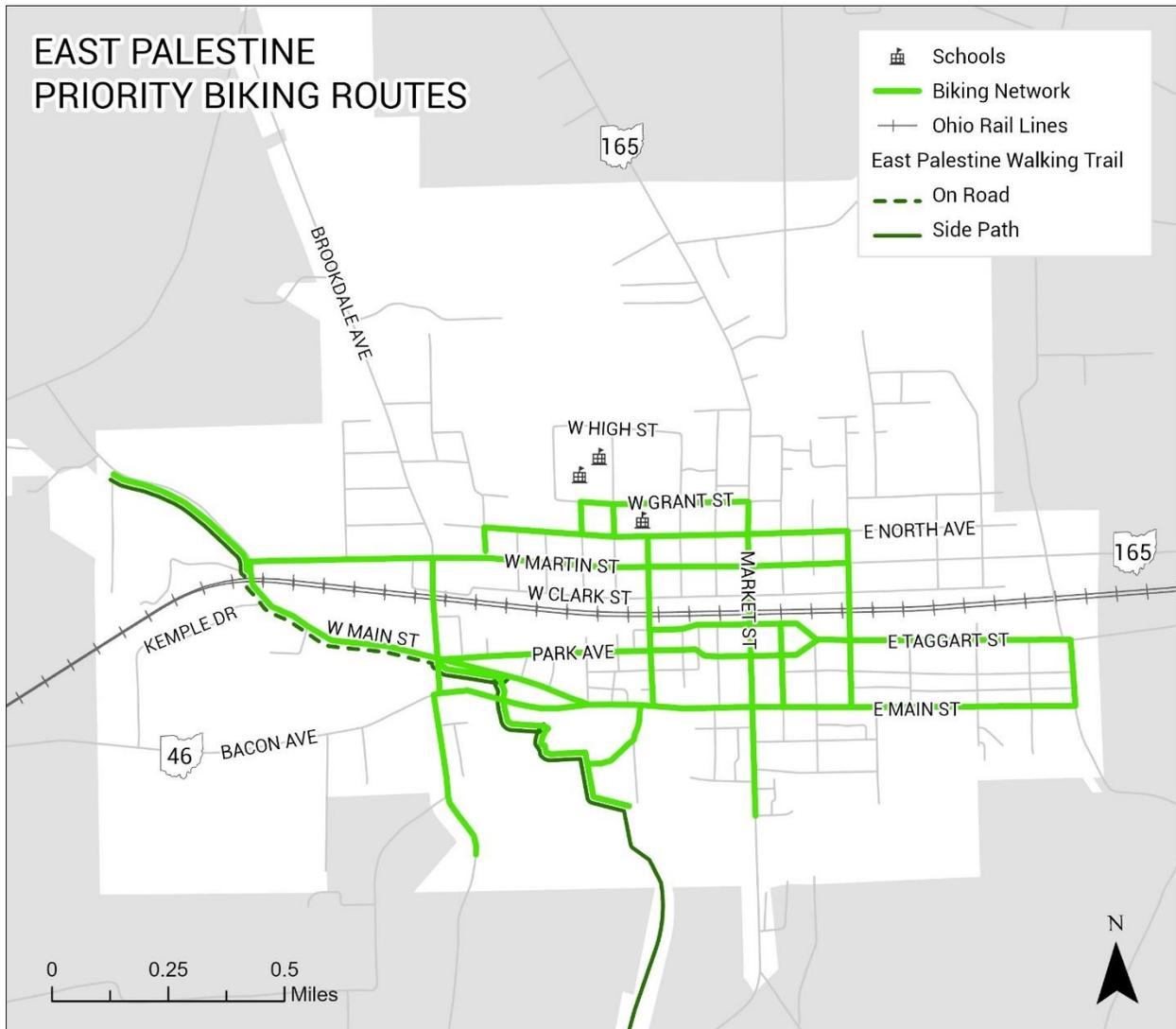


Figure 35: East Palestine Priority Biking Routes

The priority walking and biking routes were then combined to form a comprehensive Walking and Biking Priority Network, shown in Figure 36, alongside existing sidewalk and trails in East Palestine.

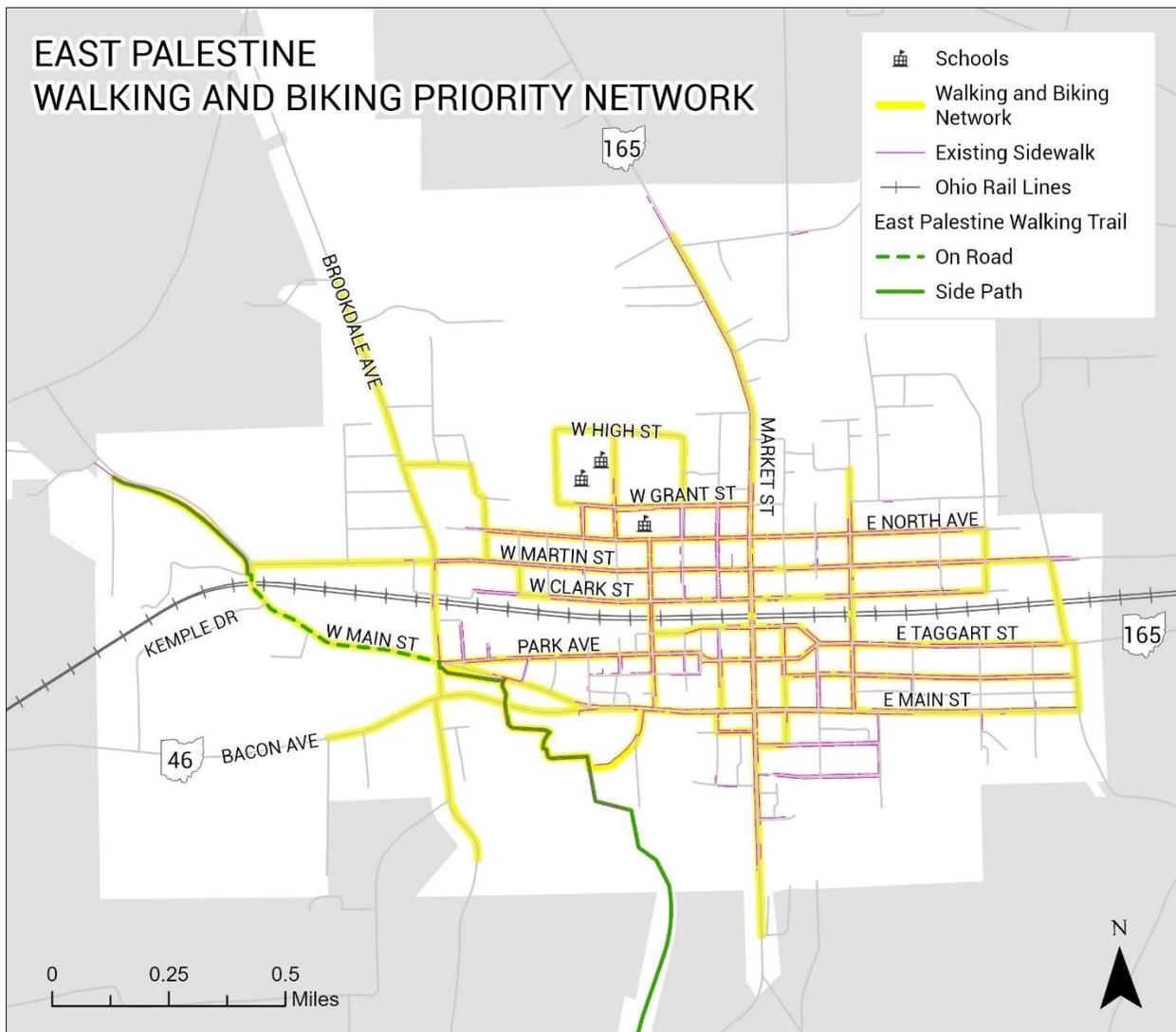


Figure 36: East Palestine Walking and Biking Priority Network

The Walking and Biking Priority Network reveals several gaps in the active transportation network that create barriers for walking and biking. A major gap in the East Palestine Walking Trail occurs on W Main Street between Spait Drive and Brookdale Avenue, where no designated pedestrian or bicyclist facilities are present. Other key roads such as Brookdale Avenue, Bacon Avenue, and Pleasant Drive, also have limited or no existing VRU infrastructure.

Additional local roads highlighted in Figure 36 exhibit sidewalk gaps or lack sidewalks entirely, including W High Street, East Street, and Sugar Camp Drive near the schools. These conditions were carefully considered during the development of recommendations for vulnerable road users, and the Walking and Biking Priority Network was used to help identify where multimodal facility upgrades and connectivity improvements would be most beneficial.

Chapter 6

ACCESS MANAGEMENT

6.1 Driveway Locations

6.2 Parallel Parking vs. Angle or Head-in Parking

6.3 Crash History

6.4 Recommendations



6. ACCESS MANAGEMENT

Access management is the practice of minimizing the potential for crashes and delay by limiting and properly spacing access points. Proper access management maintains efficient traffic flow while increasing the safety of vehicle, bicycle, and pedestrian traffic. The Federal Highway Administration lists Access Management as a proven safety countermeasure. FHWA suggested strategies that can be applied to East Palestine include: driveway closure, consolidation, or relocation and management of spacing of intersections and access points. The Village of East Palestine has recognized the importance of access management by including rules and regulations in the Village codified ordinances. In Chapter 1224, in the section regarding “Additional Standards for Development in Industrial and/or Commercial Subdivisions, Including Shopping Centers,” Code 1224.51 states the following:

(e) Access and Traffic Control

(1) Access barrier. Each lot, with its buildings, other structures, and parking and loading areas, shall be separated physically from each adjoining street by a curb or other suitable barrier against unchanneled motor ingress and egress. Such barrier shall be located at the edge of or within 20 feet deep strip along the property line. Except for the access ways permitted by division (e)(2) of this section, the barrier shall be continuous for the entire length of the property line.

(2) Access ways. Each lot shall have not more than two access ways to any one street unless unusual circumstances demonstrate the need for additional access points. Each access way shall comply with the following requirements:

A. The width of any access way leading to a public street shall not exceed 25 feet at its intersection with the property line. Curb returns shall have a minimum radius of 30 feet.

B. At its intersection with the property line, no part of any access way shall be nearer than 100 feet to the intersection of any two street right-of-way lines, nor shall any such part be nearer than 50 feet to any side or rear property line.

C. The location and number of access ways shall be so arranged that they will reduce traffic hazards as much as possible.

In many of the examples throughout this study, properties lack the physical barrier from the adjacent roadway. They also have more than two access points, wider than 25-foot access widths, and closer than 100 feet to an intersection. Many of these properties have likely been grandfathered in, but regardless of the reason they exist in these conditions, they are so numerous that the Village should actively seek to correct as many as possible. This study focuses on a few corridors that should be targeted.

6.1 Driveway Locations

The lack of curbs, which creates wide open curb-cuts or extra wide driveways, presents more conflict points, confusion, and visibility issues. This also presents unsafe and uncomfortable conditions for pedestrians. Providing curbs along the roadway and consolidating access to one designated access point will give roadway drivers an expectation of where vehicles will be exiting a site. This will force vehicles to exit a site in an orderly way, one vehicle at a time. When multiple vehicles are able to exit a wide opening simultaneously, they become obstacles within the sight triangle, making it difficult to exit safely.

Providing curbs and reducing access points is important for the protection of pedestrians. Pedestrians should only be required to focus on vehicles entering and exiting at a designated driveway rather than the entirety of the site frontage. Pedestrian comfort increases with more features such as curbs, landscape buffers, and trees or planters. These provide a separation between pedestrians and vehicles, making pedestrians feel less vulnerable and exposed to vehicular traffic.

Poor access management can be found throughout the Village. Several sites are concentrated along Sumner Street and Taggart Street, which this study will examine closer. In addition, Figure 37 shows a parking lot on Koch Street just south of Rebecca Street in a residential area. This lot hosts a curb-cut that spans almost its entire frontage on Koch Street. There is no sidewalk or protection for pedestrians.



Figure 37: Parking lot on Koch Street

Figure 23 provides an aerial view of E. Martin Street at Sumner Street. This segment is located directly between the East Palestine Memorial Public Library and several residences on E. Martin Street. There are no designated driveways for the properties on the northeast, northwest, and southwest corners. The building on the northeast corner is a carport in which the vehicles can access anywhere along its frontage on E. Martin Street. The lot to the east of the carport also has unlimited access to E. Martin Street. There is no sidewalk provided for pedestrians, however, this location should encourage walking from the residential area to Market Street with destinations such as the Library and the schools just beyond Market Street.



Figure 38: E. Martin Street at Sumner Street

6.2 Parallel Parking vs. Angle or Head-In Parking

Parallel parking is provided on several commercial and residential streets throughout the Village. It is provided within the right-of-way with existing or potential public sidewalks adjacent to the parking and on the far side from the travel lanes. However, there are several sites in the Village that have head-in parking. Many of these sites provide parking on private property and use the right-of-way for maneuvering. This requires pedestrians to pass between the parking spaces and the roadway; often the vehicles will be backing across the pedestrian path. This creates several more conflict points for pedestrians. Alternatively, sidewalks are sometimes provided away from the roadway on the other side of the parking, but it is on private property, not providing a public sidewalk for pedestrians.

Benefits of Parallel Parking

- More visibility of the travel lane when exiting
- Empty spaces are more visible than angle or head-in parking to drivers seeking parking spaces
- Through traffic drivers have better visibility of parked vehicles attempting to exit their space, therefore better ability to avoid collisions
- Because there are fewer spaces provided with parallel parking than with Angle or Head-in parking, there are fewer conflict points, reducing the frequency of crashes on the roadway.
- Less width required than angle parking within the roadway

Benefits of Angle or Head-in Parking

- Drivers and passengers do not exit the vehicle next to the travel lane
- Less time required to park and impede traffic; some parallel parking maneuvering may take multiple attempts by driver
- More parking spaces provided

In addition to the vehicular benefits of parallel parking, pedestrian facilities can be placed away from the travel lanes when parking is provided within the right-of-way.

There are several sites throughout the Village with head-in and angle parking accessed from the roadway. Figure 24 shows a common parking issue in the Village. This parking is on Wood Street just east of Market Street. In addition to the additional conflict points, it is located just 12 feet from the intersection. Turning vehicles from Market Street to Wood Street have little time to react to a vehicle maneuvering from the parking spaces. Pedestrians have no sidewalk and are exposed to conflict points across a long distance.

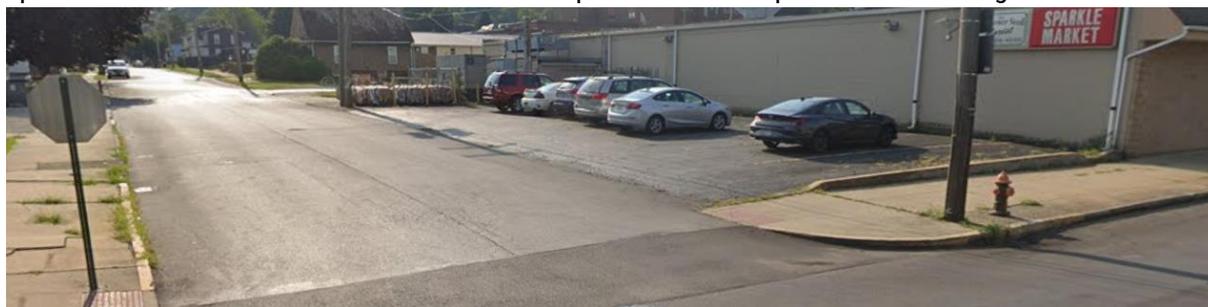


Figure 39: Wood Street head-in parking

6.3 Crash History

During the study period of 2015-2024, there were 20 reported crashes related to access management, accounting for 4.4% of the total 457 crashes in East Palestine. Nine crashes were caused by backing from an angle or head-in parking space and eleven occurred entering or exiting a commercial driveway. There were three crashes of the 20 driveway crash locations that resulted in injury, resulting in an overall injury rate of 15% of Driveway crash location. Of the 20 commercial driveway crashes, two were coded as Serious Injury. There were eight FSI crashes in the total study area; the two FSI Driveway location crashes account for 25% of the total FSI crashes. Table 15 and Table 16 summarize this data.

Table 15: Commercial Driveway Statistics

	Total	FSI	Total Injury	Injury rate
Commercial Driveway Crashes	20	2	3	15%

Table 16: Commercial Driveway Crashes Compared to Overall Crashes

	Commercial Driveway	Total Crashes	%
Crashes	20	457	4.38%
FSI Crashes	2	8	25.00%

6.4 Recommendations

The installation of curbs, sidewalks, and ADA compliant ramps, and the reduction of access points, should be systematically performed throughout the Village. It is understood that in some cases, curb and sidewalk installation and access reduction would impede the operation of existing businesses. In these cases where the existing site layout prevents proper access management, ensure that the site layout is reviewed upon any new development to allow for the reduction of access points in the future. It is important to have, at a minimum, sidewalk on one side of the street, though both sides is preferable, to provide a safe route for pedestrians. Where existing site layouts prevent the installation of curb and sidewalk, ensure that sidewalk is provided on the opposite side of the street. This study will look at two specific roadway segments and provide recommendations, though these practices should be considered for all Village streets.

Wherever possible, head-in and angle parking should be removed. In some cases, the parking can be converted to parallel parking or provided on private property with one access point. Consideration should be given to determine if adequate parking exists. Angle or head-in parking can be an alternative option if more parking spaces are required, but a safe path for pedestrians should be provided in these cases. While the crash data provides insight into how access management affects roadway safety, the lack of access management prevents safe and comfortable sidewalks that would encourage walking throughout the Village.

Sumner Street

Sumner Street was examined for access management and the installation of pedestrian infrastructure. Sumner Street is within the downtown area, just one street east of Market Street, and includes businesses and offices. The current identity of Sumner Street is confusing because the lack of sidewalks and no access management make it appear like an alley, but businesses and offices have frontage on this street requiring it

to provide pedestrian facilities like a local street. Pedestrians using this street are often met with a sea of pavement with no separation from vehicular traffic.

From Taggart Street to Alice Street, sidewalks should be installed on both sides of Sumner Street where possible. The access to the site on the southeast corner of Sumner Street and Taggart Street should be closed and replaced with curb and sidewalk. The slope on the west side of Sumner Street, south of Taggart Street along the residential site, provides an obstacle. Within the cut sheets of this study, an option is provided for the installation of sidewalk here, but if no option is feasible, sidewalk along the east side would suffice. ADA compliant curb ramps should be installed at all intersections.

The section of Sumner Street from Alice Street to Main Street presents several access management challenges due to the existing site layouts and unlimited roadway access of businesses on these blocks. See Figure 40 for the existing condition lacking curb and sidewalk. These challenges prevent sidewalks in several locations, but sidewalks on at least one side of Sumner Street is achievable. From Alice Street to Meadow Lane, curb and sidewalk should be installed along the west side of Sumner Street. Currently the car wash has unlimited access for the full frontage of its site. This can be consolidated down to three access points: one access in front of the self-serve wash bays, one access in front of the exit of the automated wash bay, and one access just on the north side of the automated wash bay. This would provide visual and partially physical separation for pedestrians from vehicles. The existing head-in parking on the east side of the street, in front of Threshold Residential Services, prevents the installation of curb. A sidewalk could be installed here, but it would be at grade with the roadway with no physical separation. ADA compliant directional curb ramps should be installed on all corners of the intersection of Sumner Street and Alice Street. Sidewalk should be installed to fill the gap between the southeast corner and the sidewalk on the south side of Alice Street to the east.

Between Meadow Lane and Main Street, curb and sidewalk should be installed along the east side of Sumner Street. The Family Eye Care building has one large driveway that could be significantly reduced. Tom's Wholesale Tires has several garage bays, gas pumps, and head-in parking, preventing the ability to close any of this access. ADA compliant directional curb ramps should be installed for the ability to cross the west leg and south leg of the intersection of Sumner Street and Meadow Lane.

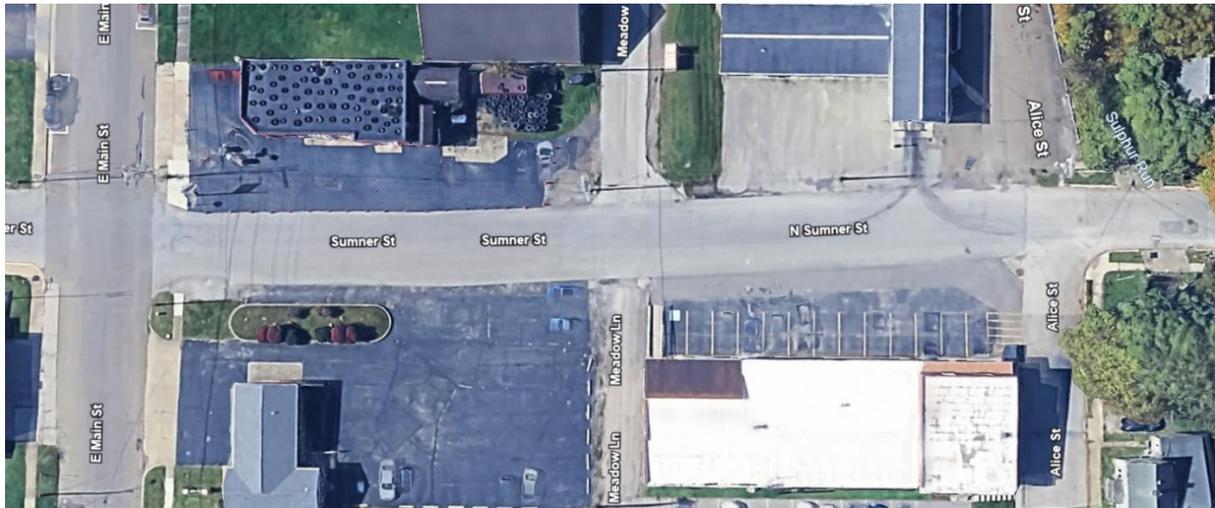


Figure 40: Sumner Street from Main Street to Alice Street

Sumner Street from Main Street to School Alley poses great challenges in continuing sidewalk as shown in Figure 41. It is possible to install curb and sidewalk along the west side of Sumner Street adjacent to the church site, however this may cause some hardship on the church as this area is used for head-in parking. It should be determined if this parking is essential for church services. Sidewalk exists on the east side in front of the police department, but it terminates at the red building behind the police and fire department building. The red building has no setback from the roadway, leaving no space for sidewalk on the east side south of the police department. A sidewalk could be installed on the west side of the street, but it would be at grade with the roadway due to the head-in parking and access to the garage. Though there would be no physical separation between pedestrians and vehicles, providing a designated pedestrian path visually, would bring awareness of the potential of pedestrians and guide pedestrians to the safest path. ADA compliant directional curb ramps should be installed on all corners of the intersection of Main Street and Sumner Street.



Figure 41: Sumner Street south of Main Street

From School Alley to Wood Street, sidewalk could likely be installed on the west side of Sumner Street. The east side poses a challenge due to the slope and stone installation along the residential site. ADA compliant directional curb ramps should be installed for the ability to cross the west leg and north leg of the intersection of Sumner Street and Wood Street.

Taggart Street

Taggart Street, with a mix of commercial and residential uses, has existing sidewalks from Market Street to Pleasant Drive. Some sections of the sidewalk need to be repaired, and all of the curb ramps should be replaced with ADA compliant directional curb ramps. There are several places where curbs should be installed and driveways designated to reduce the site access points.

Taggart Street from Market Street to the alley east of Market Street includes gas stations on the north and south sides with several access points close to the intersection. It may not be feasible to close access to either site due to the existing site layout and circulation needs, but this should be investigated further in an attempt to reduce access where possible.

Along with ADA compliant directional curb ramps at Taggart Street and Sumner Street intersection, there should be a high visibility crosswalk connecting the southwest corner to the north side of Taggart Street. A curb extension on the northside would improve safety for pedestrians. Currently, there is a diagonal curb ramp on the southeast corner indicating the ability to cross Taggart Street, but there are no receiving curb ramps on the north side. It would require a person in a wheelchair to cross to the driveway between Napa and the gym rather than safely to a sidewalk. A crosswalk connecting the southeast corner to the north side of Taggart Street is not necessary, therefore there should also not be a curb ramp directing pedestrians to cross north without a receiving curb ramp.

There is head-in parking in front of the retail building and apartment on the southeast corner of Taggart Street and Sumner Street. This will likely have to stay and function as head-in parking unless there is parking available in another location for this site.

The angle parking on the north side of Taggart Street in front of the gym and pizza restaurant, just east of Sumner Street, should be removed and replaced with parallel parking, curb, and sidewalk. These should align with the parking lane and sidewalk in front of Napa that continues to the west. Figure 42 shows the current conditions along Taggart Street. The angle parking situation is an example of the sidewalk being provided on private property. The culvert just to the east should be extended to allow for sidewalk to continue east on Taggart Street. On the south side of the street, continuous curb cuts can be seen. These should be consolidated and reduced to a proper driveway width. Curb and sidewalk should be installed to replace all closed driveways.



Figure 42: Angle Parking on Taggart Street

For the remainder of Taggart Street to James Street, new curb and sidewalk should be installed. Each site should be provided designated access points and the remainder of the frontage should be closed with curb and sidewalk. Figure 43 shows the lack of reveal on the curb face, making the sidewalk feel at grade with the roadway. A taller curb is needed to make pedestrians feel safer using this sidewalk.

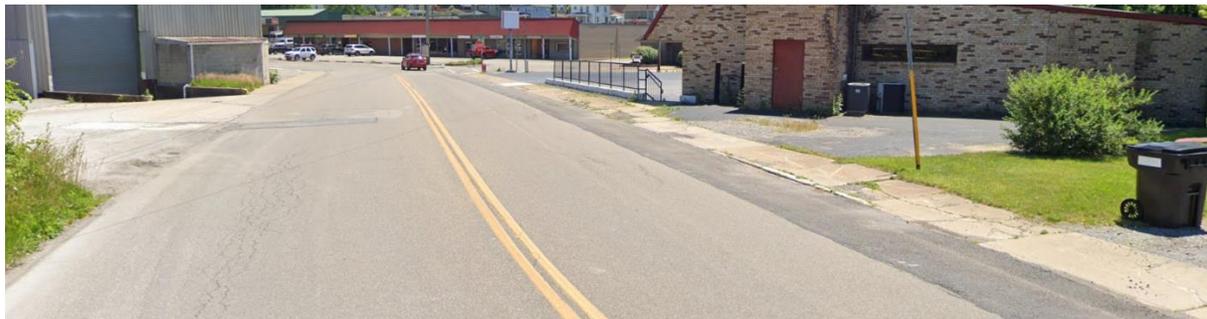


Figure 43: Taggart Street to Rebecca Street

Grant Street

There are twelve ADA compliant parking spaces on Grant Street in front of the East Palestine Elementary School. These spaces are head-in parking and as discussed earlier in this section, this is not the preferred method for providing parking on public streets. The sidewalk provided for pedestrians away from the travel lane eliminates conflict points between pedestrians and vehicles, unfortunately it is on private property. Possibly the school permits the public to use its sidewalk, but this is a technicality that would need to be resolved for liability purposes. In addition, this sidewalk is not accessible to people in wheelchairs from the ADA compliant parking spaces, requiring a person in a wheelchair to travel between the parked vehicles and the travel lane. There is approximately 250 feet between the curb ramps on either end of the head-in parking area, placing the mobility impaired in a vulnerable path for a longer distance than is desired.

Ideally, if the parking lot or school lot is redesigned in the future, this could be resolved at that time. The design should include a sidewalk that is in the public right-of-way and all school parking spaces maneuver within school property.

It is recommended to place the ADA compliant spaces closer to curb ramps. There are three curb ramps provided in the head-in and angle parking in front of the school. Rather than stacking all the ADA compliant parking spaces at the west end of the row, the spaces could be divided and placed closer to the other ramps available. The intention here may have been to provide these spaces closest to the intersection if the destination is the football stadium. However, this leaves the mobility impaired pedestrian in an unsafe path longer. The ADA compliant spaces, in this situation, should be placed closer to ramps to get the pedestrian to a safe path, even if it results in a longer overall path.

This location may be a good use of back-in or reverse angle parking. Mobility impaired pedestrians and other pedestrians who are not using the sidewalk on the school property will be traveling between the parking spaces and the travel lane. Reverse angle parking improves visibility of pedestrians, bicyclists, and other motorists when exiting the parking space. Figure 44 illustrates the benefit of a wider field of vision when exiting. The driver can easily enter the travel lane when a gap is provided in contrast with the dangers of

backing into the travel lane. Upon entering the parking space, the parking vehicle has control of the travel lane by stopping the traffic behind it and allowing the maneuvering, similar to parallel parking.

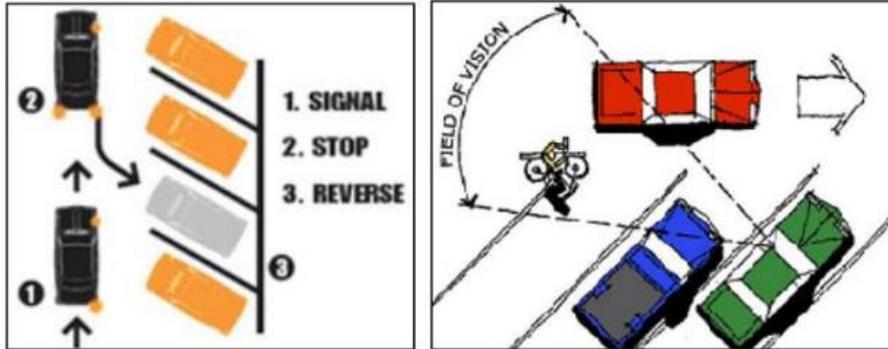


Figure 44: Reverse Angle Parking: Maneuvering and Field of Vision. Source: DavisVanguard.org

Chapter 7

EQUITY CONSIDERATIONS

7.1 Equity in Transportation

7.2 Underserved Communities; Greater Exposure and Reduced Resiliency

7.3 Equitable Safety Improvement Strategy

7.4 Recommendations



7. EQUITY CONSIDERATIONS

7.1 Equity in Transportation

Equity in transportation acknowledges that underserved communities often experience greater exposure and reduced resilience to traffic safety issues. An "underserved community" refers to a group of individuals or a geographic area that lacks access to essential services and opportunities, typically due to historical and systemic inequities. These communities often experience neglect or insufficient investment from government, private, or nonprofit sectors, resulting in inadequate infrastructure, education, healthcare, employment opportunities, and transportation options. These areas, typically lower-income, face disproportionately high rates of crashes, injuries, and fatalities. Residents in these communities are more reliant on walking, biking, or public transit, exposing them to significant risks due to extended periods spent near unsafe roadways. Additionally, if vehicles are owned, they are likely older and lack advanced safety features, making these communities less resilient to the impacts of traffic incidents, weather events, and inadequate infrastructure.

The equitable safety improvement strategy outlined prioritizes the needs of these communities. Extensive outreach ensures that those most affected by transportation inequalities are heard, and their feedback is integrated into planning efforts. The Climate and Equity Justice Screening Tool (CEJST) helps identify disadvantaged areas with high cumulative burdens due to underinvestment. This approach not only prioritizes investments in high-risk areas but also ensures that the benefits of transportation improvements are equitably distributed, enhancing accessibility and safety for all, particularly those in high-need areas.

Policy recommendations advocate for integrating transportation safety investments with housing and land use policies to mitigate displacement risks and enhance community stability. Proactive safety measures rather than reactive penalties are emphasized, with a focus on traffic calming to reduce speeds in high-risk areas. Additionally, recommendations include further studies and fund allocations specifically targeting underserved areas to support their unique needs.

This comprehensive, data-informed, and community-focused approach aims to break the cycle of poverty and vulnerability by creating a more just and equitable transportation system, ensuring that all community members, regardless of their economic status or geographical location, have access to safe, reliable, and affordable transportation options

7.2 Underserved Communities; Greater Exposure and Reduced Resiliency

Lower-income neighborhoods experience higher rates of crashes, injuries, and fatalities compared to other areas. Residents in low-income communities have greater exposure to traffic safety problems. They are less likely to own or have sufficient access to a family vehicle and therefore rely on less protected modes of transport such as walking, biking, or public transit. These methods often result in longer time periods spent on or adjacent to unsafe roadways with few options to avoid or reroute. If a car is owned and available, it is more likely to be an older model with less advanced safety features. Low-income households that do own a car often prioritize using the car for commuting to work, relying on active transportation or public transit for other types of trips. In addition to greater exposure to unsafe roadways, members of the underserved communities are at a reduced resiliency to unsafe roadways. Weather events, construction detours,

occasional and consistent traffic congestion, and inadequate facilities are more impactful to the commute of someone using active or public transportation. This could result in later arrivals, missed work, loss of wages, and loss of employment. Furthermore, members of underserved communities are less resilient in the case of a traffic incident. Older vehicles may be totaled more easily than newer cars, leaving residents without a vehicle and not enough cash to replace it with the same functionality. Loss of transportation could result in loss of employment. People in low-income communities may be less likely to afford medical treatment or to maintain their employment and pay, as lower wage work is often physical and intolerant to limited capabilities. Thus, higher exposure and reduced resiliency to unsafe roadways results in increased levels of poverty and the cycle continues.

The study *Neighborhood Social Inequalities in Road Traffic Injuries: The Influence of Traffic Volume and Road Design*¹ by Patrick Morency and colleagues investigate how differential traffic volumes and road geometries contribute to social inequalities in road traffic injuries among pedestrians, cyclists, and motor vehicle occupants in urban settings. The research indicates that much of the higher incidence of road traffic injuries in poorer neighborhoods can be explained by higher exposure to risk due to more intensive traffic flows and potentially more hazardous road geometries. Addressing these risk factors through urban planning and targeted road safety interventions could reduce socioeconomic disparities in road traffic injuries. This research is similar and echoed by many sources.

Key Findings:

- **Higher Injury Rates in Poorer Areas:** There were significantly more injuries among all road users (pedestrians, cyclists, motor vehicle occupants) at intersections in poorer areas compared to richer areas.
- **Role of Traffic Volume and Road Design:** Adjusting for traffic volume and intersection design (e.g., the number of intersection legs and the presence of major roads) substantially reduced the disparity in injury rates between poorer and richer areas. For example, the rate ratios for pedestrian injuries decreased by 70% when these factors were considered.
- **Impact of Population Density and Transportation Modes:** Higher population densities and different modes of transportation (e.g., increased walking and public transit usage in poorer areas) also correlated with higher injury rates. These factors indicate more exposure to potential accidents.

Mechanisms and Implications:

- **Environmental and Exposure Risk Factors:** The study underscores the significant impact of environmental characteristics such as traffic density and road design on injury risks. Poorer neighborhoods often have higher traffic volumes and road designs that increase the risk of accidents.
- **Policy Implications:** The findings suggest that interventions focusing on modifying road designs, improving traffic conditions, and possibly reducing vehicle speeds could mitigate the higher risk of road injuries observed in economically disadvantaged areas.

¹ <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2011.300528>

7.3 Equitable Safety Improvement Strategy

To develop a secure and equitable transportation system, a comprehensive plan must give precedence to safety and concentrate on communities that are typically underserved. This equitable strategy should allocate investments in a manner that prioritizes individuals with limited resources and those subject to exclusion and discrimination based on race, gender, age, disability, or economic status, thereby enhancing their health and living standards.

The historical lack of investment in these communities has led to unequal outcomes in terms of crash fatalities and severe injuries. Additional funding is now crucial to close these gaps and achieve the goal of no deaths or serious injuries. An equitable funding approach involves directing a larger portion of transportation funds to these underserved areas, providing them with comparable access to safe, multimodal transport options similar to those in traditionally well-served areas, thereby facilitating safer access to jobs, healthcare, education, food, and leisure activities.

The Federal Highway Administration is adapting its procedures to embed safety for all users as a standard practice in all its federal funding schemes. Existing engineering approaches and safety measures, such as a systemic safety approach, the use of Proven Safety Countermeasures, Complete Streets initiatives, and Context-Sensitive Design, are instrumental in addressing the specific safety needs and priorities of underserved communities in all transport projects. This Action Plan adheres to that model in the following ways:

- 1. Acknowledgement.** The Action Plan asserts that underserved communities are at a greater exposure and a reduced resiliency to traffic safety problems, resulting in a higher frequency of crashes, a higher proportion of pedestrian and cyclist involved crashes, and a greater degree of severity and/or more fatalities due to crashes.
- 2. Outreach.** To ensure those in underserved communities were heard, staff hosted a variety of public outreach opportunities, as described in **Section 2.2 Public Engagement**. Staff also met regularly with Village administration to better understand the population needs, sentiment toward roadway safety, and exposure.
- 3. Incorporation of Justice40 Data and ETC study.** Per USDOT; The Justice40 initiative, created by the Biden-Harris Administration through Executive Order 14008 Tackling the Climate Crises at Home and Abroad, is a key component in U.S. Department of Transportation (DOT) efforts to confront and address decades of underinvestment. When decision makers at all levels have the tools to understand how a community is experiencing disadvantage and can identify projects that create benefits that will reverse or mitigate those causes, the result is a higher quality of life and economic prosperity in communities across the country.

The U.S. DOT Equitable Transportation Community (ETC) Explorer is an interactive web application that uses 2020 Census Tracts and data, to explore the cumulative burden communities experience as a result of underinvestment in transportation, in the following five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. It is designed to complement the White House Council on Environmental Quality (CEQ) Climate & Economic Justice Screening Tool (CEJST) by providing users deeper insight into the

Transportation disadvantage component of CEJST, and the ETC Explorer's Transportation Insecurity component, which will help ensure the benefits of DOT's investments are addressing the transportation related causes of disadvantage. USDOT's ETC Explorer is not a binary tool indicating whether a census tract is considered disadvantaged; it is a dynamic tool that allows every community in the country to understand how it is experiencing burden that transportation investments can mitigate or reverse.

East Palestine falls primarily within Census Tract 39029951500, with the northwest corner of the Village lying in Census Tract 39029950100. Because these tracts cover large areas within the Village, the tract-level data is not detailed enough to show meaningful differences within the community. As a result, many roadways appear to have similar conditions, making it difficult to identify specific areas of need. To better visualize areas of need within the Village, StreetLight Insight was utilized. In addition to providing traffic data, StreetLight Insight can also provide anonymous attribute data of the analyzed travelers. Through an origin-destination analysis, annual income data was obtained according to the neighborhood traveled to. According to the US Department of Health and Human Services (HHS), the 2025 poverty guideline for the 48 contiguous states and the District of Columbia for a household of four is \$32,150. Using StreetLight Insight, the neighborhoods identified in Figure 45 are displayed according to the percentage of households with an average annual income below \$30,000.

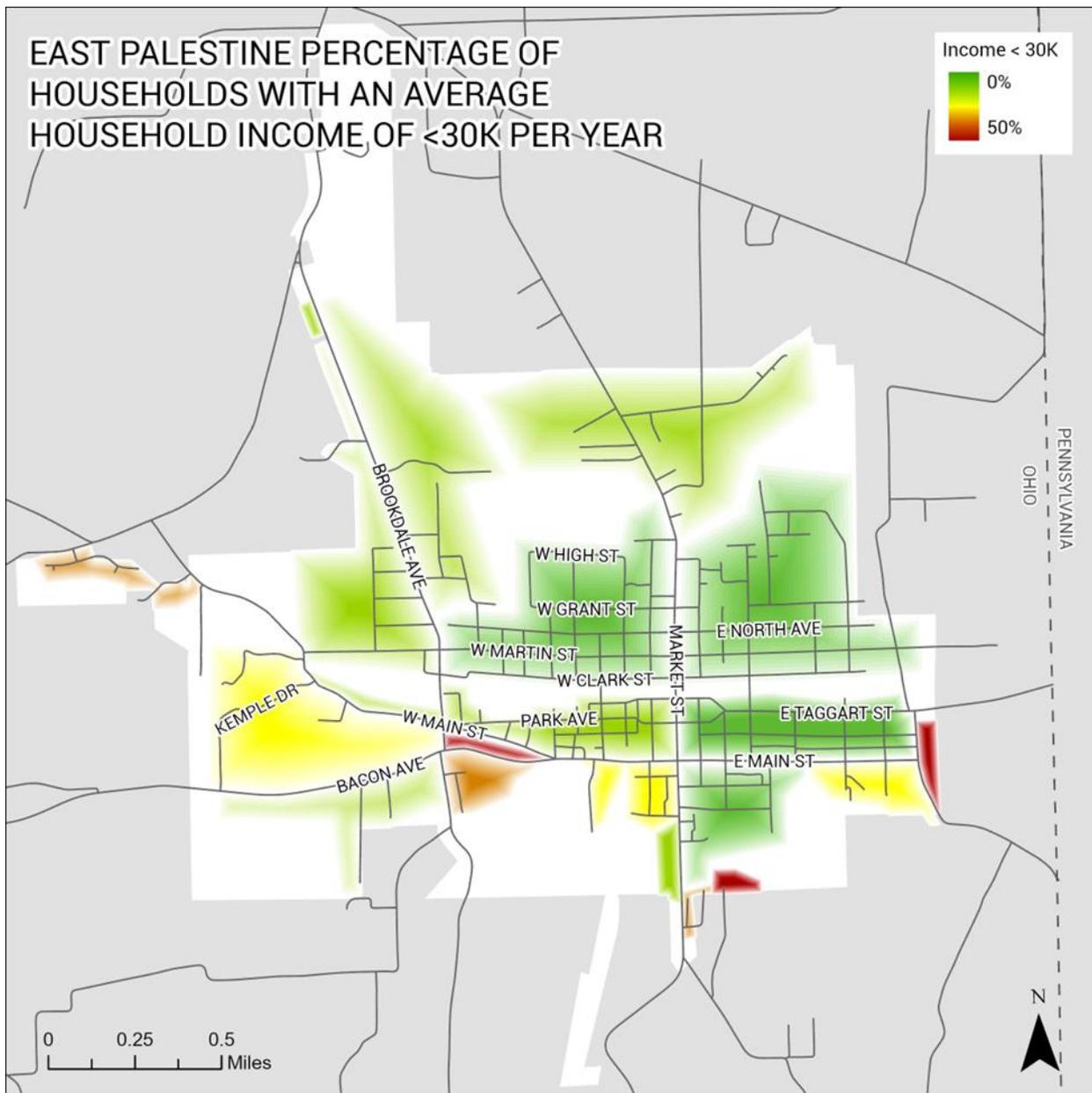


Figure 45: East Palestine neighborhoods with an Average Annual Household Income below \$30,000

Intersectionality involves the intersection of various inequities such as race, income, age, geography, disability, English proficiency, among other factors, which multiply to impact individuals' lives. The vulnerabilities faced by an individual are not isolated; for instance, those without a vehicle are at greater risk in a car-centric transportation system that lacks comprehensive pedestrian and transit networks, a risk further increased for individuals with disabilities due to unsafe and inaccessible infrastructure. This concept of intersectionality should be incorporated into every phase of the transportation safety process by analyzing data should include examining multiple demographic factors, engaging with communities with individuals facing multiple vulnerabilities, rather than assuming a single community member represents the entire group's

concerns, and implementing improvements addressing the needs of those facing compounded disadvantages. Using the equity focused methodology described above accomplishes this.

4. Prioritization. In the Village of Buckeye Lake, many roadway segments and intersections serve both low- and high-income neighborhoods, making equity-based prioritization more difficult to accomplish. To face this challenge, the recommended infrastructure projects, discussed later in this Action Plan, are prioritized by their incorporation of active transportation facilities. These facilities, such as sidewalks, bike lanes, and side paths, equitably serve pedestrians and cyclists who need to reach their destination despite not owning a vehicle. The prioritization process of recommended infrastructure projects will be discussed in more detail later in the report.

5. Recommendations.

- a. **Infrastructure.** Improving roadway safety equitably depends on improving high crash areas, but also providing safer and better access to active transportation. In terms of pedestrian and bicycle facilities, transportation officials need not wait for a fatality in a certain location to apply safety improvement countermeasures. Locations of poor, inadequate, or missing infrastructure where there is a high need for active transportation should be included in top recommendations for improvement. See **Section 9.2 Project Identification and Recommended Countermeasures** for information on how this was done. Furthermore, the types of countermeasures recommended for improvement favor proactive safety such as traffic calming to reduce speeds, rather than speed and ticketing cameras to penalize speeding.
- b. **Policy.** These recommendations promote integrating transportation safety investments with housing and land use policies to prevent negative outcomes like displacement of residents and businesses. The recommendations also include updating policies, procedures, guidelines, and plans based on equitable data analysis and public involvement.
- c. **Supplemental Study.** Funds for additional safety studies favor locations where the municipality is in an underserved area and less likely to have capital to fund their own studies.

Neglecting equity in decision-making processes can have several detrimental outcomes. It can increase the risk of fatal and severe injuries in crashes, particularly in communities that rely on multi-modal transportation systems. This oversight can also foster a growing distrust in government processes and reduce community involvement, potentially leading to the delay or complete halt of projects. Moreover, it often results in inefficient and ineffective use of funds meant to enhance safety performance objectives. Furthermore, delays in investments, often due to data inaccuracies and underreporting, can exacerbate these issues. Ultimately, this neglect perpetuates the vulnerability of those most susceptible to environmental burdens and disparities, leaving them at continued risk.

Chapter 8

POLICY RECOMMENDATIONS

8.1 Existing Village of East Palestine Policies

8.2 Policy and Progress Change Recommendations



8. POLICY RECOMMENDATIONS

8.1 Existing East Palestine Policies

East Palestine does not have existing policies regarding roadway safety.

8.2 Policy and Progress Change Recommendations

An effective policy directs staff and decision makers to consistently plan, design, build, operate, and maintain the transportation system in a way that prioritizes safety and progress toward the goal of eliminating traffic-related deaths and serious injuries. Policies can take many forms; they can be brief or may contain extraordinary detail, but they should be more than just an expression of support. An effective policy outlines the path to turning a policy into practice and a realized goal.

Throughout the development of this Action Plan, several countermeasures have emerged as consistently recommended treatments for specific crash types. These countermeasures should not only inform future plans and projects but also be proactively applied across roadways to enhance safety and reduce crash risk. As part of a systematic approach, these safety improvements should be integrated into new infrastructure projects and prioritized on corridors identified within the High Injury and High Risk Networks. The key policy recommendations provided below have been developed to guide future planning using crash data discussed previously in [Chapter 3 Existing Safety Analysis](#).

Pedestrians and cyclists are especially vulnerable to fatal and serious injury (FSI) crashes. During the 2020-2024 study period, 25% of Pedestrian crashes resulted in fatal or serious injuries, while 14.3% of all Bicycle crashes resulted in fatal or serious injuries. These crash types are greatly overrepresented in FSI crash data. Crashes involving pedestrians comprise 0.9% of all crashes, and 12.5% of FSI crashes. Similarly, bicycle crashes comprise 1.5% of all crashes, and 12.5% of FSI crashes. To address these trends, this Action Plan recommends that the Village of East Palestine implements the following policies on new and existing roadways:

- **High-visibility crosswalk markings, such as the “continental” or “ladder” styles be used at all pedestrian crossings.**
- **Parallel facilities for active transportation users, such as sidewalks, bicycle lanes, or shared use paths be constructed alongside roads wherever practical on new or resurfacing projects.**

Left Turn crashes were the leading FSI crash type in the 5-year study period, accounting for 25% of FSI crashes. Angle crashes were the leading crash type overall, accounting for 23% of all crashes and 13% of FSI crashes. Left Turn and Angle crashes typically occur at intersections. Failure-To-Yield was the leading contributing factor, which also typically occurs at intersections. Roundabouts are a proven safety countermeasure that can reduce the frequency and severity of crashes at intersections. Roundabouts reduce conflict points, reducing the frequency of crashes. Due to the geometric configuration of roundabouts, the crashes that may occur are typically Side-swipe Crashes and less severe than the Angle Crashes that occur at traditional signalized or stop-controlled intersections.

- **Consider installation of a roundabout for any intersection improvement to reduce congestion, crash frequency, and crash severity.**

Overgrown vegetation and private business signs placed in the clear zone can impede driver sight distance triangles, increasing the likelihood of crashes at intersections. Continuously monitoring and clearing obstructions within sight distance triangles support safer roadways.

- **Regularly monitor and clear obstructions from sight distance triangles at intersections.**

Pedestrian and Bicycle Crashes accounted for 25% of the FSI crashes in the study period. Mixing modes of transportation can cause confusion for an uneducated driver, rider, or pedestrian. Additional education and advocacy can lead to an increase in awareness, understanding, and acceptance of active transportation on local roadways.

- **Support or develop educational and advocacy programs to promote safe walking and riding.**

Leveraging the HIN and HRN to assess and analyze problem areas is a good starting point for future studies and projects. Use the scores from the HIN, HRN, CEJST, and ACS to apply for funding and prioritize projects.

- **Systematically engage communities with specific roadway segments and intersections on the High Injury and High Risk Networks to plan for safety funding, safety studies, and implementation of safety improvement countermeasures. Prioritize projects with higher CEJST and ACS scoring.**
- **Submit STBG Applications and incorporate scores from the High Injury Network and High Risk Network. Similarly, increase the weight of complete streets components in the STBG application and amplify that weight by the CEJST scores.**
- **Allocate funding for additional safety studies in locations where the municipality is in an underserved area and less likely to have capital to fund their own studies.**

Chapter 9

LOCATION PRIORITIZATION AND SAFETY COUNTERMEASURES

9.1 FHWA Proven Safety Countermeasures

9.2 Priority Locations and Recommended Countermeasures

9.3 Selected Projects

9.4 Supplemental Planning

9.5 Demonstration Projects



9. LOCATION PRIORITIZATION AND SAFETY COUNTERMEASURES

9.1 FHWA Proven Safety Countermeasures

FHWA’s Proven Safety Countermeasures (PSC) initiative is a collection of 28 countermeasures and strategies effective in reducing roadway fatalities and serious injuries on our Nation’s highways. Transportation agencies are strongly encouraged to consider widespread implementation of PSCs to accelerate the achievement of local, State, and National safety goals. These strategies are designed for all road users and all kinds of roads—from rural to urban, from high-volume freeways to less traveled two-lane State and county roads, from signalized crossings to horizontal curves, and everything in between. Each countermeasure addresses at least one safety focus area – speed management, intersections, roadway departures, or pedestrians/bicyclists – while others are crosscutting strategies that address multiple safety focus areas. Each of the countermeasures and the safety focus group that it addresses is listed below. The last group of countermeasures, titled Crosscutting, addresses multiple safety focus areas.

Speed Management



Appropriate Speed Limits for All Road Users



Speed Safety Cameras



Variable Speed Limits

Roadway Departure



Enhanced Delineation for Horizontal Curves



Longitudinal Rumble Strips and Stripes on Two-Lane Roads



Median Barriers



Roadside Design Improvements at Curves



SafetyEdgeSM



Wider Edge Lines

Pedestrian/Bicyclist



Bicycle Lanes



Crosswalk
 Visibility
 Enhancements



Leading
 Pedestrian
 Interval



Medians and
 Pedestrian Refuge
 Islands in Urban
 and Suburban
 Areas



Pedestrian
 Hybrid Beacons



Rectangular
 Rapid Flashing
 Beacons (RRFB)



Road Diets
 (Roadway
 Reconfiguration)



Walkways

Intersections



Backplates with
 Retroreflective
 Borders



Corridor Access
 Management



Dedicated Left- and
 Right-Turn Lanes at
 Intersections



Reduced Left-
 Turn Conflict
 Intersections



Roundabouts



Systemic
 Application of
 Multiple Low-Cost
 Countermeasures
 at Stop-Controlled
 Intersections



Yellow Change Intervals

Crosscutting



Lighting



Local Road Safety
 Plans



Pavement
 Friction
 Management



Road Safety Audit

9.2 Project Identification and Recommended Countermeasures

Herein is the identification of a comprehensive set of projects and strategies—shaped by data, the best available evidence and noteworthy practices, and stakeholder input and equity considerations—that will address the safety problems described in this Action Plan. These strategies and countermeasures focus on a Safe System Approach and effective interventions and consider multidisciplinary activities.

The methodology for determining and prioritizing safety improvement projects in the Village of East Palestine considers the following items:

- Crash History (2020-2024), including percent of injury-related crashes
- High Injury Network (HIN) and High Risk Network (HRN)
- Mode (All Modes, VRU)
- Walking and Biking Priority Network
- Low to Moderate Income Population
- Public Involvement and Stakeholder Input

Considering the factors listed above, four distinct Priority Lists were developed. The four distinct Priority Lists are as follows:

1. All Modes, Segments
2. All Modes, Intersections
3. VRU, Segments
4. VRU, Intersections

The Priority Lists rank proposed projects as a function of percent injury, FSI crash history, and HRN presence. The four sorted Priority Lists with recommendations for safety improvement are provided in **Appendix C**.

9.3 Selected Projects

Upon developing recommendations for each location identified on the Priority Lists, eight unique projects have been selected for demonstration in this Action Plan. These Selected Projects are described in this section with discussion on crash history, setting, potential countermeasures, and recommendations. Selected Project sheets are provided in **Appendix D**, and associated cost opinions are provided in **Appendix E**. Note that planning-level cost estimates should be verified after project termini are selected and greater examination is performed. The eight Selected Projects, and the Priority Lists they appear on, are as follows:

1. Market Street from Grant Street to Garfield Avenue
 - Priority Segment
 - Priority Intersections
 - VRU Segment
 - VRU Intersection
 - High Risk Network
2. East Taggart Street, East Rebecca Street, North Sumner Street
 - Priority Segment
 - Priority Intersections
 - VRU Segment
 - VRU Intersection
 - High Risk Network
3. Sumner Street from Wood Street to Taggart Street
 - Priority Segment
 - VRU Segment
 - VRU Intersection
4. East Taggart Street & James Street
 - Priority Intersection
 - VRU Segment
 - High Risk Network
5. Bacon Avenue & Brookdale Avenue
 - Priority Intersection
 - Priority Segment
 - VRU Segment
 - High Risk Network
6. West Main Street & Brookdale Avenue & Park Avenue
 - Priority Intersection
 - Priority Segment
 - VRU Segment
 - High Risk Network
7. East Taggart Street & Rebecca Street & North Liberty Street
 - Priority Intersection
 - Priority Segment

- VRU Segment
 - High Risk Network
8. West Main Street & Bacon Avenue & Everett Street
- Priority Intersection
 - Priority Segment
 - VRU Priority Segment
 - High Risk Network

Market Street – Grant Street to Garfield Avenue

This section of Market Street from Grant Street to Garfield Avenue is a north/south major collector, stretching 0.58 miles. The speed limit on this segment is 25 MPH. According to ODOT’s Traffic Monitoring Management System (TMMS), Market Street AADT ranges from approximately 2700 vehicles near the south end, to approximately 6000 vehicles near Taggart Street, to approximately 4000 vehicles at the north end. The central commercialized blocks from Lincoln Avenue to Taggart Street include one travel lane in each direction and on-street parking on both sides of the street. There is a marked buffer between the travel lane and the on-street parking, which has helped to significantly reduce crashes involving parallel parking. As the roadway narrows to the south, parking is limited to one side of the street. North of Taggart Street, no on-street parking is permitted due to a southbound left turn lane at Taggart Street. As the roadway narrows to the north, the use becomes residential and parking is permitted on one side of the street from Clark Street to Martin Street, and no on-street parking is permitted north of Martin Street. This segment contains ten intersections (not including alleys), four of which are signalized. There is a signalized, at-grade railroad crossing between Taggart Street and Clark Street. Sidewalks with ADA compliant curb ramps exist on both sides of the street through the entire segment, though many of the curb ramps are diagonal rather than directional. Transverse crosswalks exist on all four legs of the signalized intersections and two additional intersections in the north end of the segment, plus on the south leg of Meadow Lane in the south end of the segment.

During the five-year study period of 2020-2024, there were 64 recorded crashes on this segment. Three were FSI crashes and 20% of the 64 total crashes resulted in some level of injury. The most common crash types were Angle crashes (32%) and Rear-End crashes (25%). The most common contributing factors were Failure to Yield (25%), ACDA (25%), and Ran Red Light (19%). There was one Pedestrian crash and one Bicycle crash, both of which resulted in minor injury. This segment appears on five priority lists: *Priority Segments*, *Priority Intersections*, *VRU Priority Segments*, *VRU Priority Intersections*, and *High Risk Network*.



Figure 46: Market Street at Main Street, looking north. Image obtained from Google Street View (2025).

This Comprehensive Safety Action Plan recommends several countermeasures, including FHWA Proven Safety Countermeasures, to improve active transportation infrastructure and to address common crash types on this segment of Market Street.

Intersection visibility is important to bring awareness to upcoming conflict points which helps to prevent Rear-End and Angle crashes. High-visibility crosswalks, larger street name signs, 12" LED traffic signal indications, reflective signal backplates all help to enhance intersections. In addition, replacing traffic signal diagonal spans with box spans or mast arms have shown to reduce late entries into the intersection. A review of signal timing should be performed periodically. This is to ensure proper yellow and all-red phases are given the appropriate amount of time for safety purposes, but also to ensure the intersection is running as efficiently as possible, which also improves safety. Some access points, specifically near Taggart Street, should be evaluated for consolidation and reduction. Access management reduces conflicts between vehicles and other vehicles and between vehicles and pedestrians and improves roadway efficiency. This provides a safer facility for all. Installing a northbound left turn lane on Market Street at Taggart Street would improve the alignment of the lanes. Currently, the northbound through lane is offset in the wrong direction with the southbound left turn lane and the southbound through lane is offset in the wrong direction with the parking lane.

To improve active transportation infrastructure, pedestrian and bicycle facilities should be upgraded. The diagonal curb ramps should be replaced with directional curb ramps to avoid directing visually impaired pedestrians toward the center of the intersection and to keep wheelchair users away from the adjacent travel lane. Curb extensions should also be installed for additional visibility of pedestrians, and they shorten the pedestrian exposure time in the travel way. Pedestrian push buttons, countdown displays, and "Turning Vehicles Yield to Pedestrians" should be installed at all appropriate intersection.

To further improve active transportation infrastructure, a designated location for cyclists should be provided by use of pavement markings by either delineating a dedicated bike lane or marking the vehicular lane with sharrows. This requires a parking study to determine if one side of on-street parking could be removed. If parking can be removed from one side of Market Street, a bike lane should be provided for the entire segment. If parking is not removed, sharrows should be installed from Main Street to Clark Street, while still providing a dedicated bike lane to the south of Main Street and to the north of Clark Street. If parking is not removed from Main Street to Clark Street, the existing parking buffer pavement markings should be included in future plans. While examining crash data, it was discovered that crashes on Market Street involving parallel parking were significantly reduced after the implementation of the buffer zone. If bike lanes are installed, this buffer will not be necessary.

East Taggart Street, East Rebecca Street, North Sumner Street

This group of segments includes East Taggart Street from Market Street to Liberty Street, East Rebecca Street from Market Street to Liberty Street, and Sumner Street from Rebecca Street to Taggart Street. The speed limit on all of these segments is 25 MPH. Taggart Street and Rebecca Street are east/west collectors and Sumner Street is a north/south local street. According to ODOT's Transportation Information Mapping System (TIMS), East Taggart Street has an AADT of approximately 1800 vehicles, Rebecca Street has an AADT of approximately 1500 vehicles, and Sumner Street has an AADT of approximately 200 vehicles. All segments have one travel lane in each direction. Taggart Street hosts mostly businesses with a few residential sites.

Taggart Street has parallel parking on the north side of the street from an alley east of Market Street to Sumner Street. There is angle parking on the north side of the street from Sumner Street to the bend in Taggart Street. No parking is permitted on the other sections of Taggart Street. Rebecca Street is residential and hosts a church. Parallel parking is permitted on the south side of the street from Market Street to Sumner Street and no on-street parking permitted on the remaining sections. Sumner Street is residential and has parallel parking permitted on the east side only.

During the five-year study period of 2020-2024, there were eight recorded crashes on these segments. One was an FSI crash. The most common crash types were Angle, Sideswipe-Passing, and Parked Vehicle crashes with 25% each. The most common contributing factors were Failure to Yield and Improper Backing, with 25% each. This segment appears on four priority lists: *Priority Segments*, *Priority Intersections*, *VRU Priority Segments*, and *High Risk Network*.

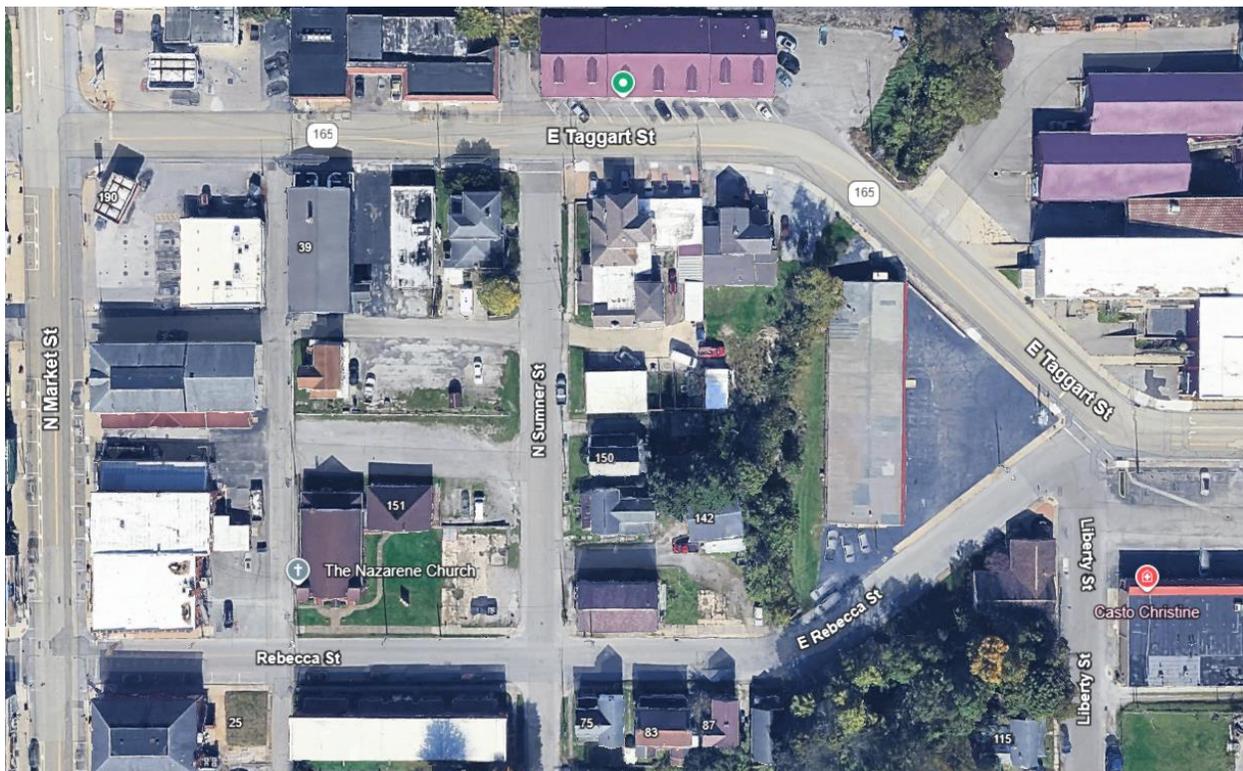


Figure 47: Taggart Street, Rebecca Street, and Sumner Street Segments. Image obtained from Google Earth.

This segment contains three intersections (not including alleys), none of which are signalized. Sidewalk gaps exist on Taggart Street due to excessive access points. Sidewalk exists only on the east side of Sumner Street and those are blocked with utility poles. Rebecca Street has sidewalks on both sides of the street, however much of the sidewalk from the bend to Liberty Street on the northwest side is at-grade with the roadway due to the wide access to the Family Dollar store. Curb ramps exist at all intersections, though it is unclear if these are ADA compliant. One transverse crosswalk is marked on Rebecca Street at Taggart Street.



Figure 48: Taggart Street st Sumner Street, looking east. Image obtained from Google Street View (2024).



Figure 49: Sumner Street at Rebecca Street, looking north. Image obtained from Google Street View (2024).



Figure 50: Rebecca Street, looking northeast at the Taggart Street intersection. Image obtained from Google Street View (2024).

Improving access management along Taggart Street would not only likely reduce crashes, but it would also provide safer pedestrian infrastructure and encourage walking. Access management for this area is described in greater detail in the Access Management section of this study. The Access Management section also explains the importance of access management. Large access openings should be reduced to an appropriate driveway width. Multiple access points should be consolidated. Curbs and sidewalks should be installed where access points have been removed. The diagonal curb ramps should be replaced with directional curb ramps to avoid directing visually impaired pedestrians toward the center of the intersection and to keep wheelchair users away from the adjacent travel lane. The angle parking creates a gap in public sidewalk. A safer option is to convert this parking to parallel parking, shift the curb to the south in the same alignment as the curb to the west, and provide a public sidewalk in the same alignment as the sidewalk to the west.

To continue active transportation infrastructure improvements of the segments, sidewalks and curbs should be installed along Sumner Street on both sides of the street wherever possible. Sumner Street is also described in greater detail in the Access Management section of this report. Bicycle facilities, either bike lanes or sharrows, should be installed on Sumner Street.

There are two locations on Rebecca Street in which access should be reduced. The first is the healthcare office that fronts Market Street. The parking lot behind the building should access the alley rather than Rebecca Street and sidewalk and curb should be installed here. The next is the Family Dollar at the intersection of Rebecca Street and Taggart Street. The existing sidewalk is mostly at grade with the roadway creating less separation between pedestrians and vehicles. Creating defined and reduced access points for the Family Dollar and providing sidewalks and curbs at a raised elevation from the roadway would provide a safer and more comfortable facility for pedestrians. Diagonal curb ramps should be replaced with directional curb ramps.

Sumner Street – Wood Street to Taggart Street

This 0.3 mile segment of Sumner Street is within the downtown area, just one street east of Market Street, and includes businesses, offices, and residences. The speed limit on Sumner Street is 25 MPH. According to TIMS, Sumner Street is a local roadway with an AADT of approximately 200 vehicles. This segment includes five intersections (not including alleys), none of which are signalized. Sumner Street consists of one travel lane in each direction and on-street parking permitted in some locations. Sidewalks exist on the east side of Sumner Street from Alice Street to Taggart Street and do not exist anywhere else within the segment. There are no pavement markings except for a transverse crosswalk on Sumner Street at Taggart Street.

There were six reported crashes during the five-year study period. Fifty percent of crashes resulted in injury. Of the six crashes, two crashes involved bicycles, both of which resulted in injury. This segment appears on the *Priority Segment*, *VRU Segment*, and *VRU Intersections* priority lists.

Sumner Street was examined for access management and the installation of active transportation infrastructure, and the full details of this examination can be found in the Access Management section of this study. The Access Management section also explains the importance of access management. The current identity of Sumner Street is confusing because the lack of sidewalks and no access management make it appear like an alley, but businesses and offices have frontage on this street requiring it to provide pedestrian facilities like a local street. Pedestrians using this street are often met with a sea of pavement with no separation from vehicular traffic.



Figure 51: Sumner Street at Main Street, looking north. Image obtained from Google Street View (2024).

This segment requires systematic application of reduction of access points and installation of curb, sidewalks, high-visibility crosswalks, and ADA compliant directional curb ramps wherever possible. Access management and pedestrian infrastructure create a safe and comfortable environment for pedestrians. Several locations create challenges in reducing access points and providing pedestrian infrastructure. The Access Management section of this study provides detailed information on where access points should be reduced, where sidewalks should be installed, and where sidewalks may have to be omitted for the near future. The Access Management section also provides images illustrating the locations and challenges. In all locations, it is possible to install sidewalk on at least one side of Sumner Street. Where there will be no sidewalk to receive a pedestrian, a curb ramp should not be installed to cross to that location. These details are also laid out in Access Management section and illustrated in the Sumner Street cut sheet in **Appendix D**.

Pavement markings, including centerlines, stop bars, and bike facilities, should be installed as well. Sumner Street should be studied to determine if bike lanes or sharrows should be installed. There were two bicycle crashes in this segment. Currently there is a large amount of pavement and no delineation for pedestrians and bicyclists. Providing these facilities would encourage pedestrians and bicyclists to use the property facilities.

East Taggart Street & James Street

The intersection of East Taggart Street and James Street is a signalized intersection. Each roadway has one travel lane in each direction plus east/west Taggart Street has a dedicated left turn lane on each approach. According to the ODOT Transportation Information Mapping System (TIMS), Taggart Street is a collector with an AADT of approximately 3300 vehicles. James Street is a local street with no traffic volume provided by TIMS. The speed limit on both approaches is 25 MPH, however Taggart Street speed limit changes to 35 MPH at half a block east of the intersection.

There were three reported crashes at the intersection in the five-year study period. One crash resulted in injury. There were two Angle crashes and one Rear-End crash. This intersection appears on the *Priority Intersections* and *High Risk Network* priority lists.



Figure 52: Taggart Street and James Street. Image obtained from Google Earth.

Systemic countermeasures should be installed at the intersection. These include countermeasures that improve intersection visibility which helps to prevent Rear-End and Angle crashes. High-visibility crosswalks, larger street name signs, 12" LED traffic signal indications, reflective signal backplates all help to enhance intersections. In addition, replacing traffic signal diagonal spans with box spans or mast arms have shown to reduce late entries into the intersection. A review of signal timing should be performed periodically. This is to ensure proper yellow and all-red phases are given the appropriate amount of time for safety purposes, but also to ensure the intersection is running as efficiently as possible, which also improves safety.

If the signal is studied and shown to not meet traffic signal warrants per the Ohio Manual of Uniform Traffic Control Devices, a mini roundabout would be recommended for this location. A mini roundabout would be preferred over a two-way stop-controlled intersection because it would reduce angle crashes and prevent extensive delay for James Street.

Bacon Avenue & Brookdale Avenue

The intersection of Bacon Avenue and Brookdale Avenue is an offset, three-way stop-controlled intersection. Bacon Avenue runs east/west with Brookdale Avenue intersecting on the north side and offset to the east and Carbon Hill Road intersecting on the south side and offset to the west. All approaches are stop-controlled except for the westbound traffic. The speed limit on Bacon Avenue and Brookdale Avenue is 35 MPH and the speed limit on Carbon Hill Road is 25 MPH. According to ODOT's TIMS, Bacon Avenue is a collector road with an approximate AADT of 3400 vehicles, Brookdale Avenue is a collector road with an approximate AADT of 1300 vehicles, and Carbon Hill Road is a local road with no traffic volume data provided. All roads have one lane in each direction, plus Brookdale Avenue has a dedicated southbound left turn lane at the intersection.

There were three reported crashes at this intersection in the five-year study period, with one resulting in an injury. The crash types were Angle, Left Turn, and Rear-End. There is inadequate sight distance from northbound Carbon Hill Road looking left at Bacon Avenue. A hill blocks the view of Bacon Avenue and Bacon Avenue curves south around the hill, therefore no sight distance is gained by pulling forward. This is clearly the reason for the stop control requirement on the major roadway in addition to the side streets. This intersection is in the *Priority Intersections*, *Priority Segments*, and *High Risk Network* priority lists.

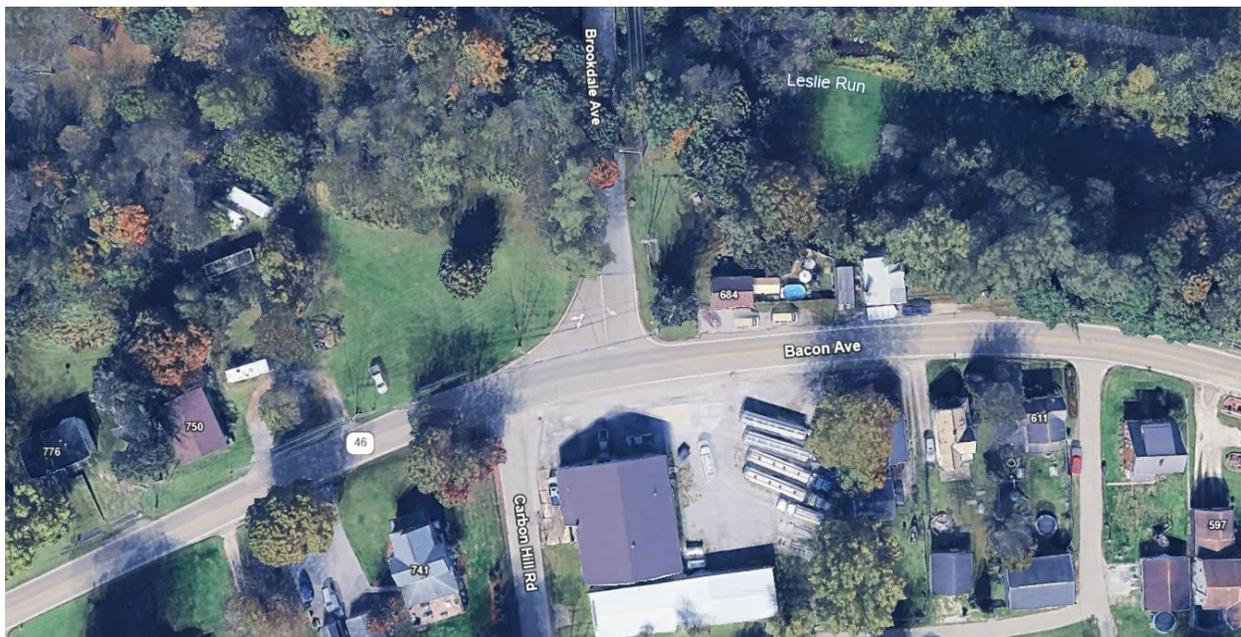


Figure 53: Bacon Avenue, Brookdale Avenue, and Carbon Hill Road intersection. Image obtained from Google Earth.

In its current configuration, the signage does not meet the guidelines in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD). According to the OMUTCD, “3-WAY” plaques and other number of ways plaques shall not be used with Stop signs. Plaques with information such as “ONCOMING TRAFFIC DOES NOT STOP” are appropriate for intersections in which all approaches must stop except for one. That does apply to this intersection; however, the current plaques are not accurate. Each plaque should describe which direction does not stop such as “TRAFFIC FROM THE LEFT (RIGHT) DOES NOT STOP.” Currently, all the plaques state “OPPOSING TRAFFIC DOES NOT STOP.” This misinforms drivers as to which approach to expect to stop and which approach to not expect to stop. The Angle crash and the Left Turn crash both involved a westbound vehicles, which is not required to stop. Stop signs should not be placed farther than 50 feet from the edge of travel lane of the intersecting roadway. The Stop sign on Carbon Hill Road at Bacon Avenue is approximately 90 feet from the intersecting roadway.

Converting the intersection to an ALL-Way stop-controlled intersection is a short-term countermeasure to alleviate some confusion at the intersection. Two-way and All-way stop-controlled intersections are more common and familiar to drivers than other versions of stop-controlled intersections. A long-term recommendation is to install a roundabout. It would be designed to resolve the sight distance inadequacy and would be much more efficient than a multiway stop.

West Main Street & Brookdale Avenue & Park Avenue

The intersection of West Main Street and Brookdale Avenue and Park Avenue is a five-legged intersection in which four of the five approaches are stop-controlled. The westbound Park Avenue traffic does not have a Stop sign. Westbound Main Street has a Stop sign just before merging with Park Avenue traffic just before approaching the intersection. The other three approaches are stop-controlled. The speed limit on West Main Street and Park Avenue is 25 MPH and the speed limit on Brookdale Avenue is 35 MPH. According to TIMS, West Main Street is a local road and has an AADT of approximately 400 vehicles, Brookdale Avenue is a collector road and has an AADT of approximately 1300 vehicles, and Park Avenue is a collector road and has an AADT of approximately 1500 vehicles.

There were four crashes at this intersection during the five-year study period, all of which were angle crashes, with one resulting in injury. Three of the four crashes involved a westbound vehicle traveling on Park Avenue. This intersection is in the *Priority Intersections*, *Priority Segments*, and *High Risk Network* priority lists.



Figure 54: West Main Street, Park Avenue, and Brookdale Avenue intersection. Image obtained from Google Earth.

None of the stop-controlled approaches have supplemental plaques regarding information about which approaches are expected to stop. With 75% of crashes involving a westbound vehicle on Park Avenue, the pattern indicates that drivers are not aware that westbound Park Avenue vehicles are not required to stop. Drivers can see the adjacent Stop signs on eastbound Main Street, northbound Brookdale Avenue, and southbound Brookdale Avenue and may assume that this intersection is an All-Way stop-controlled intersection. Plaques with information such as “ONCOMING TRAFFIC DOES NOT STOP” are appropriate for intersections in which all approaches must stop except for one. That guidance applies to this intersection. Each plaque should describe which direction does not stop such as “TRAFFIC FROM THE LEFT (RIGHT) DOES NOT STOP.” To further reduce confusion at the intersection, an ALL-Way stop-controlled intersection could be considered, requiring westbound Park Avenue traffic to also stop at a Stop sign.

The five legs of the intersection add to confusion and create a sight distance issue for the westbound Main Street approach. A westbound driver on Main Street approaches the intersection at an acute angle with Park Avenue. This requires the driver to look over the right shoulder at Park Avenue to determine when it is safe to proceed. In addition, the driver must also be aware of vehicles approaching from the west. This can be resolved by realigning Main Street to perpendicularly intersect with Park Avenue at Glenwood Avenue and remove the section of Main Street roadway that created the skewed intersection with Park Avenue near the intersection with Brookdale Avenue. This leaves the intersection with Brookdale Avenue as a traditional four-way intersection. The operation of the intersection should be reevaluated. The use of stop-control on three of four approaches is acceptable, however two-way and all-way stop control is more common and less confusing for drivers. With similar AADTs for Brookdale Avenue and Park Avenue, an all-way stop control may be the most appropriate operation, though this would require further study to determine.

The existing shared-use path currently terminates into the intersection. There is a large radius on the southeast corner of the intersection which should be reduced as much as possible to improve pedestrian infrastructure. This would reduce the pedestrian crossing time, which reduces the pedestrian exposure to

vehicular traffic, and increase visibility of pedestrians for adjacent drivers. A high visibility crosswalk and ADA compliant directional curb ramps should be installed on the east side of the intersection. Ideally, there will be future connectivity to pedestrian facilities on Brookdale Avenue and West Main Street to the west.

East Taggart Street & Rebecca Street & North Liberty Street

The intersection of East Taggart Street, Rebecca Street, and North Liberty Street create an awkward four-legged intersection. Liberty Street intersects Rebecca Street just south of the intersection with Taggart Street. Taggart Street and Rebecca Street are east/west collectors which converge. Liberty Street is a north/south local street. Liberty Street and Rebecca Street both have Stop signs where they intersect. Southeast-bound Taggart Street is stop-controlled, but westbound Taggart Street is free flowing. The speed limit for all approaches is 25 MPH. According to ODOT's Transportation Information Mapping System (TIMS), East Taggart Street has an AADT of approximately 1800 vehicles, Rebecca Street has an AADT of approximately 1500 vehicles, and no traffic volume data is provided for Liberty Street. All segments have one travel lane in each direction plus the westbound Taggart Street approach has a dedicated left turn lane.

There was one crash at this intersection during the five-year study period. The crash was a non-injury Sideswipe-Opposing crash involving a northbound right turn with a westbound left turn to Rebecca Street. This intersection is on the *Priority Intersections*, *Priority Segments*, and *High Risk Network* priority lists.

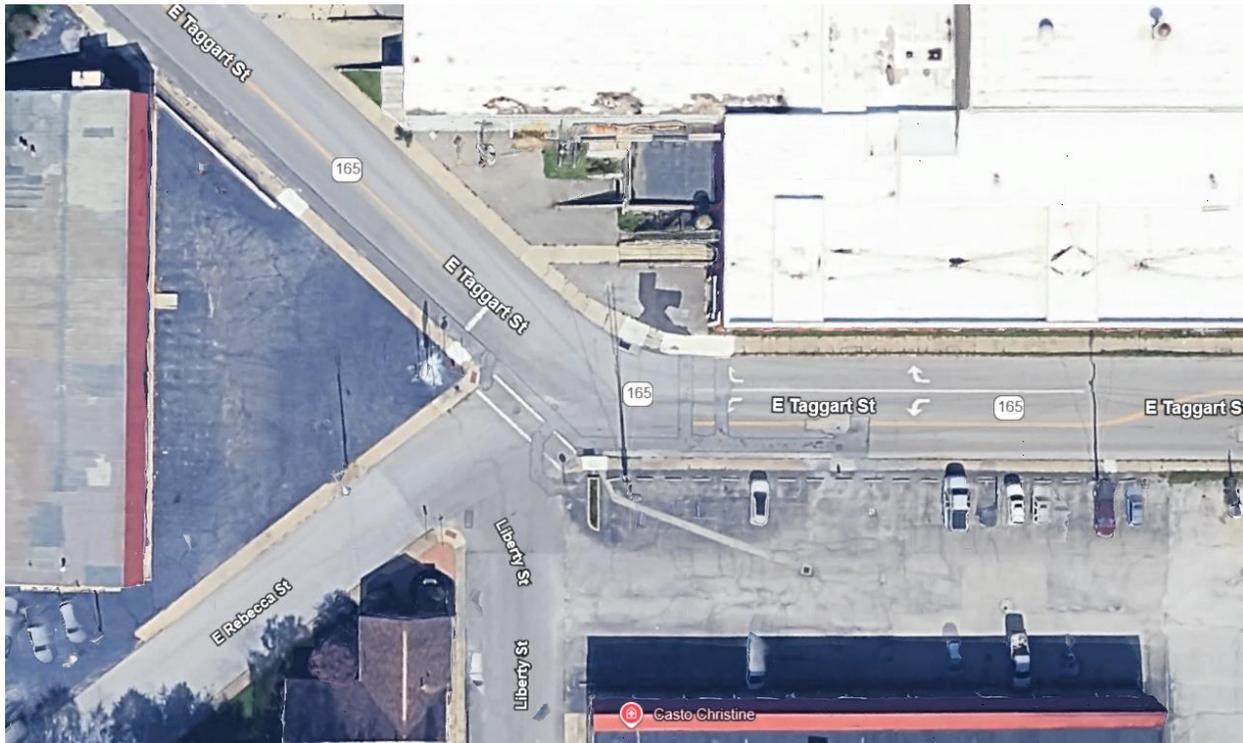


Figure 55: Taggart Street, Rebecca Street, and Liberty Street intersection. Image obtained from Google Earth.

Because Liberty Street intersects Rebecca Street from the south and at its north terminus with Taggart Street, the Stop sign for the Rebecca Street approach is approximately 65 feet from the travel lane of Taggart Street. According to the Ohio Manual of Uniform Traffic Control Devices (OMUTCD), Stop signs should be placed no more than 50 feet from the travel lane of the intersecting roadway. This may confuse drivers as to whether the stop sign is only meant as a stop control at the intersection with Liberty Street or does it also apply to stopping at Taggart Street. Taggart Street has a Stop sign for the southeast-bound approach, which may further confirm for northeast-bound drivers on Rebecca Street that they are not required to stop at Taggart Street. The westbound Taggart Street approach has no Stop sign, allowing westbound traffic to freely veer right or left in front of oncoming traffic from southeast-bound Taggart Street, which is likely the reason that the southeast-bound Taggart Street approach is stop-controlled. Three of the four approaches are stop-controlled. None of the Stop signs include supplemental plaques to inform drivers of which approaches do not stop. Per OMUTCD guidance, if left in its current condition, Stop signs should be supplemented with plaques indicating which approaches do not stop, such as “TRAFFIC FROM THE LEFT (RIGHT) DOES NOT STOP,” and a Stop sign installed on Rebecca Street at Taggart Street (in addition to the Stop sign at Liberty Street).

Removing the Liberty Street approach would begin to reduce the confusion at the intersection. Liberty Street should terminate at a point south of the intersection but still provide access to the properties that front it, and a turnaround should be installed where it terminates. To further reduce confusion and conflict points, a roundabout should be considered for this intersection. Roundabouts resolve awkward alignments, are safer than traditional intersections, and are more efficient than traditional intersections. Systemic intersection improvements should also be included in all options, including ADA compliant directional curb ramps and high-visibility crosswalks.

West Main Street & Bacon Avenue & Everett Street

The intersection of Bacon Avenue, West Main Street, and Everett Street is a skewed intersection. The westbound approach of West Main Street and the eastbound approach of Bacon Avenue are the major, free-flow movements of the intersection. Southeast-bound West Main Street and southbound Everett Street are stop-controlled and both approach from the north side of the major roadway. The eastbound approach from Bacon Avenue and the westbound approach from West Main Street have a speed limit of 25 MPH, according to ODOT’s Safety Map Viewer. The southeast-bound approach from West Main Street and the southbound approach from Everett Street have a speed limit of 25 MPH. According to TIMS, the AADT of West Main Street east of the intersection is approximately 2500 vehicles and approximately 500 vehicles west of the intersection. West Main Street is a collector roadway east of the intersection and a local road west of the intersection. Bacon Avenue is a collector road and the AADT is approximately 3400 vehicles. Everett Street is a local road and there is no traffic volume data provided for it.

There were no reported crashes for this intersection during the five-year study period. The intersection does make the list of *Priority Intersections*, *Priority Segments*, *VRU Priority Segments*, and *High Risk Network* due to its awkward geometry, location on a major collector, and proximity to a public park and walking facilities.



Figure 56: Bacon Avenue, West Main Street, and Everett Street intersection. Image obtained from Google Earth.

By removing the Everett Street approach and realigning West Main Street on the west side of the intersection to intersect perpendicular to Bacon Avenue, a traditional T-intersection would be created with clear expectations for drivers. If feasible, the new approach from eastbound Main Street could align with the exit drive from the park, making this a traditional four-way intersection, with stop control on the north and south approaches. An alternative to the T-intersection or four-way intersection is a roundabout. Roundabouts reduce conflict points, making intersections safer than traditional intersections, and are highly efficient. Additionally, if the new approach from eastbound Main Street is difficult or costly to align with the park exit, a roundabout would resolve the alignment issue.

Currently, there are curb ramps provided for crossing Main Street east of the intersection, however there is little awareness to drivers of the pedestrian facility. There are existing warning signs in advance of the crossing and a Pedestrian Crossing sign at the crossing, however there are no pavement marking or highly visible indications as to where the crossing is located. Intersection and pedestrian enhancements would create a safer environment for those using the pedestrian facility and crossing Main Street. A rectangular rapid flashing beacon (RRFB) along with a high-visibility crosswalk is recommended for the east leg of the intersection. This encourages neighborhood walkability and use of the public park.

9.4 Supplemental Planning

Supplemental Planning studies can be utilized to develop additional strategies to address safety issues identified in this Action Plan. This can include, but is not limited to, School Travel Plans, Rural Roadway Safety Plans, Corridor Safety Studies, and Lighting Plans. These studies are discussed in detail below.

Supplemental Planning studies focus on consolidating multiple local or regional plans into a comprehensive document and creating complementary safety plans focused on specific issues like speed management and accessibility for individuals with disabilities. They also involve conducting road safety audits, performing equity analyses to ensure fair implementation, collecting and analyzing crash and behavior data, engaging stakeholders to build support for initiatives, and providing regular progress reporting to maintain transparency and accountability. These activities are crucial for crafting effective and inclusive safety action plans that meet the unique needs of each community. By leveraging the Action Plan, these supplemental planning activities allow communities to dive deeper into specific challenges, ultimately getting closer to implementing true safety improvements and reducing roadway fatalities and serious injuries.

School Travel Plan

Cost: Approximately \$25,000 each

A School Travel Plan (STP) is a strategic document that outlines a community's plans to enhance active transportation—such as walking and biking—for students traveling to and from school. Developed through a collaborative process involving local stakeholders, an STP assesses current conditions and proposes both infrastructure and non-infrastructure solutions to improve safety and accessibility. By focusing on the safety of young pedestrians and cyclists, an STP contributes to the broader goals of the Action Plan by addressing specific high-risk areas and creating safer, more accessible routes for students.

Implementing an STP can lead to targeted interventions such as improved crosswalks, better signage, and educational programs. These efforts align with the Safe System Approach by creating environments that are forgiving of human error and protect vulnerable road users. By reducing the likelihood and severity of crashes involving students, STPs help foster a safer transportation environment for the entire community.

Integrating STPs with the Action Plan also ensures that resources are allocated efficiently, prioritizing safety improvements where they are most needed. The process of developing an ODOT's School Travel Plan webpage provides more information about Ohio's STP guidelines. A template is provided as shown in Figure 57.

Communities that have previously completed an STP can seek an update to this study. An UPDATED School Travel Plan identifies changes such as available pedestrian and bike infrastructure, student demographics, and school policies, allowing the community to identify needs that may have arisen after the previous study.

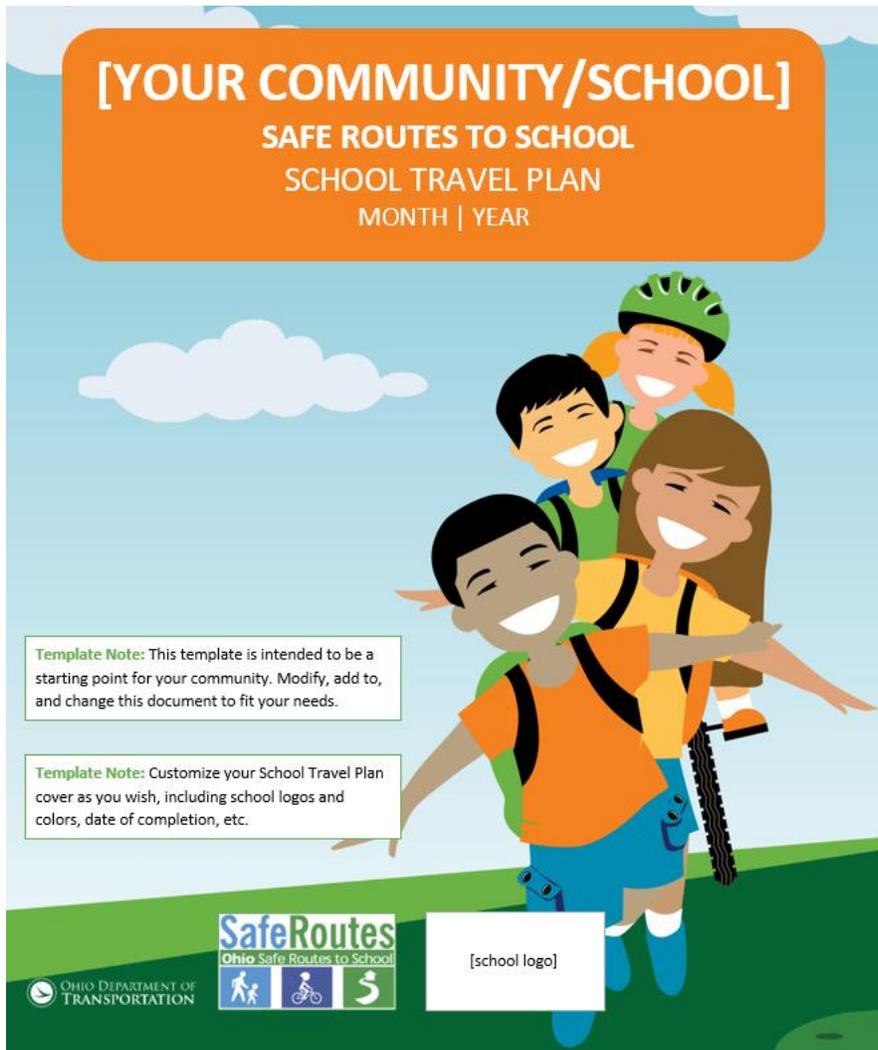


Figure 57: School Travel Plan template provided by ODOT

Local Road Safety Plan

Cost: Approximately \$50,000 each

A Local Road Safety Plan focuses on addressing the unique safety challenges faced by rural roads, which often have higher rates of fatal crashes compared to urban roads. These plans provide several benefits, including targeted safety improvements, improved data collection and analysis, enhanced road user safety, increased funding opportunities, and greater community engagement and awareness. By identifying high-risk locations and implementing specific interventions, such as better signage, improved visibility, and speed management, rural safety plans aim to reduce accidents and fatalities on rural roads. Rural roads ranked high on the High Injury Network and many of the region's rural townships lack resources and staff capacity to address critical safety issues alone. Completing a Local Road Safety Plan would address the High Injury Network in townships like those shown. ODOT provides a template to assist communities in completing these plans. An image of the template is provided in *Figure 58*.



Figure 58: Local Road Safety Plan template provided by ODOT

Corridor Safety Study

Cost: Approximately \$50,000 - \$100,000 each

Corridor studies analyze specific road segments to identify high-risk areas, determine the factors contributing to crashes, and develop targeted strategies to improve safety for all users. By focusing on road segments with a high frequency of crashes, particularly those on priority lists like the High Injury Network, corridor studies identify locations where safety improvements are most needed. Utilizing comprehensive crash data and roadway attribute information, these studies ensure that safety interventions are evidence-based and targeted for maximum impact.

Corridor studies allow for the development of tailored solutions that address each corridor's unique characteristics, including roadway design changes, traffic calming measures, improved signage, and enhanced pedestrian and cyclist infrastructure. These studies help prioritize safety improvement projects by identifying critical areas and recommending cost-effective interventions, ensuring efficient resource allocation for significant safety benefits. Additionally, the findings and recommendations from corridor studies can be integrated into broader transportation planning efforts, incorporating safety considerations into long-term infrastructure development and policy decisions.

The corridor study process involves collaboration with local stakeholders, fostering support for safety initiatives and addressing community needs and concerns. By conducting corridor studies and implementing

their recommendations, East Palestine can systematically improve roadway safety, reduce the frequency and severity of crashes, and work towards the goal of zero traffic fatalities and serious injuries by 2045.

Intersection Safety Study

Cost: Approximately \$50,000 - \$100,000 each

Intersection studies analyze a high-risk intersection to determine critical factors contributing to crashes. These factors are used to develop targeted strategies to improve safety for all users. Intersections identified on the High Injury Network are applicable candidates for this type of supplemental study. Intersection studies use comprehensive crash data to produce evidence-based safety interventions that can produce a maximum impact.

The outcome of an intersection study is greatly dependent on its existing conditions: the number of approaches, the existing traffic control, lane widths and assignments, signal phasing, sight distance obstructions, curb radii, and available pedestrian and cyclist infrastructure, among other factors. By identifying the existing conditions of an intersection, analyzing its current operation, and reviewing historical crash data, the study team can properly identify the most critical safety concerns. Once these concerns have been identified, the best fit countermeasures can be recommended for implementation.

Intersection studies are similar to corridor studies in that their findings and recommendations can be integrated into broader transportation efforts, influencing long-term infrastructure development and policy decisions. The intersection study process also involves collaboration with local stakeholders, fostering support for safety initiatives and addressing community needs and concerns. By conducting intersection studies and implementing their recommendations, East Palestine can systematically improve roadway safety, reduce the frequency and severity of crashes, and work towards the goal of zero traffic fatalities and serious injuries by 2045.

Lighting Plan

Cost: Approximately \$25,000 each

A lighting plan significantly enhances pedestrian safety by increasing visibility and reducing the risk of crashes between vehicles and pedestrians. Improved street lighting allows drivers to detect pedestrians more easily at night or in low-light conditions, reducing the likelihood of crashes. Well-lit crosswalks and sidewalks make pedestrians more visible from a distance, encouraging drivers to slow down and remain attentive. Adequate lighting at pedestrian crossings and intersections highlights areas where pedestrians are likely to cross, providing a visual cue for drivers to be cautious. Additionally, good lighting enhances contrast, allowing drivers to distinguish pedestrians from the background more effectively, which in turn improves drivers' reaction times. Studies have demonstrated that enhanced street lighting leads to a significant reduction in pedestrian crashes, underscoring the critical role of visibility in pedestrian safety.

For all road users, improved lighting reduces nighttime crashes, which tend to be more severe than those occurring during the day. Enhanced lighting at intersections and curves helps prevent crashes by illuminating potential hazards and guiding drivers safely through complex traffic environments. Well-designed lighting minimizes glare, reducing eye strain and increasing driver comfort and focus. Uniform lighting along roadways

helps drivers maintain a steady pace, reducing abrupt stops or maneuvers that could lead to crashes. Proper lighting also benefits vulnerable road users such as cyclists and motorcyclists by making them more visible to drivers and illuminating potential obstacles. Moreover, well-lit areas tend to deter crime and unsafe behavior, fostering a sense of security that encourages more people to walk or cycle, thereby enhancing community safety. Overall, a comprehensive lighting plan is often very effective in reducing crash rates and increasing safety for pedestrians and all road users.

9.5 Demonstration Projects

Demonstration projects are temporary safety improvements designed to test proposed strategies or project approaches. They help inform the development or update of comprehensive safety action plans by measuring potential benefits through data collection and evaluation. These projects do not involve permanent roadway reconstruction.

Eligible demonstration activities include:

1. **Feasibility Studies:** Using quick-build strategies with low-cost, temporary materials like paint, planters, or temporary speed humps to inform future permanent projects.
2. **MUTCD Engineering Studies:** Conducting studies based on the Manual on Uniform Traffic Control Devices (MUTCD) to evaluate and implement roadway safety improvements. Examples include assessing signage applications, evaluating signal and beacon warrants, and enhancing pedestrian infrastructure such as crosswalks and accessible signals.
3. **Behavioral or Operational Activity Pilot Programs:** Testing small-scale initiatives such as education campaigns, pop-up safety demonstrations, or pilot programs for community engagement on traffic safety.
4. **New Technology Pilot Programs:** Implementing and evaluating new technologies that demonstrate safety benefits, such as adaptive signal timing or safety cameras. New technology pilots should utilize commercially available technologies not yet adopted in the community.

Demonstration Projects should:

- Utilize temporary materials to implement safety countermeasures without making permanent changes to roadways or infrastructure.
- Measure benefits through pre- and post-demonstration data collection and analysis.
- Align with the overall goals of the Comprehensive Safety Action Plan. When funding is awarded for a demonstration project, the Action Plan should be updated to reflect findings.

Demonstration projects can play a crucial role in testing safety strategies and informing the development and implementation of action plans. These projects also create meaningful opportunities for community engagement and public education. By using temporary materials to pilot new infrastructure or operational changes, they allow residents to experience proposed safety improvements firsthand. Involving the community through direct interaction, feedback collection, and visible project outcomes can help build support for permanent installations. Demonstration projects may also encourage shifts toward alternative transportation modes, such as walking and biking, by showcasing safe and accessible infrastructure. Additionally, they offer educational benefits through tools like informational signage that explain the changes and promote safe behavior.

The following are examples of demonstration projects that align with recommended countermeasures at priority locations in East Palestine.

Crosswalk Improvements

Crosswalk improvements such as high-visibility pavement markings, curb extensions, mid-block crossings, and pedestrian refuge islands offer a host of safety improvements for pedestrians and drivers alike. Some communities may be unfamiliar with these types of infrastructure and therefore reluctant to install them. Demonstration projects, such as the traffic calming demonstration in Figure 59, can test out a project's success, allow residents to interact with and experience the proposed safety improvements, and serve as a regional example to other communities considering similar improvements.



Figure 59: Traffic calming demonstration featuring crosswalk enhancements and curb extensions in Kansas City, 2017.

Pedestrian Crossing Study and Solar Powered Pedestrian Beacons

Engineering studies are essential for evaluating whether safety countermeasures—such as Rectangular Rapid-Flashing Beacons (RRFBs), shown in Figure 60—meet the warrants outlined in the MUTCD. Demonstration projects using temporary installations and pilot signage provide valuable, data-driven insights into effectiveness and safety outcomes. These pilots also serve as community education tools, helping residents understand and adapt to new infrastructure before permanent implementation.



Figure 60: Solar-powered Rectangular Rapid-Flashing Beacon (RRFB) in New York, NY. NYS DOT.

Mini Roundabouts

Quick-build strategies using temporary materials allow communities to test potential configurations of safety countermeasures such as mini roundabouts, as shown in Figure 61. These demonstration projects help evaluate design effectiveness and can provide valuable public education by incorporating informative signage. Helping residents understand the purpose and benefits of the project can further build support for permanent installation. Figure 62 shows an example of permanent mini-roundabout in a residential area.



Figure 61: Mini Roundabout Quick Build Demonstration (Photo: smcoe.org)



Figure 62: Mini-Roundabout (Source: Google Streetview)

Chapter 10

LEADERSHIP COMMITMENT, PROGRESS, AND TRANSPARENCY

10.1 Leadership Commitment

10.2 Progress and Transparency



10. LEADERSHIP COMMITMENT, PROGRESS, AND TRANSPARENCY

10.1 Leadership Commitment

The Village of East Palestine has publicly committed to eventually achieving Vision Zero via Resolution 5-2026, passed on January 29, 2026. This resolution includes a goal of eliminating roadway fatalities and serious injuries by the year 2045. The complete resolution is available in **Appendix F**. The commitment is as follows:

NOW THEREFORE, BE IT RESOLVED that the Village of East Palestine, Ohio hereby approves:

SECTION 1: That the Village of East Palestine adopts of a goal of zero traffic fatalities and serious injuries by 2045 and endorses development, implementation, and monitoring of Vision Zero as a comprehensive and holistic approach to achieving this goal.

SECTION 2: That the Village of East Palestine commit significant time and resources to achieving this goal.

SECTION 3: That the Village of East Palestine continues to implement and evaluate the Comprehensive Safety Action Plan and Vision Zero and build upon existing education, enforcement, engineering, and policy strategies to reach this goal.

SECTION 4: That the Village of East Palestine is dedicated to regularly reporting and assessing the progress, challenges, and successes of the Vision Zero commitment with current data and measurable metrics.

SECTION 5: That the Village of East Palestine strives to improve the health and well-being of all travelers on Village roads. The development of the Comprehensive Safety Action Plan and Vision Zero goal will address critical safety concerns and promote specific strategies towards zero deaths while prioritizing equity.

SECTION 6: This Resolution shall take effect and be in force at the earliest period allowed by law.

10.2 Progress and Transparency

This Comprehensive Safety Action Plan aims to positively impact transportation for all roadway users in the Village of East Palestine. Following the completion of this Action Plan, it is critical that East Palestine provides transparent methods of measuring its progress. The Village of East Palestine commits to measuring progress towards a Vision Zero goal and providing transparency to the public with the following methods:

1. Issue a press release upon completion of this Action Plan and maintain access to the document on the Village website.
2. Maintain and update the four Priority Lists developed in this Action Plan, indicating project location, recommendation, potential funding sources, predicted fiscal year of project completion, and a measure of progress.
3. Track the following measures of progress:
 - a. Secured funding
 - b. Funding expended on safety improvement strategies (including supplemental studies and infrastructure projects)
 - c. Items constructed or improved (miles of sidewalk/bike lanes, number of intersections, etc.)
4. Track crash statistics in total by segment or intersection, on the High Injury Network.
5. Measures of progress will be reported on the Village website annually.

CONCLUSION



CONCLUSION

This Comprehensive Safety Action Plan is critical for advancing the Vision Zero objective in East Palestine. This plan emphasizes a comprehensive approach that extends beyond infrastructural improvements to include educational and public engagement strategies focused on transportation safety. Each project outline holds importance and the potential to prevent fatalities among drivers, passengers, cyclists, and pedestrians alike. The recommendations within this Action Plan serve as a detailed guide to help East Palestine improve roadway safety for all community members.

APPENDICES

Appendix A - Network Safety Analysis Maps

Appendix B - Active Transportation in East Palestine

Appendix C - Priority Lists

Appendix D - Selected Project Cutsheets

Appendix E - Cost Opinion

Appendix F - Vision Zero Resolution



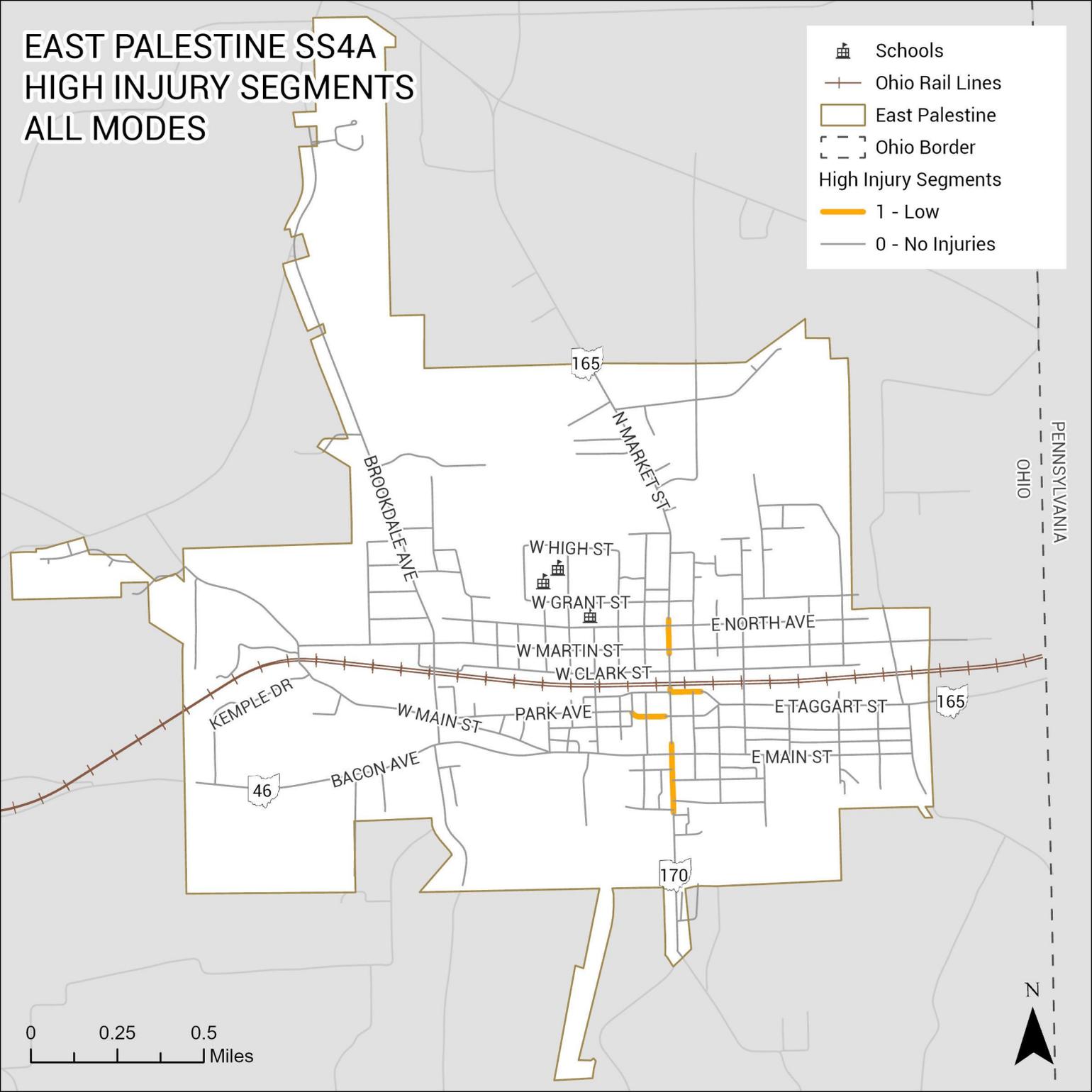
APPENDIX A

Network Safety Analysis Maps



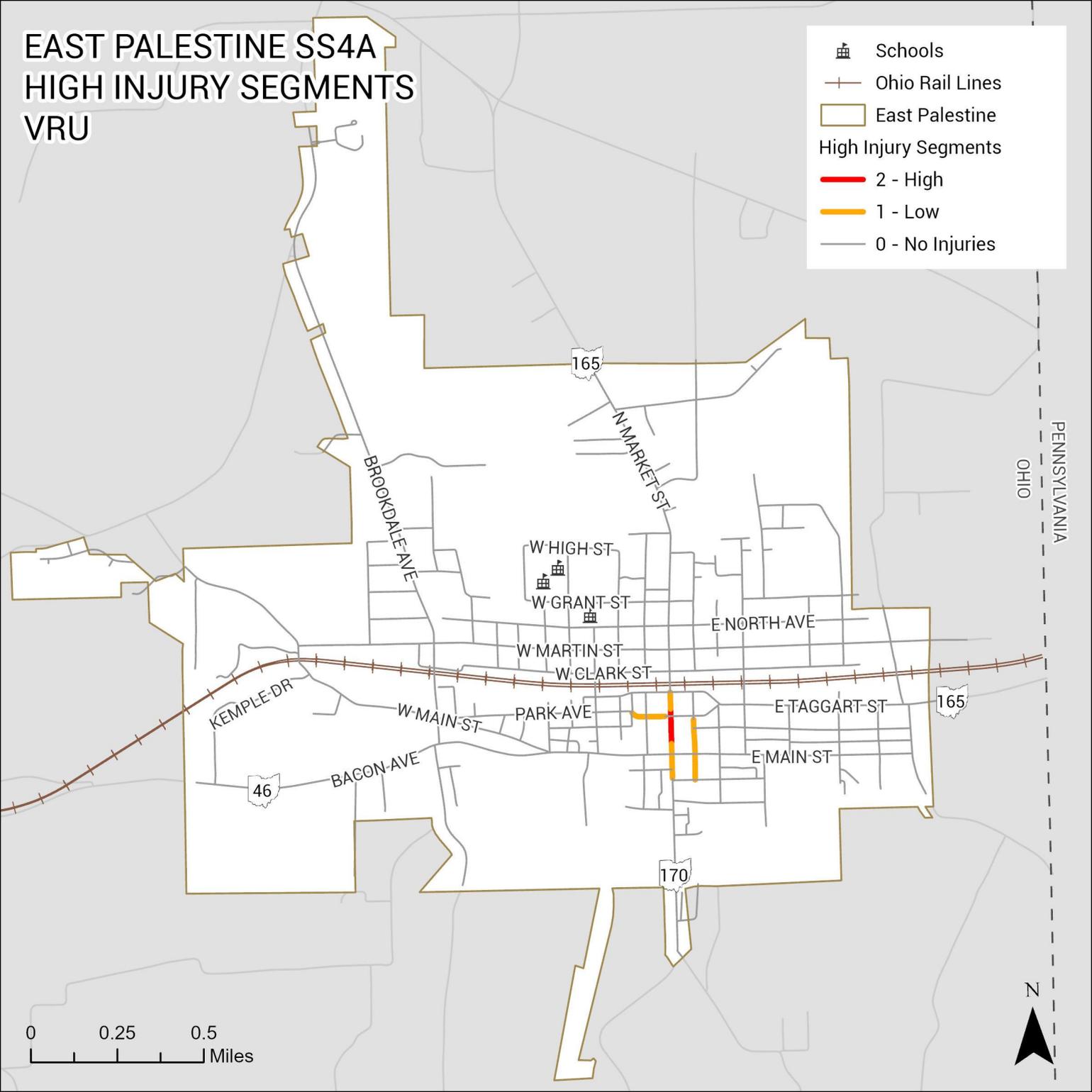
EAST PALESTINE SS4A HIGH INJURY SEGMENTS ALL MODES

-  Schools
-  Ohio Rail Lines
-  East Palestine
-  Ohio Border
- High Injury Segments**
 -  1 - Low
 -  0 - No Injuries



EAST PALESTINE SS4A HIGH INJURY SEGMENTS VRU

-  Schools
-  Ohio Rail Lines
-  East Palestine
- High Injury Segments**
-  2 - High
-  1 - Low
-  0 - No Injuries



EAST PALESTINE SS4A HIGH INJURY INTERSECTIONS ALL MODES

-  Schools
-  Ohio Rail Lines
-  East Palestine
-  Ohio Border
- High Injury Intersections**
 -  1 FSI Crash



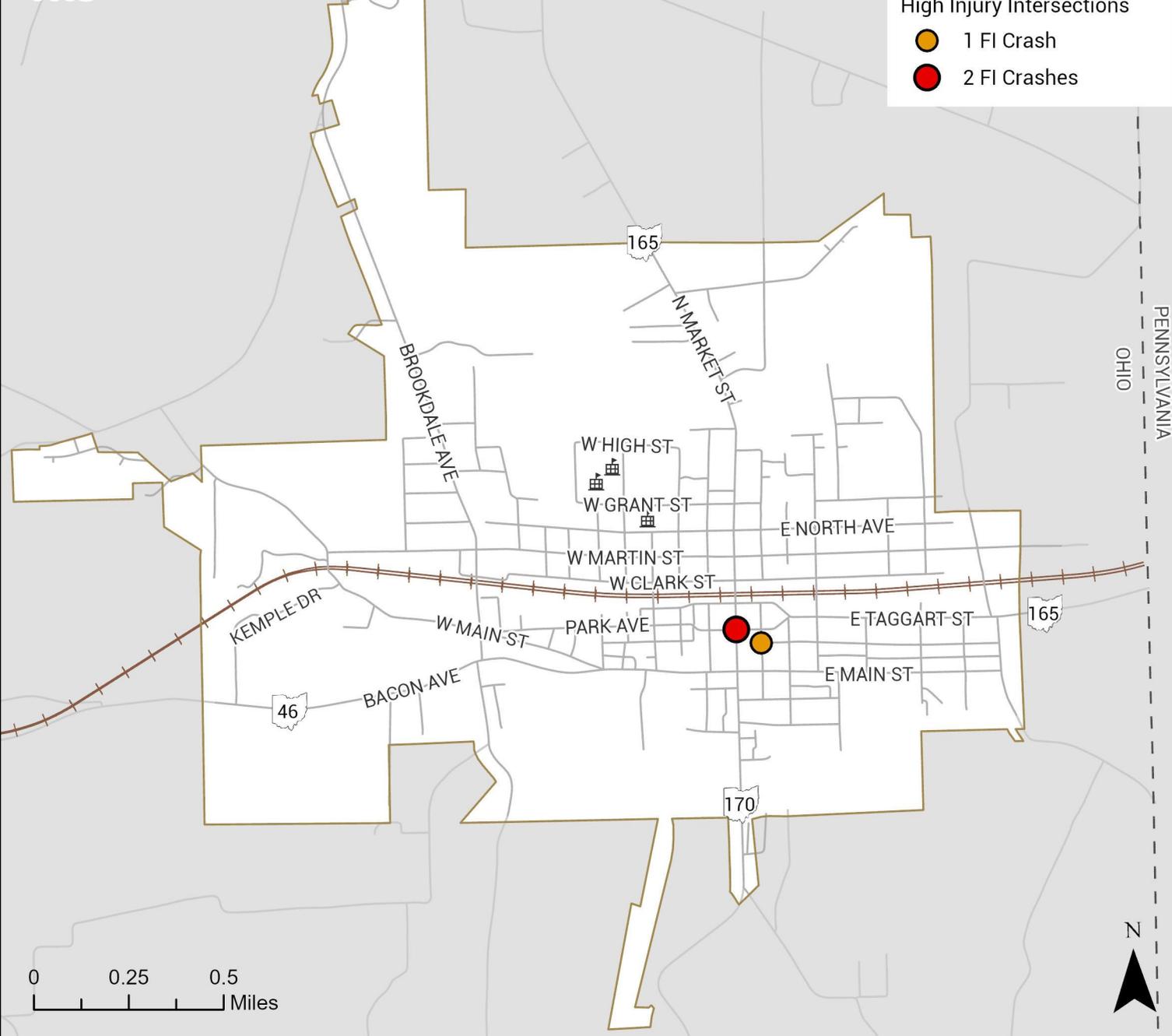
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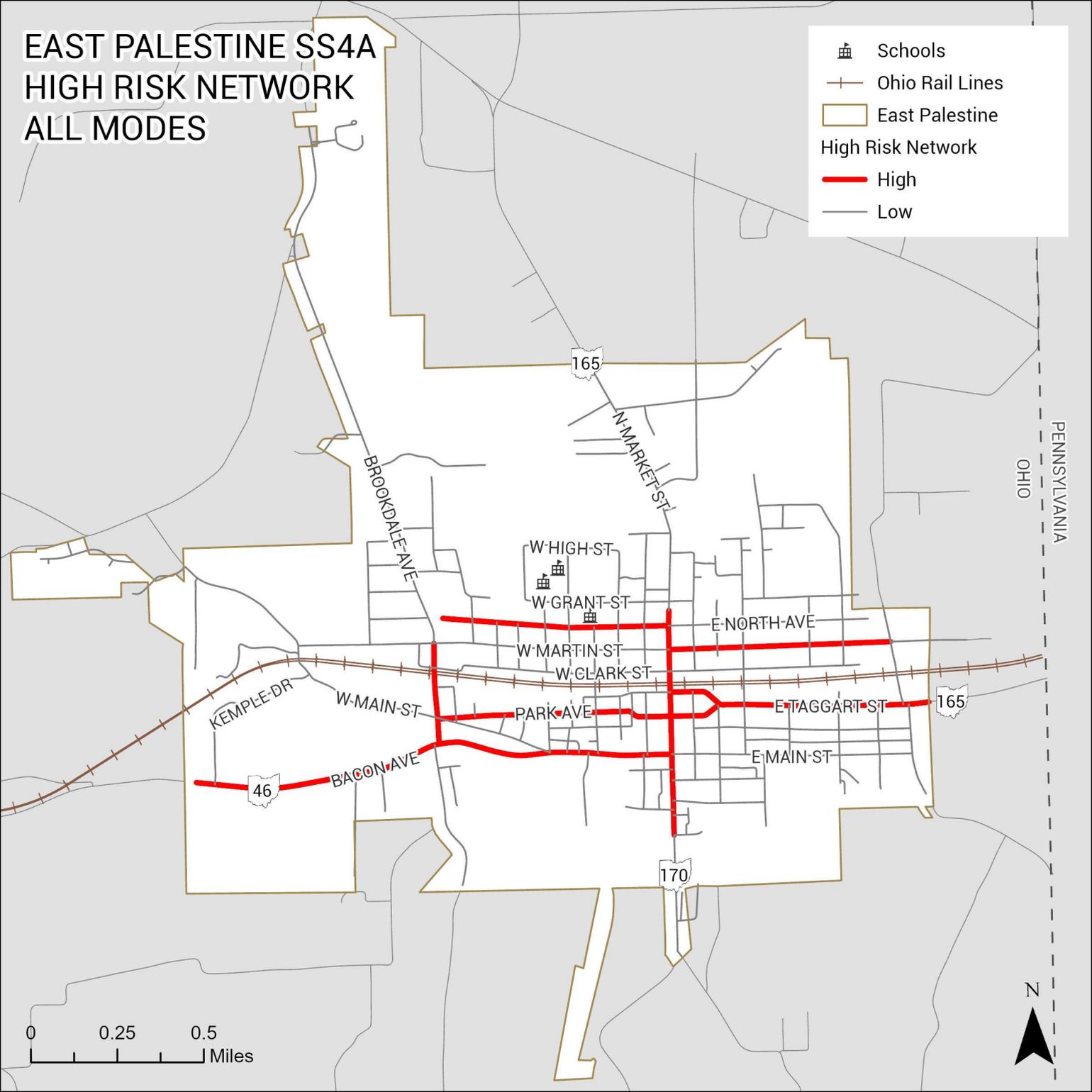
EAST PALESTINE SS4A HIGH INJURY INTERSECTIONS VRU

-  Schools
-  Ohio Rail Lines
-  East Palestine
- High Injury Intersections**
 -  1 FI Crash
 -  2 FI Crashes



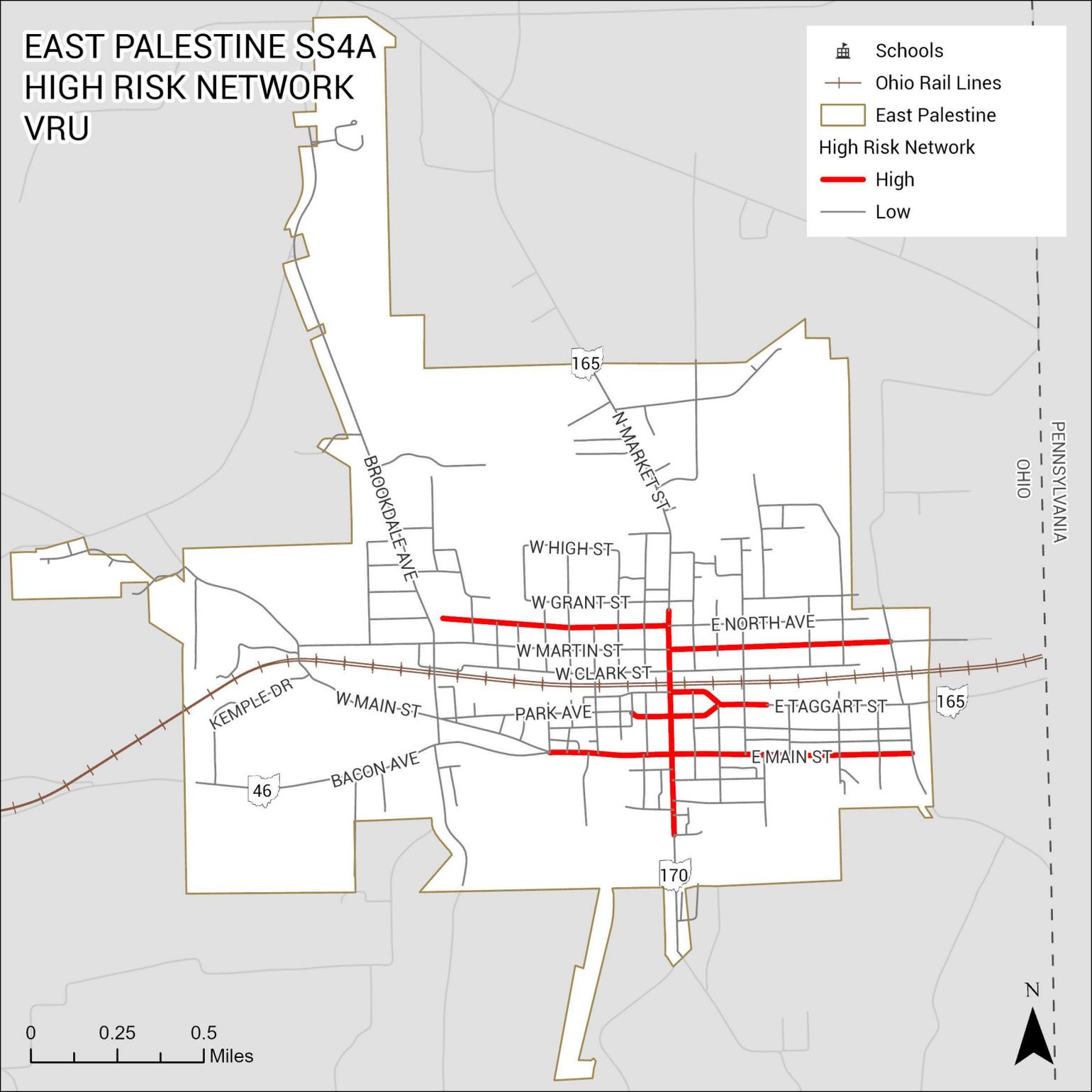
EAST PALESTINE SS4A HIGH RISK NETWORK ALL MODES

-  Schools
-  Ohio Rail Lines
-  East Palestine
- High Risk Network
 -  High
 -  Low



EAST PALESTINE SS4A HIGH RISK NETWORK VRU

-  Schools
-  Ohio Rail Lines
-  East Palestine
- High Risk Network**
 -  High
 -  Low



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APPENDIX B

Active Transportation in East Palestine



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1. INTRODUCTION

East Palestine is a community of approximately 4,700 people in northeastern Ohio, near the Pennsylvania border. The village features residential neighborhoods, a commercial downtown, a city park, and East Palestine City Schools, which include the high school, middle school, and elementary school. Given its compact size, and existing transportation network, East Palestine presents strong potential for enhanced walkability and bike connectivity.

In February 2023, a train derailment involving hazardous materials occurred in East Palestine, prompting emergency response and environmental cleanup efforts. Since then, the village has focused on recovery and long-term resilience. Improving active transportation in East Palestine is part of a broader effort to enhance transportation safety, support community well-being, and improve mobility for all users.

What is Active Transportation and Why is it Important?

“Active Transportation” is a way of describing how people can get around without using a motorized vehicle – walking or bicycling, using mobility assistance devices (such as wheelchairs and scooters), skating or skateboarding, and more. In short, active transportation is human-powered travel. Active Transportation represents fundamental transportation modes for many Ohioans to access work, school, stores, church, or any number of destinations. Active transportation can provide many community benefits beyond personal mobility, such as improved public health, economic development, greater quality of life, and enhanced environmental quality.

Active transportation planning involves talking to the community, especially to people who walk, use mobility assistance devices, and bicycle. The planning process outlines the vision, goals, and strategies needed to support safe, convenient, and accessible active transportation options. To meet the needs of people walking and bicycling, it is important to direct investments towards roadways, trails, and sidewalk infrastructure, as well as programs that support active transportation options. The benefits of active transportation are summarized in Figure 1.

Benefits of Active Transportation

Physical Health

Having the opportunity to safely walk, bike, skate, or choose another way of active transportation, either for fun or to get to a destination, is a key to increasing daily physical activity. Being physically active can help reduce the risk of developing preventable, chronic diseases.

Mental Health

Physical activity reduces depression, can improve sleep quality, and has been shown to improve brain function for older adults.* Active transportation can also be a way to spend time in the community, meet neighbors, and form relationships, all of which contribute to mental well-being.

Economic Development

There is broad consensus across the country, and in Ohio, that investing in active transportation produces a positive return on investment for host communities. This is especially true when it comes to trails, which serve as major regional attractions for recreational riders.

Quality of Life

Comfortable and accessible options for walking and bicycling can improve people's quality of life. Being able to walk or bike increases the number of travel options for everyone and can lead to greater independence for older residents, young people, and others who cannot or choose not to drive. Providing a high-quality walking and bicycling network is especially important for community members who do not have access to a vehicle.

Environmental Quality

Shifting to bicycling and walking trips and concentrating new development in dense areas can reduce transportation-based pollution, which impacts the natural environment.**

** U.S. Department of Health and Human Services. 2008 PHYSICAL ACTIVITY GUIDELINES FOR AMERICANS. Washington, DC: U.S. Dept of Health and Human Services; 2008. <http://health.gov/paguidelines/pdf/paguide.pdf>*

*** Federal Highway Administration, National Bicycling and Walking Study, "Case Study No. 15 The Environmental Benefits Of Bicycling And Walking," 1993 http://safety.fhwa.dot.gov/ped_bike/docs/case15.pdf*

Figure 1. Benefits of Active Transportation

2. VISION AND GOALS

2.1 Community Vision Statement

The purpose of this Action Plan is to identify policy, program, and infrastructure recommendations for the Village of East Palestine in support of the vision:

Walking and bicycling in East Palestine will be a safe, convenient, and accessible transportation option for everyone.

The East Palestine active transportation plan vision statement paints a picture of the transportation future that village staff, community members, and partners are working together to achieve.

2.2 Community Goals

As part of the *2026 East Palestine Comprehensive Safety Action Plan*, the Village of East Palestine publicly committed to eventually achieving Vision Zero via Resolution 5-2026, passed on January 29, 2026. This resolution includes a goal of eliminating roadway fatalities and serious injuries by the year 2045.

To guide the community toward that outcome, Walk.Bike.Ohio outlines a set of more specific goals that translate the Vision Zero commitment into practical priorities for walking and biking in East Palestine, including:

- **Safety:** Reduce pedestrian and bicyclist injuries and fatalities.
- **Network Connectivity:** Promote comfortable and continuous pedestrian and bicycle facilities that connect people to destinations.
- **Need-Based Access:** Ensure the transportation system accommodates users of all ages, abilities and incomes.
- **Network Utilization:** Increase walking and biking throughout the community.
- **Livability:** Improve the quality of life for all Ohioans.
- **Preservation:** Ensure critical existing infrastructure is in a state of good repair.

3. ENGAGEMENT EFFORTS

Engaging the public ensures that the recommendations made in this plan truly reflect the needs of the community. Feedback, comments, and input gathered during public engagement guided recommendation development.

Community engagement efforts are described in the *2026 East Palestine Comprehensive Safety Action Plan* in *Section 2: Public Engagement and Stakeholder Collaboration.*

4. EXISTING CONDITIONS

This chapter is about the current experience of walking and bicycling in East Palestine. It begins with an introduction to the people who make up East Palestine – with information about race, age, car ownership, and how people get to work. The analyses section of this chapter discusses the different frameworks used to analyze the existing conditions data. The analyses examine the walking and bicycling network with a focus on equity, safety, connectivity, and other factors.

3.1 Demographic Profile

East Palestine is home to 4,761 residents, according to the 2020 census. The median age in East Palestine is 40 years old, with people 65 years and older making up the largest age group. The second largest age group is children under the age of 14.

Given that adults age 65 and older make up the largest share of East Palestine’s population, it is essential to consider their needs when evaluating walking conditions. As people age, limitations related to vision, mobility, or reaction time may reduce their ability to drive. Ensuring that key destinations can be safely and comfortably reached on foot helps older residents maintain independence and quality of life even when driving is no longer an option.

East Palestine race and age statistics in are visualized in Figure 2.

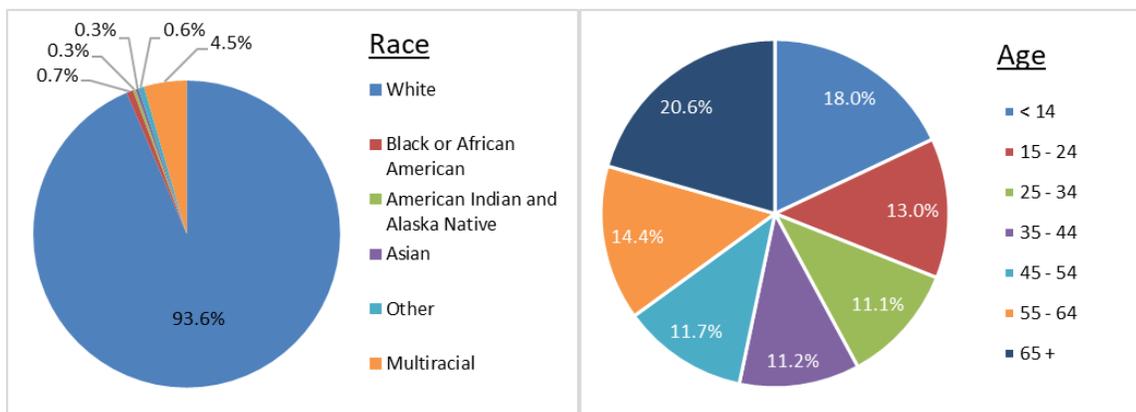


Figure 2. East Palestine Race and Age Demographics

Most households in East Palestine have access to at least one vehicle. However, 39.8% of households have zero or one vehicle. See Figure 3. Supporting walking and biking as transportation options helps ensure that people without cars can safely access the places they need and want to go.

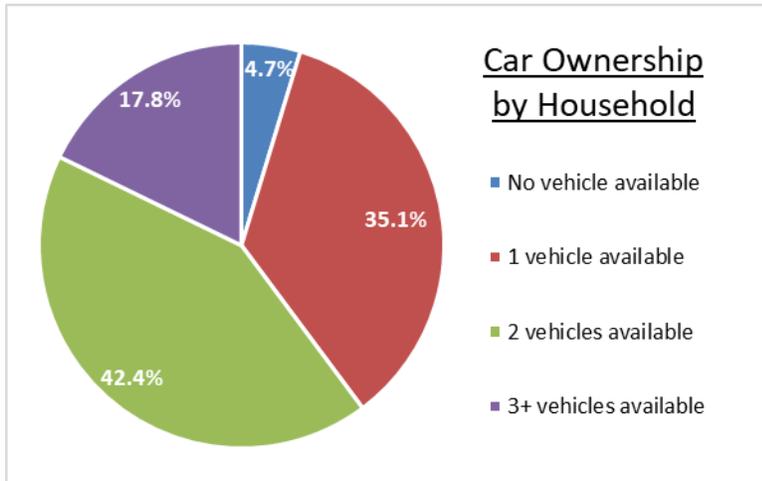


Figure 3. East Palestine Car Ownership by Household

The majority of working residents in East Palestine drive alone to work, accounting for 71.7% of commute modes. The average travel time 21.2 minutes, with 53.7% of commutes taking less than 20 minutes. Notably, 28.5% of commutes take less than 10 minutes, yet only 2.1% of residents walk to work, and none bike. Enhancing walking and biking conditions in East Palestine could make active transportation a more viable and appealing option for short-distance commuters.

Commute mode share and commute time statistics are visualized in Figure 4 and Figure 5, respectively.

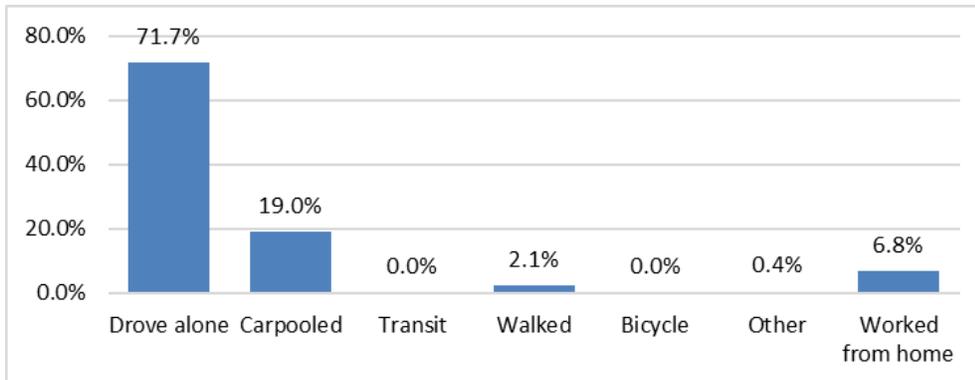


Figure 4. East Palestine Commute Mode Share

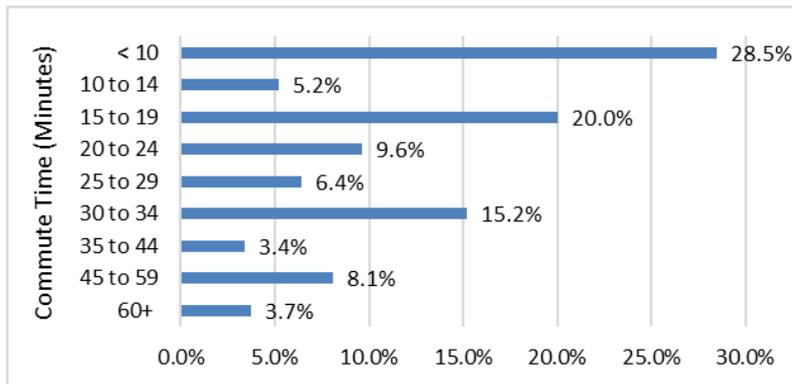


Figure 5. East Palestine Travel Time to Work

This information is helpful in understanding current resident needs and predicting future needs for transportation infrastructure.

3.2 Existing Plans, Policies, and Supportive Programs

This plan will position the Village of East Palestine to apply for funding for projects that improve walking and bicycling. Building upon the *2026 East Palestine Comprehensive Safety Action Plan*, this document will help establish the current state of walking and bicycling in East Palestine and help set goals for the future. At the time of this plan, there are no existing plans or policies related to walking and bicycling in East Palestine.

3.3 Existing Transportation System

East Palestine’s street network is primarily composed of residential roads with a 25 MPH speed limit, arranged in a traditional grid pattern. Portions of Market Street, E. Taggart Street, Bacon Avenue, and Brookdale Avenue have posted speeds of 35 MPH. Brookdale Avenue also includes a segment near the village’s northwest edge where the speed limit increases to 45 MPH.

Market Street serves as the primary commercial corridor in downtown East Palestine. Other important streets with key destinations include W Main Street, which provides access to East Palestine City Park, and W Grant Street, which connects to the Village’s school campuses. The East Palestine Walking Trail is nearly 3 miles long and stretches from the East Palestine City Lake to south of the East Palestine City Park.

The railroad tracks run through the center of East Palestine, separating the north and south portions of the Village. Bridges with sidewalks are present on Brookdale Avenue and West Street, while pedestrians and bicyclists must cross a set of two railroad tracks on Market Street, James Street, and Pleasant Drive.

Accommodations for People Walking

Approximately 38 percent of the roadways in East Palestine have an accompanying sidewalk. Team members conducted a sidewalk assessment in East Palestine on February 19, 2026, to document sidewalk conditions throughout the village. The team evaluated approximately 13 miles of the village’s roughly 19-mile sidewalk network by marking observations on maps, taking photographs, and using recent Google Street View imagery to supplement field notes. Some segments were covered by snow during the assessment; when conditions

could not be reliably determined in the field or through available imagery, those locations were recorded as “unknown.” This designation was also applied to any additional areas that were not assessed in person.

Sidewalk condition was evaluated using three categories—good, fair, and poor—with each category describing the overall condition of a sidewalk segment, typically one block in length. When a sidewalk’s condition changed noticeably within a single block, the block was divided into smaller segments to reflect those differences rather than averaging conditions across the entire length. Examples of sidewalk with varying conditions are shown in Figure 6. Figure 6. Good (left), fair (center), and poor (right) sidewalk conditions in East Palestine.



Figure 6. Good (left), fair (center), and poor (right) sidewalk conditions in East Palestine.

The condition categories are defined as follows:

- **Good Condition** – The sidewalk has no or minimal cracking, gaps, or vertical displacement across the segment.
- **Fair Condition** – The sidewalk has some cracking, small gaps, and mild vertical displacement throughout the segment.
- **Poor Condition** – The sidewalk contains multiple cracks, missing pieces, larger gaps, and significant vertical displacement between blocks.

Most of the assessed sidewalk network was found to be in good or fair condition. Specifically, 53% of segments were rated good, 37.9% fair, and only 9% poor. Sidewalk conditions throughout the village are shown in Figure 7. In addition to these segment-level ratings, isolated defects—such as a single block lifted by tree roots—are also shown on the map to highlight localized hazards. This assessment provides a foundation for prioritizing sidewalk replacement projects, ensuring that improvements are directed to the areas of greatest need.

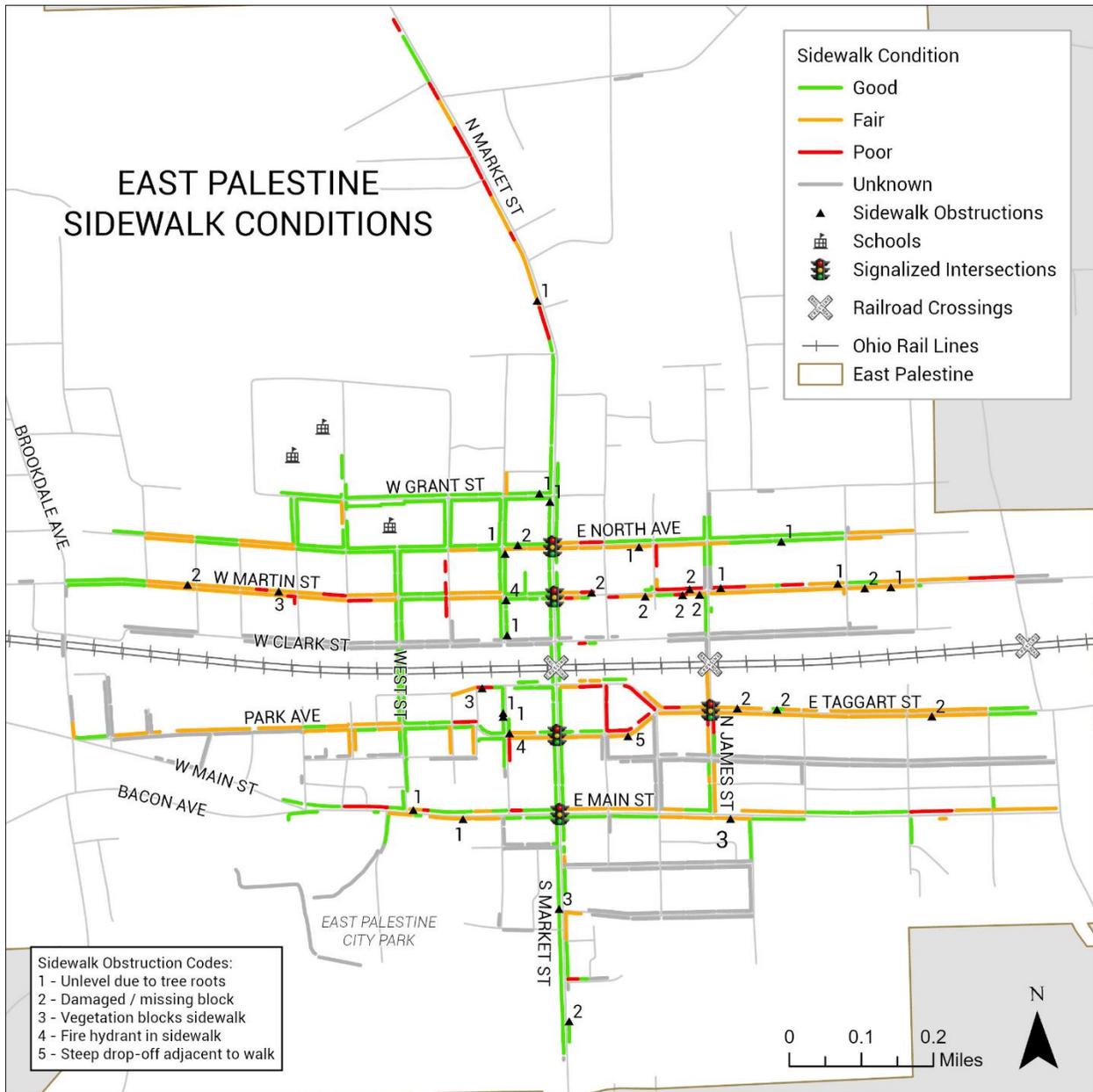


Figure 7. East Palestine Sidewalk Conditions

In addition to the sidewalk network, the East Palestine Walking Trail spans 2.84 miles and includes several sections of separated path; however, an approximately 0.5-mile stretch along W. Main Street—from Spaite Drive to Brookdale Avenue—lacks dedicated walking facilities. Different portions of the East Palestine Walking Trail are shown below in Figure 8.

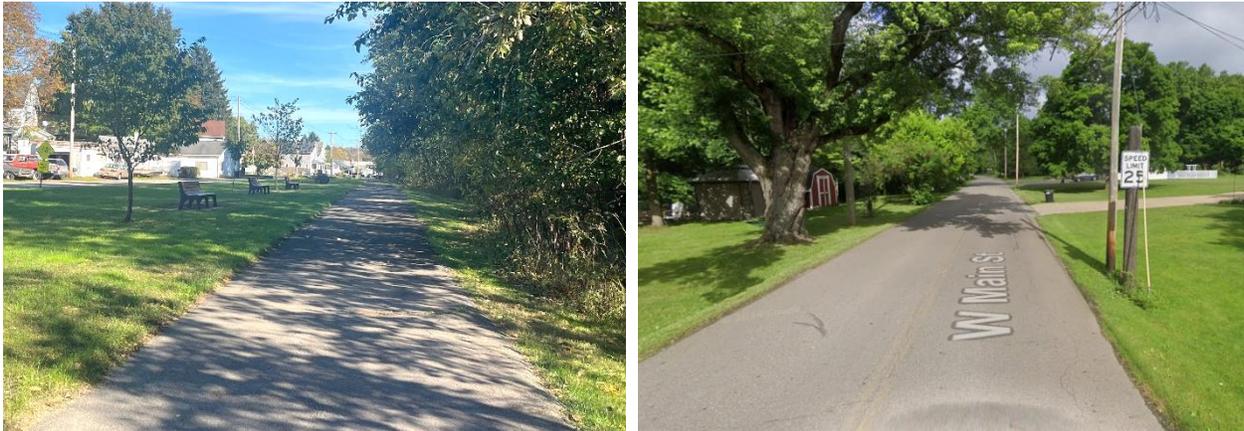


Figure 8. East Palestine Walking Trail on W Main Street, west of Brookdale Avenue (Left) and east of Brookdale Avenue (Right), where there are no existing facilities.

Accommodations for People Biking

Team members saw community members biking on paved portions of the East Palestine Walking Trail, which provides a great place for people to bike for fun. However, there are currently no existing bike lanes from the trail to help people reach other destinations.

The East Palestine Walking Trail lets out on W Main Street at two locations, captured below in Figure 9. Currently, there are no existing crosswalk markings at these locations, and no bike lanes connecting to the trail.



Figure 9. Paved portions of the East Palestine Walking Trail let out near Brookdale Avenue (Left) and on W Main Street (Right).

Existing conditions for walking and biking in East Palestine are shown in Figure 10.

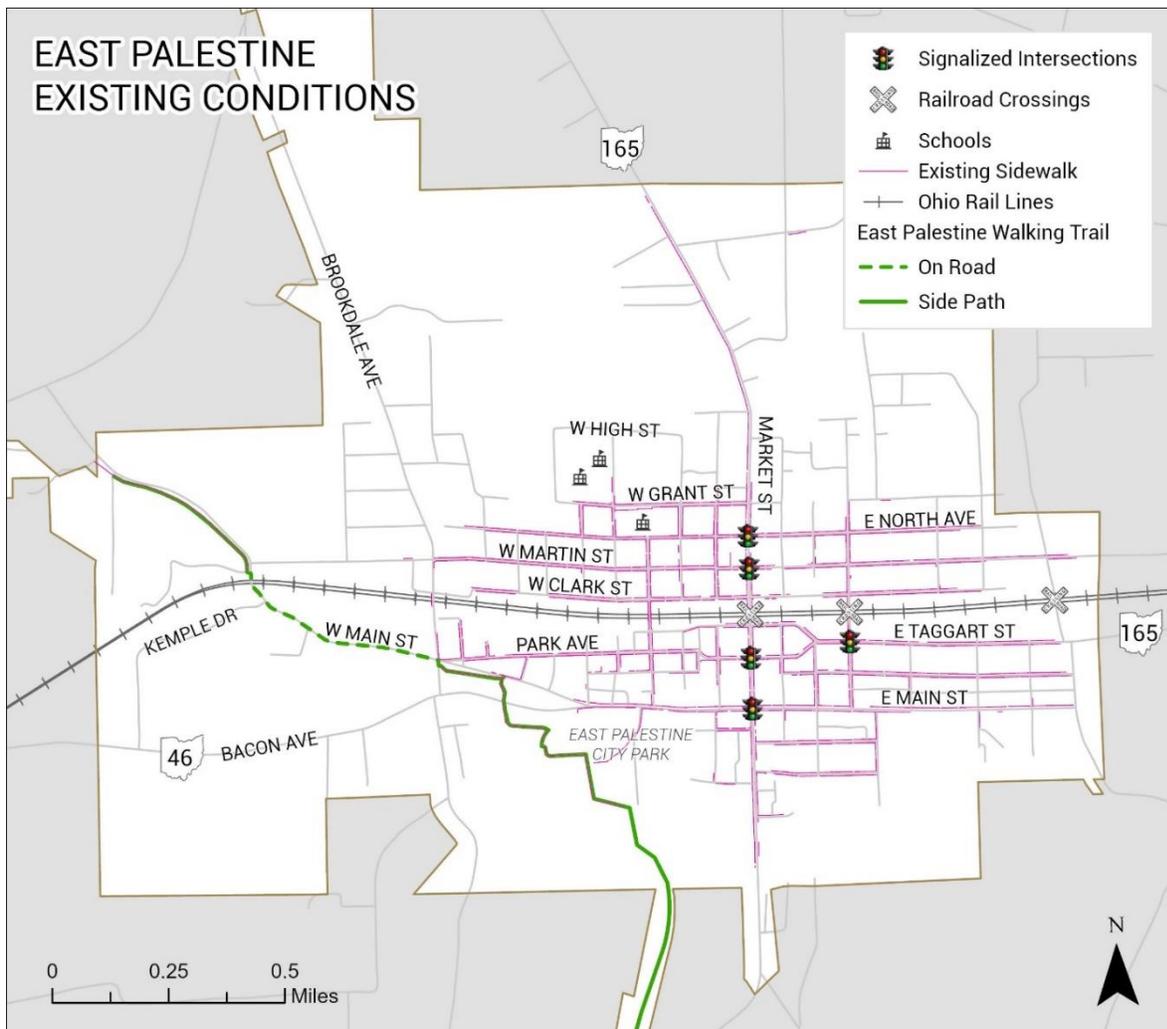


Figure 10. Existing Conditions for Walking and Biking in East Palestine

3.4 Analyses

The project team performed several analyses to better understand the existing transportation network in East Palestine. The five types of analyses are listed below. The following section provides a more detailed summary of each one.

1. **Equity:** Active transportation options contribute to a more equitable transportation system. Being able to safely walk and bike means that people can access local destinations even if they do not use a motor vehicle. Across the country and in Ohio, someone walking or bicycling is more likely to be killed if they are an older adult, if they are low-income, or if they are a person of color.¹ Connected and accessible sidewalks, bike lanes, and trails result in better access to essential services and to daily physical activity.

¹ Ohio Department of Transportation. (2020), *Walk.Bike.Ohio Safety Analysis Reports. Safety Analysis Reports | Ohio Department of Transportation*

2. **Walking & Bicycling Activity:** This analysis focused on determining where people are already walking and bicycling. Places where people already walk and ride a bike may be good locations for projects that make it safer to walk and bike. This analysis also helps to find any locations where a lack of infrastructure prevents people from walking and bicycling at all.
3. **Network Connectivity & Facilities:** “Network utilization” describes who is walking and bicycling, where, and how often. Several factors impact network usage, including land use (commercial, residential, or industrial), the presence of sidewalks/trails, the location of destinations, safety concerns, and socioeconomic need.
4. **Safety:** Understanding crash trends can lead to projects that have the greatest likelihood of improving safety for pedestrians and bicyclists.
5. **Health Context:** Obesity and chronic diseases have reached epidemic levels around the state. Ohio and other states are starting to take a more holistic approach to addressing these preventable issues. Incorporating health with active transportation is one way that agencies at all levels are
6. **East Palestine Schools:** The local school district was included in the development of this plan to incorporate the needs of children walking and biking to school.

Equity

Many people do not drive because of ability, income, age, or a combination of these factors. The cost of owning and maintaining a vehicle can be a major burden, especially on low-income families. People without a vehicle need to access employment, school, grocery shopping, and a variety of other activities to fully participate in society. Walking and bicycling play a vital role in the overall transportation system by offering increased mobility, independence, and access to opportunities for people without vehicles.

As part of its statewide bicycle and pedestrian plan, the Ohio Department of Transportation performed an Active Transportation need analysis for the entire state. It created a composite need score for every census tract in the state, with scores assigned based on the presence of non-white groups, youth, older adults, poverty, low educational attainment, limited English proficiency, and low motor vehicle access. Higher scores correspond to a higher presence of underserved groups and indicate a greater need for equity. The Ohio Department of Transportation also performed a demand analysis with indicators listed in Figure 11. Areas of high need and high demand should be prioritized for bicycle and pedestrian projects because residents in these areas likely rely more heavily on walking and bicycling for getting around. A composite map of Active Transportation Need and Demand scores by census tract is provided in Figure 12.

Areas of high need in East Palestine: Near the schools and the northwest area of the Village.

Areas of high demand in East Palestine: Downtown and northeast of downtown.

Appendix B – Active Transportation in East Palestine

DEMAND INDICATOR	RATIONALE	METRIC	SCORING
Employment Density	A measure of where people work	2015 Longitudinal Employer-Household Dynamic (LEHD), Work-Area Characteristics	0: Employment = 0 1-5: Assigned score by quantile
Population Density	A measure of where people live	2012-2017 American Community Survey (US Census)	0: Population = 0 1-5: Assigned score by quantile
Walk/Bike Commute Mode Share	A measure of existing active transportation usage	2012-2017 American Community Survey (US Census)	0: Bike/Ped Mode Share = 0 1-5: Assigned score by quantile
Park Density	A measure of parkland expressed as acreage per Census Tract	Park data obtained from ESRI dataset; calculated according to parkland acreage per Census Tract	0: Park Acres = 0 1-5: Assigned score by quantile
Presence of College/Universities	A measure of where people attend college	College/university data obtained from ESRI dataset; calculated based on whether or not a Census Tract contains a college/university location	Score of 0 if there are no College/University locations within a census tract and score of 5 if there is at least one College/University location within a census tract
Retail Employment Density	A measure of where people shop and are employed by retail industries	2015 Longitudinal Employer-Household Dynamic (LEHD), Work-Area Characteristics	0: Retail = 0 1-5: Assigned score by quantile
Number of People 200% Below Poverty Line	A measure of concentrated poverty. Equity factors, including poverty, should be included in planning decisions to enable an equitable distribution of transportation resources	2012-2017 American Community Survey (US Census)	0: Poverty = 0 1-5: Assigned score by quantile

Figure 11. ODOT Active Transportation Demand Indicators from the statewide plan, "Walk.Bike.Ohio"

Appendix B – Active Transportation in East Palestine

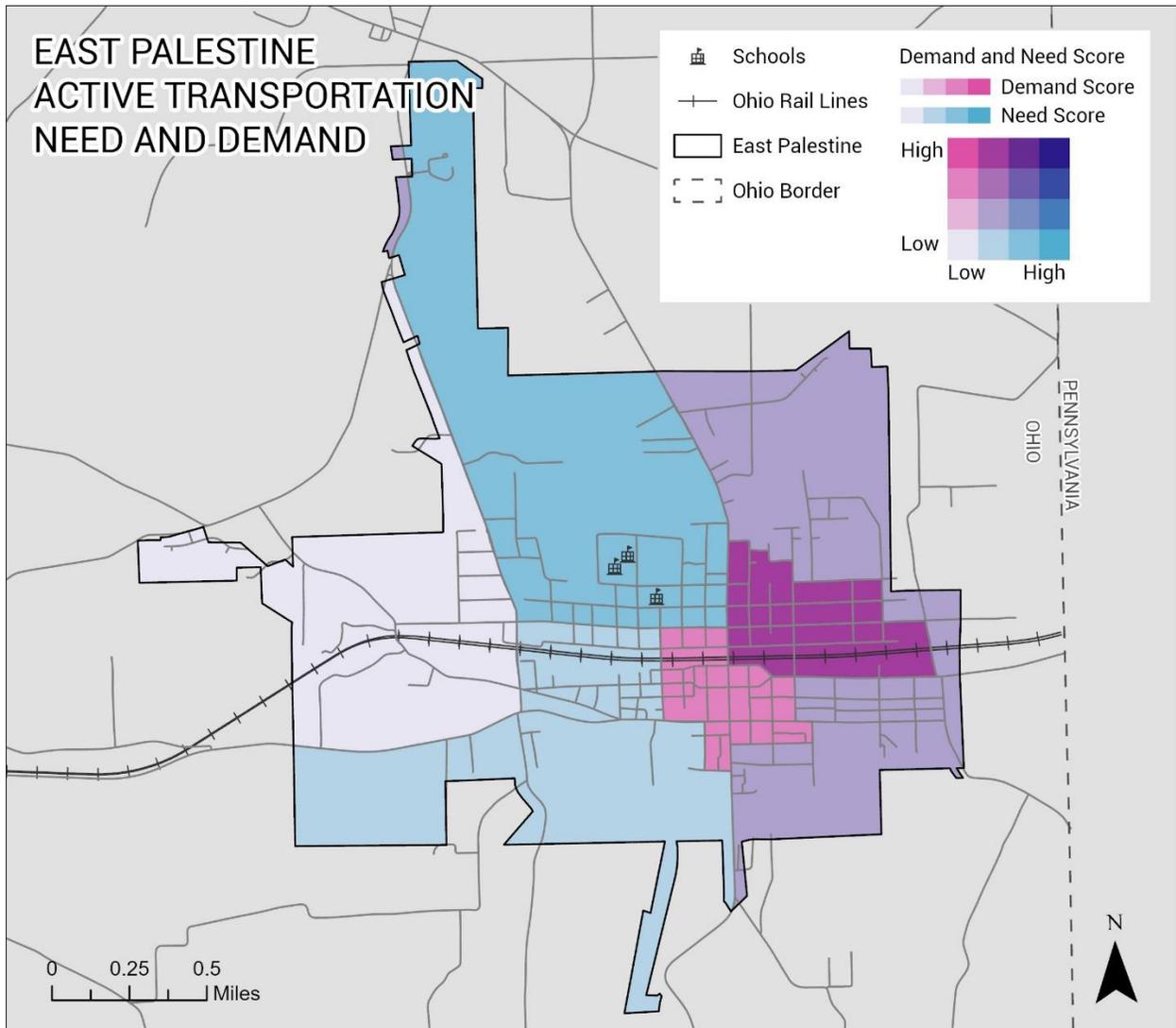


Figure 12. East Palestine Active Transportation Demand and Need

Walking and Bicycling Activity

Streetlight Insight was utilized to gather walking and biking activity data in East Palestine. Streetlight Insight is a big data web platform that harnesses data from Bluetooth devices, such as those in your car and cell phone, and converts it to vehicle, transit, bike, and foot traffic. Average Daily Traffic (ADT) for pedestrians and bicyclists was obtained through a Zone Activity Analysis, which measures how much travel activity occurs within a defined area.

It is important to note that roadways with elevated levels of pedestrian and bicycle activity do not necessarily represent the only routes that people wish to use. In some cases, more direct or convenient routes lack designated facilities, making them difficult or uncomfortable to walk or bike. As a result, individuals may choose alternative routes that offer existing infrastructure or feel safer and more comfortable.

The results of the Pedestrian Zone Activity Analysis are presented below in Figure 13.

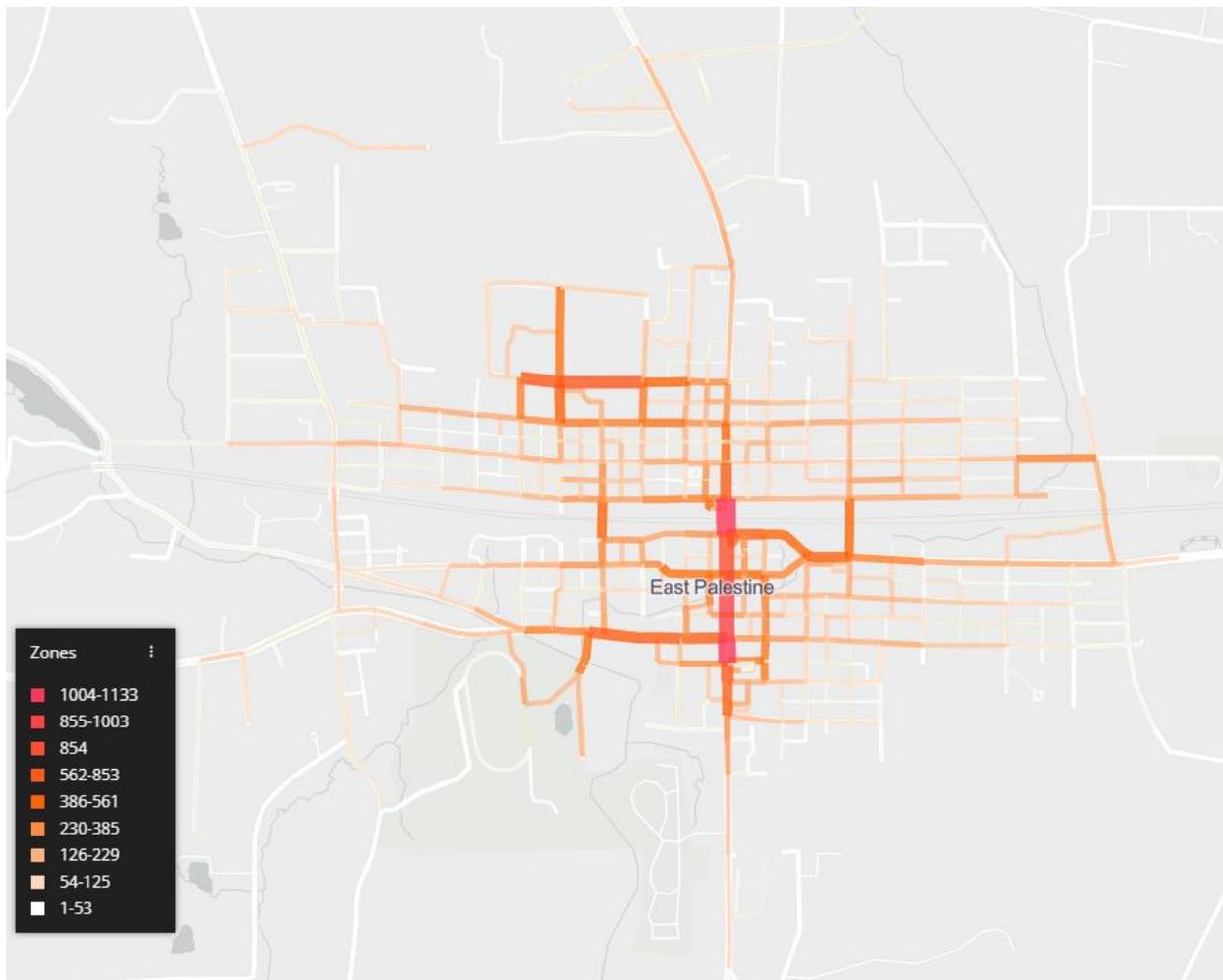


Figure 13: Pedestrian Zone Activity Analysis results

The highest pedestrian activity was observed along the following streets:

- Market Street
- W Grant Street
- W Main Street
- E Taggart Street
- Thomas Street
- West Street
- Rebecca Street
- James Street
- Park Drive
- North Avenue

The results of the Bicycle Zone Activity Analysis are presented below in *Figure 14*

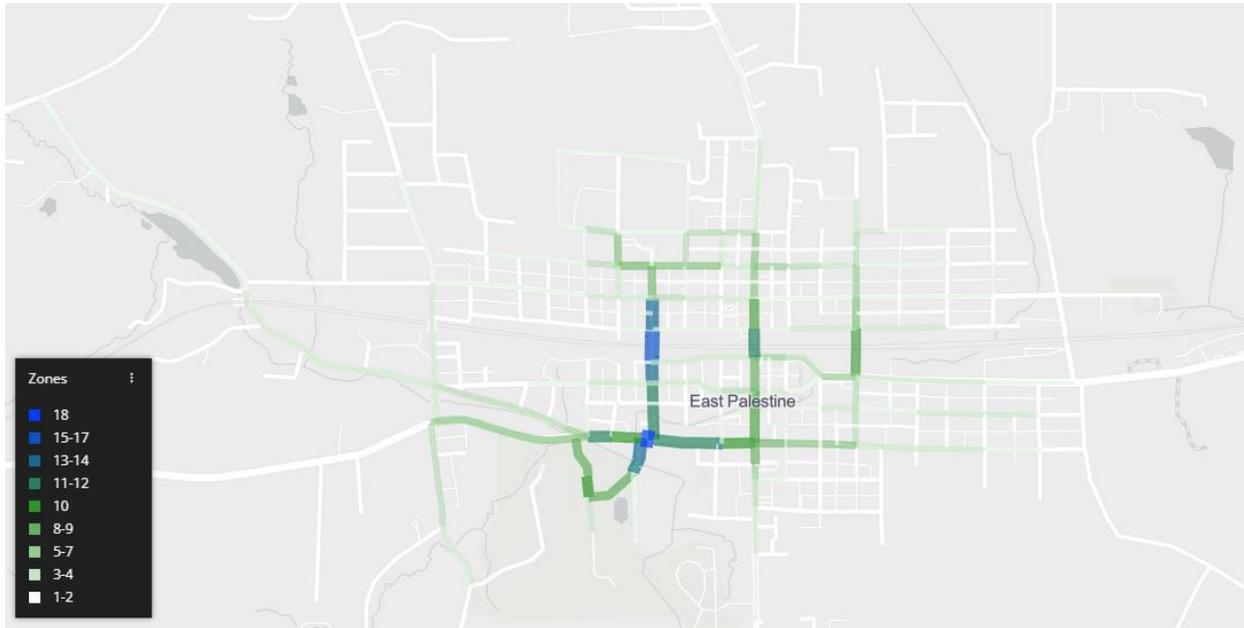


Figure 14: Bicycle Zone Activity Analysis results

The highest bicycle activity was observed along the following streets:

- West Street
- Main Street
- Park Drive
- Market Street
- James Street
- Bacon Avenue
- North Avenue
- Thomas Street

Network Connectivity and Facilities

Walking and bicycling can provide a way for people to access jobs, schools, parks, and other destinations. For this to happen, the walking and bicycling routes need to be continuous and connected. A gap in the network, such as a stretch of road that feels unsafe to bike or a block with missing sidewalk, can make it so that walking and bicycling are no longer options. Filling in gaps can expand access to destinations and increase transportation options, especially for children, teenagers, the elderly, people using wheelchairs/mobility assistance devices, and people with disabilities. Evaluating the connectivity of the network helps to determine where the network is already strong and where the network can be improved by filling in gaps.

Pedestrian and Bicycle Network

As part of the *Existing Conditions Analysis*, the project team conducted a digital inventory of existing sidewalks using Google Earth (see Figure 10). There are no existing bike lanes in East Palestine. The inventory helped the team understand the completeness and connectedness of the current active transportation system.

Opportunities to fill in gaps in the sidewalk network include:

- Brookdale Avenue
- Bacon Avenue
- Martin Avenue
- Clark Street
- W Main Street

Destinations that can be connected with new sidewalks include:

- East Palestine Schools (connections to western neighborhoods)
- East Palestine Walking Trail (connections to existing sidewalk network)
- East Palestine City Lake

Street Network

Traffic volume was assessed using the ODOT TIMS Road Inventory, which provides various data related to roadways, including traffic volume counts. Traffic volume is reported as Average Daily Traffic (ADT), or the average number of vehicles in a 24-hour period.

Traffic volume affects how comfortable pedestrians and bicyclists feel when traveling, with higher traffic volumes creating a more stressful environment for vulnerable road users. Most roads in East Palestine have a low traffic volume of 500 vehicles or less per day. The following streets had the greatest traffic volumes:

- Market Street
- Bacon Avenue
- E Taggart Street
- Park Avenue
- Brookdale Avenue

Safe Streets and Roads for All
Appendix B – Active Transportation in East Palestine



- Rebecca Street

Roadway traffic volumes are displayed in Figure 15.

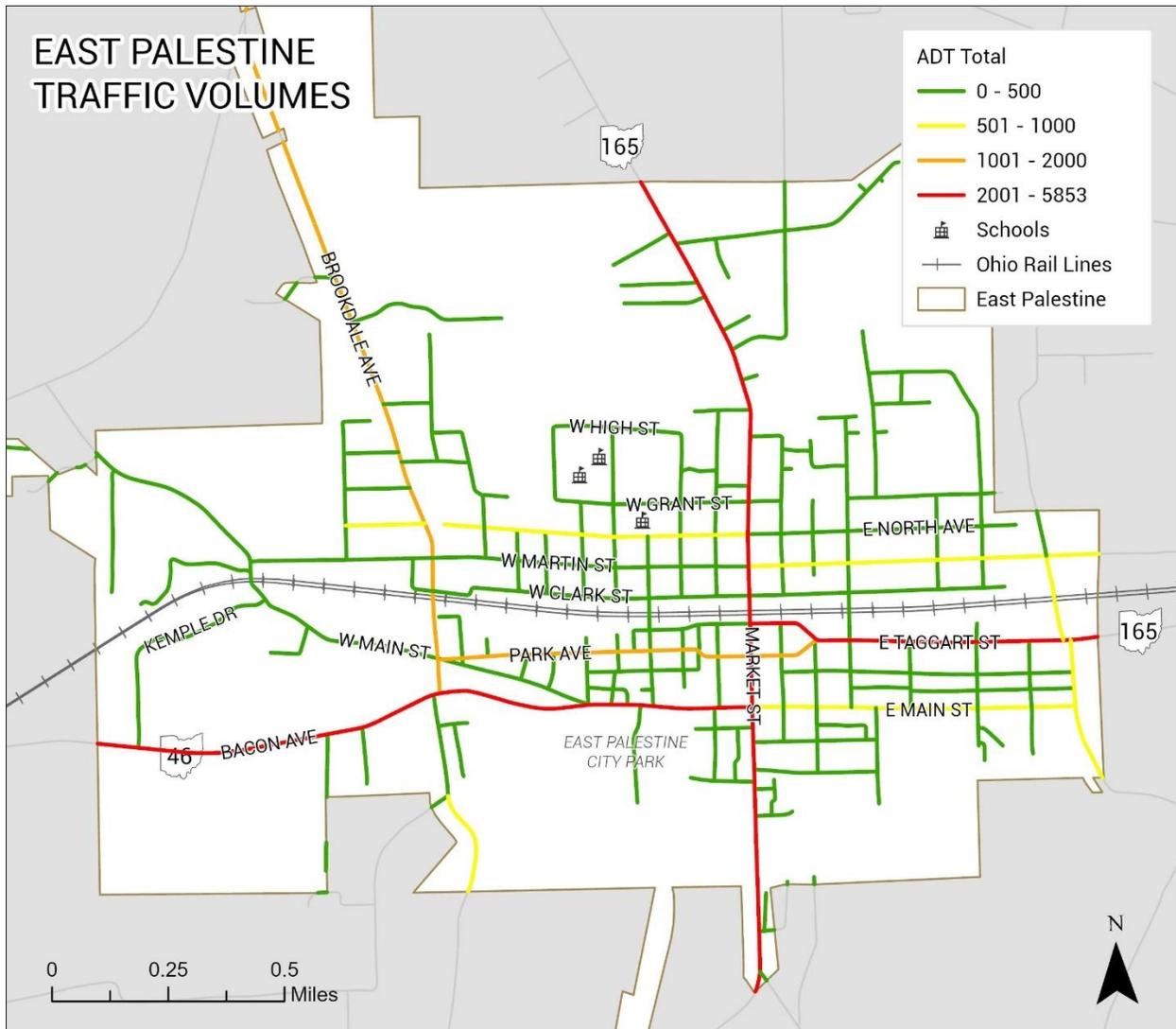


Figure 15. East Palestine Traffic Volumes (Source: ODOT TIMS Road Inventory) ADT = Average Daily Traffic

Safety

The project team examined the crash history in East Palestine to learn where crashes are currently happening and what factors may be contributing to crashes. Understanding crashes can lead to projects that have the greatest chance of improving safety for people walking and bicycling. A full safety analysis was performed as part of the *2026 East Palestine Comprehensive Safety Action Plan*, which can be found in [Section 3: Existing Safety Analysis](#).

Crash Analysis

Ten years of crash data from 2015-2024 were obtained from the American Association of State Highway Transportation Officials (AASHTO) AASHTOWare Safety Software. During the study period, there were 11 crashes that involved a pedestrian or bicyclist, nine of which resulted in injury, and two of which resulted in a fatality or serious injury. These crashes are shown below in Figure 16.

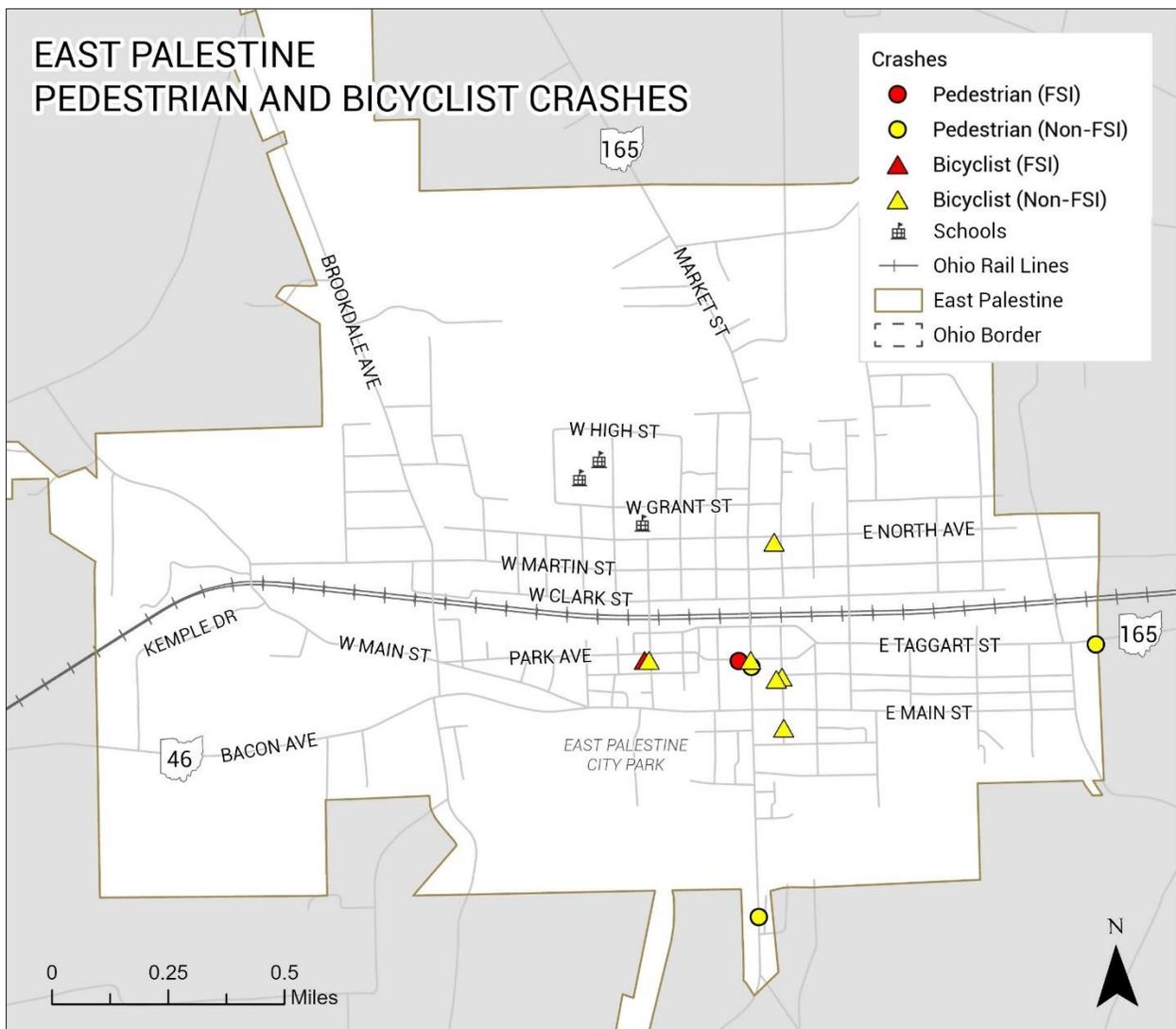


Figure 16. Pedestrian and Bicyclist Crashes in East Palestine from 2015-2024

When compared with other crash types, VRU crashes, or crashes involving a pedestrian or cyclist, are more likely to result in death or a serious injury. Out of the total 457 crashes that occurred in East Palestine during the study period, only 11 were VRU related, but these crashes accounted for nearly 26% of all FSI crashes. The red box on Figure 17 highlights pedestrian and bicyclist crashes, which occur at a much lower frequency, but have disproportionately high FSI rates.

Crash Type	Total Crashes	Total Crashes %	FSI	FSI %
Angle	104	23%	1	13%
Rear End	77	17%	0	0%
Parked Vehicle	75	16%	1	13%
Backing	68	15%	0	0%
Fixed Object	37	8%	0	0%
Left Turn	25	5%	2	25%
Right Turn	16	4%	0	0%
Head On	14	3%	0	0%
Other Non-Collision	14	3%	1	13%
Sideswipe-Passing	12	3%	0	0%
Pedalcycles	7	2%	1	13%
Pedestrian	4	1%	1	13%
Overturning	2	0%	1	13%
Train	1	0%	0	0%
Other Object	1	0%	0	0%
Grand Total	457	100%	8	100%

Figure 17. Crash Type by Total Crashes and FSI Crashes.

Of the 11 VRU crashes that occurred during the study period, nine crashes, or 81.8% resulted in an injury. One pedestrian crash resulted in a fatality, and one bicycle crash resulted in a serious injury. Figure 18 shows pedestrian and bicyclist crashes by crash severity.

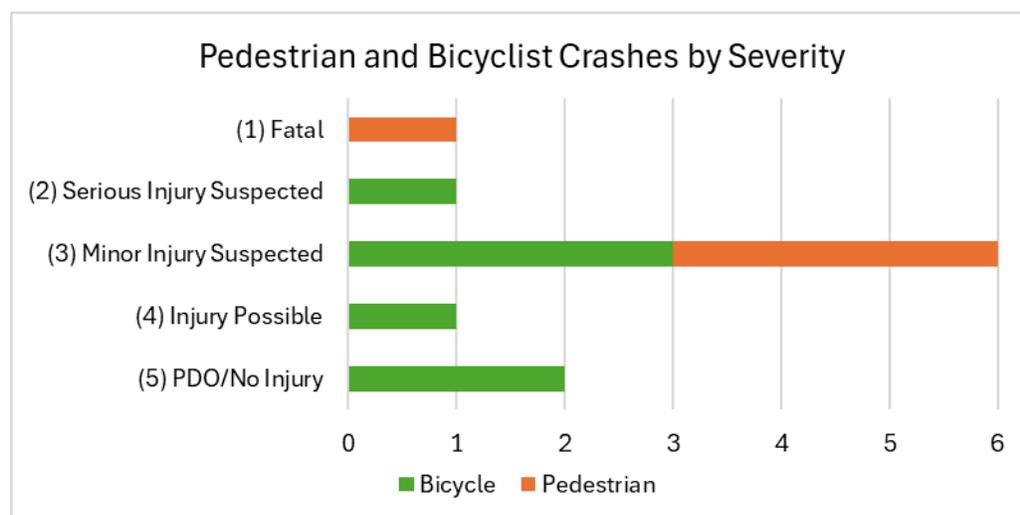


Figure 18. Pedestrian and Bicyclist Crashes by Severity.

Network Safety Analysis

As part of the *2026 East Palestine Comprehensive Safety Action Plan*, the project team performed a Network Safety Analysis to produce a High Injury Network and a High Risk Network. The full analysis is available in *Section 4: Network Safety Analysis*.

Overview

The High Injury Network (HIN) and High Risk Network (HRN) analyses utilize ODOT crash data from 2020 through 2024 to identify high injury and high risk locations in East Palestine. The High Injury Network is further categorized into segments and intersections. Performing these analyses can help transportation planners visualize crash history throughout the study region on a geographical basis. These networks can then assist planners in effectively prioritizing future safety-focused transportation projects.

The network safety analysis uses data from the past 5 years to provide a more current view of roadway conditions. This approach ensures that recent changes in infrastructure, traffic patterns, and safety measures are reflected in the analysis. Focusing on recent data allows for a more precise identification of high-risk areas, aiding in the effective prioritization of safety-focused transportation projects.

In these analyses, only fatal or serious injury (FSI) crashes are analyzed for all modes of motor vehicles, however, fatal and injury (FI) crashes are analyzed for crashes involving pedestrians and bicyclists. Going forward, the term 'FSI' will be used, but when referring to pedestrian or bicycle crashes, it will denote 'FI'.

High Injury Network

The High Injury Network (HIN) identifies areas with a history of frequent FSI crashes based on crash data from 2020-2024. As previously mentioned, the HIN includes an analysis of both road segments and intersections.

A High Injury Segment refers to a specific segment of roadway with a history of frequent crashes. Roadways in East Palestine were assessed using 0.1 mile segments. In this analysis, FSI crashes were assigned to their corresponding road segment to determine the total number of crashes in each segment during the study period. Segments are ranked based on the number of FSI crashes per segment. To denote the approach of a high injury segment, adjacent segments receive a rank that is one value below that of the high injury segment. Segments that experienced two FSI crashes in the last five years are ranked as "High", while segments that experienced one FSI crash are ranked as "Low". VRU High Injury Segments are shown in Figure 19.

Appendix B – Active Transportation in East Palestine

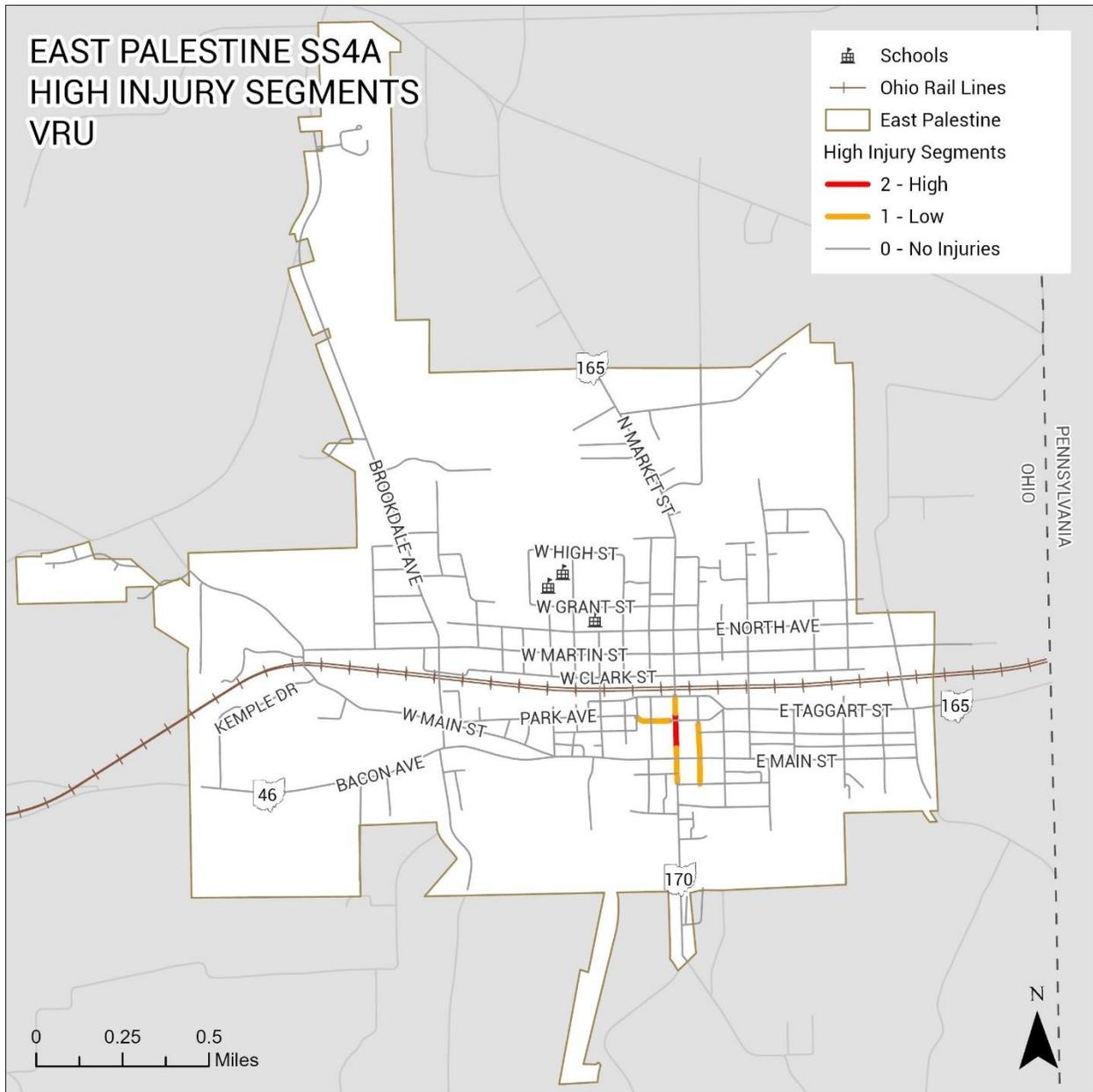


Figure 19. VRU High Injury Segments

High Injury Intersections are those with a history of frequent FSI crashes based on crash data from 2020-2024. East Palestine intersections were analyzed using a 150-foot buffer. In this analysis, crashes are assigned to their corresponding intersections to determine the total number of crashes in each intersection during the study period. Intersections are displayed based on the number of FSI crashes that occurred within the buffered distance. High Injury Intersections in East Palestine are shown in Figure 20, and listed in .

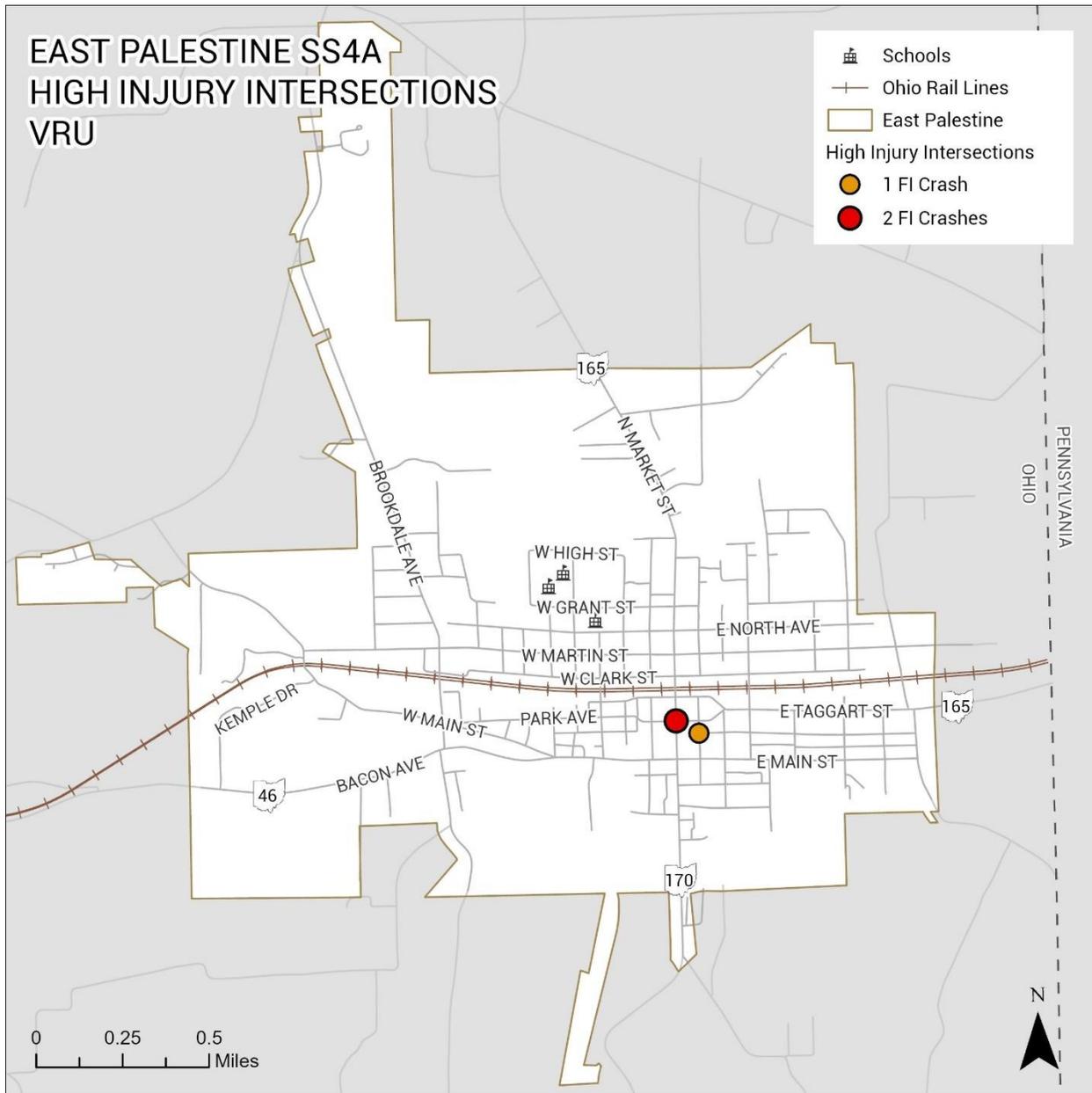


Figure 20. VRU High Injury Intersections

High Risk Network

The High Risk Network (HRN) identifies roadways within the study area that exhibit an elevated crash risk based on roadway characteristics and historical crash patterns. This analysis is both reactive and proactive, using historical crash data and identifying roadway features associated with FSI crashes to prevent future crashes.

First, roadways undergo a facility profile analysis to identify characteristics correlated with higher crash frequencies. This analysis assigns a risk score of High, or Low. The risk criteria vary for different transportation modes, due to their differing interactions with the road.

Several roadway characteristics are considered in identifying attributes correlated with high crash frequencies. These factors are not necessarily causes of higher FSI crash frequencies, but can be associated with them. Trends observed in roadways with high FSI crash occurrences help create criteria that categorize roads into different levels of risk based on these features. Some features, such as Road Functional Class, are categorized into groups to create groups with similar characteristics and help identify trends. Table 1 identifies the factors that were considered in this analysis. The factors that were most correlated with higher FSI crash frequencies were selected for risk categorization; therefore, not all factors were used.

Table 1. Factors considered in HRN analysis

FACTOR	DESCRIPTION
FUNCTIONAL CLASS	Roadway functional class is categorized into high functional class, and low functional class.
SPEED LIMIT	Posted speed limit.
AADT	Average annual daily traffic.
TRUCK ROUTE	Segment is designated as part of the National Truck Network
TRUCK TRAFFIC PROPORTION	Proportion of Truck AADT out of Total AADT
INTERSECTION DENSITY	Number of intersections within 150 feet of the road segment.
SIGNALIZED INTERSECTION DENSITY	Number of signalized intersections within 150 feet of the road segment.
COMPLEX INTERSECTION DENSITY	Number of complex intersections (intersections with skewed angle or more than 2 intersecting roads) within 150 feet of the road segment.
NUMBER OF LANES	Number of lanes are categorized into two-lane roadways and multilane roadways.
DEMOGRAPHIC FACTORS	Demographic factors are available from the US Census at the census tract level. East Palestine falls largely within a single tract, limiting the amount of insight these metrics can provide into crash risk. Therefore, these metrics were not used in this analysis.

Table 2 outlines the Facility Profile Criteria for VRU crash types, and Table 3 shows the facility metrics associated with the assigned risk level. Figure 21 shows a map of the VRU High Risk Network.

Table 2: Facility Profile Criteria for VRU Crashes

FACILITY PROFILE ANALYSIS - VRU			
RISK LEVEL	SPEED LIMIT	AADT	SIGNALIZED INTERSECTION DENSITY
HIGH	= 25	>500	> 0
LOW	-	<500	0

Appendix B – Active Transportation in East Palestine

Table 3: Facility Metrics – VRU

FACILITY METRICS BY RISK LEVEL - VRU				
RISK LEVEL	MILES IN STUDY AREA	MILEAGE SHARE	FSI CRASHES	FSI CRASH SHARE
HIGH	3.5	10.6%	3	60.0%
LOW	29.5	89.4%	2	40.0%

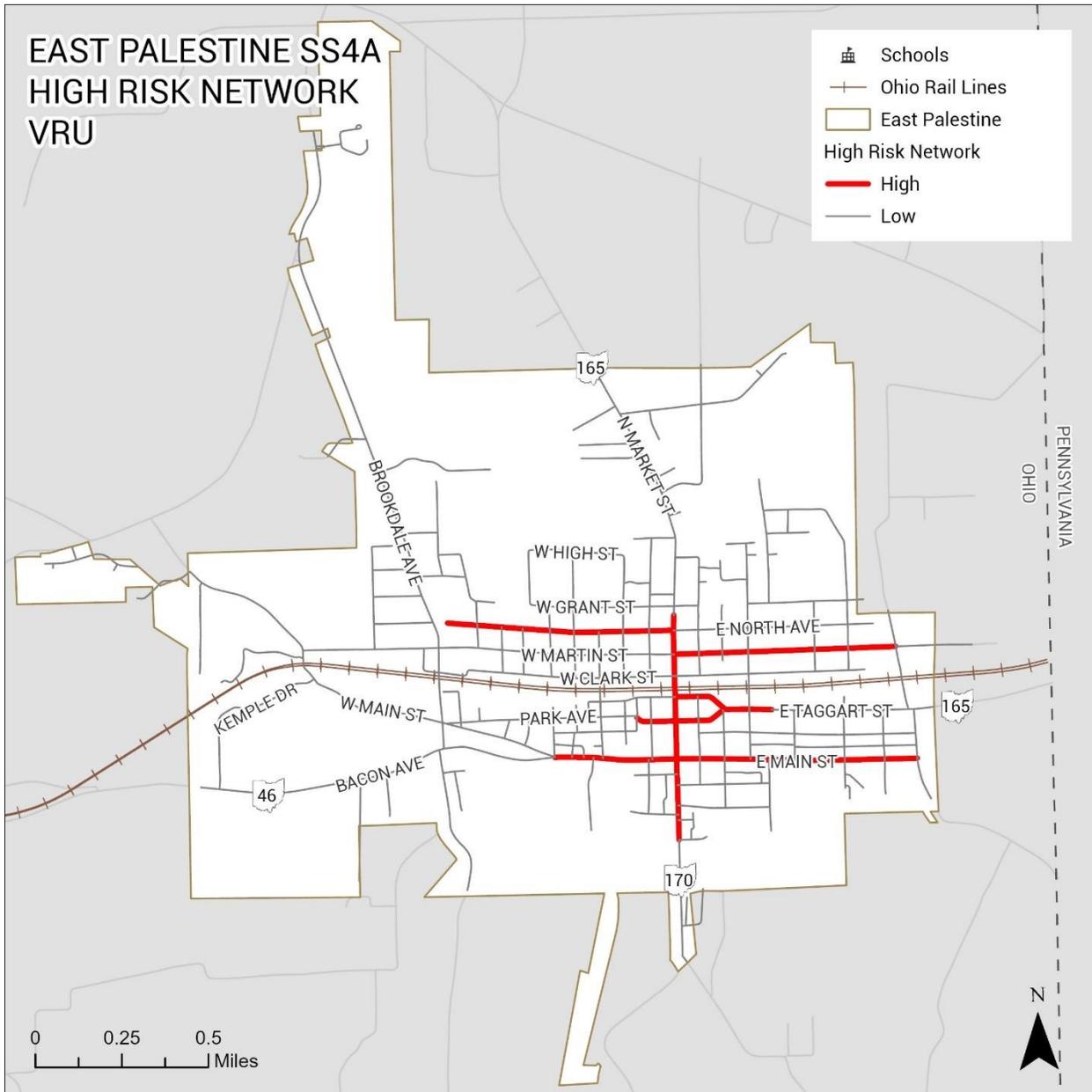


Figure 21. VRU High Risk Network

Health Context

Livability is the sum of all the things that add up to a community's quality of life. It includes the natural environment, the streets and buildings, social conditions, economic conditions, and public health. Ohio is one of the least healthy states in the country, falling behind on physical activity. This is partly due to the lack of options for walking and bicycling, both for transportation and for physical activity. Car-oriented lifestyles increase emissions and harm air quality. Creating places to walk and bike provides more choices and positively impacts quality of life. This section provides tools to examine three factors that impact livability: health, the economy, and the environment. The following data was collected from the *Columbiana County 2026-2028 Community Health Improvement Plan*² and the *Columbiana County 2025-2028 Health Needs Assessment*³.

- **Access and Utilization:** In the past year, 86% of respondents had health insurance, 76% visited a doctor for a routine checkup, and 59% visited a dentist. Respondents widely reported their health to be good (42%) or very good (29%). Transportation to local providers was identified as a significant barrier to health care access in the 2025-2028 Health Needs Assessment.
- **Health and Wellness:** Nearly half of respondents reported having high blood pressure (47%). Similarly, 44% of respondents reported having a Body Mass Index (BMI) of 30 or greater. Based on survey data, Columbiana County reports higher rates of several chronic diseases compared to national averages, including diabetes (10.8%), cancer (6.6%), and heart disease (6.4%). The life expectancy in Columbiana County is 74.5 years, which is lower than the national average of 75.8 years.
- **Quality of Life:** Columbiana County experienced higher rates of Quality of Life Indicators than both the state and national average, including Poor or Fair Health (18%), Poor Physical Health Days, Poor Mental Health Days, and Frequent Mental Distress.
- **Transportation:** Transportation can be a barrier to health care access, physical activity, healthy foods, and various other opportunities. As previously mentioned, transportation was identified as the greatest barrier to accessing healthcare for Columbiana County residents.
- **2023 Train Derailment:** In 2023, a train derailment involving hazardous materials occurred in East Palestine, releasing toxic chemicals into the air, water, and soil. Following cleanup and restoration efforts, the area continues to be monitored by the EPA, including regular water sampling. The event has raised concern about long-term health effects for community members and the environment. East Palestine is a target community to be monitored through the 2025-2028 Community Health Improvement Plan.

² Columbiana County Public Health (2025). *Columbiana County 2026-2028 Community Health Improvement Plan*. <https://www.columbiana-health.org/wp-content/uploads/2026-2028-CHIP-FINAL120225.pdf>

³ Columbiana County Public Health (2025). *Columbiana County 2025-2028 Health Needs Assessment*. <https://www.columbiana-health.org/wp-content/uploads/CHNA-Final-06-25.pdf>

East Palestine City Schools

During the 2024-2025 school year, East Palestine City Schools had an enrollment of 932 students split between three schools: East Palestine Elementary School, East Palestine Middle School, and East Palestine High School. The following tables provide a demographic breakdown of the East Palestine City Schools. Figure 22 provides an overview of the schools.

Table 4. East Palestine Elementary School Demographics

School District		School Name				School Address			Grades Served
East Palestine City Schools		East Palestine Elementary School				195 W Grant Street East Palestine, OH 44413			H, P, K, 1-4
East Palestine Elementary School Student Demographics									
Average Daily Student Enrollment	American Indian or Alaskan Native	Asian or Pacific Islander	Black, Non-Hispanic	Hispanic	Multiracial	White, Non-Hispanic	Students with Disabilities	Economic Disadvantage	Migrant
412	NA	NA	NA	5.9%	3.7%	89.9%	21.5%	99.4%	NA

Table 5. East Palestine Middle School Demographics

School District		School Name				School Address			Grades Served
East Palestine City Schools		East Palestine Middle School				320 W Grant Street East Palestine, OH 44413			5-8
East Palestine Middle School Student Demographics									
Average Daily Student Enrollment	American Indian or Alaskan Native	Asian or Pacific Islander	Black, Non-Hispanic	Hispanic	Multiracial	White, Non-Hispanic	Students with Disabilities	Economic Disadvantage	Migrant
268	NA	NA	NA	NA	4.6%	92.4%	22.6%	99.3%	NA

Table 6. East Palestine High School Demographics

School District		School Name				School Address			Grades Served
East Palestine City Schools		East Palestine High School				36 W Grant Street East Palestine, OH 44413			9-8
East Palestine High School Student Demographics									
Average Daily Student Enrollment	American Indian or Alaskan Native	Asian or Pacific Islander	Black, Non-Hispanic	Hispanic	Multiracial	White, Non-Hispanic	Students with Disabilities	Economic Disadvantage	Migrant
253	NA	NA	NA	NA	NA	92.9%	12.9%	100.0%	NA

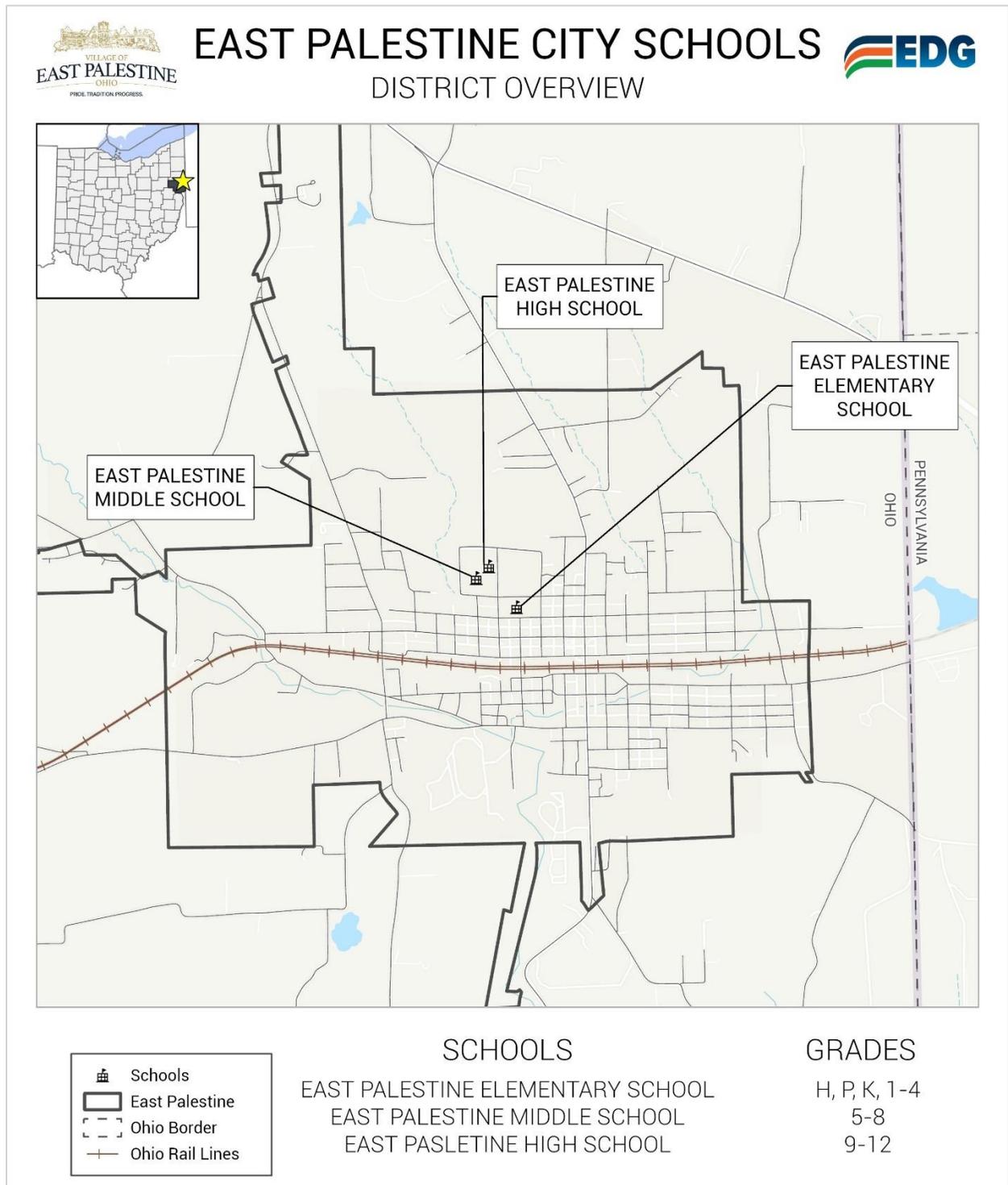


Figure 22. East Palestine City Schools District Overview

Appendix B – Active Transportation in East Palestine



Safety Data Review

During the five-year period of 2020-2024, there were four pedestrian crashes and seven bicycle crashes reported within a 2-mile radius of East Palestine Schools. Two of these crashes resulted in serious injury or fatality. The crashes are summarized in Table 7. Individual maps of pedestrian and bicycle crashes near schools are provided in Figure 23 - Figure 25.

Table 7. Pedestrian and bicycle crashes near East Palestine Schools (2020-2024)

School	Number of bicycle and pedestrian crashes within ¼ mile	Number of bicycle and pedestrian crashes between ¼ and ½ mile	Number of bicycle and pedestrian crashes between ½ and 1 mile	Number of bicycle and pedestrian crashes between 1 and 2 miles	Total number of bicycle and pedestrian crashes within 2 miles
East Palestine Elementary School	0	8	2	1	11
East Palestine Middle School	0	3	6	2	11
East Palestine High School	0	3	6	2	11

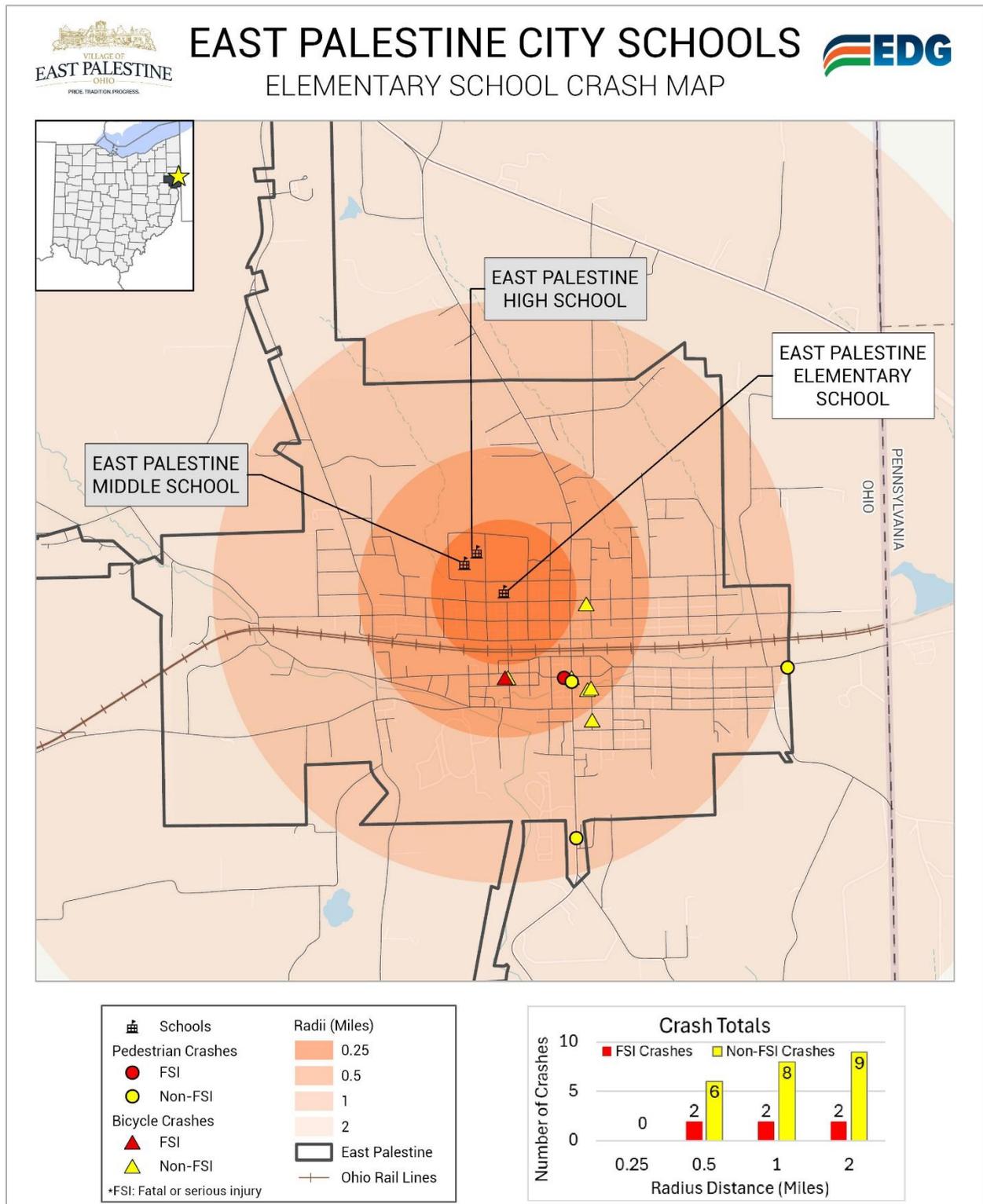


Figure 23. Pedestrian and bicycle crashes near East Palestine Elementary School

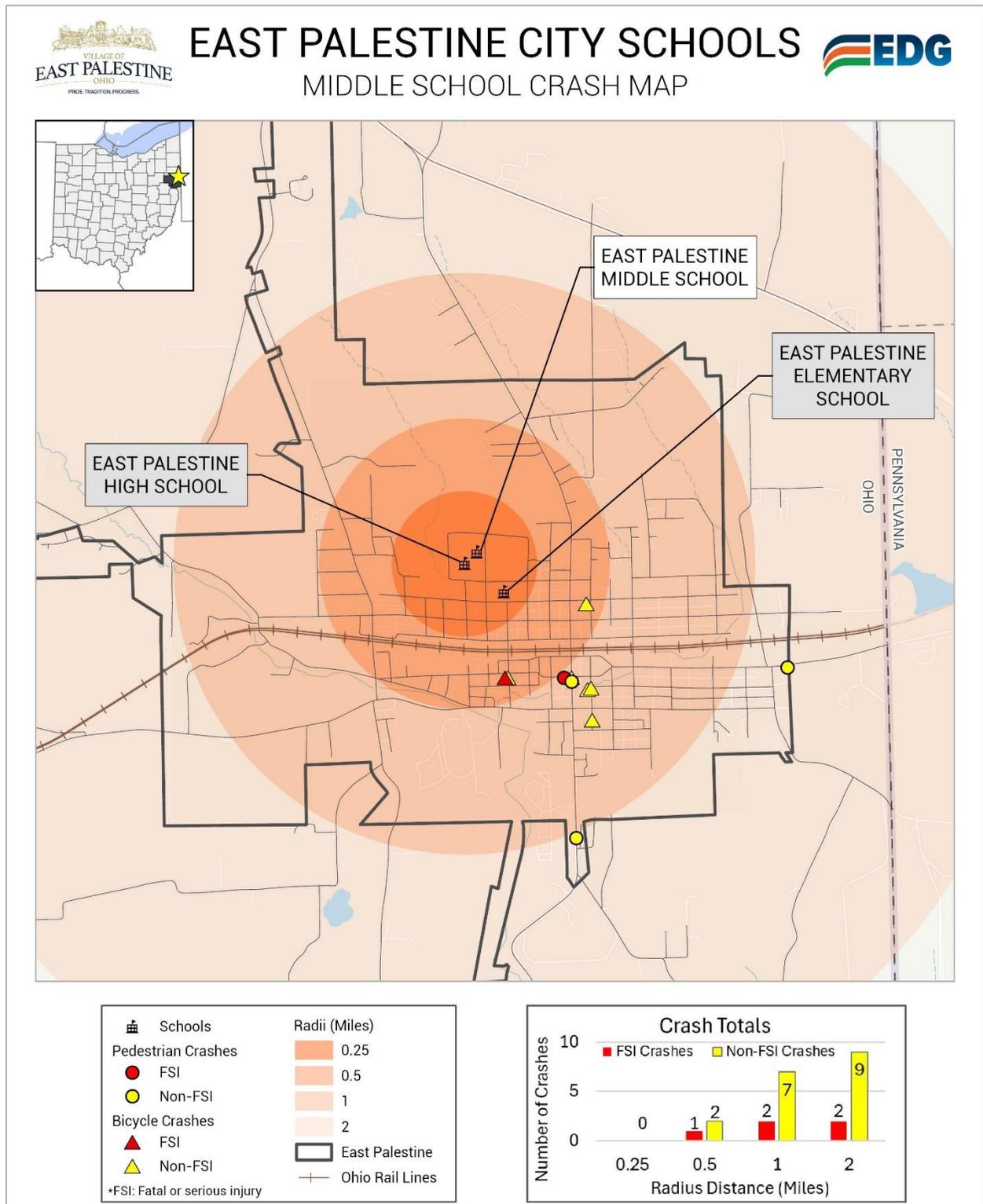


Figure 24. Pedestrian and bicycle crashes near East Palestine Middle School

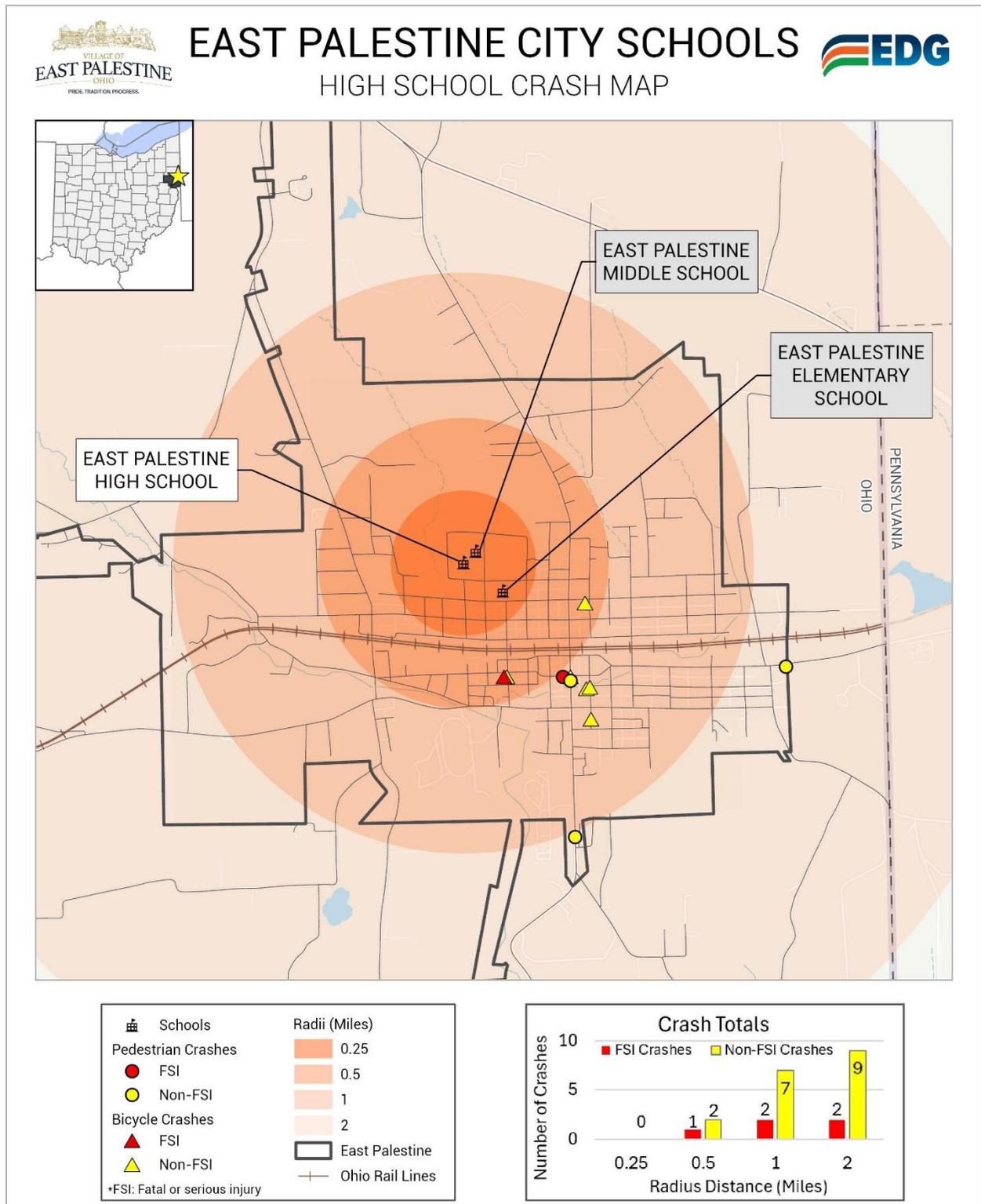


Figure 25. Pedestrian and bicycle crashes near East Palestine High School

Main Routes for Walking and Biking to School

According to the East Palestine City School District Policy Manual, students who meet the following criteria are eligible for EPCS bus transportation as of the Transportation Policy:

- Grades Kindergarten (K) through eight (8) = two (2) mile(s)
- The District, at its discretion, may transport students at lesser distances and/or higher grade levels as prudent and feasible.

The District publishes current bus route lists for the Elementary School and for the Middle School and High School on its website. These lists include stops located within the two-mile radius specified in the Transportation Policy and include high school students, indicating that the District provides busing to additional students beyond the minimum eligibility criteria. However, the full extent of bus service coverage is not detailed online or in the policy. Given this variability, the project team evaluated walking and biking routes across the entire Village rather than limiting the analysis to a specific distance threshold.

The project team identified the primary walking and biking routes that students in East Palestine are likely to use when traveling to school. While anonymous student address data is typically collected to guide this process, such data was not available for this project. However, given the village’s compact size and predominantly residential layout, the team was able to make reasonable assumptions about the routes students are most likely to take. The identified Priority Walking and Biking Routes to school are shown in Figure 26, and include the following:

- Brookdale Avenue
- Market Street
- West Street
- James Street
- W Grant Street
- North Avenue
- Martin Street
- Taggart Street
- Rebecca Street
- Park Avenue
- Main Street
- Bacon Avenue
- W High Street
- Vine Street
- East Street
- Sugar Camp Drive
- Thomas Street
- Neely Manor
- Western Avenue
- Edgewood Avenue

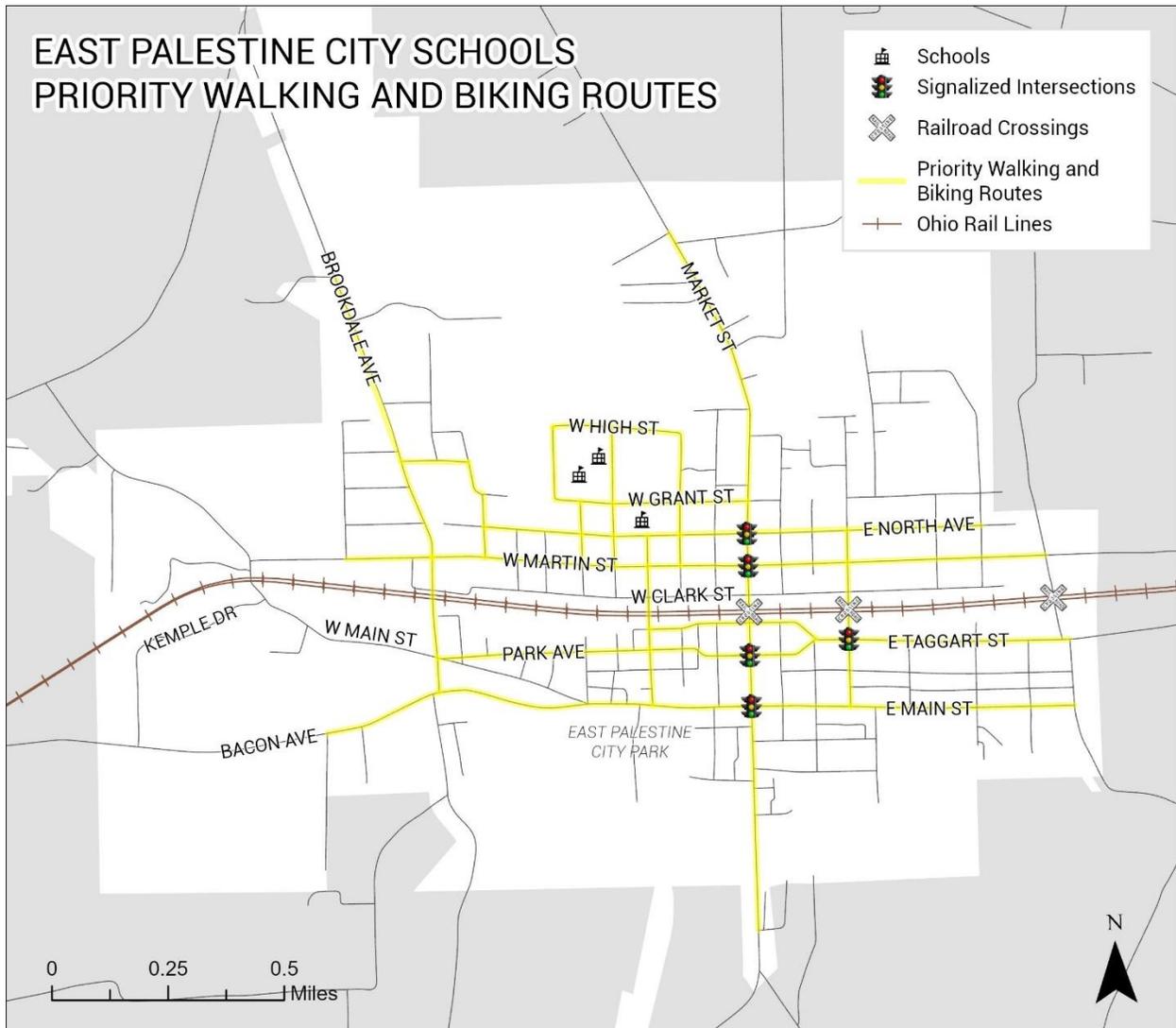


Figure 26. East Palestine City School District Priority Walking and Biking Routes

5. PROPOSED PROJECTS AND PROGRAMS

This plan makes recommendations that will promote walking and bicycling through a combination of infrastructure projects, policies, and programs. Infrastructure recommendations refer to physical, built projects that change roadway design to provide space for all types of travelers. Policy and program recommendations aim to re-prioritize walking and bicycling and to change the culture around active transportation. Program recommendations include education, encouragement, and policies.

5.1 Infrastructure Projects

The final proposed network includes sidewalk projects and bike facility projects that create critical connections to schools, to the downtown area, and to the city park and walking trail. The proposed network also includes intersections that should be improved to make walking and bicycling safer along key routes, such as Market Street and Main Street. The proposed infrastructure is shown in Figure 27. Table 8 and Table 9 provide a complete list of proposed projects with descriptions.

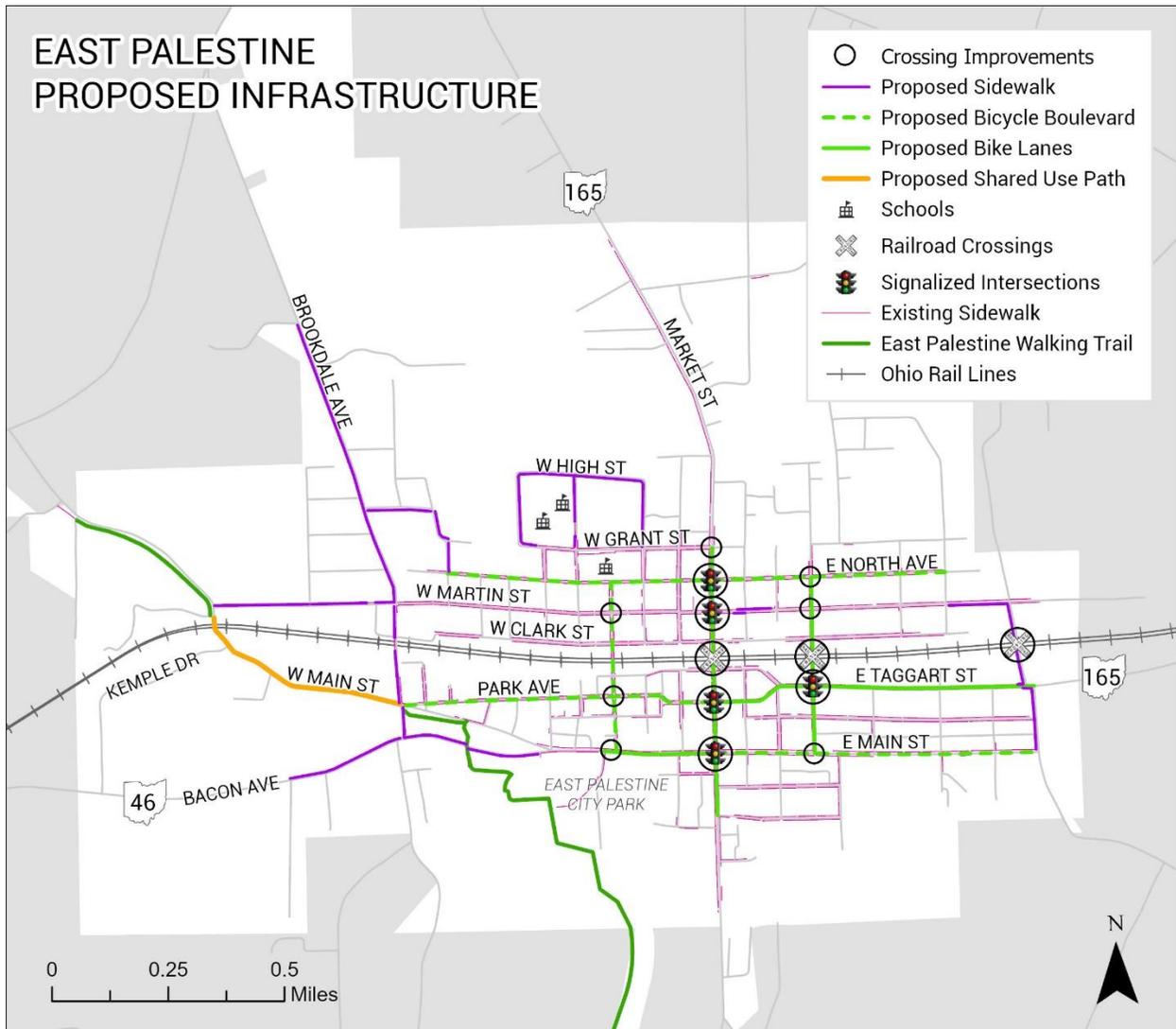


Figure 27. Proposed Infrastructure Projects

Table 8. Bicycle and Sidewalk Project Recommendations

Location	From	To	Facility Type
REBECCA ST	KOCH ST	N MARKET ST	Bicycle Boulevard
NORTH AVE	MARKET ST	SEBRING ST	Bicycle Boulevard
WEST ST	MAIN ST	NORTH AVE	Bicycle Boulevard
PARK AVE	KOCH ST	BROOKDALE AVE	Bicycle Boulevard
E MAIN ST	S MARKET ST	S PLEASANT DR	Bicycle Boulevard
REBECCA ST	N MARKET ST	LIBERTY ST	Bike Lane
MARKET ST	GRANT ST	GARFIELD AVE	Bike Lane
JAMES ST	MAIN ST	NORTH AVE	Bike Lane
E TAGGART ST	LIBERTY ST	PLEASANT DR	Bike Lane
W MAIN ST	MARKET ST	BACON AVE	Bike Lane
W MAIN ST	SPAITE DR	BROOKDALE AVE	Shared Use Path
BACON AVE	MALIBU DR	CITY PARK WAY	Sidewalk
MARTIN ST	W MAIN ST	N PLEASANT DR	Sidewalk
BROOKDALE AVE	PEPPERCORN DR	BACON AVE	Sidewalk
SUGAR CAMP DR, W HIGH ST, EAST ST, THOMAS STREET	NA	NA	Sidewalk
PLEASANT DRIVE	MAIN ST	MARTIN ST	Sidewalk
NEELY MANOR, EDGEWOD AVE, WESTERN AVE	NA	NA	Sidewalk

Table 9. Crossing Improvement Project Recommendations

Street 1	Street 2	Facility Type
MARKET ST	MAIN ST	Crossing Improvements
MARKET ST	REBECCA ST	Crossing Improvements
MARKET ST	RAILROAD TRACKS	Crossing Improvements
MARKET ST	MARTIN ST	Crossing Improvements
MARKET ST	NORTH AVE	Crossing Improvements
MARKET ST	GRANT ST	Crossing Improvements
MAIN ST	WEST ST	Crossing Improvements
MAIN ST	JAMES ST	Crossing Improvements
PARK AVE	WEST ST	Crossing Improvements
TAGGART ST	JAMES ST	Crossing Improvements
MARTIN ST	WEST ST	Crossing Improvements
MARTIN ST	JAMES ST	Crossing Improvements
NORTH AVE	JAMES ST	Crossing Improvements
JAMES ST	RAILROAD TRACKS	Crossing Improvements
PLEASANT DR	RAILROAD TRACKS	Crossing Improvements

Active Transportation Network Rationale

The main vision of this plan is to create a reality where walking and bicycling in East Palestine is a safe, convenient, and pleasant transportation option for people of all ages and abilities. To achieve this vision, the plan recommendations include a variety of route options and facility types to accommodate all community members. The recommendations outlined in Figure 27 add sidewalks around schools and parks, create on-street bicycle facilities for people of all ages, and create safer crossings at intersections. The following section goes into more detail on how and why specific facilities in the network were selected.

Pedestrian Network

The pedestrian network includes recommendations for new sidewalks throughout East Palestine. These sidewalks will make it easier and safer for residents to walk to school, to their jobs, the park, or to downtown East Palestine. In addition, the presence of sidewalks along a roadway corresponds to a 65-89 percent reduction in crashes with people walking along the road⁴. New sidewalks will not only encourage people to want to walk, but they will also create a safer and more dignified environment for people who have to walk.

Crossing Improvements

Several intersections and railroad crossings were identified for crossing improvements. Crosswalk improvements include painted facilities, such as high-visibility crosswalks, as well as signs, signals, and other treatments. Railroad crossings create a notable barrier in East Palestine, but these locations can be made safer for non-motorized users with rail-crossing specific treatments.

Bicycle Facilities

Local infrastructure and routes will help riders of varying abilities access their daily destinations such as schools, grocery stores, parks, and work. There are several important factors to consider during bicycle facility selection, such as design users and roadway conditions. Design Users describes the different types of bicyclists, highly confident, somewhat confident, and interested but concerned, who make up most of the population. Figure 28 in the *Tool Kit* section below outlines different Design User Profiles. Figure 29 introduces the Federal Highway Administration (FHWA) bicycle facility selection matrix that identifies what type of facility is appropriate for majority of people bicycling based on speed and volume of motor vehicles, and context of the roadway.

⁴ FHWA (2017). Desktop Reference for Crash Reduction Factors, FHWA-SA-08-011, Table 11. Referenced in <https://safety.fhwa.dot.gov/provencountermeasures/walkways/>

Facility Toolkit

There are numerous facility types which accommodate people of varying abilities and in different environments. Research shows that the provision of low-stress, connected bicycle networks improves bicyclist safety and encourages bicycling for a broader range of user types⁵. Pedestrian infrastructure is primarily provided in the form of sidewalks.

Sidewalks

Sidewalks are intended to be used by people walking. They are adjacent to but separated from the roadway by a curb and/or buffer, such as a tree lawn. As roadway speeds and volumes increase, more separation is needed to maintain a safe and comfortable walking environment for pedestrians. Common in urban areas, they may also be necessary in rural areas with pedestrian generators, such as schools and businesses. For further guidance on pedestrian design, refer to [ODOT's Multimodal Design Guide, Chapter 4 – Pedestrian Facilities](#).

Crossing Improvements

A variety of solutions can be employed to make intersections and mid-block crossings safer and more convenient for people walking. These treatments range from painted facilities, such as high-visibility crosswalks, to signs, lights, and signals. For further guidance on pedestrian design, refer to [ODOT's Multimodal Design Guide \(MDG\) Chapter 4 -- Pedestrian Facilities](#), [MDG Chapter 8 – Signals, Beacons, and Signs](#), and [FHWA's Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations](#).

Railroad crossings present unique challenges to pedestrians and cyclists. However, several treatments such as gate skirts, channelization, and signage can improve safety and awareness at rail crossing locations. For further guidance on non-motorized user safety at railroad crossings, refer to [MDG Chapter 11 -- Rail Crossings](#).

Bicycle Facilities

Understanding which types of bicyclists feel comfortable using a given facility is key to building a safe, convenient, and well-used network. Figure 28 outlines different types of bicyclists based on several factors.

⁵ AASHTO (2021). Guide to Bicycle Facilities, 4th Edition, 2.2. Why Planning for Bicycling is Important.

Design User Profiles

Highly Confident Bicyclist (~4-7%)

- » Smallest group.
- » Prefer direct routes and will operate in mixed traffic, even on roadways with higher motor vehicle operating speeds and volumes.
- » Many also enjoy separated bikeways.
- » May avoid bikeways perceived to be less safe, too crowded with slower moving users, or requiring deviation from their preferred route.

Somewhat Confident Bicyclist (~5-9%)

- » Comfortable on most types of facilities.
- » Lower tolerance for traffic stress, prefer striped or separated bike lanes on major streets and low-volume residential streets.
- » Willing to tolerate higher levels of traffic stress for short distances.

Interested but Concerned Bicyclist (~51-56%)

- » Largest group.
- » Lowest tolerance for traffic stress.
- » Avoid bicycling except with access to networks of separated bikeways or very low-volume streets with safe roadway crossings.
- » Tend to bicycle for recreation but not transportation.
- » Generally, the recommended design user profile to maximize potential for bicycling.

Figure 28. Design User Profiles

Bicyclists are most commonly classified according to their comfort level, bicycling skill and experience, age, and trip purpose. These characteristics can be used to develop generalized profiles of various bicycle users and trips, also known as “design users,” which inform bicycle facility design. Comfort, skill, and age may affect bicyclist behavior and preference for different types of bicycle facilities. Selecting a design user profile is often the first step in assessing a street’s compatibility for bicycling. The design user profile should be used to select a preferred type of bikeway treatment for different contexts, urban, suburban, rural town or rural roadways (see Figure 29, Figure 30 and Figure 31). People who bicycle are influenced by their relative comfort operating with or near motor vehicle traffic. To accommodate most of the population, the “Interested but Concerned” rider should be the primary user type that facilities are designed for. In some contexts, such as rural roadways where less people may be expected to be traveling by bike, the Somewhat Confident or Highly Confident rider is the most relevant design user.

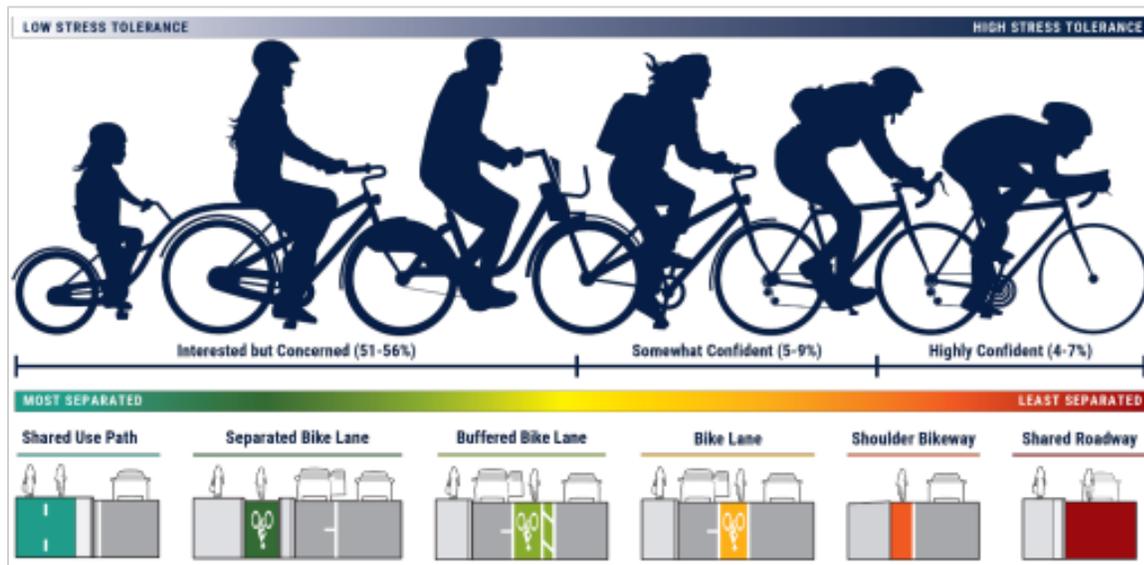


Figure 29. Types of Bicyclists (Source: Toole Design)

Facility Selection Methodology

Bicycle networks should be continuous, connect seamlessly across jurisdictional boundaries, and provide access to destinations. Anywhere a person would want to drive to for utilitarian purposes, such as commuting or running errands, is a potential destination for bicycling. As such, planning connected low-stress bicycle networks is not achieved by simply avoiding motor vehicle traffic. Rather, planners should identify solutions for lowering stress along higher traffic corridors so that bicycling can be a viable transportation option for most of the population.

The [Federal Highway Administration \(FHWA\)’s Bikeway Selection Guide’s](#) facility selection matrices (Figure 30 and Figure 31) can be used to help determine the best facility for the roadway based on context, speed, and volume as well as the relevant design user type. See the full guide for further detail on facility selection.

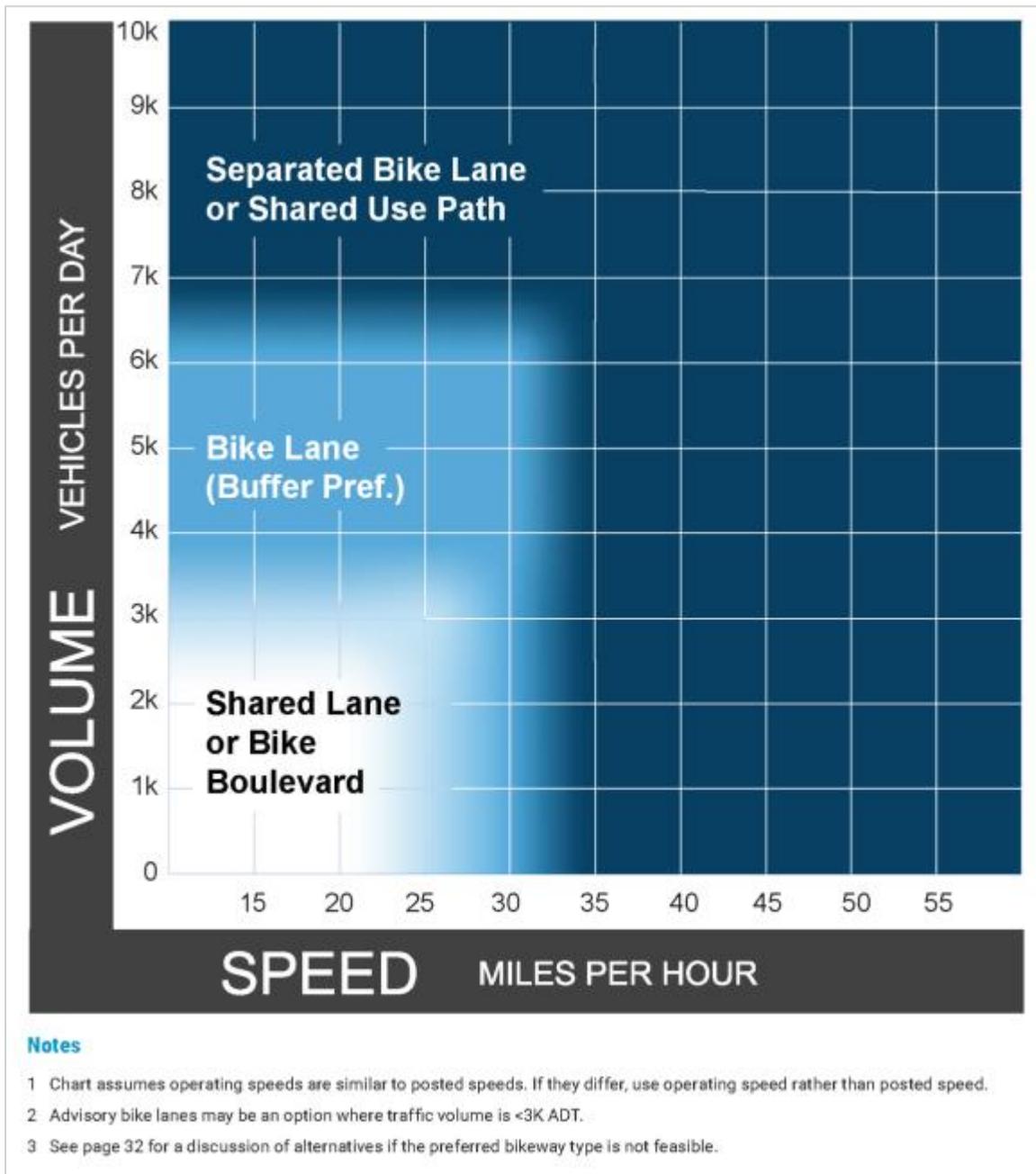


Figure 30. FHWA Bikeway Facility Matrix: Preferred Bikeway Type for Urban, Urban Core, Suburban and Rural Town Contexts (Design User: Interested but Concerned)

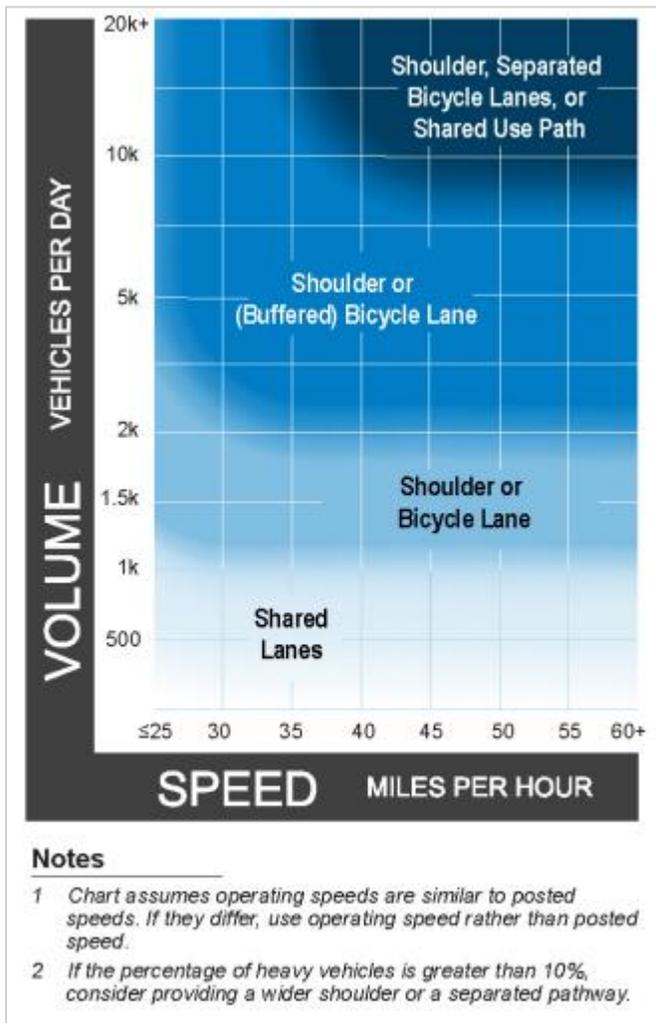


Figure 31. Preferred Bikeway for Highly Confident Bicyclists in Rural Contexts (Modified FHWA Bikeway Facility Matrix)

5.2 Programs and Policies

Establishing a safe and convenient active transportation infrastructure is critical to improving walking and biking conditions. However, it is also important to implement programs and policies to support active transportation, which can increase pedestrians' and bicyclists' safety by establishing a culture of walking and biking.

Programs and policies can typically be implemented quickly and inexpensively. Individual programs with a narrow focus (such as middle school students) can achieve some change, but they should be coordinated with village-wide policy to ensure structural lasting change. In keeping with the village-wide vision, the proposed programs and policies aim to accomplish the following goals:

- **Ensure safety:** set up the necessary policies and programs to make sure that people can safely walk and bike in East Palestine.
- **Promote convenience:** create additional programs and policies that reduce the barriers to walking and biking, making them more convenient transportation options.
- **Build support:** encourage people to try walking and biking and help community partners recognize the value of increased active transportation options.

The sections below briefly explain each policy and program recommendation, as well as which goal the policy or program will help achieve.

Complete Streets Policy (Safety)

A Complete Streets Policy is a policy that requires roadway design (and re-design) projects to always consider the needs of people walking, bicycling, and taking transit in addition to driving. A Complete Streets Policy does not necessarily mean that every single street will have sidewalks or bike lanes, but it means that walking and bicycling will always be considered.

Bicycle Safety Course (Safety)

A variety of bicycle safety courses are available to teach interested community members to lead educational bike rides. Some resources are national and provided by organizations like the League of American Bicyclists - League Cycling Instructor course or the American Bicycling Education Association – Cycling Savvy course. The Ohio Department of Transportation developed a How We Roll curriculum focused on helping people use a bicycle for everyday transportation needs, and the Ohio Department of Health periodically offers instruction to Creating Healthy Community coordinators and their partners using this curriculum. The common factor in all these courses is training community members to teach people in their communities about bicycling safety, including topics such as riding in shared lanes, using hand signals, and understanding right of way. A bicycle safety course could be offered to students who are interested in riding a bike to school.

Slow Roll Community Rides (Build Support)

Community bike rides are a fun way for people to meet their neighbors, get physical activity, and explore the beauty of their city at the speed of bike. "Slow roll" rides travel at a conversational pace, making them accessible and comfortable for people of all ages and all abilities. These family-friendly rides could be organized by community members. Some communities offer weekly community rides during warmer months, or even monthly rides year-round, as a way to show people how fun and enjoyable bicycling can be.

Bike Bus (Build Support)

A bike bus is an organized bike ride where children can bike to school with a group of their peers. A bike bus is led by adults and travels by students homes so that kids can join the ride with their peers. This could happen on just one day a year, or it could become a monthly, weekly, or even daily event. The popularity of bike busses is increasing across the United States particularly since the return to school following the COVID pandemic. Some bike busses are led by community volunteers, others are organized by school staff. Bike busses are a fun way for children to get physical activity and build their independence in a safe and supportive group environment.

Maintenance Plan (Safety)

Creating a strong maintenance program begins in the design phase. The agency that will eventually own a completed project should collaborate with partners during the preliminary design stages. Maintenance staff should help identify typical maintenance issues, such as areas with poor drainage or frequent public complaints. They may have suggestions for solving these common issues, and they can provide estimates for ongoing maintenance costs of existing and proposed facilities.

Police Training (Safety)

In addition to reviewing city laws regarding walking and bicycling, a training program specifically for police is also recommended. Some jurisdictions like Cleveland work with partners to hire trainers. Others, like Columbus, develop and deliver trainings with internal staff. Additional training for the Police Department can help to ensure that officers understand what is lawful and unlawful regarding active transportation.

Bike Co-Op (Convenience)

A bike co-op is a space that has the necessary tools to make basic bicycle repairs. Bike co-ops allow people to repair their bicycles using communal tools rather than having to buy their own individual tools. Many bike co-ops also inexpensively sell used/repaired bicycles and offer classes on how to repair bicycles. Bike co-ops are non-profit enterprises that can be run by volunteers or by paid employees. Several bike co-ops are in operation throughout Ohio, a large percentage of those are operated by existing organizations like churches as a manifestation of their service to community.

Bicycle Parking (Convenience)

Bicycle racks should be available at key destinations to support bicycling as a viable and convenient transportation option. Key destinations include locations like the schools, the commercial downtown area, and the city park and walking trail. Several Ohio cities offer installation of bicycle racks to assure quality racks and appropriate installation. Other communities have policies that encourage business operators and major employers to add bicycle parking.

The status of programs and policies should be assessed and updated each time the plan is updated. Status is defined with the following options:

- **New:** A program or policy that is proposed in this Plan.
- **Ongoing:** An existing program or policy that will be continued.
- **On-hold:** A program or policy that has been stalled or deferred.
- **Completed:** When regularly updating the plan, update the program or policy status to complete when applicable to help track progress

6. PRIORITY PROJECTS

The infrastructure recommendations in the previous chapter show the potential of a complete walking and biking network in East Palestine. The recommendations are conceptual, meaning that detailed design issues and challenges have not yet been considered. Funding, land use, property ownership, terrain, and other factors may make certain recommendations less feasible than others. The process of “project prioritization” uses measurable data to determine which projects are both feasible (given real-world constraints) and in alignment with the community’s priorities.

Projects were ranked and prioritized as part of the *2026 East Palestine Comprehensive Safety Action Plan* in *Section 9: Location Prioritization and Safety Countermeasures.*

7. IMPLEMENTATION

7.1 Funding Strategies

Active transportation projects are a fraction of overall transportation network construction and maintenance. While pedestrian and bicycle projects generally do not serve as many users as highways, bridges, and other critical infrastructure, they can have a substantial positive effect on local economies. Additionally, providing opportunities to walk and bicycle in East Palestine promotes public health and may reduce the burden on taxpayer funded healthcare systems over time. In this light, active transportation infrastructure is a critical component of a complete transportation network. As East Palestine spends money on walking and biking projects, the result will be a positive return on investment; people will see benefits to physical health, sense of community, the environment, the economy, and quality of life.

Several state and federal funding sources can be used to supplement local funding sources in building the recommended projects and starting the recommended programs. Table 10 lists the primary funding sources for active transportation projects in Ohio; click on the name of each funding source to access web pages with more information. The Village of East Palestine may use this tool to search for additional funding sources to support infrastructure and program recommendations that advance walking and bicycling. As part of the statewide Walk.Bike.Ohio Plan, the Ohio Department of Transportation published a [Funding Overview Report](#) that provides more details on types of funding available, schedules, and eligibility requirements.

Appendix B – Active Transportation in East Palestine



Table 10. Primary Active Transportation Funds in Ohio

Funding Source	Distributed by	Eligible Project Examples	Eligible Project Sponsor
Safe Routes to School	Ohio Department of Transportation (ODOT)	Infrastructure Non-Infrastructure School Travel Plan Assistance	Local governments
Highway Safety Improvement Program	ODOT	Signalization Turn Lanes Pavement Markings Traffic Signals Pedestrian signals/crosswalks Bike lanes Road Diets	Local governments (infrastructure) Local governments, school or health district, or non-profit (non-infrastructure)
Recreational Trails Program	Ohio Department of Natural Resources (ODNR)	New recreational trail construction Trail maintenance/restoration Trailside and trailhead facilities Purchase/lease of construction & maintenance equipment Acquisition of easements Educational Programs	Local governments State and federal agencies Park districts Conservancy districts Soil and water conservation districts Non-profits
Clean Ohio Trails Fund	ODNR	New trail construction Land acquisition for a trail Trail planning/engineering and design (must include construction)	Local governments Park districts Conservancy districts Soil and water conservation districts Non-profits
Clean Ohio Green Space Conservation Program	Ohio Public Works Commission	Open space acquisition including easements Bike racks Kiosks/Signs Hiking/Biking Trails Pedestrian Bridges Boardwalks	Local governments Park districts Conservancy districts Soil and water conservation districts Non-profits

7.2 Maintenance Strategies

Sustaining biking and walking as pleasant forms of transportation in East Palestine requires not just building new projects, but also maintaining them. Maintaining sidewalks, trails, and bike lanes is critical to ensuring that those facilities are accessible, safe, and functional.

Frequency

The first step to approaching maintenance is to understand how often maintenance should be performed. Many activities, such as signage updates or replacements, are performed as needed, while other tasks such as snow removal are seasonal (see Table 11). Creating a winter maintenance plan is important to make sure that people walking and biking always have accessible routes, regardless of the season. One key component of this approach should be identifying priority routes for snow removal. More information on winter maintenance can be found in Toole Design’s Winter Maintenance Resource Guide.

Table 11. Maintenance Activity Frequency

Frequency	Facility Type	Maintenance Activity
<i>As Needed</i>	Shared Use Paths	Tree/brush clearing and mowing
		Replace/repair trail support amenities (parking lots, benches, restrooms, etc.)
		Map/signage updates
		Trash removal/litter clean-up
		Repair flood damage: silt clean-up, culvert clean-out, etc.
		Patching/minor regrading
<i>As Needed</i>	Shared Use Paths/ Separated Bike Lanes / Paved Shoulders/ Bike lanes	Sweeping
	Bicycle Boulevards	Sign replacement
	Sidewalks	Concrete panel replacement
<i>Seasonal</i>	All	Snow and Ice control
	Shared Use Paths	Planting/pruning/beautification
		Culvert/drainage cleaning and repair
		Installation/removal of seasonal signage
<i>Yearly</i>	Shared Use Paths/ Sidewalks	Evaluate support services to determine need for repair/replacement
		Perform walk audits to assess ADA compliance of facilities
	Separated Bike Lanes / Paved Shoulders/ Bike lanes	Surface evaluation to determine need for patching/regrading/re-stripping of bicycle facilities
<i>5-year</i>	Shared Use Paths	Repaint or repair trash receptacles, benches, signs, and other trail amenities, if necessary
		Sealcoat asphalt shared use paths

Frequency	Facility Type	Maintenance Activity
10-year	Shared Use Paths	Resurface/regrade/re-stripe shared use paths
20-year	Shared Use Paths/ Sidewalks	Assess and replace/reconstruct shared use paths/ sidewalks

Coordination & Responsibility Between Agencies

Many jurisdictions struggle with confusion around which entity is responsible for the maintenance of trails and other active transportation facilities. Frequently there is no documentation showing who is responsible for maintenance of existing facilities, which can prolong unsafe conditions for trail users. Coordination between government agencies is key for effective maintenance programs. Intergovernmental agreements (IGAs) are used to codify the roles and responsibilities of each agency regarding ongoing maintenance. For example, a local government may agree to conduct plowing, mowing, and other maintenance activities on trails in its jurisdiction that were built by another agency. Clarifying who is responsible for maintenance costs and operations ensures that maintenance problems are resolved in a timely manner.

Maintenance Activities

Different facility types require different types of strategies to be maintained. Table 12 breaks down maintenance activities and strategies for each by facility type.

Table 12. Maintenance Strategy Recommendations

Facility Type	Maintenance Activity	Strategy
<i>Shared Use Paths/ Separated Bike Lanes</i>	Pavement Preservation	Develop and implement a comprehensive pavement management system for the shared use path network.
	Snow and Ice Control	Design shared-use paths to accommodate existing maintenance vehicles.
	Drainage Cleaning/Repairs	Clear debris from all drainage devices to keep drainage features functioning as intended and minimize trail erosion and environmental damage.
		Check and repair any damage to trails due to drainage issues.
	Sweeping	Implement a routine sweeping schedule to clear shared-use paths of debris.
		Provide trail etiquette guidance and trash receptacles to reduce the need for sweeping.
	Vegetation Management	Implement a routine vegetation management schedule to ensure user safety.
		Trim or remove diseased and hazardous trees along trails.
		Preserve and protect vegetation that is colorful and varied, screens adjacent land uses, provides wildlife habitats, and contains prairie, wetland and woodland remnants.
	ADA Requirements	Conduct walk and bike audits to assess accessibility of new, proposed, and existing shared-use paths.
Ensure that ADA compliance is incorporated into the design process for new facilities.		
<i>Paved Shoulders/ Bike Lanes</i>	Pavement Markings	Explore approaches to routinely inspect pavement markings for bicycle infrastructure and replace as needed.
		Consider preformed thermoplastic or polymer tape on priority bikeways (identified in this Plan) adjacent to high-volume motor vehicle routes

Appendix B – Active Transportation in East Palestine



Facility Type	Maintenance Activity	Strategy
		(preformed thermoplastic or polymer tape are more durable than paint and requires less maintenance).
	Snow and Ice Control	Clear all signed or marked shoulder bicycle facilities after snowfall on all state-owned facilities that do not have a maintenance agreement with a local governmental unit in place.
	Sweeping	Implement a routine sweeping schedule to clear high-volume routes of debris.
<i>Bicycle Boulevards</i>	Sign Replacement	Repair or replace damaged or missing signs as soon as possible.
<i>Sidewalks</i>	Pavement Preservation and Repair	Conduct routine inspections of high-volume sidewalks and apply temporary measures to maintain functionality (patching, grinding, mudjacking).
		Consider using public agency staff or hiring contractors for sidewalk repairs, rather than placing responsibility on property owner (property owner can still be financially responsible).
	Snow and Ice Control	Educate the public about sidewalk snow clearance.
		Require sidewalk snow clearance to a width of five feet on all sidewalks.
		Establish required timeframes for snow removal.
	Implement snow and ice clearing assistance programs for select populations.	

On-going monitoring and evaluation

Measuring the performance of active transportation networks is essential to ongoing success. Bicycle and pedestrian counts, crash records, and other data contribute to a business case for continued improvement of and investment in multimodal infrastructure. As recommendations are implemented East Palestine must be able to measure whether these investments are paying active transportation dividends (i.e. more people walking and bicycling). An affirmative answer reinforces this Plan’s legitimacy and provides evidence that future investments will also yield positive results. The performance measures in Table 13 have will chart progress towards making walking and bicycling safe, connected, and comfortable. East Palestine should establish baseline targets and revisit these metrics as new plans and priorities occur. Data on these measures should be documented and published for public review annually. A robust performance measures program includes establishing baseline measurements, performance targets, data collection frequency, and data collection and analysis responsibility.

Table 13. Performance Measures

Performance Measure	Goal	Timeline (how often is data collected/updated)	Responsibility (who will collect the data)
Active Transportation Infrastructure	Miles of sidewalk built	Annually	Village of East Palestine
	Miles of on-street bike lanes built.	Annually	Village of East Palestine
	Number of intersections improved	Annually	Village of East Palestine
	Number of bicycle parking facilities implemented	Annually	Village of East Palestine
Active Transportation Programs	Number of active transportation events (ie. Bike Month events, Walk to School/Work and Bike to	Annually	Village of East Palestine, East Palestine City Schools

Appendix B – Active Transportation in East Palestine



Performance Measure	Goal	Timeline (how often is data collected/updated)	Responsibility (who will collect the data)
	School/Work events) and attendees		
Health and Safety	Number of pedestrian and bicycle crashes	Annually	East Palestine Police Department

Information contained in this document is for planning purposes and should not be used for final design of any project. All results, recommendations, concept drawings, cost opinions, and commentary contained herein are based on limited data and information and on existing conditions that are subject to change. Existing conditions have not all been field-verified. Further analysis and engineering design are necessary prior to implementing any of the recommendations contained herein.

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APPENDIX C
Priority Lists



ALL MODE PRIORITY SEGMENTS

Road Name	NLFID	From	MP	To	MP	Length (Miles)	Total Crashes (2020-2024)	Percent Injury Crashes	FSI Crashes (2020-2024)	All Mode Priority Intersection	VRU Priority Segment	VRU Priority Intersection	Appears on HRN	Potential Countermeasures to Consider
MARKET ST	SCOLSR00165**C, SCOLSR00170**C	GRANT ST	4.99 (SCOLSR00165**C)	GARFIELD AVE	14.773 (SCOLSR00170**C)	0.58	64	20%	3					<p>Perform access management as needed to reduce conflict points. Construct curb bumpouts at intersections where on-street parking is available. Install high visibility crosswalks at all intersections. Construct a raised high-visibility crosswalk with bumpouts and RRFBs at a midblock location near Taggart. Replace curb ramps as needed to meet ADA guidelines. Consider implementing additional pedestrian rail-crossing safety measures, such as gates and additional signage.</p> <p>At signalized intersections, replace existing diagonal span signals with box span LED signals and retroreflective backplates. Install countdown pedestrian signals and push buttons. Install "Turning Vehicles Yield to Pedestrians" signage (R10-15). Review signal timing to evaluate dilemma zone and all-red intervals. Install protected left turn lanes at signals.</p> <p>Perform a parking study to determine needs of on-street parking. If feasible, remove one side of on-street parking between Main and Taggart and restripe Market Street to provide bike lanes from Garfield to Grant. If this is not feasible, pursue the following recommendations:</p> <p>Garfield to Main: Restripe to provide bike lanes.</p> <p>Main to Clark: Paint bike sharrows and install associated signage.</p> <p>Clark to Grant: Restripe to include bike lanes.</p>
REBECCA ST	MCOLMR001036**C	KOCH ST	0	N LIBERTY ST	0.267	0.27	9	33%	1					<p>Extend striping on Rebecca Street from Koch Street to Liberty Street to delineate travel lanes and on-street parking. Repair or replace damaged sidewalks and replace curb ramps as needed to meet ADA guidelines. Install a mini roundabout at the intersection with Walnut Street. Incorporate bicycle facilities. See the VRU Priority Segments list for additional recommendations.</p>
E TAGGART ST	SCOLSR00165**C	MARKET ST	5.251	N LIBERTY ST	5.406	0.16	6	17%	1					<p>Perform access management along both sides of the segment to reduce conflict points and to improve visibility for drivers. Consider striping designated parking spots in the lot east of Pizza Joe's to serve as primary parking. Convert angled on-street parking to parallel to improve visibility for backing vehicles.</p>
NORTH AVE	MCOLMR00413**C, MCOLMR00354**C	WESTERN AVE	0.26 (MCOLMR00413**C)	SEBRING ST	0.5 (MCOLMR00354**C)	1.1	12	16.67%	1					<p>Pursue traffic calming treatments such as speed tables, and raised crosswalks at intersections near schools, such as Vine Street, Thomas Street, West Street and East Street. Add pavement markings including stop bars, high-visibility crosswalks at all intersections. Install mini roundabouts at 2-way stop controlled intersections. Incorporate bicycle facilities. See the VRU Priority Segments list for additional recommendations.</p>
MARTIN ST	MCOLMR00412**C	BROOKDALE AVENUE	0.4	PLEASANT DRIVE	1.7	1.3	24	12.50%	0					<p>Pursue traffic calming treatments such as speed tables. Install high-visibility crosswalks at all intersections, and repair or replace damaged sidewalk and curb ramps as needed to meet ADA guidelines. Remove on street parking. Install mini roundabouts at 2-way stop controlled intersections. See the VRU Priority Segments list for additional recommendations.</p>
PARK AVE	MCOLMR001035**C	KOCH ST	0	BROOKDALE AVE	0.552	0.6	8	13%	0					<p>Consider implementing mini roundabout(s) at existing two-way stop intersections, such as at West Street, to reduce traffic speeds and conflict points. Also consider other traffic calming elements like speed tables. Install high-visibility crosswalks at all intersections, repair or replace sidewalks and curb ramps as needed to meet ADA guidelines. Incorporate bicycle facilities. See the VRU Priority Segments list for additional recommendations.</p>
BROOKDALE AVE	CCOLCR00443**C	PEPPERCORN DR	0.933	BACON AVE	0	0.9	10	10%	0					<p>Restripe Brookdale Avenue to include centerlines and edgelines. Install high-visibility crosswalk markings at all intersections. Construct sidewalk along the segment, repair or replace damaged existing sidewalk, and construct ADA compliant curb ramps as needed.</p>
W MAIN ST	SCOLSR000946**C	MARKET ST	0	BACON AVE	0.35	0.35	8	0%	0					<p>Pursue traffic calming treatments, including converting intersection(s) such as Park Drive, West Street, or Walnut Street to mini roundabouts. Incorporate bicycle facilities. Install a high visibility crosswalk and RRFB at the park entrance. Perform access management at the Original Roadhouse parking lot. See the VRU Priority Segments list for additional recommendations.</p>

ALL MODE PRIORITY INTERSECTIONS

Road Name	Intersecting Road Name(s)	Total Crashes (2020-2024)	Percent Injury Crashes	FSI Crashes (2020-2024)	All Mode Priority Segments	VRU Priority Intersections	VRU Priority Segments	Appears on HRN	Potential Countermeasures to Consider	Link to Map
BACON AVE	BROOKDALE AVE	3	33%	0					<p>Client to consider the following alternatives:</p> <ol style="list-style-type: none"> Convert the intersection to all-way stop controlled. Improve signage and signage visibility, add pavement markings, move stop sign on Carbon Hill Road closer to the intersection. Perform access management. Install a roundabout. 	Google Maps
E TAGGART ST	JAMES ST	3	33%	0					<p>Install high visibility crosswalks and replace curb ramps as needed to meet ADA guidelines. Install pedestrian countdown signals and push buttons, and larger street name signs.</p> <p><i>If signal is warranted:</i> Replace diagonal span signal with box span or mast arms, review signal timing, utilize 12" LED signal indications and reflective signal backplates to improve visibility.</p> <p><i>If signal is not warranted:</i> Install a traversable mini-roundabout at the subject intersection.</p>	Google Maps
W MAIN ST	BROOKDALE AVE / PARK AVE	4	25%	0					<p>Client to consider the following alternatives:</p> <ol style="list-style-type: none"> Convert the five-leg intersection into a four-leg intersection by removing the portion of W Main Street between Brookdale Avenue and Glenwood Avenue. Install a five-leg roundabout. <p>Install high-visibility crosswalks at each approach.</p>	Google Maps
E TAGGART ST	E REBECCA ST / N LIBERTY ST	1	0%	0					<p>Client to consider the following alternatives:</p> <ol style="list-style-type: none"> Remove access to Liberty Street, constructing a branch-type turnaround south of the intersection Construct a roundabout <p>Install high-visibility crosswalks at each approach.</p>	Google Maps
W REBECCA ST / PARK AVE	KOCH ST	0	0%	0					<p>Convert the intersection to a roundabout.</p>	Google Maps
W MAIN ST	BACON AVE / EVERETT ST	0	0%	0					<p>Client to consider the following alternatives:</p> <ol style="list-style-type: none"> Convert the four-leg intersection into a three-leg intersection: Cut off Everett Street north of the intersection, and realign the northwest leg (W Main Street) to intersect Bacon Avenue at a 90 degree angle. Convert the four-leg intersection into a three-leg roundabout: Cut off Everett Street north of the intersection, and convert the resulting three-leg intersection into a three-leg roundabout. 	Google Maps

VRU PRIORITY SEGMENTS

Road Name	NLFID	From	MP	To	MP	Length (Miles)	Total Crashes (2020-2024)	Percent Injury Crashes	FSI Crashes (2020-2024)	All Mode Priority Intersection	All Mode Priority Segment	VRU Priority Intersection	Appears on HRN	Potential Countermeasures to Consider	Link to Map
MARKET ST	SCOLSR00165**C, SCOLSR00170**C	GRANT ST	4.99 (SCOLSR00165**C)	GARFIELD AVE	14.773 (SCOLSR00170**C)	0.58	64	20%	3					See the All Mode Priority Segments list for recommendations	Google Maps
REBECCA ST	MCOLMR01036**C	KOCH ST	0	N MARKET ST	0.114	0.1	3	33%	1					Convert this segment into a Bike Boulevard as an extension of Park Avenue. See recommendations for Park Avenue on this list. See the All Mode Priority Segments list for additional recommendations.	Google Maps
TAGGART ST, REBECCA ST, SUMNER ST	SCOLSR00165**C, MCOLMR01036**C, MCOLMR00383**C	NA	NA	NA	NA	0.36	8	25.0%	1					Repair sidewalk along the south side of Taggart Street, and along the north side of Rebecca Street, from Market Street to Liberty Street. Construct sidewalk along the west side of Sumner Street from Taggart Street to Rebecca Street. Install ADA compliant curb ramps as needed, and high-visibility crosswalks. Construct a mid-block crossing on Taggart Street near Sumner Street.	Google Maps
NORTH AVE	MCOLMR00413**C (W) MCOLMR00354**C (E)	MARKET ST	0.822 (MCOLMR00413**C)	SEBRING ST	.504 (MCOLMR00354**C)	1	12	17%	1					Convert the segment to a Bike Boulevard. In addition to traffic calming measures, install associated signage and pavement markings along the segment. See the All Mode Priority Segments list for additional recommendations.	Google Maps
SUMNER ST	MCOLMR00383**C, MCOLMR00394**C	WOOD ST	0 (MCOLMR00394**C)	TAGGART ST	0.179 (MCOLMR00383**C)	0.3	6	50%	0					Perform access management along this segment. Fill sidewalk gaps and repair or replace damaged sidewalks and curb ramps as needed to meet ADA guidelines. Add pavement markings including stop bars, high visibility crosswalks at intersections.	Google Maps
JAMES ST	MCOLMR00381**C	MAIN ST	0	NORTH AVE	0.376	0.38	6	33%	0					Restripe the road to include bike lanes and install associated signage. Repair or replace damaged sidewalks and replace curb ramps as needed to meet ADA guidelines. Install high-visibility crosswalk markings at all intersections. Consider implementing additional pedestrian rail-crossing safety measures, such as gates and additional signage.	Google Maps
BACON AVE	SCOLSR00558**C	MALIBU DR	0.936	CITY PARK WAY	0.381	0.56	7	29%	0					Construct sidewalk along the subject road. Also construct ADA compliant curb ramps as needed and install high visibility crosswalks at crossings.	Google Maps
E TAGGART ST	SCOLSR00165**C	LIBERTY ST	5.412	PLEASANT DR	5.953	0.55	6	17%	0					Restripe the road to include bike lanes and install associated signage. Repair or replace damaged sidewalks and replace curb ramps as needed to meet ADA guidelines. Install high-visibility crosswalk markings at all intersections.	Google Maps
WEST ST	MCOLMR00418**C	MAIN ST	0	NORTH AVE	0.364	0.37	6	17%	0					Repair or replace damaged sidewalks and replace curb ramps as needed to meet ADA guidelines. Install high visibility crosswalk markings at all intersections and crossings. Add pedestrian crossing warning signage at the crossing near Meadow Lane. Convert the segment to a Bike Boulevard. Consider traffic calming measures such as speed tables, curb extensions, and mini roundabouts at 2-way stop controlled intersections. Install associated signage and pavement markings along the segment	Google Maps
MARTIN ST	MCOLMR00412**C	W MAIN ST	0	N PLEASANT DR	1.714	1.72	21	15%	0					Construct sidewalk along the north side of Martin Street from Brookdale Avenue to W Main Street, and along the south side of the street from Sebring Street to Pleasant Drive. Fill additional gaps near Sumner Street. See the All Mode Priority Segments list for additional recommendations.	Google Maps
PARK AVE	MCOLMR01035**C	KOCH ST	0	BROOKDALE AVE	0.552	0.6	8	13%	0					Convert the segment to a Bike Boulevard. In addition to traffic calming measures, install associated signage and pavement markings along the segment. See the All Mode Priority Segments list for additional recommendations.	Google Maps

E MAIN ST	CCOLCR00431**C	S MARKET ST	3.47	S PLEASANT DR	4.164	0.7	10	10%	0					Repair or replace damaged sidewalks and replace curb ramps as needed to meet ADA guidelines. Install high visibility crosswalk markings at all intersections. Convert the segment to a Bike Boulevard. Consider traffic calming measures such as speed tables, curb extensions, and mini roundabouts at 2-way stop controlled intersections. Install associated signage and pavement markings along the segment	Google Maps
BROOKDALE AVE	CCOLCR00443**C	PEPPERCORN DR	0.933	BACON AVE	0	0.9	10	10%	0					See the All Mode Priority Segments list for recommendations	Google Maps
W MAIN ST	SCOLSR00046**C	MARKET ST	0	BACON AVE	0.35	0.35	8	0%	0					Restripe the road to include bike lanes, and install the associated pavement markings and signage. If this is not feasible, consider replacing one side of sidewalk with a shared use path, to provide multimodal access to the City Park. See the All Mode Priority Segments list for additional recommendations	Google Maps
W MAIN ST	CCOLCR00431**C	SPAITE DR	2.307	BROOKDALE AVE	0.35	2	2	0%	0					Install a shared use path to connect the East Palestine Walking Trail from Spaite Drive to the intersection of Brookdale Avenue, W Main Street, and Park Avenue. Construct a footbridge or tunnel near the railroad bridge near Spaite Drive.	Google Maps
GRANT ST	MCOLMR00408**C	N MARKET ST	0.145	SUGAR CAMP DR	0.553	0.42	4	0%	0					Repair or replace damaged sidewalks and replace curb ramps as needed to meet ADA guidelines. Consider installing a widened sidewalk along the north side of Grant Street. Pursue traffic calming treatments such as speed tables or raised crosswalks at intersections or crossings. Remove the existing diagonal crosswalk at the Vine Street intersection, and replace with high-visibility crosswalks at each approach. Construct an additional curb ramp on the north side of the road to align with the new crosswalk. Perform access management at the Elementary School parking lot.	Google Maps
SUGAR CAMP DR, W HIGH ST, EAST ST, THOMAS STREET	MCOLMR00402**C, MCOLMR00409**C, MCOLMR00356**C, MCOLMR00404**C	NA	NA	NA	NA	0.58	0	0%	0					Construct sidewalk on the subject roads to create a more complete sidewalk network near the schools.	Google Maps
PLEASANT DRIVE	TCOLTR01019**C	MAIN ST	0.58	MARTIN ST	0.93	0.34	2	0%	0					Construct sidewalk along Pleasant Drive. Construct ADA compliant curb ramps as needed and install high visibility crosswalks at crossings. Implement pedestrian rail-crossing safety measures, such as gates and additional signage.	Google Maps
NEELY MANOR, EDGEWOD AVE, WESTERN AVE	MCOLMR00385**C, MCOLMR00358**C, MCOLMR00419**C	NEELY MANOR	0	WESTERN AVE	0.003	0.36	0	0%	0					Construct sidewalk along the subject roads to enhance multimodal access to the schools and provide an alternate walking route to walking on Brookdale Avenue.	Google Maps

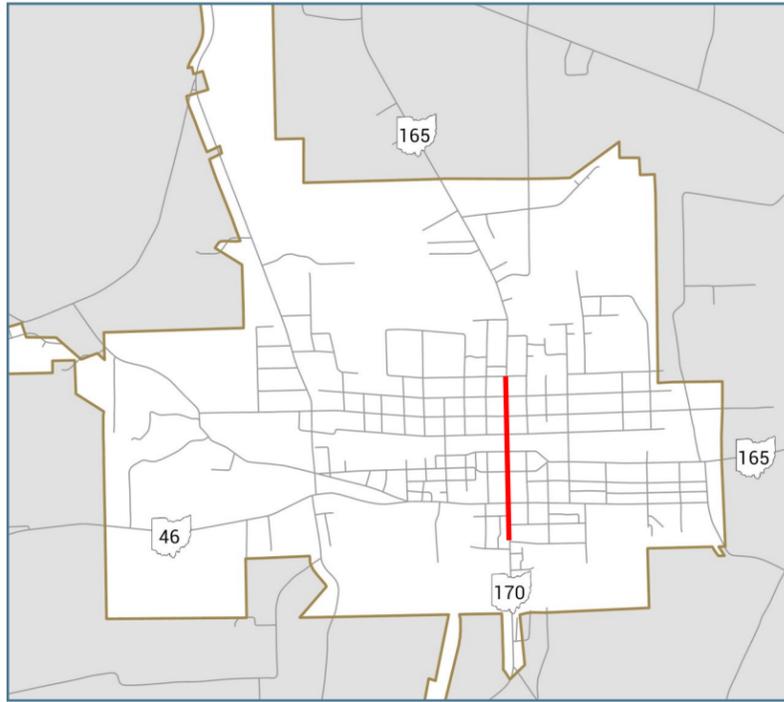
VRU PRIORITY INTERSECTIONS

Road Name	Intersecting Road Name(s)	Total Crashes (2020-2024)	Percent Injury Crashes	FSI Crashes (2020-2024)	All Mode Priority Segments	All Mode Priority Intersections	VRU Priority Segments	Appears on HRN	Potential Countermeasures to Consider	Link to Map
N SUMNER ST	ALICE ST	1	100%	0					Perform access management. See the VRU Priority Segments list for additional recommendations along Sumner Street.	Google Maps
N MARKET ST	REBECCA ST	12	25%	0					See the All Mode Priority Segments list for recommendations at intersections along Market Street.	Google Maps

APPENDIX D

Selected Project Cutsheets





EAST PALESTINE SS4A

PRIORITY SEGMENT

MARKET STREET

GRANT STREET to GARFIELD AVENUE

NLFID: SCOLSR00165**C, SCOLSR00170**C

SLM: 14.773– 4.988 (0.58 Miles)



CRASH HISTORY SUMMARY

64 Crashes (2020-2024)

Crash Types: Angle (32%), Rear End (25%)

3 FSI Crashes, 20% Overall Injury Rate

PRIORITY LIST(S)

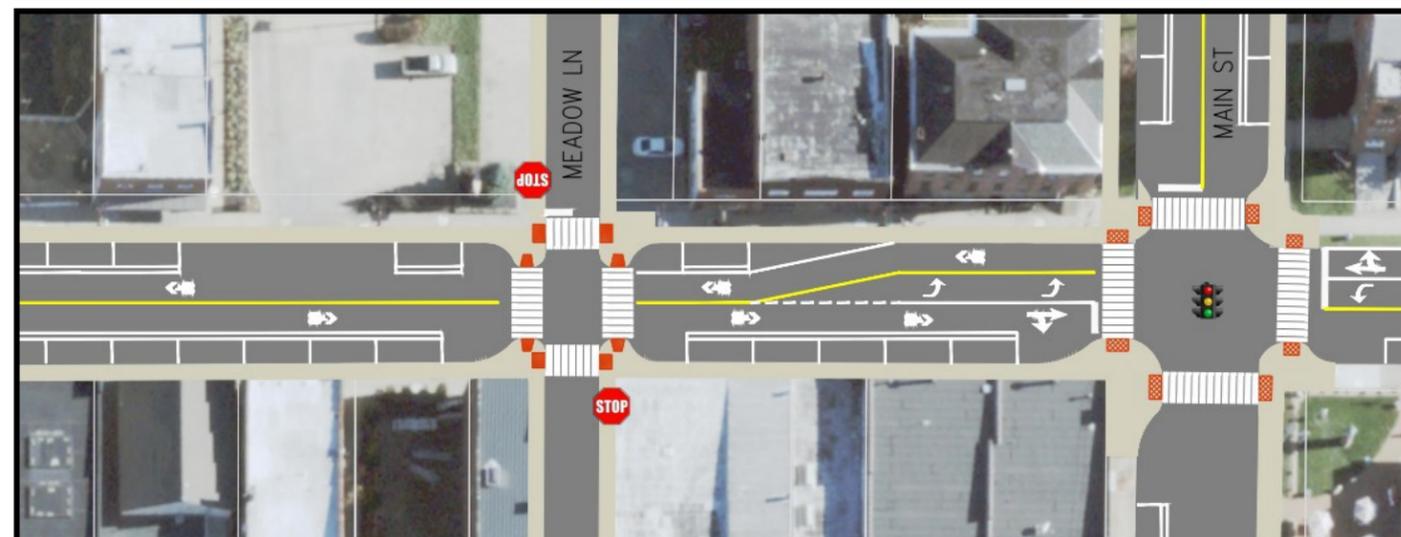
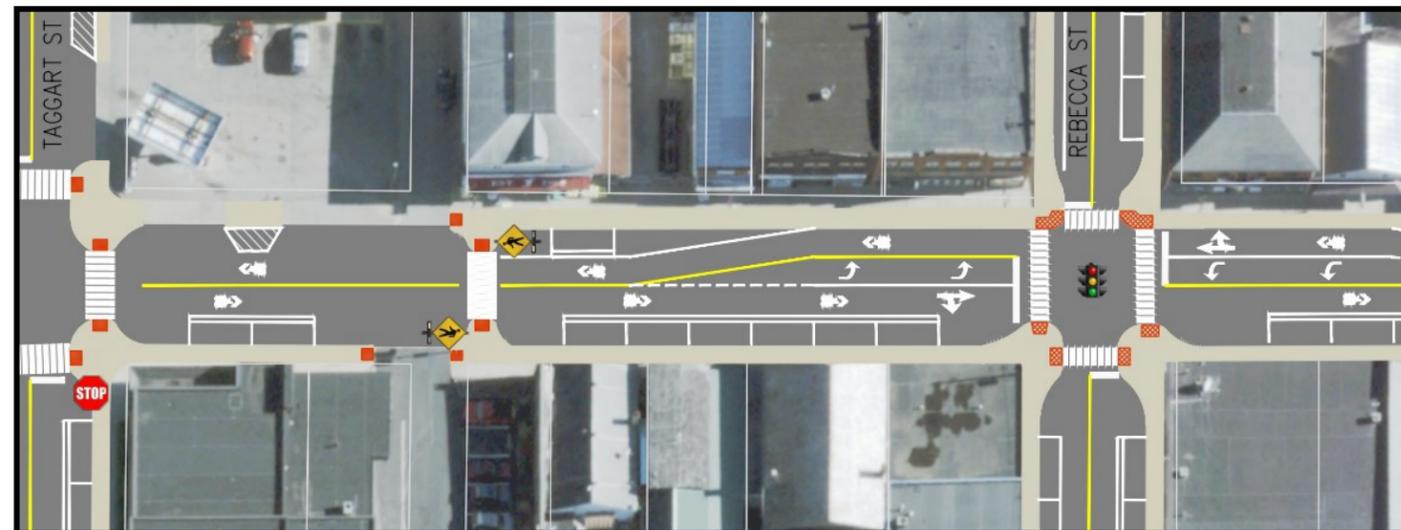
Priority Segment

Priority Intersections

VRU Segment

VRU Intersection

High Risk Network



RECOMMENDED COUNTERMEASURES

Intersection Visibility: High-visibility crosswalks, larger street name signs prominently displayed, 12" LED traffic signal indications, reflective signal backplates

Improved ADA Compliance: Directional curb ramps with curb extensions, pedestrian pushbuttons and signals with countdown displays

Signal Improvements: Remove diagonal span, replace with box span or mast arms, review signal timing for appropriate yellow and red phases and overall efficiency. Add protected left turn lanes.

Review stop bar locations for truck traffic

Pavement markings for bike lanes or shared bike/vehicular lanes

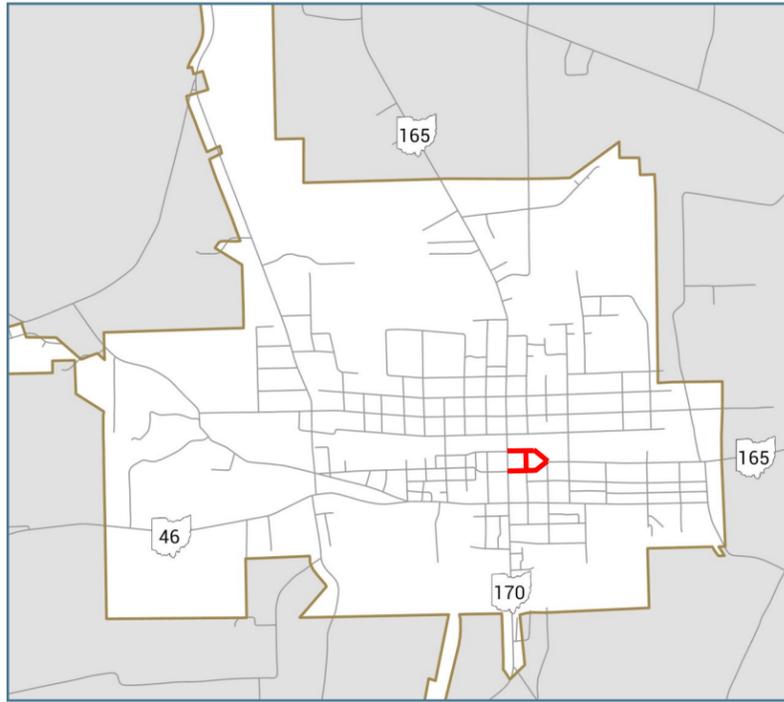
ESTIMATED COSTS

Design Fee:

\$212,932

Construction Costs:

\$1,705,641



EAST PALESTINE SS4A

PRIORITY PROJECT

E TAGGART ST, E REBECCA ST, N SUMNER ST

NLFID: SCOLSR00165**C, MCOLMR01036**C, MCOLMR00383**C
 SLM: 5.253-5.406, 0.118-0.266, 0.178-0.112 (0.36 Miles)



CRASH HISTORY SUMMARY

8 Crashes (2020-2024)

Crash Types: Angle, Sideswipe-passing, Parked Vehicle (25% each)

Contributing Factors: Failure to Yield, Improper Backing (25% each)

1 FSI, 13% Overall Injury Rate

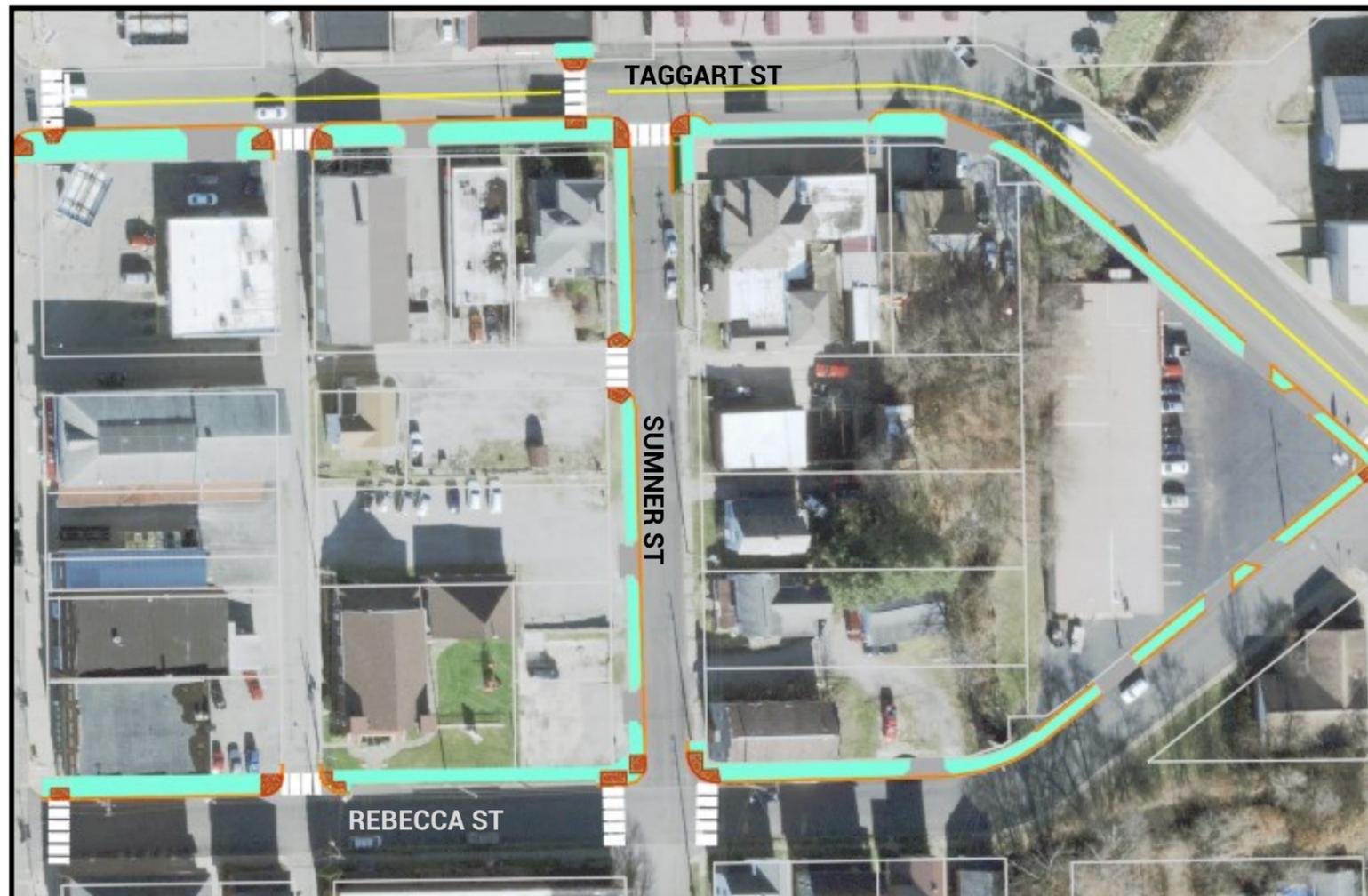
PRIORITY LIST(S)

Priority Segment

Priority Intersections

VRU Segment

High Risk Network



RECOMMENDED COUNTERMEASURES

Perform access management. Replace sidewalks along the south side of Taggart Street, the north side of Rebecca Street from Market Street to Liberty Street, and the west side of Sumner Street from Taggart Street to Rebecca Street. Construct ADA compliant, directional curb ramps as needed, and install high-visibility crosswalks. Install a mid-block crossing on Taggart Street near Sumner Street.

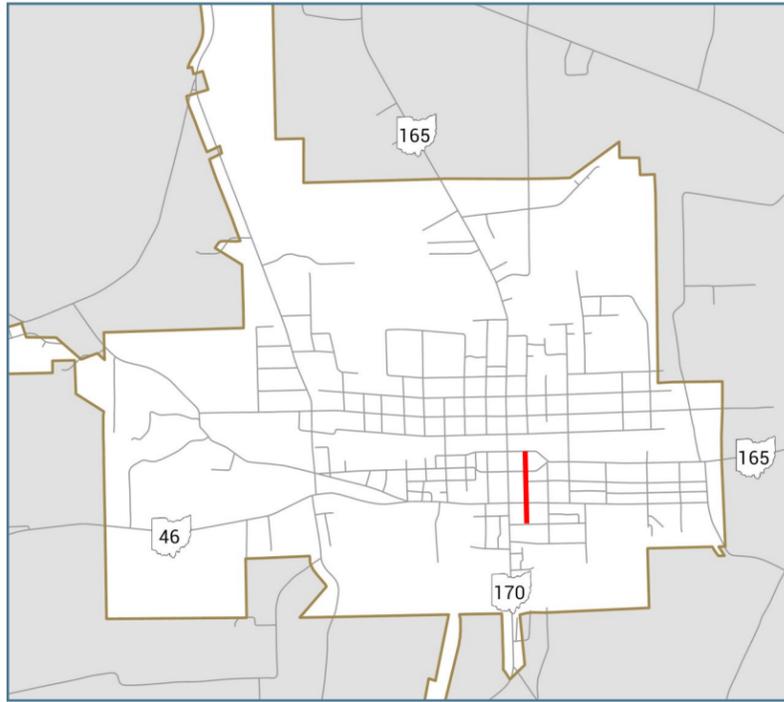
ESTIMATED COSTS

Design Fee:

\$74,875

Construction Costs:

\$670,163



EAST PALESTINE SS4A

PRIORITY SEGMENT

SUMNER STREET

WOOD STREET to TAGGART STREET

NLFID: MCOLMR00394**C, MCOLMR00383**C

SLM: 0.001 – 0.074 (0.3 Miles)



CRASH HISTORY SUMMARY

6 Crashes (2020-2024)

Crash Types: Angle (50%), Bicycles (33%), Parked Vehicle (17%)

Contributing Factors: Failure to Yield (83%), Improper Start from Parked Position (17%)

0 FSI Crash, 50% Overall Injury

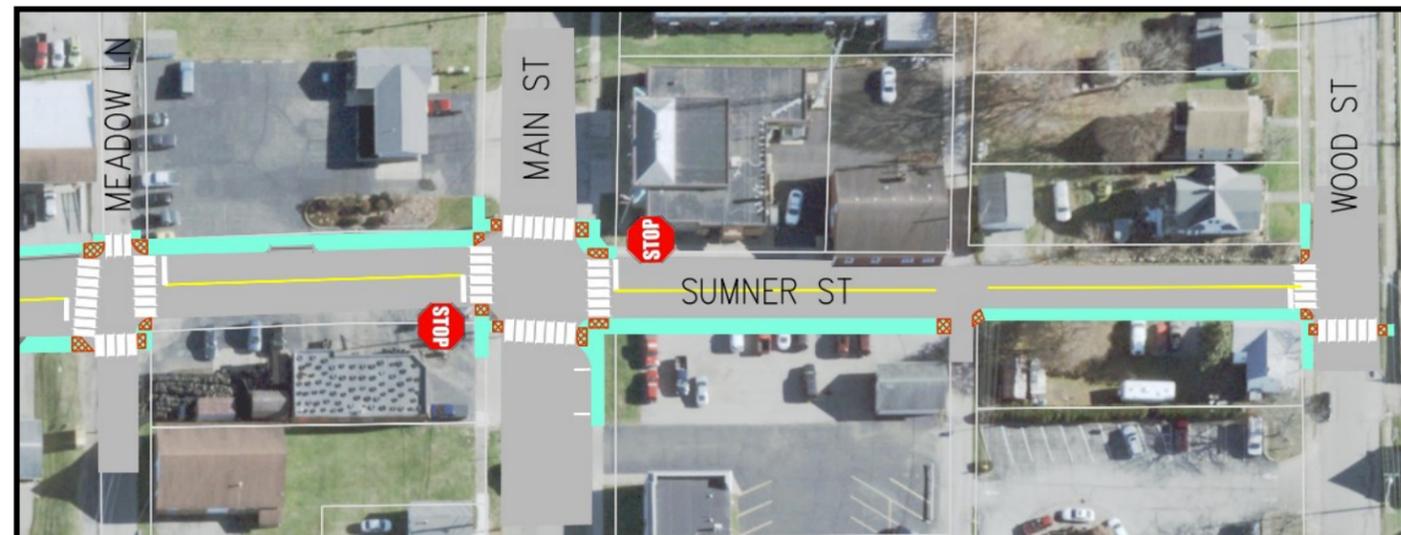
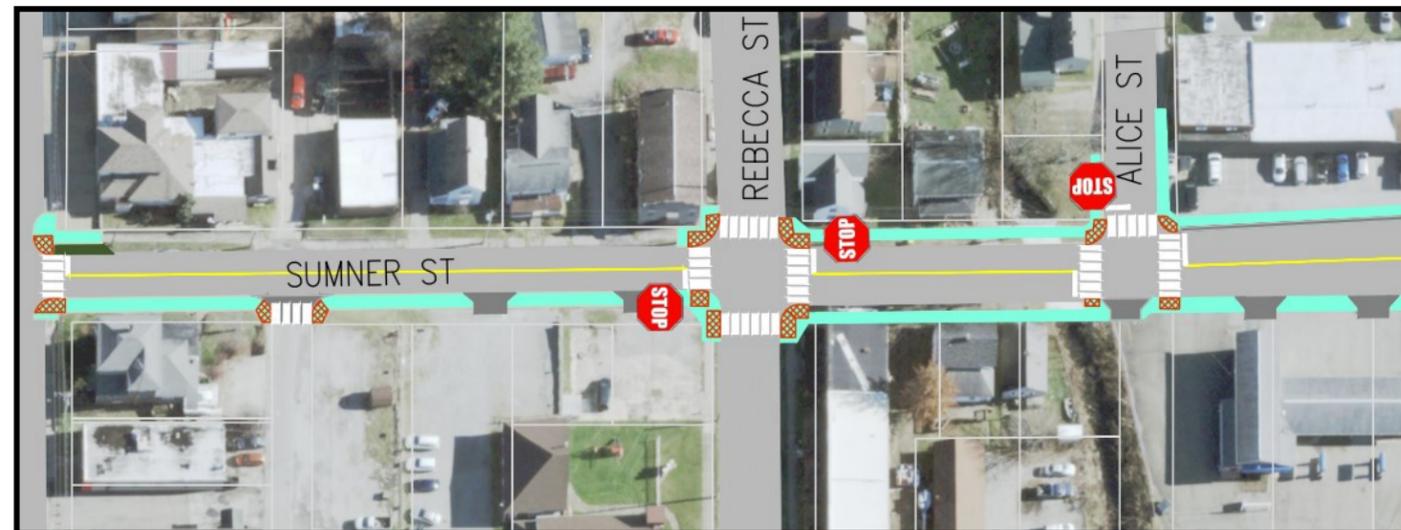
PRIORITY LIST(S)

Priority Segment

Priority Intersections

VRU Segment

High Risk Network



RECOMMENDED COUNTERMEASURES

Perform access management, install and replace curbs and sidewalks, install high-visibility crosswalks, ADA compliant directional curb ramps, and pavement markings (centerlines and stop bars).

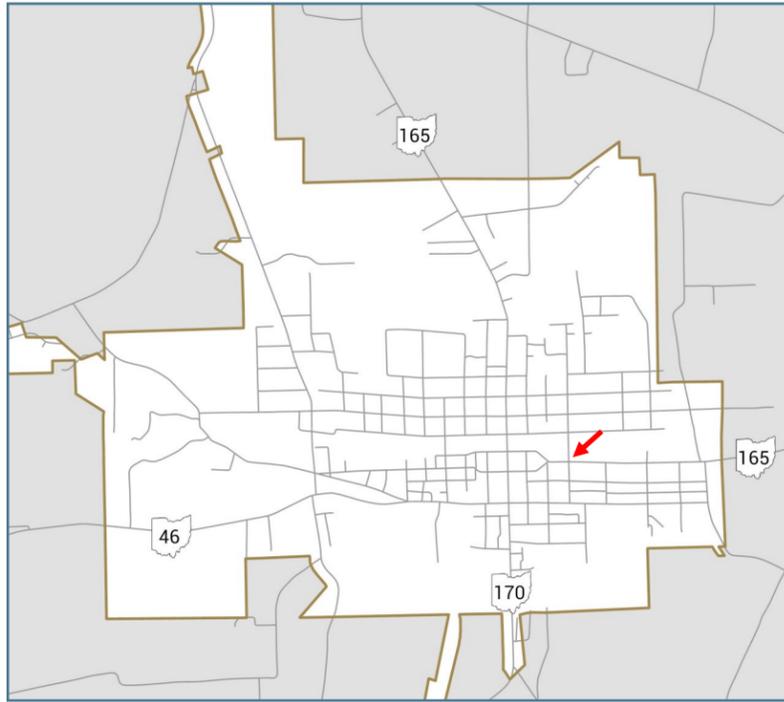
ESTIMATED COSTS

Design Fee:

\$168,171

Construction Costs:

\$1,110,324



EAST PALESTINE SS4A

PRIORITY INTERSECTION TAGGART STREET & JAMES STREET

NLFID: MCOLMR00381**C, SLM: 0.145



CRASH HISTORY SUMMARY

3 Crashes 2020-2024

Crash Type: Angle, Left Turn, Rear-End

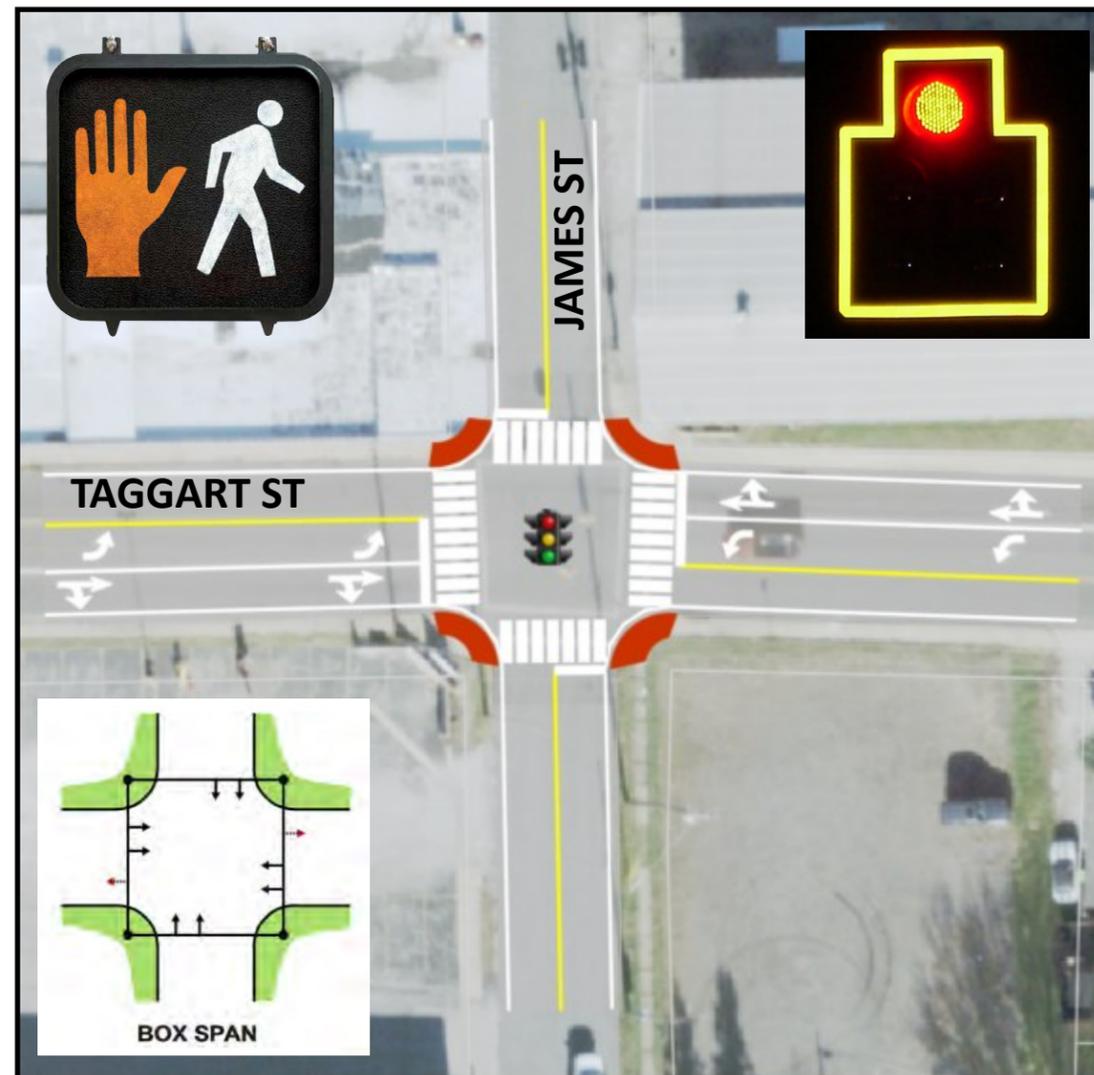
0 FSI, 33% Overall Injury Rate

PRIORITY LIST(S)

Priority Intersection

VRU Segment

High Risk Network



RECOMMENDATIONS

Short Term: Construct ADA-compliant curb ramps. Install high-visibility crosswalks, pedestrian push buttons, pedestrian countdown signals, and larger street name signs. If the signal is warranted, replace diagonal span with box span or mast arms, review signal timing, 12" LED signal indications, reflective signal backplates.

Long Term: Mini Roundabout

ESTIMATED COSTS

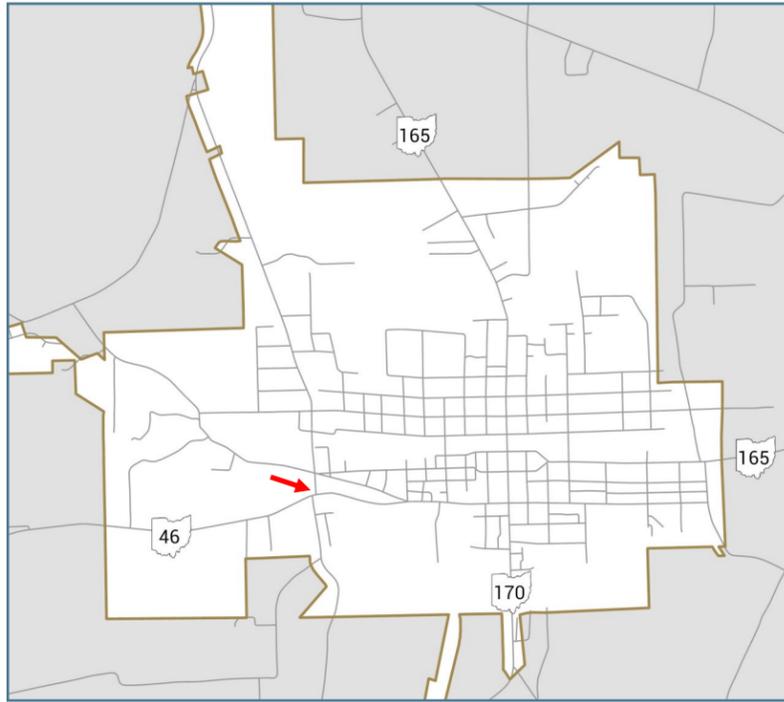
(Short term recommendation)

Design Fee:

\$70,532

Construction Costs:

\$426,721



EAST PALESTINE SS4A

PRIORITY INTERSECTION BACON AVENUE & BROOKDALE AVENUE

NLFID: SCOLSR00046**C, SLM: 0.682



CRASH HISTORY SUMMARY

3 Crashes 2020-2024

Crash Types: Angle (33%), Left Turn (33%), Rear End (33%)

0 FSI, 33% Overall Injury Rate

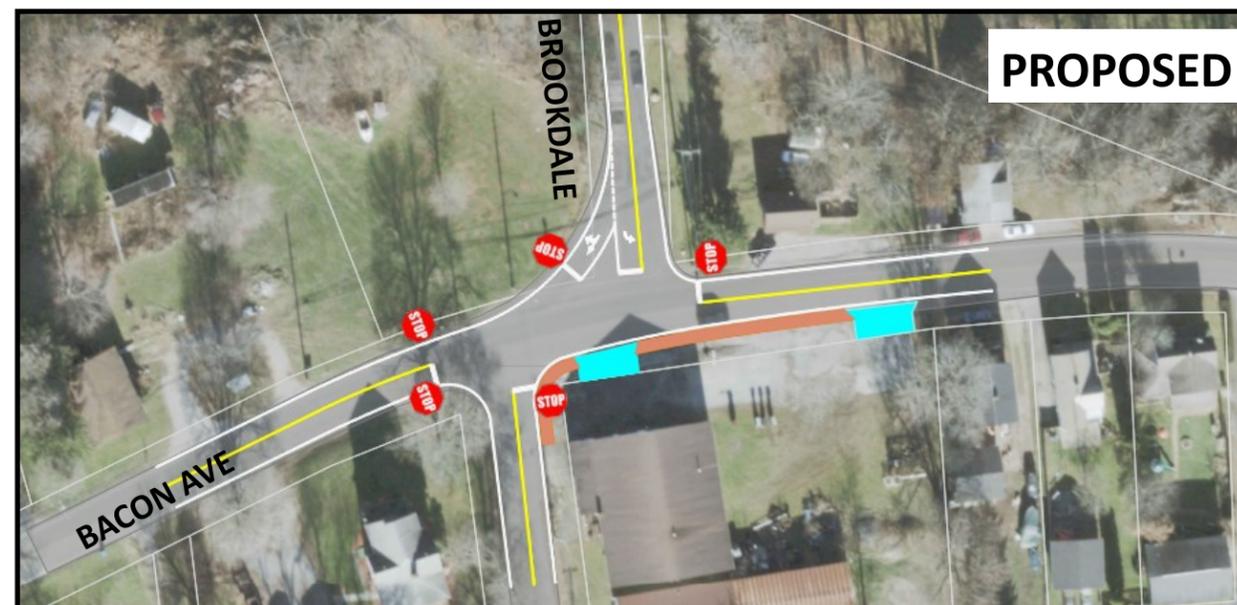
PRIORITY LIST(S)

Priority Intersection

Priority Segment

VRU Segment

High Risk Network



RECOMMENDATIONS

Short Term: Convert the three-way stop to an all-way stop-controlled intersection. Improve signage, signage visibility, and signage location. Reapply pavement markings and perform access management.

Long Term: Construct a roundabout.

ESTIMATED COSTS

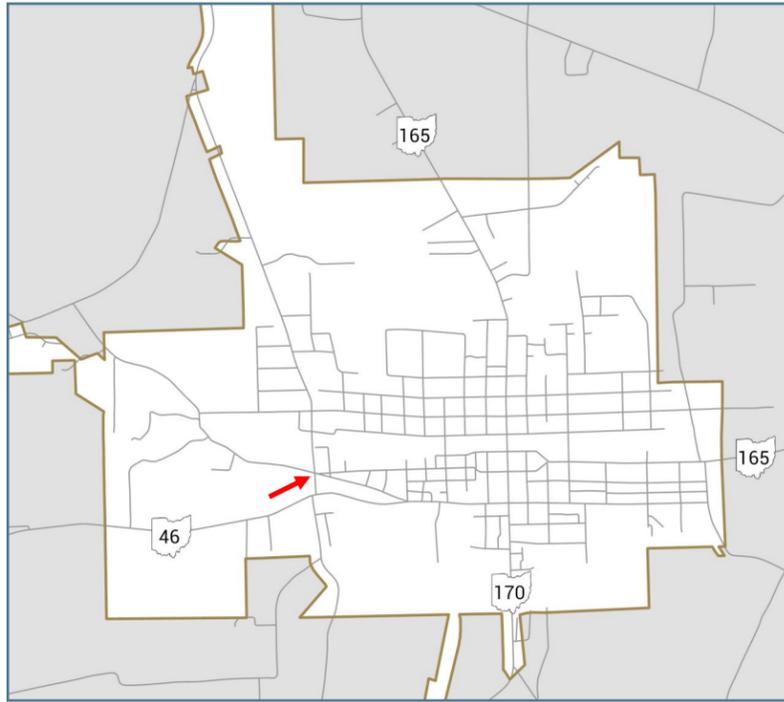
(Short term recommendation)

Design Fee:

\$31,712

Construction Costs:

\$191,860



EAST PALESTINE SS4A

PRIORITY INTERSECTION MAIN STREET & BROOKDALE AVENUE & PARK AVENUE

NLFID: CCOLCR00431**C SLM: 2.788



CRASH HISTORY SUMMARY

4 Crashes 2020-2024

Crash Type: Angle (100%)

0 FSI Crashes, 25% Overall Injury Rate

PRIORITY LIST(S)

Priority Intersection

Priority Segment

VRU Segment

High Risk Network



RECOMMENDATIONS

Convert the 5-leg intersection to 4-leg intersection by removing a portion of Main Street. Reapply pavement markings and apply high visibility crosswalks. Alternatively, consider constructing a roundabout.

ESTIMATED COSTS

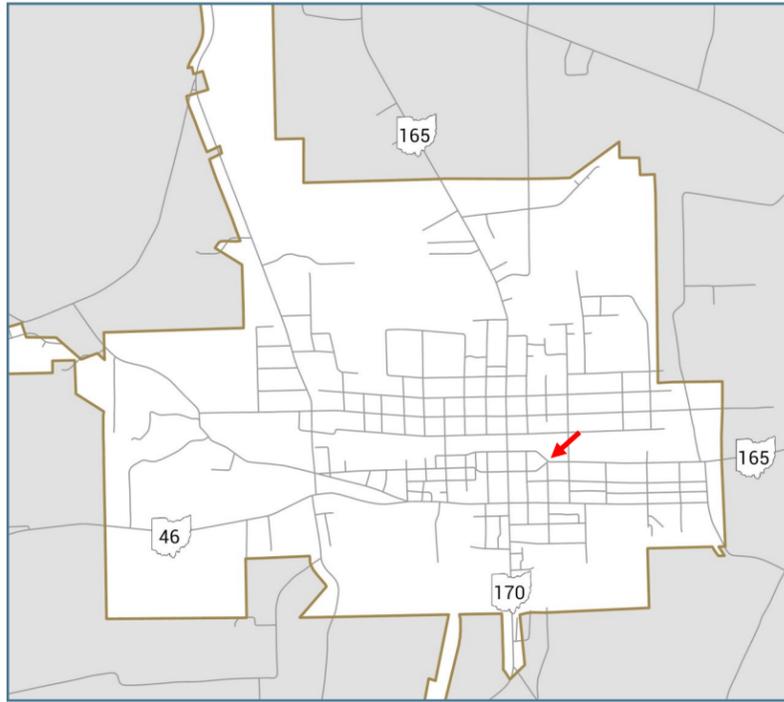
(4-leg intersection conversion)

Design Fee:

\$56,473

Construction Costs:

\$389,005



EAST PALESTINE SS4A

PRIORITY INTERSECTION TAGGART STREET & REBECCA STREET & LIBERTY STREET

NLFID: SCOLSR00165**C, SLM: 5.401



CRASH HISTORY SUMMARY

1 Crash 2020-2024

Crash Type: Left Turn (100%)

0 FSI, 0% Overall Injury Rate

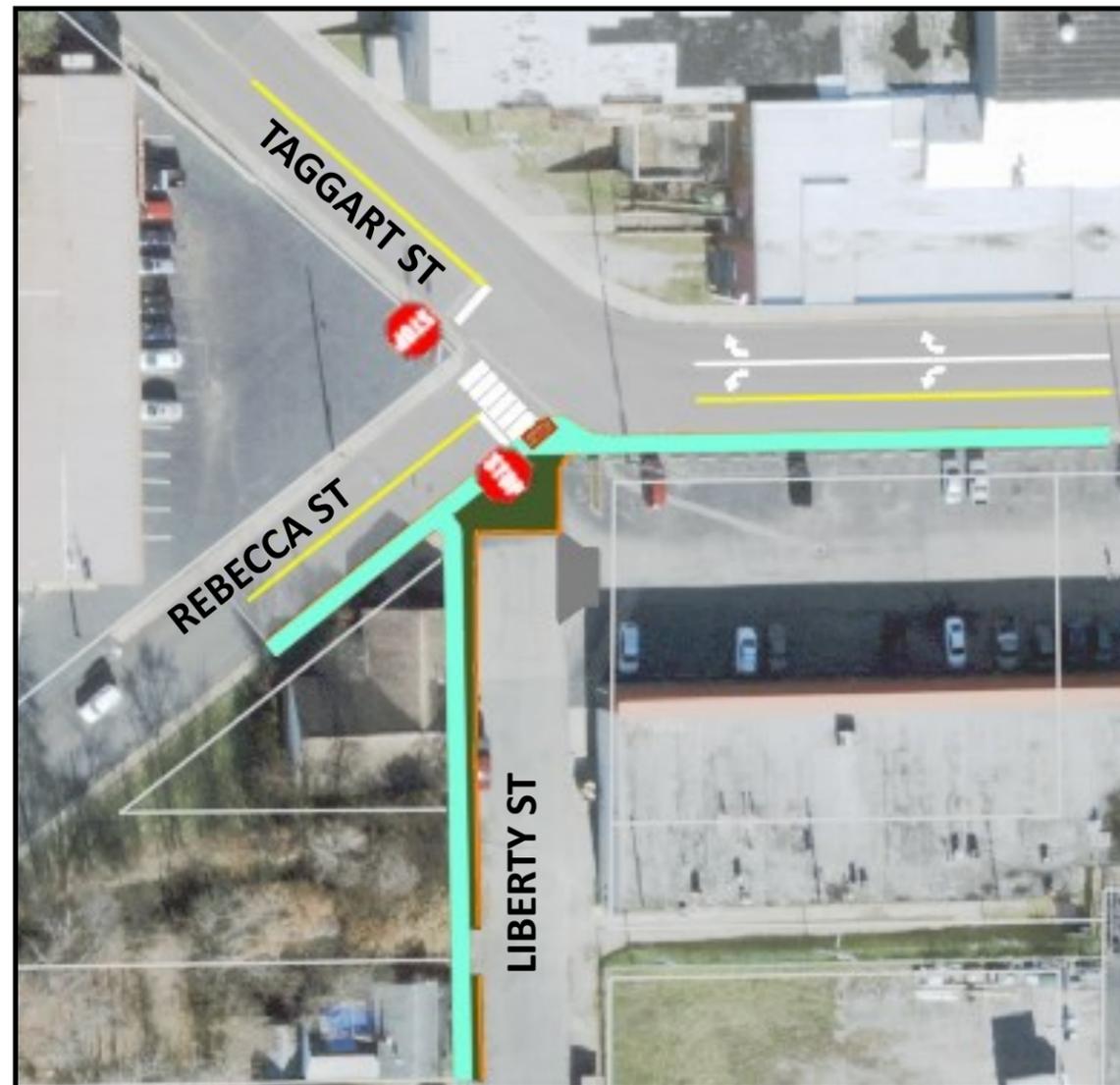
PRIORITY LIST(S)

Priority Intersection

Priority Segment

VRU Segment

High Risk Network



RECOMMENDATIONS

Short Term: Remove the Liberty Street approach to convert the 4-leg intersection into a 3-leg intersection. Install sidewalk and ADA-compliant curb ramps. Reapply pavement markings and apply high-visibility crosswalks.

Long Term: Construct a roundabout.

ESTIMATED COSTS

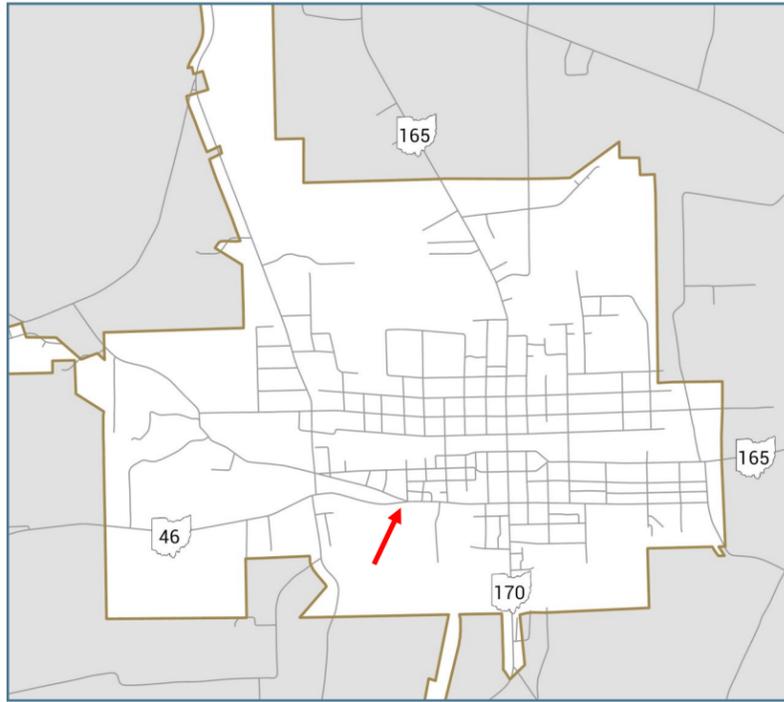
(Short term recommendation)

Design Fee:

\$43,373

Construction Costs:

\$264,579



EAST PALESTINE SS4A

PRIORITY INTERSECTION MAIN STREET & BACON AVENUE & EVERETT STREET

NLFID: COLCR00431**C, SLM:3.116



CRASH HISTORY SUMMARY

0 Crashes (2020-2024)

PRIORITY LIST(S)

- Priority Intersection
- Priority Segment
- VRU Priority Segment
- High Risk Network



RECOMMENDATIONS

Short Term: Remove the Everett Street approach and realign the eastbound W Main Street approach. Construct sidewalk and ADA-compliant curb ramps. Install an RRFB and a high-visibility crosswalk on the east leg.
Long Term: Roundabout

ESTIMATED COSTS

(Short term recommendation)

Design Fee:

\$48,288

Construction Costs:

\$290,405

APPENDIX E
Cost Opinion





EAST PALESTINE SS4A

SEGMENT MARKET

Jan-26

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	
ROADWAY							
1	201	11000	CLEARING AND GRUBBING	1	LS	\$1,000.00	\$1,000.00
	202	23000	PAVEMENT REMOVED	1220	SY	\$23.00	\$28,060.00
	203	10000	EXCAVATION	130	CY	\$35.00	\$4,550.00
	204	10000	SUBGRADE COMPACTION	1220	SY	\$5.00	\$6,100.00
Subtotal						\$39,710.00	
PAVEMENT							
2	304	20000	AGGREGATE BASE	210	CY	\$115.00	\$24,150.00
	407	20000	NON-TRACKING TACK COAT	20	GAL	\$5.00	\$100.00
	441	50300	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	10	CY	\$600.00	\$6,000.00
	441	70000	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22	30	CY	\$700.00	\$21,000.00
	609	26000	CURB, TYPE 6	1200	FT	\$45.00	\$54,000.00
	608	13000	6" CONCRETE WALK	8540	SF	\$20.00	\$170,800.00
	608	52000	CURB RAMP	1930	SF	\$70.00	\$135,100.00
202	32000	CURB REMOVED	1030	FT	\$12.00	\$12,360.00	
Subtotal						\$423,510.00	
EROSION CONTROL							
3	832	30000	EROSION CONTROL	1	LS	\$18,000.00	\$18,000.00
	Subtotal						\$18,000.00
DRAINAGE							
4	202	58100	CATCH BASIN REMOVED	30	EACH	\$620.00	\$18,600.00
	611	04900	12" CONDUIT, TYPE D	600	FT	\$100.00	\$60,000.00
	611	98180	CATCH BASIN, NO. 3A	25	EACH	\$3,900.00	\$97,500.00
	611	98470	CATCH BASIN, NO. 2-2B	5	EACH	\$2,700.00	\$13,500.00
Subtotal						\$189,600.00	
LANDSCAPING							
Subtotal						\$0.00	
STRUCTURES							
Subtotal						\$0.00	
TRAFFIC CONTROL							
7	642	00100	EDGE LINE, 4", TYPE 1	1,300	MILE	\$3,200.00	\$4,160.00
	642	00300	CENTER LINE, TYPE 1	0,700	MILE	\$6,200.00	\$4,340.00
	642	00500	STOP LINE, TYPE 1	390	FT	\$8.00	\$3,120.00
	630	80100	SIGN, FLAT SHEET	620	SF	\$35.00	\$21,700.00
	630	02100	GROUND MOUNTED SUPPORT, NO. 2 POST	460	FT	\$20.00	\$9,200.00
	642	00630	CROSSWALK LINE, 24", TYPE 1	1010	FT	\$4.00	\$4,040.00
	632	20730	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN	24	EA	\$650.00	\$15,600.00
	632	26000	PEDESTRIAN PUSHBUTTON	24	EA	\$300.00	\$7,200.00
	632	05006	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONAT	24	EA	\$1,050.00	\$25,200.00
	632	90400	SIGNALIZATION, MISC.: RETROREFLECTIVE BORDER BACKPLATES	24	EA	\$50.00	\$1,200.00
	630	97700	SIGNING, MISC.: RECTANGULAR RAPID FLASHING BEACON, SET OF 2	1	EACH	\$20,000.00	\$20,000.00
	643	01300	LANE ARROW	18	EACH	\$75.00	\$1,350.00
	642	19000	SHARED LANE MARKING, TYPE 1	37	EACH	\$350.00	\$12,950.00
	643	01000	RAILROAD SYMBOL MARKING	4	EACH	\$415.00	\$1,660.00
	633	75000	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT	3	EACH	\$8,000.00	\$24,000.00
	633	99000	CONTROLLER ITEM, MISC.:	3	EACH	\$24,000.00	\$72,000.00
632	90300	SIGNALIZATION, MISC.:	1	LS	\$150,000.00	\$150,000.00	
Subtotal						\$377,720.00	
INCIDENTALS							
8	103	05000	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	1	LS	\$420.00	\$420.00
	623	10000	CONSTRUCTION LAYOUT STAKES AND SURVEYING	1	LS	\$3,000.00	\$3,000.00
	614	13600	MAINTENANCE OF TRAFFIC, ONE LANE CLOSURE ON A TWO LANE HIGHWAY	25000	EACH	\$1.00	\$25,000.00
	624	10000	MOBILIZATION	1	LS	\$15,000.00	\$15,000.00
Subtotal						\$43,420.00	
OTHER							
Subtotal						\$0.00	
SUB-TOTAL CONSTRUCTION COST						\$1,091,960.00	
Contingency (30%)						\$327,588.00	
ODOT Inflation Factor 2028 (12%)						\$131,035.20	
2028 TOTAL CONSTRUCTION COST						\$1,550,583.20	
Design and Documents							
Engineering Design (15%)						\$212,932.20	
Permanent Right-of-Way							
Permanent Right-of-Way						\$0.00	
Construction Engineering							
Construction Engineering (10%)						\$155,058.32	
2028 GRAND TOTAL DESIGN+CONSTRUCTION+INSPECTION COST						\$1,918,573.72	

Assumptions:

Cost estimates and ranges are developed to the Association for the Advancement of Cost Consulting International (AACE) Class 5 estimate level.

This cost opinion is based on anticipated 2025 construction costs, plus inflation factors for 2028 costs. Land acquisition and/or easements are estimated.

A general attempt was made to anticipate potential impacts of known and visible utilities. Minimal impact to storm sewers or existing drainage is anticipated.

All work is assumed to be publicly bid.

Full geotechnical studies and survey were not performed at the time of this cost opinion. This cost opinion is based on typical subsurface conditions.

The scope of work is for preliminary engineering and planning. In-depth engineering design, surveying, etc. was not performed.



EAST PALESTINE SS4A SAFETY IMPROVEMENTS

REBECCA SUMNER TAGGART SIDEWALKS

Jan-26

		DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST	
ROADWAY							
1	201	11000	CLEARING AND GRUBBING	1	LS	\$2,000.00	\$2,000.00
	202	23000	PAVEMENT REMOVED	1950	SY	\$10.00	\$19,500.00
	203	10000	EXCAVATION	570	CY	\$21.00	\$11,970.00
	204	10000	SUBGRADE COMPACTION	2260	SY	\$5.00	\$11,300.00
	204	45000	PROOF ROLLING	1	HOUR	\$180.00	\$144.00
Subtotal						\$44,914.00	
PAVEMENT							
2	304	20000	AGGREGATE BASE	380	CY	\$65.00	\$24,700.00
	608	13000	6" CONCRETE WALK	13500	SF	\$6.00	\$81,000.00
	608	52000	CURB RAMP	1840	SF	\$20.00	\$36,800.00
	609	26000	CURB, TYPE 6	2020	FT	\$25.00	\$50,500.00
	301	48000	ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)	60	CY	\$175.00	\$10,500.00
Subtotal						\$203,500.00	
EROSION CONTROL							
3	652	10000	PLACING STOCKPILED TOPSOIL	80	CY	\$15.00	\$1,200.00
	651	10000	TOPSOIL STOCKPILED	80	CY	\$16.00	\$1,280.00
	659	10000	SEEDING AND MULCHING	500	SY	\$2.00	\$1,000.00
	659	14000	REPAIR SEEDING AND MULCHING	90	SY	\$1.00	\$90.44
	659	15000	INTER-SEEDING	30	SY	\$1.00	\$30.00
	659	20000	COMMERCIAL FERTILIZER	0	TON	\$850.00	\$8.50
	659	31000	LIME	0	ACRE	\$500.00	\$5.00
	659	35000	WATER	10	MGAL	\$3.00	\$30.00
	832	30000	EROSION CONTROL	1	LS	\$20,000.00	\$20,000.00
Subtotal						\$23,643.94	
DRAINAGE							
4	611	04900	12" CONDUIT, TYPE D	70	FT	\$50.00	\$3,500.00
	611	00510	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	2220	FT	\$20.00	\$44,400.00
	611	98470	CATCH BASIN, NO. 2-2B	7	EACH	\$2,000.00	\$14,000.00
Subtotal						\$61,900.00	
LANDSCAPING							
5	661	40080	DECIDUOUS TREE, 2" CALIPER	0	EACH	\$600.00	\$0.00
Subtotal						\$0.00	
STRUCTURES							
Subtotal						\$0.00	
TRAFFIC CONTROL							
7	642	00090	EDGE LINE/CENTERLINE/BIKE LANE LINE	0.400	MILE	\$1,600.00	\$640.00
	642	00490	STOP LINE	70	FT	\$4.00	\$280.00
	630	80224	SIGN, OVERHEAD EXTRUSHEET	30	SF	\$25.00	\$750.00
	630	80100	SIGN, FLAT SHEET	160	SF	\$25.00	\$4,000.00
	631	92000	RRFB - SIGN FLASHER ASSEMBLY	2	EACH	\$10,000.00	\$20,000.00
	630	02100	GROUND MOUNTED SUPPORT, NO. 2 POST	620	FT	\$12.00	\$7,440.00
	642	00590	CROSSWALK LINE	300	FT	\$60.00	\$18,000.00
Subtotal						\$51,110.00	
INCIDENTALS							
8	103	05000	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	1	LS	\$12,000.00	\$12,000.00
	623	10000	CONSTRUCTION LAYOUT STAKES AND SURVEYING	1	LS	\$3,000.00	\$3,000.00
	614	13600	MAINTENANCE OF TRAFFIC, ONE LANE CLOSURE ON A TWO LANE HIGHWAY	50000	EACH	\$1.00	\$50,000.00
	624	10000	MOBILIZATION	1	LS	\$15,000.00	\$15,000.00
Subtotal						\$80,000.00	
OTHER							
Subtotal						\$0.00	
SUB-TOTAL CONSTRUCTION COST						\$465,067.94	
Contingency (15%)						\$69,760.19	
ODOT Inflation Factor 2029 (16%)						\$74,410.87	
2029 TOTAL CONSTRUCTION COST						\$609,239.00	
Design and Documents							
Engineering Design (14%)						\$74,875.94	
Permanent Right-of-Way							
Permanent Right-of-Way						\$0.00	
Construction Engineering							
Construction Engineering (10%)						\$60,923.90	
2029 GRAND TOTAL DESIGN+CONSTRUCTION+INSPECTION COST						\$745,038.84	

Assumptions:

Cost estimates and ranges are developed to the Association for the Advancement of Cost Consulting International (AACE) Class 5 estimate level. This cost opinion is based on anticipated 2025 construction costs, plus inflation factors for 2029 costs. A general attempt was made to anticipate potential impacts of known and visible utilities. Minimal impact to storm sewers or existing drainage is anticipated. Full geotechnical studies and survey were not performed at the time of this cost opinion. This cost opinion is based on typical subsurface conditions. The scope of work is for preliminary engineering and planning. In-depth engineering design, surveying, etc. was not performed.



EAST PALESTINE SS4A

SEGMENT SUMMER

Jan-26

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	
ROADWAY							
1	202	23000	PAVEMENT REMOVED	1190	SY	\$20.00	\$23,800.00
	204	10000	SUBGRADE COMPACTION	1740	SY	\$5.00	\$8,700.00
	201	11000	CLEARING AND GRUBBING	1	LS	\$2,000.00	\$2,000.00
	203	10000	EXCAVATION	110	CY	\$35.00	\$3,850.00
Subtotal						\$38,350.00	
PAVEMENT							
2	304	20000	AGGREGATE BASE	290	CY	\$115.00	\$33,350.00
	608	13000	6" CONCRETE WALK	12100	SF	\$20.00	\$242,000.00
	608	52000	CURB RAMP	1570	SF	\$70.00	\$109,900.00
	609	26000	CURB, TYPE 6	1040	FT	\$45.00	\$46,800.00
	202	32000	CURB REMOVED	1510	FT	\$12.00	\$18,120.00
	202	30000	WALK REMOVED	5910	SF	\$5.00	\$29,550.00
	407	20000	NON-TRACKING TACK COAT	30	GAL	\$5.00	\$150.00
	441	50300	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	20	CY	\$600.00	\$12,000.00
441	70000	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22	40	CY	\$700.00	\$28,000.00	
Subtotal						\$519,870.00	
EROSION CONTROL							
3	653	10000	TOPSOIL FURNISHED AND PLACED	70	CY	\$110.00	\$7,700.00
	659	10000	SEEDING AND MULCHING	200	SY	\$5.00	\$1,000.00
	659	14000	REPAIR SEEDING AND MULCHING	25	SY	\$2.00	\$49.67
	659	15000	INTER-SEEDING	10	SY	\$2.00	\$20.00
	659	20000	COMMERCIAL FERTILIZER	0	TON	\$1,100.00	\$11.00
	659	31000	LIME	0	ACRE	\$380.00	\$3.80
	659	35000	WATER	10	MGAL	\$9.00	\$90.00
	832	30000	EROSION CONTROL	1	LS	\$14,000.00	\$14,000.00
Subtotal						\$22,874.47	
DRAINAGE							
4	611	04900	12" CONDUIT, TYPE D	30	FT	\$100.00	\$3,000.00
	611	98470	CATCH BASIN, NO. 2-2B	2	EACH	\$2,700.00	\$5,400.00
	611	98180	CATCH BASIN, NO. 3A	2	EACH	\$3,900.00	\$7,800.00
Subtotal						\$16,200.00	
5	LANDSCAPING						\$0.00
6	STRUCTURES						\$0.00
TRAFFIC CONTROL							
7	642	00500	STOP LINE, TYPE 1	160	FT	\$8.00	\$1,280.00
	642	00630	CROSSWALK LINE, 24", TYPE 1	500	FT	\$4.00	\$2,000.00
	642	00300	CENTER LINE, TYPE 1	0.200	MILE	\$6,200.00	\$1,240.00
Subtotal						\$4,520.00	
INCIDENTALS							
8	103	05000	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	1	LS	\$12,000.00	\$12,000.00
	623	10000	CONSTRUCTION LAYOUT STAKES AND SURVEYING	1	LS	\$3,000.00	\$3,000.00
	614	13600	MAINTENANCE OF TRAFFIC, ONE LANE CLOSURE ON A TWO LANE HIGHWAY	15000	EACH	\$1.00	\$15,000.00
	624	10000	MOBILIZATION	1	LS	\$15,000.00	\$15,000.00
Subtotal						\$45,000.00	
9	OTHER						\$0.00
Subtotal						\$0.00	
SUB-TOTAL CONSTRUCTION COST						\$646,814.47	
Contingency (30%)						\$194,044.34	
ODOT Inflation Factor 2028 (12%)						\$77,617.74	
2028 TOTAL CONSTRUCTION COST						\$918,476.54	
Design and Documents							
Engineering Design (20%)						\$168,171.76	
Permanent Right-of-Way							
Permanent Right-of-Way						\$100,000.00	
Construction Engineering							
Construction Engineering (10%)						\$91,847.65	
2028 GRAND TOTAL DESIGN+CONSTRUCTION+INSPECTION COST						\$1,278,495.96	

Assumptions:

Cost estimates and ranges are developed to the Association for the Advancement of Cost Consulting International (AACE) Class 5 estimate level.

This cost opinion is based on anticipated 2025 construction costs, plus inflation factors for 2028 costs.

Land acquisition and/or easements are estimated.

A general attempt was made to anticipate potential impacts of known and visible utilities.

Minimal impact to storm sewers or existing drainage is anticipated.

All work is assumed to be publicly bid.

Full geotechnical studies and survey were not performed at the time of this cost opinion. This cost opinion is based on typical subsurface conditions.

The scope of work is for preliminary engineering and planning. In-depth engineering design, surveying, etc. was not performed.



EAST PALESTINE SS4A

TAGGART/JAMES INTERSECTION

Jan-26

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	
ROADWAY							
1	202	23000	PAVEMENT REMOVED	50	SY	\$23.00	\$1,150.00
	204	10000	SUBGRADE COMPACTION	50	SY	\$5.00	\$250.00
	203	10000	EXCAVATION	30	CY	\$35.00	\$1,050.00
Subtotal						\$2,450.00	
PAVEMENT							
2	304	20000	AGGREGATE BASE	7	CY	\$115.00	\$805.00
	608	52000	CURB RAMP	370	SF	\$70.00	\$25,900.00
Subtotal						\$26,705.00	
EROSION CONTROL							
3	832	30000	EROSION CONTROL	1	LS	\$2,320.00	\$2,320.00
	Subtotal						\$2,320.00
DRAINAGE							
4	202	58100	CATCH BASIN REMOVED	2	EACH	\$620.00	\$1,240.00
	611	04900	12" CONDUIT, TYPE D	40	FT	\$100.00	\$4,000.00
	611	98180	CATCH BASIN, NO. 3A	2	EACH	\$3,900.00	\$7,800.00
Subtotal						\$13,040.00	
LANDSCAPING							
Subtotal						\$0.00	
STRUCTURES							
Subtotal						\$0.00	
TRAFFIC CONTROL							
7	625	25900	CONDUIT, JACKED OR DRILLED	200	FT	\$60.00	\$12,000.00
	625	30706	PULL BOX, 725.08, 24"	2	EACH	\$1,500.00	\$3,000.00
	625	32000	GROUND ROD	4	EACH	\$320.00	\$1,280.00
	632	05007	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE	8	EACH	\$2,000.00	\$16,000.00
	632	20730	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN	8	EACH	\$650.00	\$5,200.00
	632	25000	COVERING OF VEHICULAR SIGNAL HEAD	4	EACH	\$40.00	\$160.00
	632	25010	COVERING OF PEDESTRIAN SIGNAL HEAD	8	EACH	\$35.00	\$280.00
	632	26000	PEDESTRIAN PUSHBUTTON	8	EACH	\$300.00	\$2,400.00
	632	64020	PEDESTAL FOUNDATION	4	EACH	\$3,000.00	\$12,000.00
	632	86120	STRAIN POLE, TYPE TC-81.11, DESIGN 8	4	EACH	\$20,000.00	\$80,000.00
	632	89900	PEDESTAL, 8", TRANSFORMER BASE	4	EACH	\$1,000.00	\$4,000.00
	632	90100	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	1	EACH	\$10,000.00	\$10,000.00
	632	90400	SIGNALIZATION, MISC.: RETROREFLECTIVE BORDER BACKPLATES	4	EACH	\$50.00	\$200.00
	633	67100	CABINET FOUNDATION	1	EACH	\$5,000.00	\$5,000.00
	633	67200	CONTROLLER WORK PAD	1	EACH	\$1,800.00	\$1,800.00
	633	75000	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT	1	EACH	\$20,000.00	\$20,000.00
	633	99000	CONTROLLER ITEM, MISC.: CONTROLLER AND CABINET	1	EACH	\$40,000.00	\$40,000.00
	642	00100	EDGE LINE, 4", TYPE 1	0.200	MILE	\$3,000.00	\$600.00
	642	00300	CENTER LINE, TYPE 1	0.100	MILE	\$7,000.00	\$700.00
	642	00500	STOP LINE, TYPE 1	70	FT	\$5.00	\$350.00
Subtotal						\$214,970.00	
INCIDENTALS							
8	103	05000	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	1	LS	\$1,400.00	\$1,400.00
	623	10000	CONSTRUCTION LAYOUT STAKES AND SURVEYING	1	LS	\$3,000.00	\$3,000.00
	614	18002	MAINTAINING TRAFFIC, MISC.:	1	LS	\$15,000.00	\$15,000.00
	624	10000	MOBILIZATION	1	LS	\$15,000.00	\$15,000.00
SPE(SPECIAL			RIGHT-OF-WAY IF NEEDED	1	LS	\$0.00	\$0.00
Subtotal						\$34,400.00	
OTHER							
Subtotal						\$0.00	
SUB-TOTAL CONSTRUCTION COST						\$293,885.00	
Contingency (20%)						\$58,777.00	
ODOT Inflation Factor 2028 (12%)						\$35,266.20	
2028 TOTAL CONSTRUCTION COST						\$387,928.20	
Design and Documents							
Engineering Design (20%)						\$70,532.40	
Permanent Right-of-Way							
Permanent Right-of-Way						\$0.00	
Construction Engineering							
Construction Engineering (10%)						\$38,792.82	
2028 GRAND TOTAL DESIGN+CONSTRUCTION+INSPECTION COST						\$497,253.42	

Assumptions:

Cost estimates and ranges are developed to the Association for the Advancement of Cost Consulting International (AACE) Class 5 estimate level.

This cost opinion is based on anticipated 2025 construction costs, plus inflation factors for 2028 costs.

Land acquisition and/or easements are estimated.

A general attempt was made to anticipate potential impacts of known and visible utilities.

Minimal impact to storm sewers or existing drainage is anticipated.

All work is assumed to be publicly bid.

Full geotechnical studies and survey were not performed at the time of this cost opinion. This cost opinion is based on typical subsurface conditions.

The scope of work is for preliminary engineering and planning. In-depth engineering design, surveying, etc. was not performed.

EAST PALESTINE SS4A

BACON/BROOKDALE INTERSECTION

Jan-26

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	
ROADWAY							
1	201	11000	CLEARING AND GRUBBING	1	LS	\$1,000.00	\$1,000.00
	202	23000	PAVEMENT REMOVED	260	SY	\$23.00	\$5,980.00
	203	10000	EXCAVATION	120	CY	\$35.00	\$4,200.00
	204	10000	SUBGRADE COMPACTION	260	SY	\$5.00	\$1,300.00
Subtotal						\$12,480.00	
PAVEMENT							
2	304	20000	AGGREGATE BASE	50	CY	\$115.00	\$5,750.00
	407	20000	NON-TRACKING TACK COAT	5	GAL	\$5.00	\$25.00
	441	50300	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	2	CY	\$600.00	\$1,200.00
	441	70000	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22	6	CY	\$700.00	\$4,200.00
	452	12010	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	100	SY	\$160.00	\$16,000.00
	609	24510	CURB, TYPE 4-C	330	FT	\$50.00	\$16,500.00
609	70001	4" CONCRETE MEDIAN, AS PER PLAN	90	SY	\$200.00	\$18,000.00	
Subtotal						\$61,675.00	
EROSION CONTROL							
3	832	30000	EROSION CONTROL	1	LS	\$940.00	\$940.00
	Subtotal						\$940.00
DRAINAGE							
4	202	58100	CATCH BASIN REMOVED	10	EACH	\$620.00	\$6,200.00
	611	04900	12" CONDUIT, TYPE D	40	FT	\$100.00	\$4,000.00
	611	98180	CATCH BASIN, NO. 3A	2	EACH	\$3,800.00	\$7,600.00
Subtotal						\$17,800.00	
LANDSCAPING							
Subtotal						\$0.00	
STRUCTURES							
Subtotal						\$0.00	
TRAFFIC CONTROL							
7	642	00100	EDGE LINE, 4", TYPE 1	0.300	MILE	\$3,200.00	\$960.00
	642	00300	CENTER LINE, TYPE 1	0.200	MILE	\$6,200.00	\$1,240.00
	642	00500	STOP LINE, TYPE 1	60	FT	\$8.00	\$480.00
	630	80100	SIGN, FLAT SHEET	50	SF	\$35.00	\$1,750.00
	630	02100	GROUND MOUNTED SUPPORT, NO. 2 POST	50	FT	\$20.00	\$1,000.00
	642	01300	LANE ARROW, TYPE 1	2	EACH	\$105.00	\$210.00
Subtotal						\$5,640.00	
INCIDENTALS							
8	103	05000	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	1	LS	\$600.00	\$600.00
	623	10000	CONSTRUCTION LAYOUT STAKES AND SURVEYING	1	LS	\$3,000.00	\$3,000.00
	614	18002	MAINTAINING TRAFFIC, MISC.:	1	LS	\$15,000.00	\$15,000.00
	624	10000	MOBILIZATION	1	LS	\$15,000.00	\$15,000.00
Subtotal						\$33,600.00	
OTHER							
Subtotal						\$0.00	
SUB-TOTAL CONSTRUCTION COST						\$132,135.00	
						Contingency (20%)	\$26,427.00
						ODOT Inflation Factor 2028 (12%)	\$15,856.20
2028 TOTAL CONSTRUCTION COST						\$174,418.20	
Design and Documents							
						Engineering Design (20%)	\$31,712.40
Permanent Right-of-Way							
						Permanent Right-of-Way	\$0.00
Construction Engineering							
						Construction Engineering (10%)	\$17,441.82
2028 GRAND TOTAL DESIGN+CONSTRUCTION+INSPECTION COST						\$223,572.42	

Assumptions:

Cost estimates and ranges are developed to the Association for the Advancement of Cost Consulting International (AACE) Class 5 estimate level.

This cost opinion is based on anticipated 2025 construction costs, plus inflation factors for 2028 costs.

Land acquisition and/or easements are estimated.

A general attempt was made to anticipate potential impacts of known and visible utilities.

Minimal impact to storm sewers or existing drainage is anticipated.

All work is assumed to be publicly bid.

Full geotechnical studies and survey were not performed at the time of this cost opinion. This cost opinion is based on typical subsurface conditions.

The scope of work is for preliminary engineering and planning. In-depth engineering design, surveying, etc. was not performed.

EAST PALESTINE SS4A

MAIN/BROOKDALE/PARK INTERSECTION

Jan-26

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	
ROADWAY							
1	201	11000 CLEARING AND GRUBBING	1	LS	\$500.00	\$500.00	
	202	23000 PAVEMENT REMOVED	820	SY	\$23.00	\$18,860.00	
	203	10000 EXCAVATION	270	CY	\$35.00	\$9,450.00	
Subtotal						\$31,910.00	
PAVEMENT							
2	304	20000 AGGREGATE BASE	110	CY	\$115.00	\$12,650.00	
	407	20000 NON-TRACKING TACK COAT	43	GAL	\$5.00	\$215.00	
	441	50300 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	52	CY	\$600.00	\$31,200.00	
	441	70000 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22	52	CY	\$700.00	\$36,400.00	
	608	52000 CURB RAMP	130	SF	\$70.00	\$9,100.00	
	609	26000 CURB, TYPE 6	300	FT	\$45.00	\$13,500.00	
	202	32000 CURB REMOVED	500	FT	\$12.00	\$6,000.00	
202	30000 WALK REMOVED	50	SF	\$5.00	\$250.00		
Subtotal						\$109,315.00	
EROSION CONTROL							
3	653	10000 TOPSOIL FURNISHED AND PLACED	130	CY	\$110.00	\$14,300.00	
	659	10000 SEEDING AND MULCHING	800	SY	\$5.00	\$4,000.00	
	659	20000 COMMERCIAL FERTILIZER	0	TON	\$1,100.00	\$110.00	
	659	31000 LIME	0	ACRE	\$380.00	\$60.80	
	659	35000 WATER	10	MGAL	\$9.00	\$90.00	
832	30000 EROSION CONTROL	1	LS	\$9,500.00	\$9,500.00		
Subtotal						\$28,060.80	
DRAINAGE							
4	611	97800 SPECIAL - DRAINAGE	1	LS	\$10,000.00	\$10,000.00	
Subtotal						\$10,000.00	
LANDSCAPING							
Subtotal						\$0.00	
STRUCTURES							
Subtotal						\$0.00	
TRAFFIC CONTROL							
7	642	00100 EDGE LINE, 4", TYPE 1	0.200	MILE	\$3,200.00	\$640.00	
	642	00300 CENTER LINE, TYPE 1	0.200	MILE	\$6,200.00	\$1,240.00	
	642	00500 STOP LINE, TYPE 1	60	FT	\$8.00	\$480.00	
	642	00630 CROSSWALK LINE, 24", TYPE 1	60	FT	\$4.00	\$240.00	
	630	80100 SIGN, FLAT SHEET	10	SF	\$35.00	\$350.00	
630	02100 GROUND MOUNTED SUPPORT, NO. 2 POST	70	FT	\$20.00	\$1,400.00		
Subtotal						\$4,350.00	
INCIDENTALS							
8	103	05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	1	LS	\$570.00	\$570.00	
	623	10000 CONSTRUCTION LAYOUT STAKES AND SURVEYING	1	LS	\$3,000.00	\$3,000.00	
	614	18002 MAINTAINING TRAFFIC, MISC.:	1	LS	\$15,000.00	\$15,000.00	
	624	10000 MOBILIZATION	1	LS	\$15,000.00	\$15,000.00	
SPEC	SPECIAL	RIGHT-OF-WAY IF NEEDED	1	LS	\$0.00	\$0.00	
Subtotal						\$33,570.00	
OTHER							
Subtotal						\$0.00	
SUB-TOTAL CONSTRUCTION COST						\$217,205.80	
						Contingency (30%)	\$65,161.74
						ODOT Inflation Factor 2028 (12%)	\$26,064.70
2028 TOTAL CONSTRUCTION COST						\$308,432.24	
Design and Documents							
						Engineering Design (20%)	\$56,473.51
Permanent Right-of-Way							
						Permanent Right-of-Way	\$50,000.00
Construction Engineering							
						Construction Engineering (10%)	\$30,843.22
2028 GRAND TOTAL DESIGN+CONSTRUCTION+INSPECTION COST						\$445,748.97	

Assumptions:

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This cost opinion is based on anticipated 2025 construction costs, plus inflation factors for 2028 costs.

Land acquisition and/or easements are estimated.

A general attempt was made to anticipate potential impacts of known and visible utilities. Minimal impact to storm sewers or existing drainage is anticipated.

All work is assumed to be publicly bid.

Full geotechnical studies and survey were not performed at the time of this cost opinion. This cost opinion is based on typical subsurface conditions.

The scope of work is for preliminary engineering and planning. In-depth engineering design, surveying, etc. was not performed.



EAST PALESTINE SS4A

TAGGART/REBECCA/LIBERTY INTERSECTION

Jan-26

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	
ROADWAY							
1	201	11000	CLEARING AND GRUBBING	1	LS	\$500.00	\$500.00
	202	23000	PAVEMENT REMOVED	200	SY	\$23.00	\$4,600.00
	203	10000	EXCAVATION	50	CY	\$55.00	\$2,750.00
	204	10000	SUBGRADE COMPACTION	170	SY	\$5.00	\$850.00
Subtotal						\$8,700.00	
PAVEMENT							
2	304	20000	AGGREGATE BASE	80	CY	\$115.00	\$9,200.00
	407	20000	NON-TRACKING TACK COAT	9	GAL	\$5.00	\$45.00
	441	50300	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	4	CY	\$600.00	\$2,400.00
	441	70000	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22	10	CY	\$700.00	\$7,000.00
	452	12010	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	50	SY	\$160.00	\$8,000.00
	608	13000	6" CONCRETE WALK	2600	SF	\$20.00	\$52,000.00
	608	52000	CURB RAMP	60	SF	\$70.00	\$4,200.00
	609	26000	CURB, TYPE 6	540	FT	\$45.00	\$24,300.00
	202	30000	WALK REMOVED	2190	SF	\$5.00	\$10,950.00
	202	32000	CURB REMOVED	280	FT	\$12.00	\$3,360.00
Subtotal						\$121,455.00	
EROSION CONTROL							
3	653	10000	TOPSOIL FURNISHED AND PLACED	30	CY	\$110.00	\$3,300.00
	659	10000	SEEDING AND MULCHING	200	SY	\$5.00	\$1,000.00
	659	20000	COMMERCIAL FERTILIZER	0	TON	\$1,100.00	\$33.00
	659	31000	LIME	0	ACRE	\$380.00	\$15.20
	659	35000	WATER	10	MGAL	\$9.00	\$90.00
832	30000	EROSION CONTROL	1	LS	\$1,500.00	\$1,500.00	
Subtotal						\$5,938.20	
DRAINAGE							
4	202	58100	CATCH BASIN REMOVED	1	EACH	\$620.00	\$620.00
	611	04900	12" CONDUIT, TYPE D	20	FT	\$100.00	\$2,000.00
	611	98470	CATCH BASIN, NO. 2-2B	1	EACH	\$2,700.00	\$2,700.00
Subtotal						\$5,320.00	
5 LANDSCAPING							
Subtotal						\$0.00	
6 STRUCTURES							
Subtotal						\$0.00	
TRAFFIC CONTROL							
7	642	00100	EDGE LINE, 4", TYPE 1	0.100	MILE	\$3,200.00	\$320.00
	642	00300	CENTER LINE, TYPE 1	0.100	MILE	\$6,200.00	\$620.00
	642	00500	STOP LINE, TYPE 1	30	FT	\$8.00	\$240.00
	642	00630	CROSSWALK LINE, 24", TYPE 1	60	FT	\$4.00	\$240.00
	642	01300	LANE ARROW, TYPE 1	4	EACH	\$105.00	\$420.00
Subtotal						\$1,840.00	
INCIDENTALS							
8	103	05000	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	1	LS	\$900.00	\$900.00
	623	10000	CONSTRUCTION LAYOUT STAKES AND SURVEYING	1	LS	\$3,000.00	\$3,000.00
	614	18002	MAINTAINING TRAFFIC, MISC.:	1	LS	\$15,000.00	\$15,000.00
	624	10000	MOBILIZATION	1	LS	\$15,000.00	\$15,000.00
	SPEC	SPECIAL	RIGHT-OF-WAY IF NEEDED	1	LS	\$20,000.00	\$20,000.00
Subtotal						\$53,900.00	
9 OTHER							
Subtotal						\$0.00	
SUB-TOTAL CONSTRUCTION COST						\$197,153.20	
						Contingency (10%)	\$19,715.32
						ODOT Inflation Factor 2028 (12%)	\$23,658.38
2028 TOTAL CONSTRUCTION COST						\$240,526.90	
Design and Documents							
						Engineering Design (20%)	\$43,373.70
Permanent Right-of-Way							
						Permanent Right-of-Way	\$0.00
Construction Engineering							
						Construction Engineering (10%)	\$24,052.69
2028 GRAND TOTAL DESIGN+CONSTRUCTION+INSPECTION COST						\$307,953.30	

Assumptions:

Cost estimates and ranges are developed to the Association for the Advancement of Cost Consulting International (AACE) Class 5 estimate level.

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Land acquisition and/or easements are estimated.

A general attempt was made to anticipate potential impacts of known and visible utilities. Minimal impact to storm sewers or existing drainage is anticipated.

All work is assumed to be publicly bid.

Full geotechnical studies and survey were not performed at the time of this cost opinion. This cost opinion is based on typical subsurface conditions.

The scope of work is for preliminary engineering and planning. In-depth engineering design, surveying, etc. was not performed.



EAST PALESTINE SS4A

MAIN/BACON/EVERETT INTERSECTION

Jan-26

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST	
ROADWAY							
1	201	11000	CLEARING AND GRUBBING	1	LS	\$500.00	\$500.00
	202	23000	PAVEMENT REMOVED	1580	SY	\$23.00	\$36,340.00
	203	10000	EXCAVATION	100	CY	\$55.00	\$5,500.00
	204	10000	SUBGRADE COMPACTION	120	SY	\$5.00	\$600.00
Subtotal						\$42,940.00	
PAVEMENT							
2	304	20000	AGGREGATE BASE	20	CY	\$115.00	\$2,300.00
	407	20000	NON-TRACKING TACK COAT	5	GAL	\$5.00	\$25.00
	441	50300	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	2	CY	\$600.00	\$1,200.00
	441	70000	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22	6	CY	\$700.00	\$4,200.00
	452	12010	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	10	SY	\$160.00	\$1,600.00
	608	13000	6" CONCRETE WALK	400	SF	\$20.00	\$8,000.00
	608	52000	CURB RAMP	80	SF	\$70.00	\$5,600.00
	609	26000	CURB, TYPE 6	310	FT	\$45.00	\$13,950.00
	202	30000	WALK REMOVED	170	SF	\$5.00	\$850.00
	202	32000	CURB REMOVED	300	FT	\$12.00	\$3,600.00
Subtotal						\$41,325.00	
EROSION CONTROL							
3	653	10000	TOPSOIL FURNISHED AND PLACED	130	CY	\$110.00	\$14,300.00
	659	10000	SEEDING AND MULCHING	800	SY	\$5.00	\$4,000.00
	659	20000	COMMERCIAL FERTILIZER	0	TON	\$1,100.00	\$121.00
	659	31000	LIME	0	ACRE	\$380.00	\$60.80
	659	35000	WATER	10	MGAL	\$9.00	\$90.00
	832	30000	EROSION CONTROL	1	LS	\$1,300.00	\$1,300.00
Subtotal						\$19,871.80	
DRAINAGE							
4	202	58100	CATCH BASIN REMOVED	2	EACH	\$620.00	\$1,240.00
	611	04900	12" CONDUIT, TYPE D	40	FT	\$100.00	\$4,000.00
	611	98470	CATCH BASIN, NO. 2-2B	2	EACH	\$2,700.00	\$5,400.00
Subtotal						\$10,640.00	
5	LANDSCAPING						\$0.00
6	STRUCTURES						\$0.00
TRAFFIC CONTROL							
7	642	00100	EDGE LINE, 4", TYPE 1	0.200	MILE	\$3,200.00	\$640.00
	642	00300	CENTER LINE, TYPE 1	0.100	MILE	\$6,200.00	\$620.00
	642	00500	STOP LINE, TYPE 1	20	FT	\$8.00	\$160.00
	642	00630	CROSSWALK LINE, 24", TYPE 1	50	FT	\$4.00	\$200.00
	630	80100	SIGN, FLAT SHEET	10	SF	\$35.00	\$350.00
	630	02100	GROUND MOUNTED SUPPORT, NO. 2 POST	10	FT	\$20.00	\$200.00
	630	97700	SIGNING, MISC: RECTANGULAR RAPID FLASHING BEACON, SET OF 2	1	EACH	\$20,000.00	\$20,000.00
	Subtotal						\$22,170.00
INCIDENTALS							
8	103	05000	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	1	LS	\$780.00	\$780.00
	623	10000	CONSTRUCTION LAYOUT STAKES AND SURVEYING	1	LS	\$3,000.00	\$3,000.00
	614	18002	MAINTAINING TRAFFIC, MISC.:	1	LS	\$15,000.00	\$15,000.00
	624	10000	MOBILIZATION	1	LS	\$15,000.00	\$15,000.00
	SPEQ	SPECIAL	RIGHT-OF-WAY IF NEEDED	1	LS	\$15,000.00	\$15,000.00
Subtotal						\$48,780.00	
9	OTHER						\$0.00
SUB-TOTAL CONSTRUCTION COST						\$185,726.80	
Contingency (30%)						\$55,718.04	
ODOT Inflation Factor 2028 (12%)						\$22,287.22	
2028 TOTAL CONSTRUCTION COST						\$263,732.06	
Design and Documents							
Engineering Design (20%)						\$48,288.97	
Permanent Right-of-Way							
Permanent Right-of-Way						\$0.00	
Construction Engineering							
Construction Engineering (10%)						\$26,373.21	
2028 GRAND TOTAL DESIGN+CONSTRUCTION+INSPECTION COST						\$338,394.23	

Assumptions:

Cost estimates and ranges are developed to the Association for the Advancement of Cost Consulting International (AACE) Class 5 estimate level.

This cost opinion is based on anticipated 2025 construction costs, plus inflation factors for 2028 costs.

Land acquisition and/or easements are estimated.

A general attempt was made to anticipate potential impacts of known and visible utilities.

Minimal impact to storm sewers or existing drainage is anticipated.

All work is assumed to be publicly bid.

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The scope of work is for preliminary engineering and planning. In-depth engineering design, surveying, etc. was not performed.

APPENDIX F
VISION ZERO RESOLUTION



Resolution 5-2026

VILLAGE OF EAST PALESTINE

A RESOLUTION TO APPROVE THE ADOPTION OF A GOAL OF ZERO FATALITIES AND SERIES INJURIES IN THE VILLAGE OF EAST PALESTINE BY 2045.

WHEREAS, the Village of East Palestine has endorsed the development, implementation, and monitoring of a Comprehensive Safety Action Plan and Vision Zero goal to eliminate traffic fatalities and severe injuries while increasing safe, healthy, and equitable mobility for all road users with an emphasis on protecting the most vulnerable users; and

WHEREAS, the lives and safety of persons residing and traveling in the Village of East Palestine should be considered first, every time, and at every stage of a roadway project; and

WHEREAS, the Village of East Palestine recognizes even one death on the transportation network is unacceptable. All road users should arrive safely at their destinations; and

WHEREAS, the Village of East Palestine recognizes that humans make mistakes, but a safe driving environment is inseparable from a well-designed roadway network, therefore it is the responsibility of planners, engineers, and policymakers to implement strategies that prevent severe crashes; and

WHEREAS, the Village of East Palestine Comprehensive Safety Action Plan promotes specific strategies and actions to address the most critical safety concerns in the Village-impaired drivers, intersections, and speed; and identifies the corridors, intersections, and road segments that could benefit from safety improvements; and

WHEREAS, between 2015 and 2024, there were 457 crashes in the Village of East Palestine with seven crashes resulting in serious injury or fatality, four crashes involving pedestrians, and seven crashes involving bicycle riders; and

WHEREAS, the number of deaths and injuries on Village Roads is a significant public health concern that requires immediate attention; and

WHEREAS, a commitment to Vision Zero is a commitment to all people, all modes of transportation and all locations, including people of all ages and abilities, pedestrians, bicyclists, public transit users, scooter riders, motorcyclists, drivers and passengers of motor vehicles, and urban and rural roads; and

WHEREAS, implementing a Vision Zero goal necessitates the ongoing partnership and support of local transportation and safety stakeholders, and residents, whether acting as an agency or as an individual; and

WHEREAS, the Village of East Palestine will join other government entities around the nation in a commitment to eliminate traffic deaths and severe injuries by focusing funding, resources, and top-down support to implement safety policies, programs, and projects that will best achieve the identified safety goal and objectives;

NOW THEREFORE, BE IT RESOLVED that the Village of East Palestine, Ohio hereby approves:

SECTION 1: That the Village of East Palestine adopts a goal of zero traffic fatalities and serious injuries by 2045 and endorses development, implementation, and monitoring of Vision Zero as a comprehensive and holistic approach to achieving this goal.

SECTION 2: That the Village of East Palestine commit significant time and resources to achieving this goal.

SECTION 3: That the Village of East Palestine continues to implement and evaluate the Comprehensive Safety Action Plan and Vision Zero and build upon existing education, enforcement, engineering, and policy strategies to reach this goal.

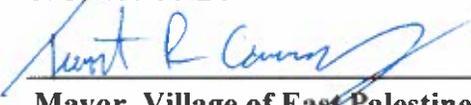
SECTION 4: That the Village of East Palestine is dedicated to regularly reporting and assessing the progress, challenges, and successes of the Vision Zero commitment with current data and measurable metrics.

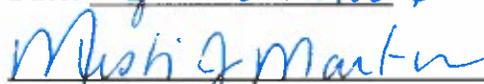
SECTION 5: That the Village of East Palestine strives to improve the health and well-being of all travelers on Village roads. The development of the Comprehensive Safety Action Plan and Vision Zero goal will address critical safety concerns and promote specific strategies towards zero deaths while prioritizing equity.

SECTION 6: This Resolution shall take effect and be in force at the earliest period allowed by law.

PASSED: Jan 29 2026

SIGNATURES


Mayor, Village of East Palestine

Date: Jan 29 2026

Clerk of Council

Date: 1/29/26

Law Director

Date: _____

NOW THEREFORE, BE IT RESOLVED that the Village of East Palestine, Ohio hereby approves:

SECTION 1: That the Village of East Palestine adopts a goal of zero traffic fatalities and serious injuries by 2045 and endorses development, implementation, and monitoring of Vision Zero as a comprehensive and holistic approach to achieving this goal.

SECTION 2: That the Village of East Palestine commit significant time and resources to achieving this goal.

SECTION 3: That the Village of East Palestine continues to implement and evaluate the Comprehensive Safety Action Plan and Vision Zero and build upon existing education, enforcement, engineering, and policy strategies to reach this goal.

SECTION 4: That the Village of East Palestine is dedicated to regularly reporting and assessing the progress, challenges, and successes of the Vision Zero commitment with current data and measurable metrics.

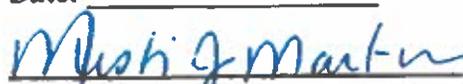
SECTION 5: That the Village of East Palestine strives to improve the health and well-being of all travelers on Village roads. The development of the Comprehensive Safety Action Plan and Vision Zero goal will address critical safety concerns and promote specific strategies towards zero deaths while prioritizing equity.

SECTION 6: This Resolution shall take effect and be in force at the earliest period allowed by law.

PASSED: Jan 29 2026

SIGNATURES


Mayor, Village of East Palestine

Date: _____

Clerk of Council

Date: 1/29/26

Law Director

Date: 2/2/26