On the Road to Safety, Every Life Counts

Oldham County, KY

Safety Action Plan

6/25/2025

Table of Contents

Introduction **1**
- **Safe System Approach** **2**
  - Safe System Key Principles 2
  - Safe System Approach vs Traditional Approach 3

Overview **4**

1. Leadership Commitment and Goal Setting **5**

2. Planning Structure **7**
- **Regional Steering Committee** **7**
- **Oldham County Leadership Meetings and Plan Review** **7**
- **Safety Committee** **7**

3. Safety Analysis **9**
- **Study Area** **9**
- **Crash Data** **10**
  - Crash Severity 10
- **Crash Trends** **14**
  - Annual Crash Trends 14
  - Crash Occurrence 15
  - Manner of Collision 18
  - Driver Behavior 19
  - Lighting Condition 25
  - Crashes by Locations 27
  - Roadway Departure Crashes 28
  - Vulnerable Road Users 30
  - Occupant Protection 33
  - Driver Age and Gender 34
  - Contributing Human Factors 35
  - Environmental and Roadway Conditions 37
  - High Injury Network 37

4. Engagement and Collaboration **38**
- **Safety Action Plan Community Engagement** **38**
  - Steering Committee 38
  - Stakeholder Meetings 38
  - Safety Committee 39
  - Public Engagement 40
- **Active and Planned Projects** **43**
- **Projects Recently Completed by Oldham County** **45**
- **Community Considerations** **47**
  - Areas of Persistent Poverty 47

Community Demographic Summary 47
5. Policy and Process Changes 52
Oldham County KY Comprehensive Plan - 2021 52
Future Comprehensive Plan Considerations 52
Oldham County Comprehensive Zoning Ordinance 53
Subdivision Regulations 53
Future Considerations 53
6. Strategy and Project Selection 55
Prioritization 55
Equivalent Property Damage Only Method 55
Reactive Approach 57
Methodology 57
Intersections 57
High Injury Network and Prioritized Corridors 61
Project Selection 66
Proven Safety Countermeasures 66
Potential Intersection Strategies 69
Potential High Injury Network Corridor Strategies 70
System Level Approach and Strategies 72
Strategy 1 – Upgrades to Arterials and Major Collectors 72
Strategy 2 – Curve Signing and Striping / Rural Highway Safety 73
Strategy 3 – Speed Management 73
Strategy 4 – Vulnerable Road User Safety Upgrades 73
Safety Action Plan Implementation 73
7. Progress and Transparency 75
Safety Performance Measurement 75
Annual Safety Performance Measures 75
Project-Specific Performance Measures 76
Transparency 77
Feedback and Continuous Improvement 77

List of Figures

Figure 3-1. Study Area 9
Figure 3-2. Crash Density Map 12
Figure 3-3. Fatal and Suspected Serious Injury Crash Map 13
Figure 3-4. Overall Crashes per Year 14
Figure 3-5. Monthly Crash Breakdown 15
Figure 3-6. Crashes by Day of Week 16
Figure 3-7. Crashes by Time of Day 17
Figure 3-8. Manner of Collision by Severity 18
Figure 3-9. Aggressive Driver Crashes by Severity 19
Figure 3-10. Aggressive Driver Crashes Map 20
Figure 3-11. Distracted Driver Crashes by Year 21
Figure 3-12. Distracted Driver Crashes by Severity 21
Figure 3-13. Distracted Driver Crashes Map 22
Figure 3-14. Impaired Driver Crashes by Year 23
Figure 3-15. Impaired Driver Crashes by Severity 23
Figure 3-16. Impaired Driver Crashes Map 24
Figure 3-17. Crashes by Light Condition 25
Figure 3-18. Lighting Condition: Non-Daylight Dark Condition Crashes Map 26
Figure 3-19. Crashes by Location 27
Figure 3-20. Roadway Departure Crashes by Severity 28
Figure 3-21. Roadway Departure Crashes Map 29
Figure 3-22. Pedestrian Crash Map 31
Figure 3-23. Bicyclist Crashes by Severity 32
Figure 3-24. Restraint Use in Crashes 33
Figure 3-25. Crashes by Human Factor 35
Figure 3-26. Fatal and Suspected Serious Injury Crashes by Human Factor 36
Figure 4-1. Meeting One Brainstorming Exercise 39
Figure 4-2. Meeting Two Handout: Potential Safety Countermeasures 40
Figure 4-3. Social Pinpoint Online Engagement 41
Figure 4-4. Safety Concern Comments and High Severity Crash Density 42
Figure 4-5. Highway Plan Map 44
Figure 4-6. Elderly Population by Census Block Group Map 48
Figure 4-7. Disabled Population by Census Block Group Map 49
Figure 4-8. Impoverished Population by Census Block Group Map 50
Figure 4-9. Minority Population by Census Block Group Map 51
Figure 6-1. Intersections: Reactive Approach Map 59
Figure 6-2. Intersections Prioritized by MEPDO Map 60
Figure 6-3. High Injury Network 63

Figure 6-4. High Injury Network and Fatal and Suspected Serious Injury Crashes 64
Figure 6-5. High Injury Network and Prioritized Intersections 65

List of Tables

Table 3-1. Crashes by Severity..... 11
Table 3-2: Bicycle Crashes by Severity 30
Table 3-3. Pedestrian Crashes by Severity..... 30
Table 3-4. Crash Percentages by Driver Age..... 34
Table 3-5. Crashes by Roadway Condition..... 37
Table 4-1. Current Highway Plan Projects..... 43
Table 6-1 KIPDA Comprehensive Crash Cost..... 55
Table 6-2. KIPDA EPDO Crash Value 56
Table 6-3. KIPDA MEPDO Crash Value..... 56
Table 6-4. Prioritized Intersections by MEPDO 58
Table 6-5. Prioritized Corridors - High Injury Network..... 62
Table 6-6. Example Segment Countermeasures 67
Table 6-7. Example Intersection Countermeasures..... 68
Table 6-8. Potential Intersection Strategies 69
Table 6-9. Potential High Injury Corridor Safety Strategies 72
Table 6-10: Implementation Action Plan Timeline 74

Appendices

Appendix A – Safety Countermeasure Cost Estimate Ranges and Project Implementation Timeline Reference Chart

Contributors

KENTUCKIANA REGIONAL PLANNING & DEVELOPMENT AGENCY (KIPDA)

Andy Rush	Transportation Director
Mick Logsdon	Transportation Planner
Spencer Williams	Transportation Planner

OLDHAM COUNTY

David Voegele	Judge Executive
Joe Ender	Deputy Judge Executive
Kevin Woosley	Magistrate and Road Committee Member
Michael Logsdon	Magistrate and Road Committee Member
Kevin Jeffries	Magistrate and Road Committee Chair
Jim Silliman	County Engineer
Zachary Wilt	Emergency Management Agency Director
Ben Kimbler	Road Department Superintendent

Introduction

In 2023, Oldham County, in collaboration with the Kentuckiana Regional Planning & Development Agency (KIPDA) and 15 other participating cities and counties, applied for and successfully received a Safe Streets and Roads for All (SS4A) Action Plan Grant. The SS4A Action Plan Grant is a vital component of the broader federal SS4A initiative to improve road safety across the United States. The goal of the SS4A Program is to create a safer transportation network by supporting the development and implementation of comprehensive safety plans that are data-driven and community-focused.

Oldham County is dedicated to working towards a goal of zero traffic deaths and serious injuries by 2050. Achieving this goal will require a clear focus on prioritizing safety for all road users. The Oldham County Safety Action Plan addresses the seven important SS4A Program safety components. Each component is a chapter in the Safety Action Plan.

Leadership Commitment and Goal Setting

Planning Structure

Safety Analysis

Engagement and Collaboration

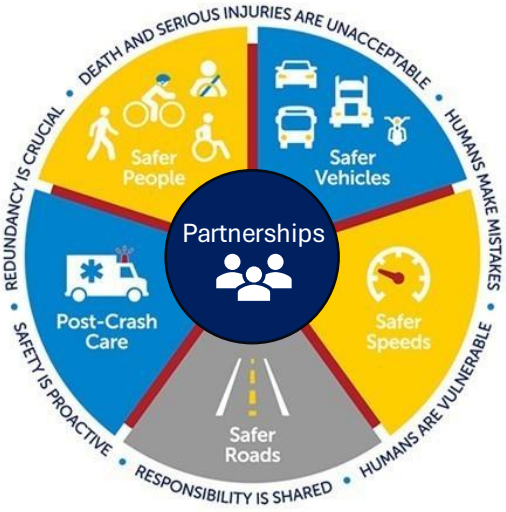
Policy and Process Changes

Strategy and Project Selections

Progress and Transparency

Safe System Approach

The Safe System Approach is a comprehensive approach based on the understanding that humans are fallible and make mistakes, but those mistakes should not result in fatalities or serious injuries. There are five broad impact areas for achieving this goal: **Safer People, Safer Vehicles, Safer Speeds, Safer Roads, and Post-Crash Care**. This approach significantly expands the traditional safety plan focus on roadway infrastructure. Six key principles undergird the approach.



Safe System Key Principles

Death and Serious Injuries are Unacceptable: Every human life is invaluable, and ensuring safety is the highest priority.

Humans Make Mistakes: Recognizing that human error is inevitable, we design and manage our roads to be forgiving, mitigating the potential consequences of these errors to prevent serious harm.

Humans are Vulnerable: We design the roadway system to account for the biological limits the human body can tolerate in a crash.

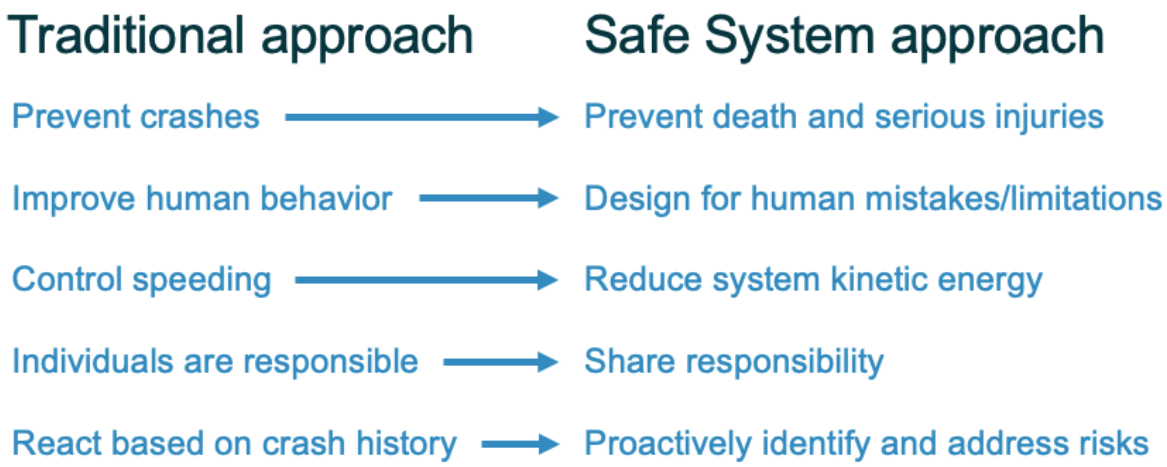
Responsibility is Shared: Preventing fatal and serious injuries is a shared responsibility. All stakeholders must work together to enhance road safety.

Safety is Proactive: Taking a proactive stance on safety means anticipating and addressing risks before they result in crashes. Being proactive involves identifying potential hazards and implementing measures to mitigate them.

Redundancy is Crucial: Embedding multiple layers of safety within the transportation system is important, so that if one layer fails, others can still protect people. This redundancy is vital for creating a resilient transportation network.

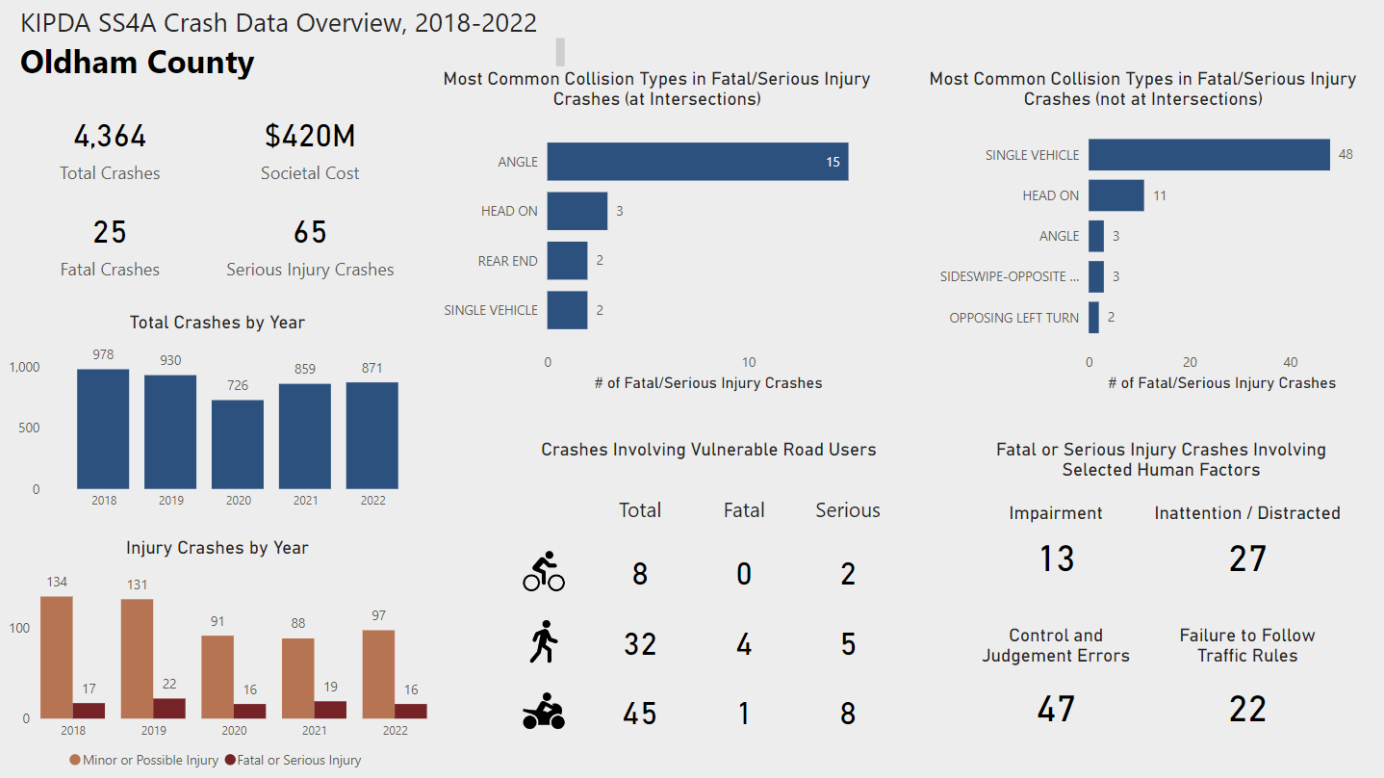
Safe System Approach vs Traditional Approach

The traditional approach to road safety often relies on perfect human behavior from all road users and tends to react to crashes *after* they occur, focusing on individual accountability. In contrast, the Safe System Approach acknowledges that humans are fallible and will inevitably make mistakes. This approach builds a system designed to minimize the severity of crashes resulting from those errors. This shift from an individual-focused model to a system-centric one highlights all stakeholders' shared responsibilities. The comparative graphic below illustrates this fundamental shift, showcasing how the Safe System Approach aims to create a safer, more forgiving transportation system.



Overview

Oldham County had 25 fatal crashes and 65 serious injury crashes during the five-year period from 2018 to 2022, for a total of 90. There were 4,364 total crashes during this time. The total societal cost of all crashes was $420 million (including economic and quality of life factors). The figure below provides an overview of the crash data.



Important safety findings for Oldham County include:

- Fatal and serious injury crashes are spread across the county on US, state, and local highways
- The highest density of all crash types occurs in La Grange and Crestwood
- 50 of 90 fatal / serious injury crashes were single-vehicle crashes
- 11 of 90 fatal / serious injury crashes involved a pedestrian or bicyclist
- 40 of 90 fatal / serious injury crashes involved a vehicle not under proper control
- 27 of 90 fatal / serious injury crashes involved driver inattention / distraction

1. Leadership Commitment and Goal Setting

Oldham County is dedicated to ensuring safety for all users on the County's streets and highways. The County's commitment is demonstrated by the resolution on the following page, which states that its leaders have established "a goal of working towards zero traffic fatalities and serious injuries by the year 2050."

Oldham County's commitment and leadership in implementing safety-focused projects, strategies, and policies are also supported by many current programs and policies.

In 2002, Oldham County adopted a vision statement and part of that vision statement was: *The people of Oldham County are connected through the preservation and promotion of historic areas along safe transportation corridors*.

Oldham County adopted updated comprehensive plan goals in 2021.

Goal #1 for transportation states, "To provide the citizens of Oldham County with a well-planned and coordinated system of major thoroughfares and collectors that are safe, cost effective and responsive to planned growth and development." The related text discusses managing access and thoroughfare planning. The document also discusses roadway design standards to provide safe and efficient roadways. The document also includes recommendations for traffic calming and safe bicycle/pedestrian access in traffic corridors.

In the community facilities and services section of the plan there is discussion about the need for safe walking, biking, and driving connections between schools and adjacent neighborhoods. There are also additional objectives and material related to safe pedestrian and bicycle mobility, creating safe context sensitive rural roadways, and addressing parking area safety.

The Oldham County Road Department has a stated goal of providing, "the safest road system possible for residents and visitors of the county." They provide their contact information and the contact information for KYTC maintenance on their website so that residents can report safety issues. Road Department maintenance activities such as vegetation removal are completed to provide, "better sight distance on narrow roads and blind curves" and to yield, "the traveling public the safest road possible."

Oldham County also works closely with KYTC to provide a safe highway system. This includes coordination on projects such as the now complete Old Floydsburg Road Safety Improvements project and future upgrades to KY 22 and KY 53.

COMMONWEALTH OF KENTUCKY

OLDHAM COUNTY FISCAL COURT

RESOLUTION NO 01-12-17-24

******

WHEREAS, 25 fatal traffic crashes, 65 serious injury traffic crashes, and 4,364 total traffic crashes have been documented in Oldham County between 2018 and 2022; and

WHEREAS, the societal cost of those traffic crashes is $420 Million; and

WHEREAS, Oldham County is utilizing a planning grant through the Safe Streets and Roads for All Program (SS4A) and coordinating with the Kentuckiana Regional Planning and Development Agency (KIPDA) to develop a safety action plan for Oldham County to analyze existing conditions, historical trends, systemic and specific needs and to identify projects and strategies to address identified problems; and

WHEREAS, a safety action plan is an eligibility requirement for implementation grants through the SS4A Program; and

WHEREAS, community commitment to an eventual goal of zero fatalities an serious injuries is an important component for USDOT consideration of an implementation grant through the SS4A program.

NOW, THEREFORE BE IT RESOLVED that Oldham County Fiscal Court hereby establishes a goal of working towards zero traffic fatalities and serious injuries by the year 2050.

Approved and adopted at a regular meeting of the Oldham County Fiscal Court on the 17 day of December, 2024.

David Voegele
Oldham County Judge-Executive

Attest:

Holly Prain
Oldham County Fiscal Court Clerk

2. Planning Structure

The planning structure for the Oldham County Safety Action Plan consisted of various committees, each playing a crucial role. The following provides a description of these bodies and their collaborative efforts in the plan development.

Regional Steering Committee

The Regional Steering Committee provided oversight and strategic direction for the Safety Action Plan development process. The Committee was composed of representatives from 16 local government agencies, including Oldham County. It also included KIPDA and Regional Transportation Council (RTC) staff. Steering Committee meetings were held at key points to provide information and gather input and feedback. Topics covered during the meetings included:

- Purpose of safety action plans
- Data collection and safety analysis
- Identification of high crash highways and intersections
- Countermeasure identification and prioritization
- Documentation and implementation opportunities

Oldham County Leadership Meetings and Plan Review

Meetings were held with county leadership at two key points during the plan development to receive and relay detailed input and feedback. The first meeting focused on presenting the initial data analysis and prioritization of needs, allowing county leadership to identify, confirm, and prioritize critical safety issues. The second meeting gave county leadership the opportunity to provide feedback on the draft High Injury Network (HIN) and potential safety countermeasures. These interactions allowed the unique concerns and priorities of Oldham County to be adequately addressed in the plan.

The final Safety Action Plan was also reviewed by County leadership to provide feedback and yield a plan that is useful for moving Oldham County forward toward a safer future.

Safety Committee

The Safety Committee is the cornerstone of the planning structure, providing localized oversight and input into the plan. The committee consisted of a multidisciplinary team, comprising key stakeholders in the community include:

- Oldham County Judge Executive
- Oldham County Deputy Judge Executive
- Oldham County Magistrates
- Oldham County Engineer

- Oldham County Road Department
- Oldham County Emergency Management Agency
- Kentuckiana Regional Planning & Development Agency (KIPDA)

The intent of the Safety Committee is to advise Oldham County and KIPDA on the development, implementation, and monitoring of the plan. The committee provided input and feedback on potential safety needs and possible reactive and systemic safety countermeasures. Having the many different perspectives and agencies in the meetings facilitated effective communication and resulted in a more effective safety action plan, one that better addresses the five elements of the Safe System Approach. More information on the Safety Committee Meetings is provided in **4. Engagement and Collaboration.** The dialogue will continue in the future as the plan is implemented, updated, and enhanced over time.

3. Safety Analysis

Study Area

The study area for the safety analysis includes the entirety of Oldham County, Kentucky, as shown in Figure 3-1. This study includes all public streets and roads within the County except interstate highways, private streets, and parking lots.

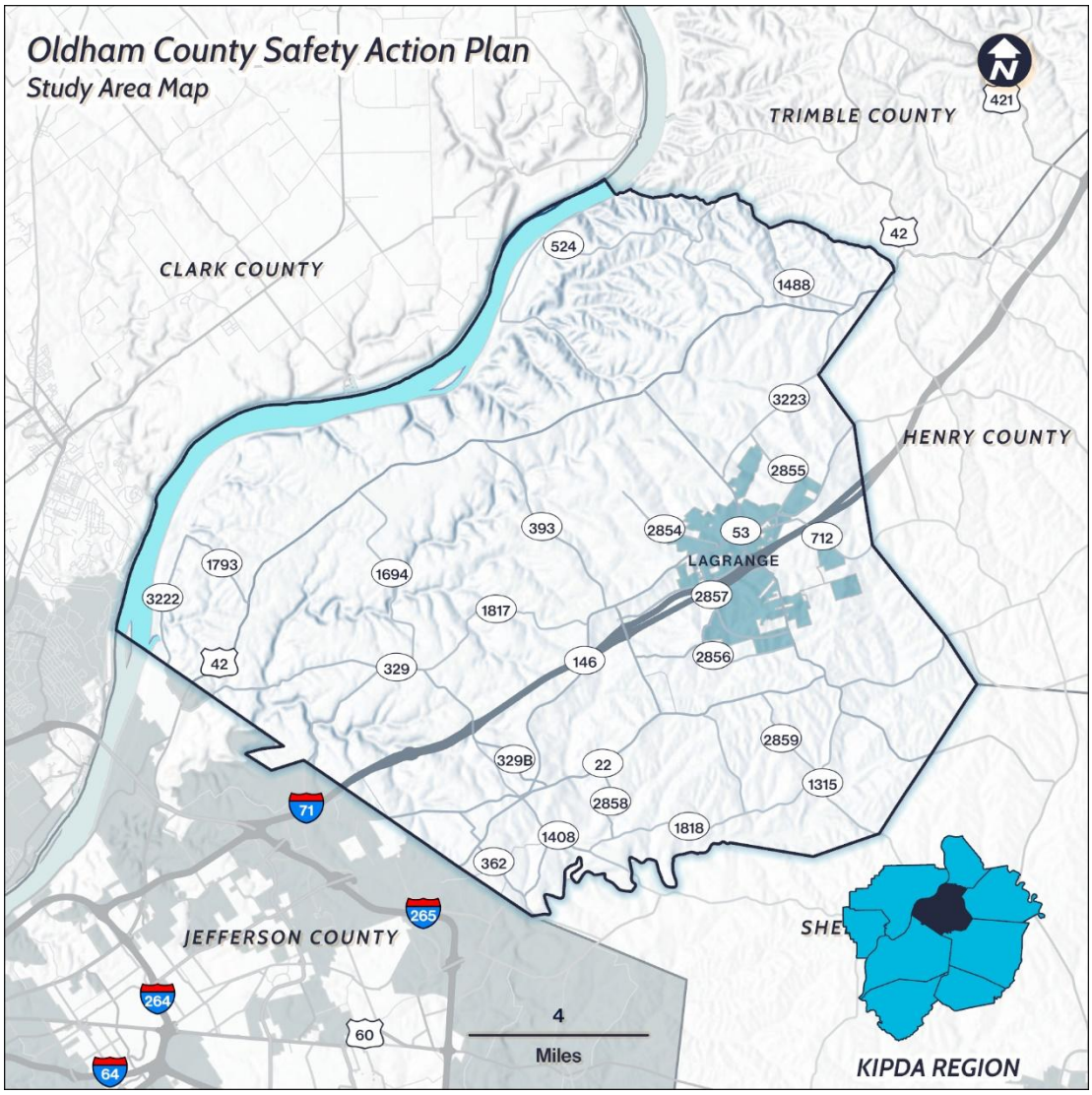


Figure 3-1. Study Area

Crash Data

The safety analysis was conducted using the five years of crash data between 2018 and 2022. This period was selected based on the desire to study consistent crash trends over a consecutive period, the availability of data when the project started, and expectations regarding future funding application data requirements.

The project team obtained the crash data from the Kentucky State Police (KSP) Crash Database through a custom dataset provided by the Kentucky Transportation Cabinet (KYTC) in partnership with the Kentucky Transportation Center (KTC). This data is primarily collected by city, county, and state police department crash investigation teams when they complete a Kentucky Uniform Police Traffic Collision Report form. This form captures critical information about the crashes, including location, type, severity, individuals and units involved, environmental factors, and the contributing factors of each crash. Departments enter this information into a database maintained by KSP.

The initial crash data included all Oldham County crashes from 2018 to 2022. Crashes located on I-71 and those that occurred in parking lots were removed from the dataset. Additionally, some crashes could not be linked to the GIS roadway due to missing information. After these adjustments, the final crash database used for the study included 4,364 crashes.

This report focuses on crash events based on the most severe injury sustained in each incident. Since the analysis is event-based rather than individual-based, a single crash involving multiple injuries is counted as one event, categorized by the highest severity level recorded. Pedestrian crashes involve at least one pedestrian and one motor vehicle. Similarly, bicycle crashes refer to crashes involving at least one bicycle and one motor vehicle. Vehicle crashes involve at least one vehicle and do not involve a pedestrian or a bicycle.

KYTC provided geographic information system (GIS) files of roadway characteristics and traffic data for state-owned roadways, known as the Highway Information System (HIS) database. The crash data was joined with GIS information to create a crash database that facilitates detailed analyses to identify crash trends, areas of opportunity, and risk factors to assist in prioritizing projects.

Crash Severity

The crash database provided by KYTC uses the KABCO Injury Classification Scale. The KABCO injury classification system categorizes traffic crash injuries into five levels: Fatal (K), Suspected Serious (A), Suspected Minor (B), Possible (C), and No Apparent Injury (O). The KABCO scale is the recommended best practice for individual injury reporting by the Model Minimum Uniform Crash Criteria (MMUCC), developed by the National Highway Traffic Safety Administration (NHTSA). KSP employs the KABCO scale and MMUCC during field data collection and reporting of injury severity in crashes. Crash severity is determined by the most severe injury occurring in the crash. For example, if a fatality occurs, the crash is classified as a "K" or fatal injury crash. Table 3-1 provides a breakdown of the crashes in Oldham County by severity.

Severity	MMUCC Severity Description	Crashes (2018-2022)	%
K	Fatal Injury	25	<1%
A	Suspected Serious Injury	65	1%
B	Suspected Minor Injury	278	6%
C	Possible Injury	263	6%
O	No Apparent Injury	3,733	85%
	Total	**4,364**	**100%**

Table 3-1. Crashes by Severity

Figure 3-2 shows the location of all 4,364 crashes documented during the study period. The density of crashes is shown with a gradient scale. The highest number of crashes during the study period occurred in Lagrange.

Figure 3-3 shows the location of fatal and suspected serious injury crashes. These crashes are dispersed through the county and along US-42, and state routes 329 and 22.

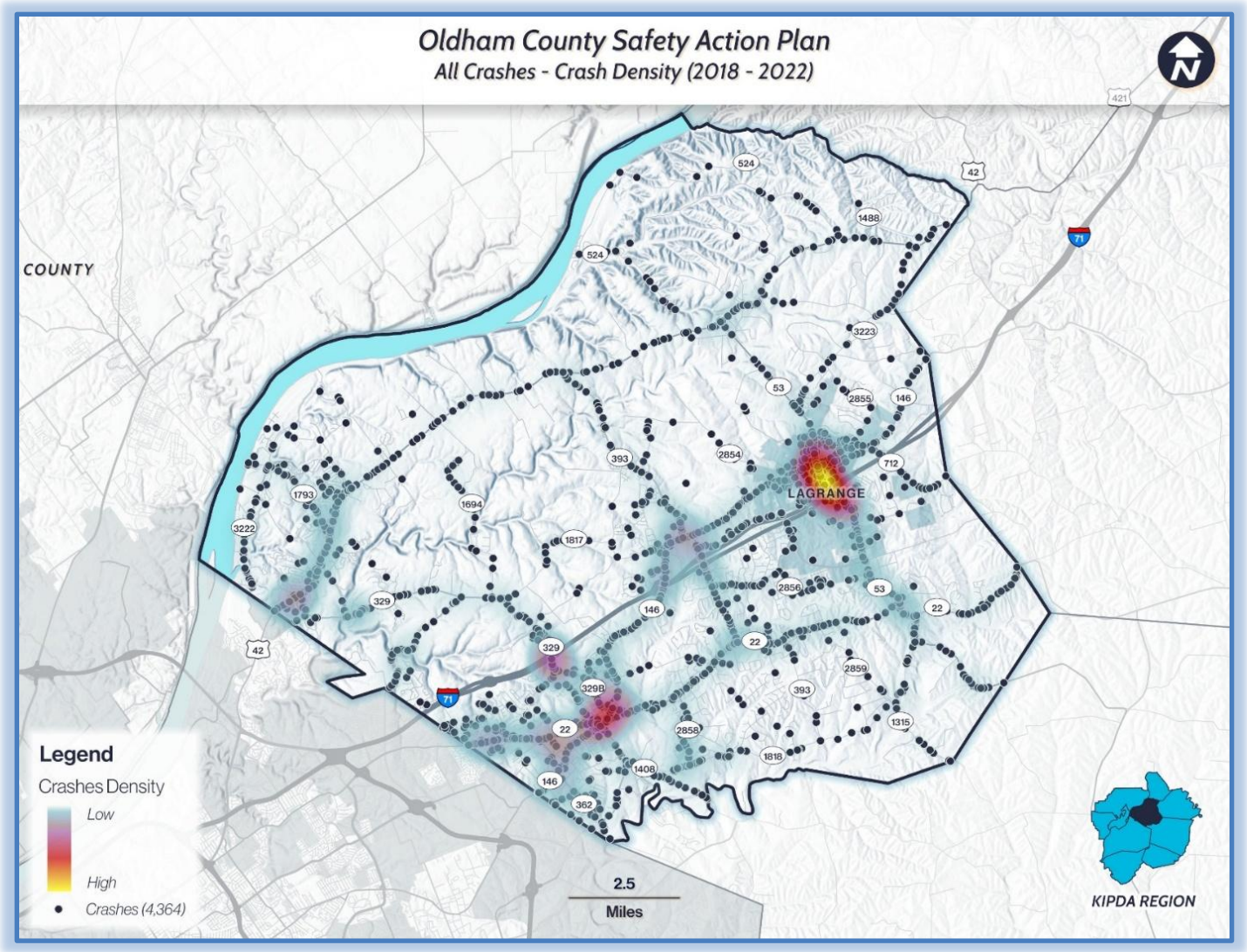


Figure 3-2. Crash Density Map

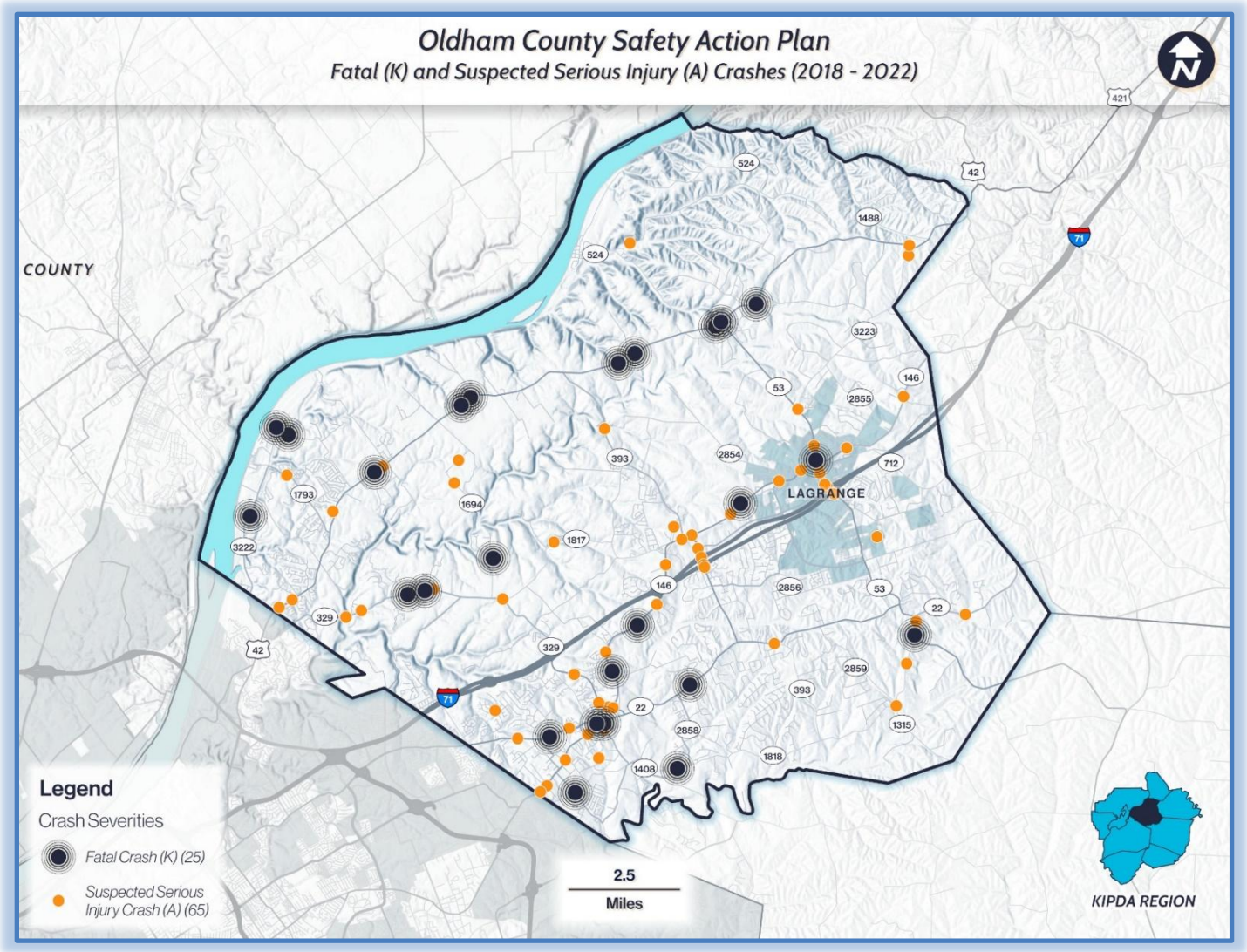


Figure 3-3. Fatal and Suspected Serious Injury Crash Map

Crash Trends

The crash data has been examined considering a number of different factors to identify patterns and safety needs. This trend analysis also provides information about potential safety countermeasures and approaches that could be explored to address those needs.

Annual Crash Trends

The 2018-2022 crash analysis for Oldham County reveals a slight downward trend in overall crashes over the five-year period. While there was a notable drop in 2020 (726 crashes), this reduction is attributable to the COVID-19 pandemic, which significantly altered traffic patterns and affected crash reporting due to modified police procedures aimed at minimizing exposure risks. Consequently, the reported number of crashes in 2020 is likely distorted, as crashes were underreported. Fatal and suspected serious injury crashes remained relatively consistent, ranging from 16 to 22 per year. Figure 3-4 provides a breakdown of this information by year.

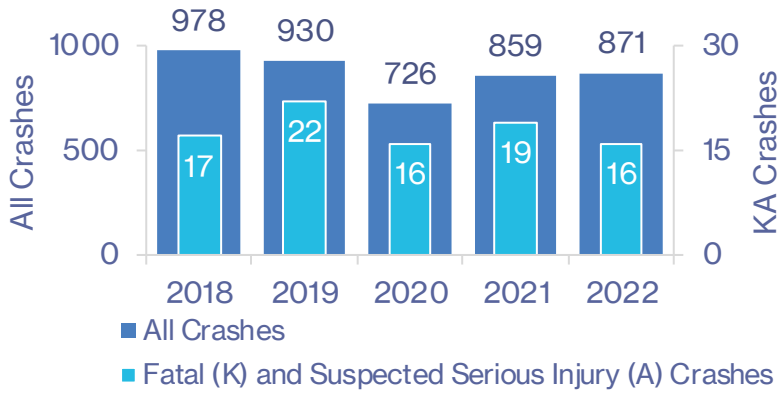


Figure 3-4. Overall Crashes per Year

Crash Occurrence

Month

Figure 3-5 presents the crashes by month over the 5-year study period. The monthly crash data shows variations in crash frequency and severity throughout the year. While the total number of crashes is fairly consistent, January and April exhibit significantly higher percentages of fatal and serious injury crashes, with 13% each, despite accounting for only 9% and 7%, respectively. The winter months, including December, January, and February, exhibit a trend of higher severe crashes, contributing to 35% of all fatal and suspected serious injury crashes. Compared to the spring and summer months, the data suggests that winter months may pose greater risks for severe crashes, potentially influenced by seasonal weather conditions and reduced daylight.

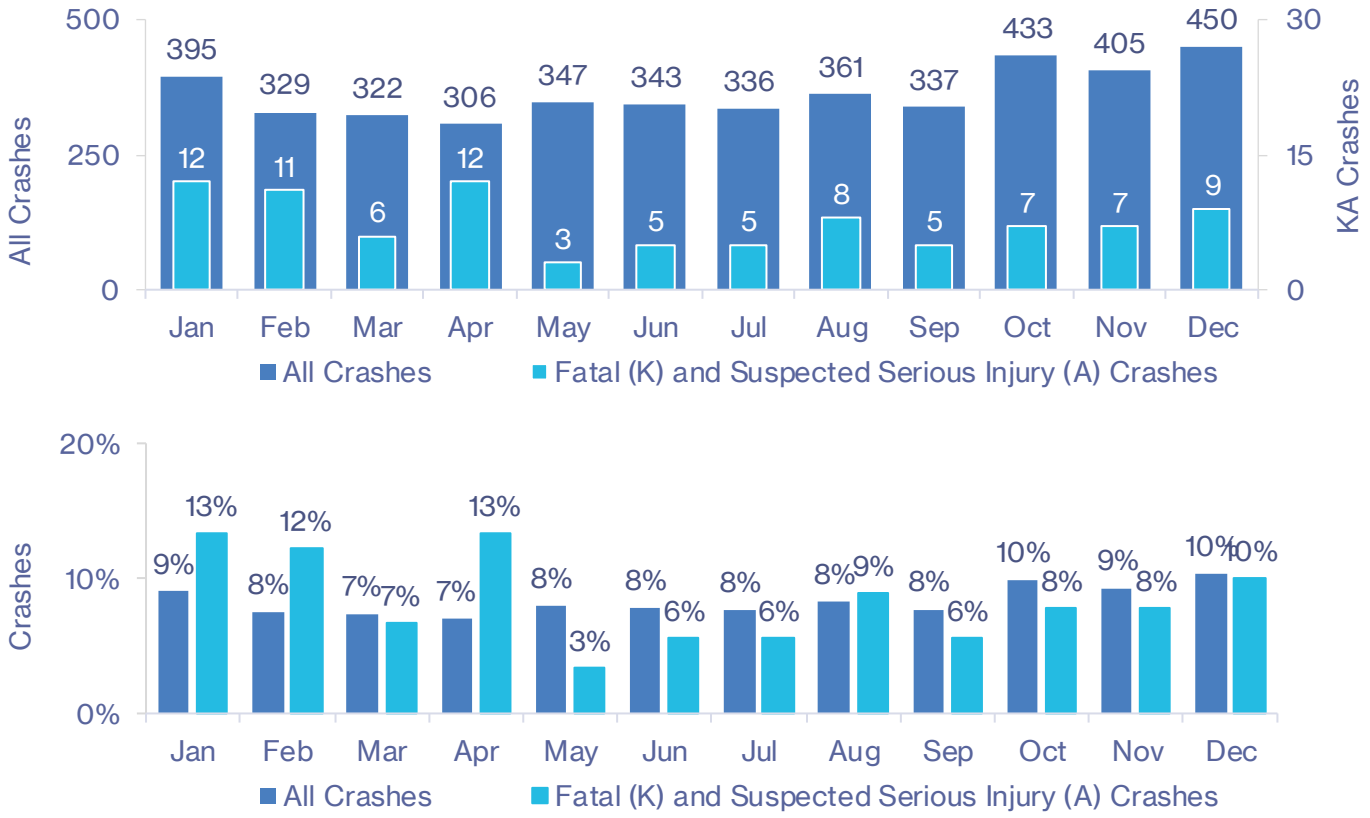


Figure 3-5. Monthly Crash Breakdown

Day of Week

Figure 3-6 breaks down crashes by day of the week. The daily crash data for Oldham County reveals an overall increase in total crashes as the week progresses, peaking on Thursday and Friday with 736 and 737 crashes, respectively. However, despite the decrease in total crashes on weekends, there is a notable trend of increased crash severity during this time. Saturday accounts for 504 total crashes, but includes 16 fatal and suspected serious injury crashes. Sunday, with the fewest total crashes (422), has the highest proportion of severe crashes, with 22 fatal and suspected serious injury crashes. This highlights a significant shift in crash severity over the weekends, with Sunday standing out particularly.

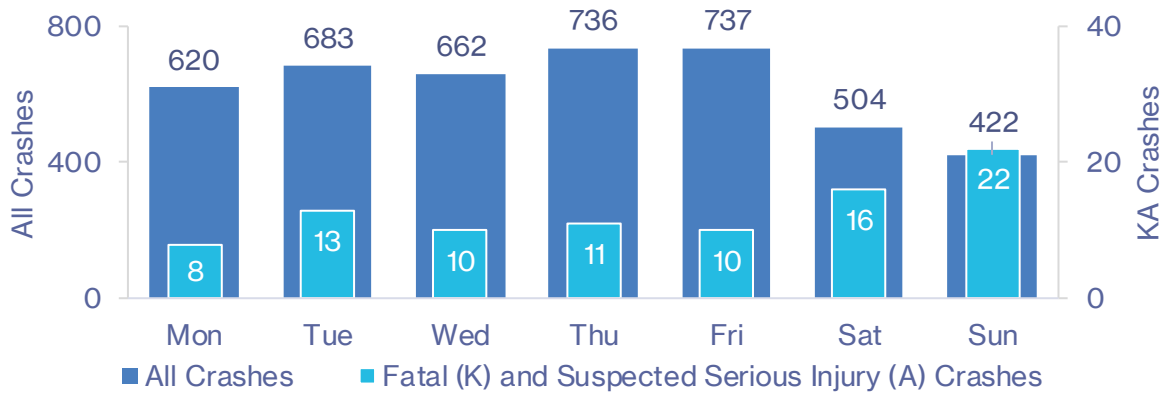


Figure 3-6. Crashes by Day of Week

Time of Day

The highest number of total crashes, as shown in Figure 3-7, occurs during the 3-6 pm period, with 1,103 crashes, accounting for the evening peak traffic hours. While this period has a significant number of severe crashes, the 6-9 pm period has one of the highest proportions of severe crashes relative to total crashes, with 21 fatal and suspected serious injury crashes out of 652 total crashes. In contrast, the early morning hours (3-6 am) have the lowest number of crashes (116), including only one severe crash. The late-night period (12-3 am), while also low in total crashes (135), shows a relatively higher severity with seven fatal and suspected serious injury crashes.

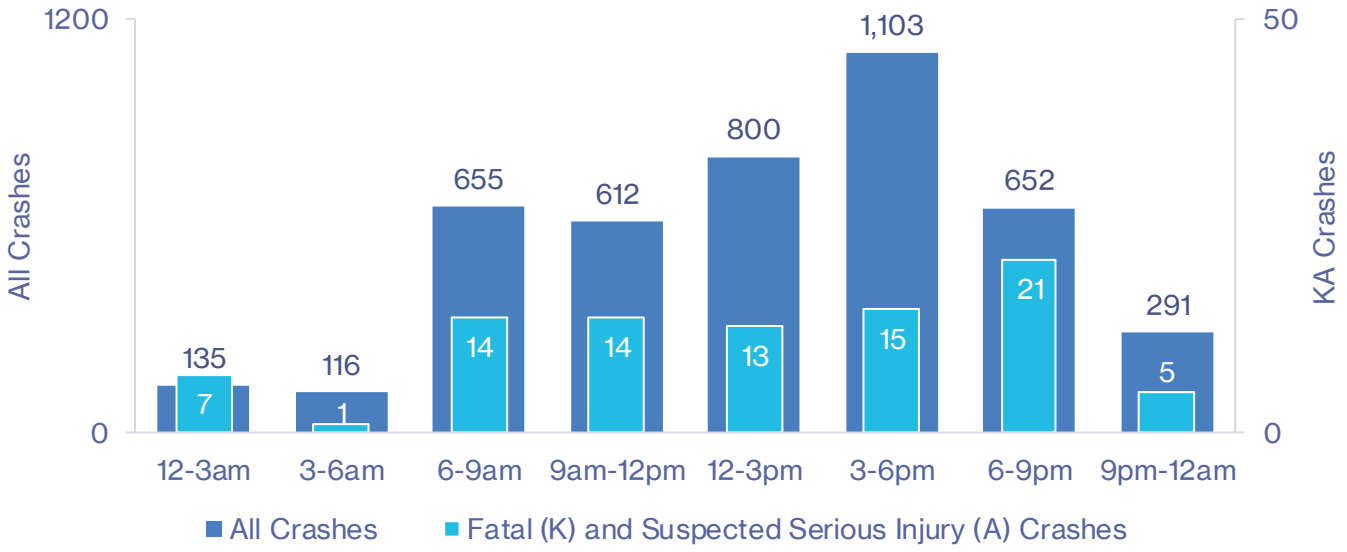


Figure 3-7. Crashes by Time of Day

Manner of Collision

As shown in Figure 3-8, single-vehicle crashes are both the most common and the most severe type of crash, accounting for 35% of all crashes and 56% of fatal and suspected serious injury crashes. Head-on crashes, while only comprising 2% of all crashes, contribute to 16% of fatal and suspected serious injury crashes, demonstrating that they are disproportionately severe when they occur.

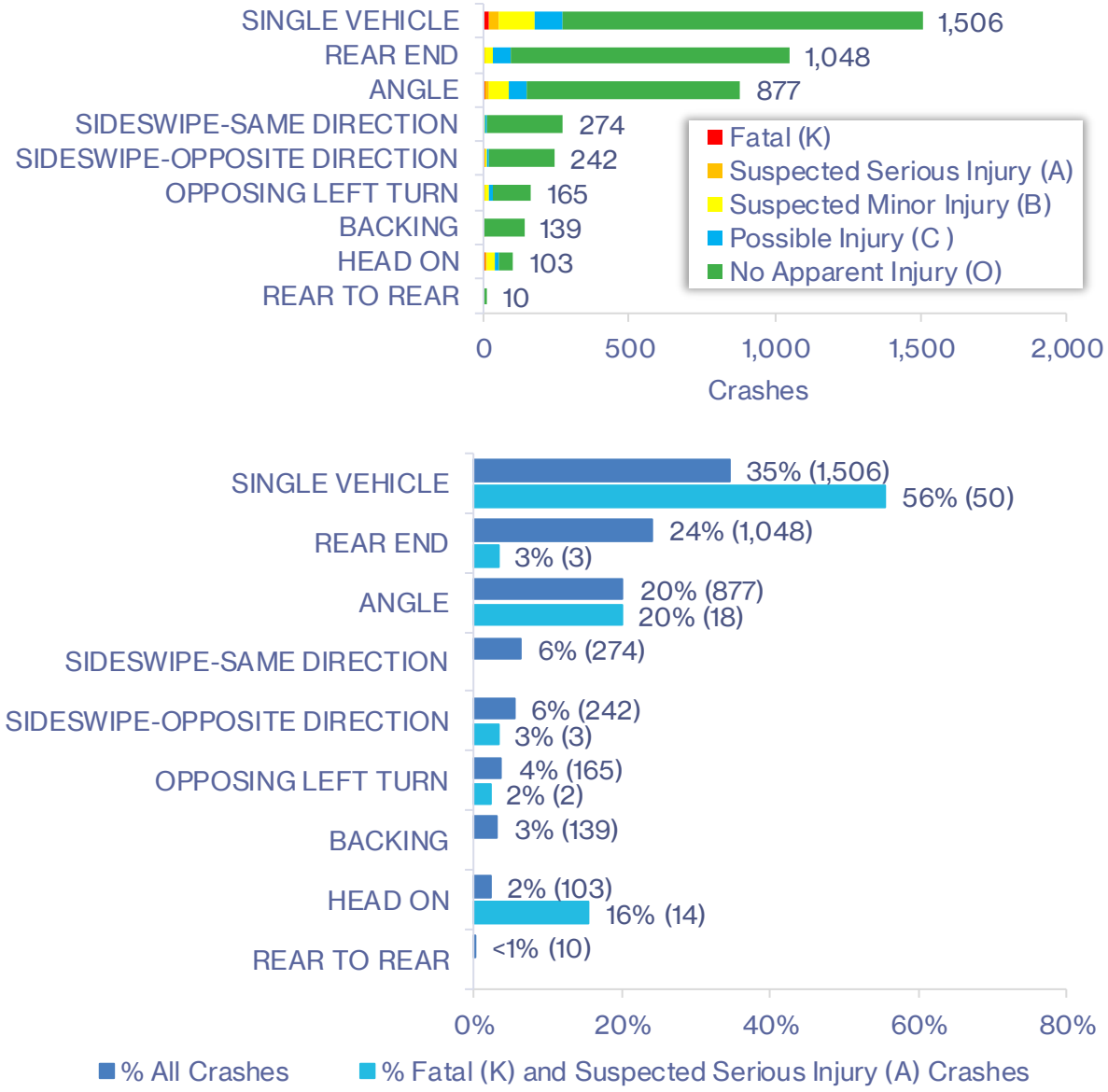


Figure 3-8. Manner of Collision by Severity

Driver Behavior

Driver behavior is a shared responsibility and can be the determining factor in a crash. The actions and decisions made by drivers can significantly influence the likelihood and severity of crashes. Addressing key areas of concern, such as aggressive driving, distracted driving, and impaired driving, is essential for fostering a safer roadway environment.

Aggressive Driving

Aggressive driving is generally defined as behavior by drivers that negatively impacts the safety of other motorists or pedestrians, contributing to crashes. Aggressive crashes are coded to have the following behaviors.

- Failure to yield to right of way
- Following too close
- Traveling too fast for conditions
- Disregarding traffic control
- Exceeding posted speed limit
- Improper passing
- Weaving in traffic

Crashes involving aggressive driving contribute disproportionately to fatal and suspected serious injury crashes compared to all crashes, as seen in Figure 3-9. While aggressive driving behaviors are present in 25% of all crashes, they account for 29% of crashes resulting in fatalities and severe injuries. This indicates a higher risk of severity associated with aggressive driving behaviors. Figure 3-10 shows the location of the fatal and suspected serious injury crashes.

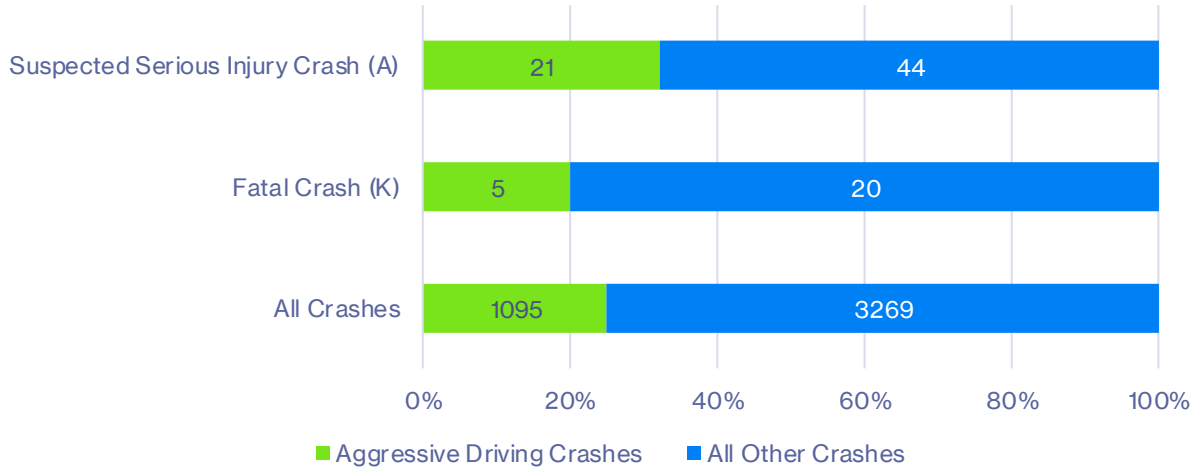


Figure 3-9. Aggressive Driver Crashes by Severity

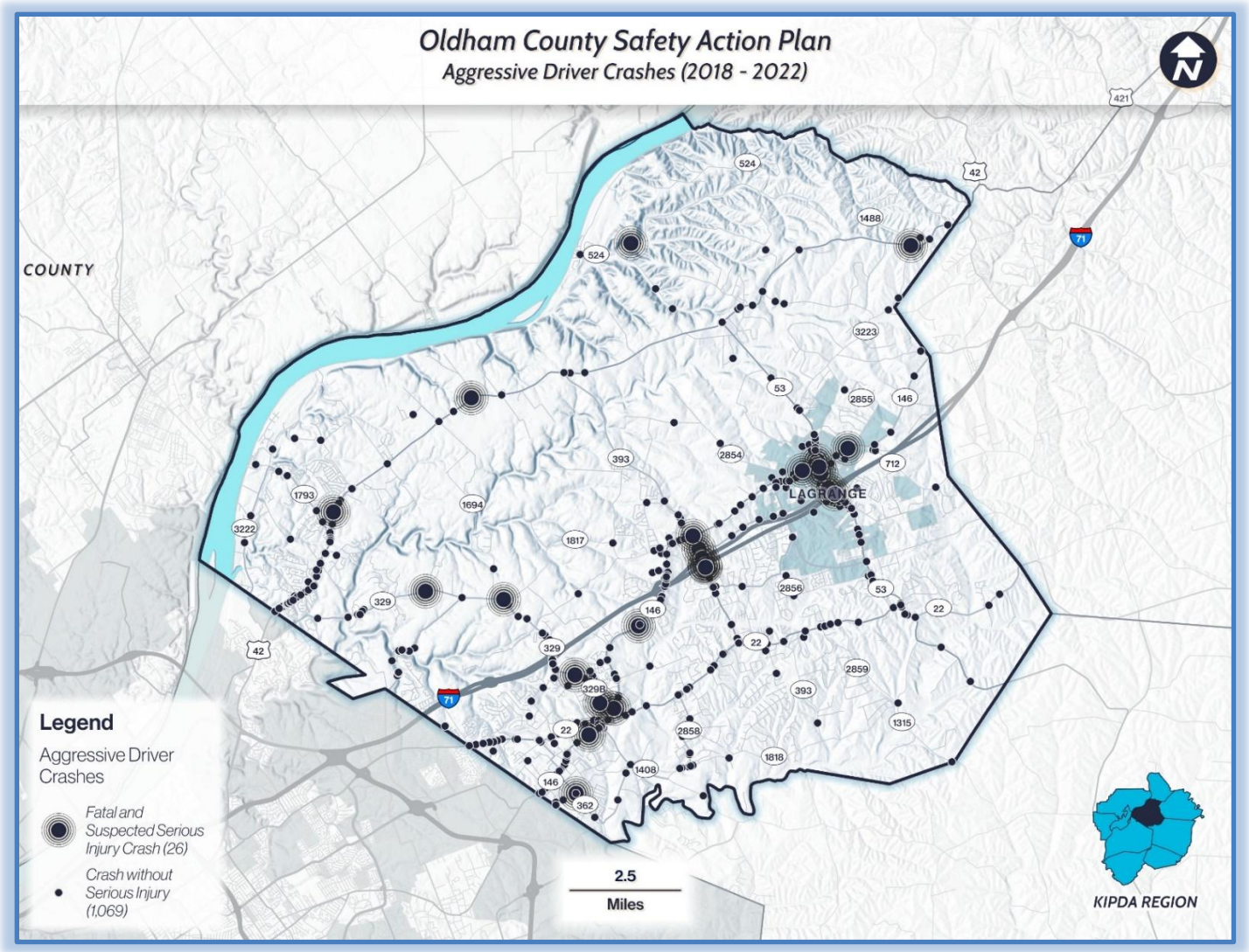


Figure 3-10. Aggressive Driver Crashes Map

Distracted Driving

Distracted driving refers to any activity by a vehicle operator that diverts their attention from the primary task of driving, thereby increasing the risk of a crash. The three main types of distracted driving involve drivers taking their eyes off the road, hands off the wheel, and mind away from driving. In Oldham County, fatal and suspected serious injury crashes linked to distracted driving generally decreased during the study period. Figure 3-11 shows the breakdown by year.

Figure 3-11. Distracted Driver Crashes by Year

There were no fatal distracted driving crashes recorded during the study period, as seen in Figure 3-12, but 29% of suspected serious injury crashes were linked to distracted driving. A map of those locations are documented in Figure 3-13.

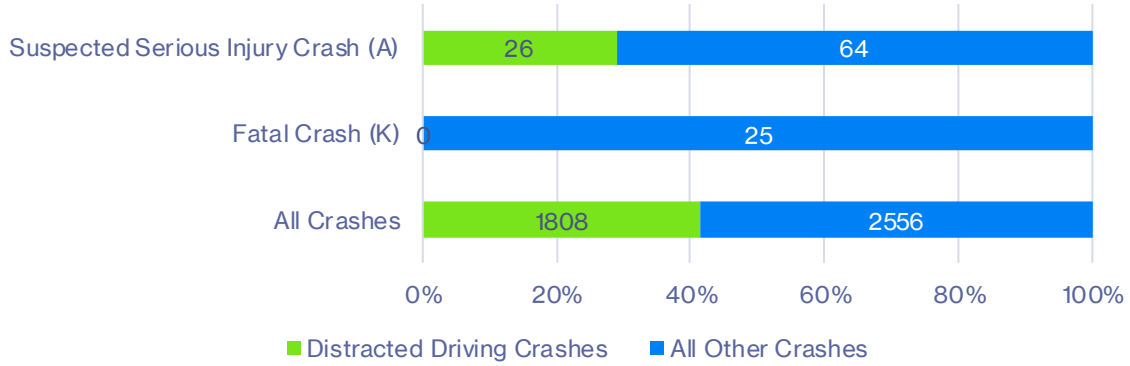


Figure 3-12. Distracted Driver Crashes by Severity

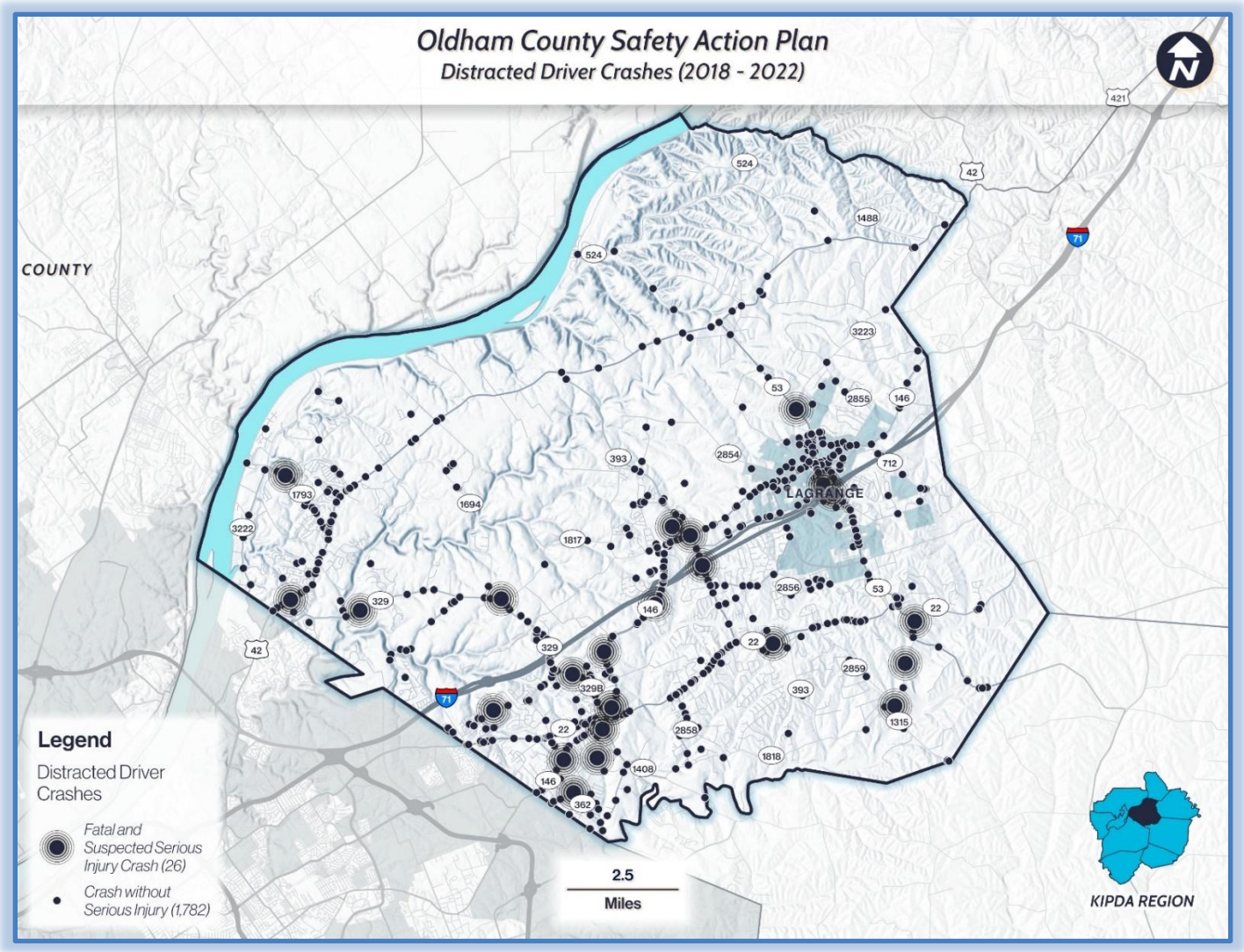


Figure 3-13. Distracted Driver Crashes Map

Impaired Driving

Impaired driving is recognized as driving a motor vehicle while under the influence of alcohol or narcotics. Impairment affects reaction time, judgment, and coordination, all of which are critical to safely operating a vehicle. While overall crashes have trended down during the study period, fatal crashes have stayed consistent, except for in 2018 where no fatal or suspected serious crashes were recorded as seen in Figure 3-14.

Figure 3-14. Impaired Driver Crashes by Year

While impaired driving behaviors are identified in only 5% of all crashes, they disproportionately contribute to more severe crashes as seen in Figure 3-12. Impaired driving is involved in 14% of fatal and suspected serious injury crashes. This data highlights the heightened risk that impaired driving poses, as crashes involving impaired drivers are much more likely to result in fatal or serious injuries compared to non-impaired driving crashes. Figure 3-13 shows the location of these crashes.

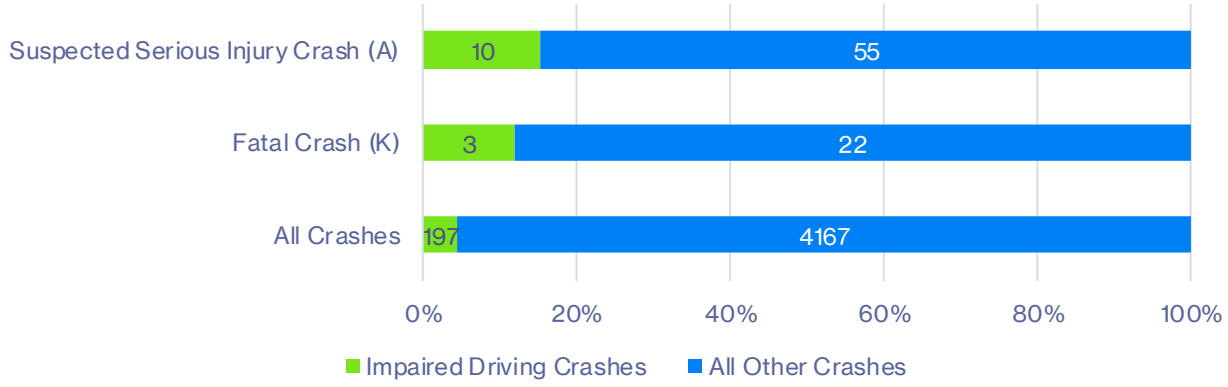


Figure 3-15. Impaired Driver Crashes by Severity

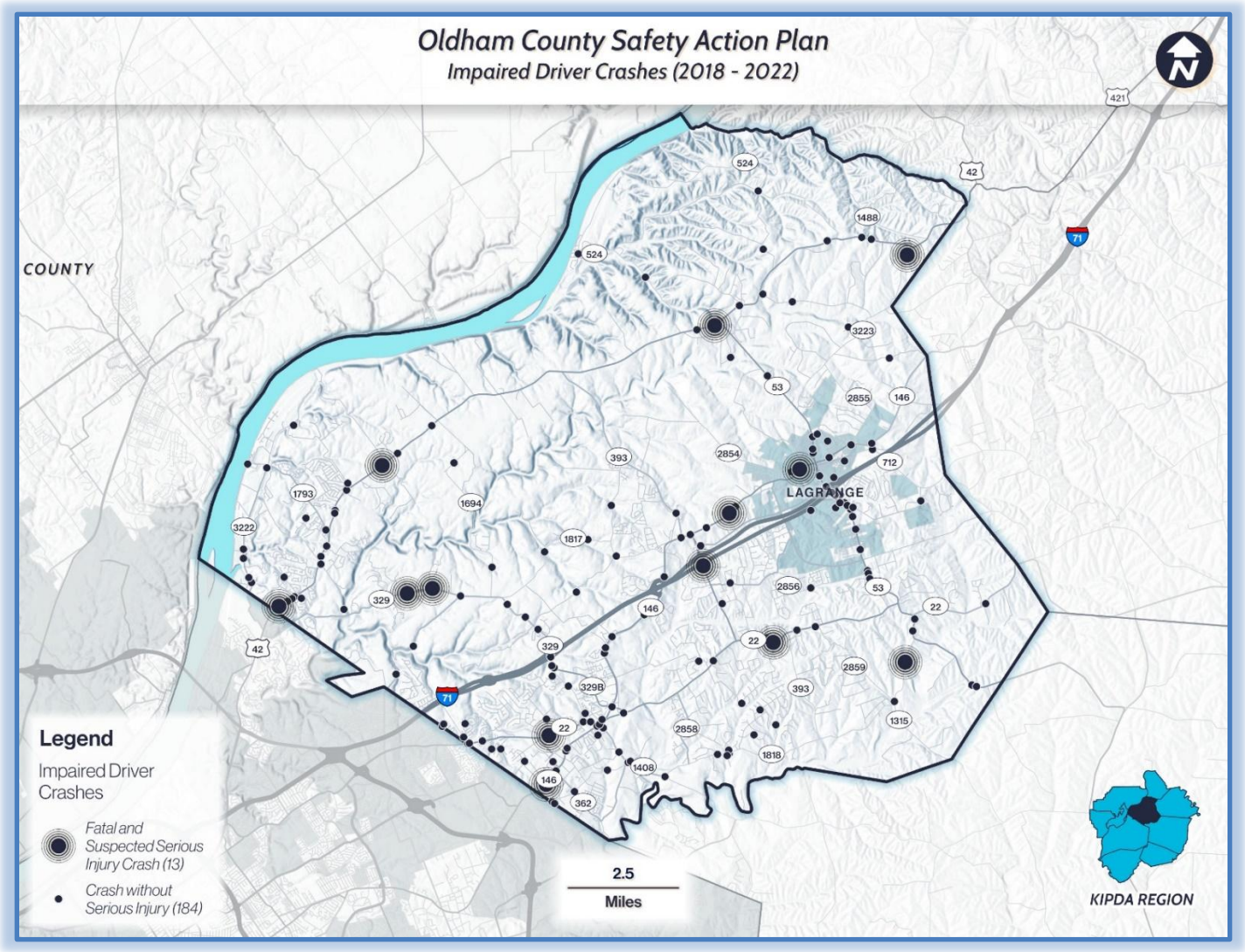


Figure 3-16. Impaired Driver Crashes Map

Lighting Condition

Roadway lighting is a safety factor, influencing visibility and reaction times. However, the documentation of the lighting infrastructure in Oldham is not comprehensive. The available crash data provides only anecdotal evidence regarding the lighting condition at the time of a crash. Currently, there is no established infrastructure database detailing the presence and condition of street lighting, making it challenging to analyze the correlation between illumination and road safety.

Figure 3-17 indicates that while most of the crashes occur during daylight conditions, a disproportionate percentage of fatal and suspected serious injury crashes happen in dark conditions – 26% versus the 22% of all crash severities. This suggests that reduced visibility at night may contribute to the increased severity of crashes. Figure 3-18 shows the locations of the fatal and serious injury crashes.

	All Crashes	Fatal (K) and Suspected Serious Injury (A) Crashes
Daylight	70% (3,064)	68% (61)
Non-Daylight-Dark Conditions	22% (962)	26% (23)
Non-Daylight - Highway Lighting On*	7% (315)	6% (5)
Unknown/Other	<1% (23)	1% (1)

**This is officially designated as Dark – Highway Lighting On*

Figure 3-17. Crashes by Light Condition

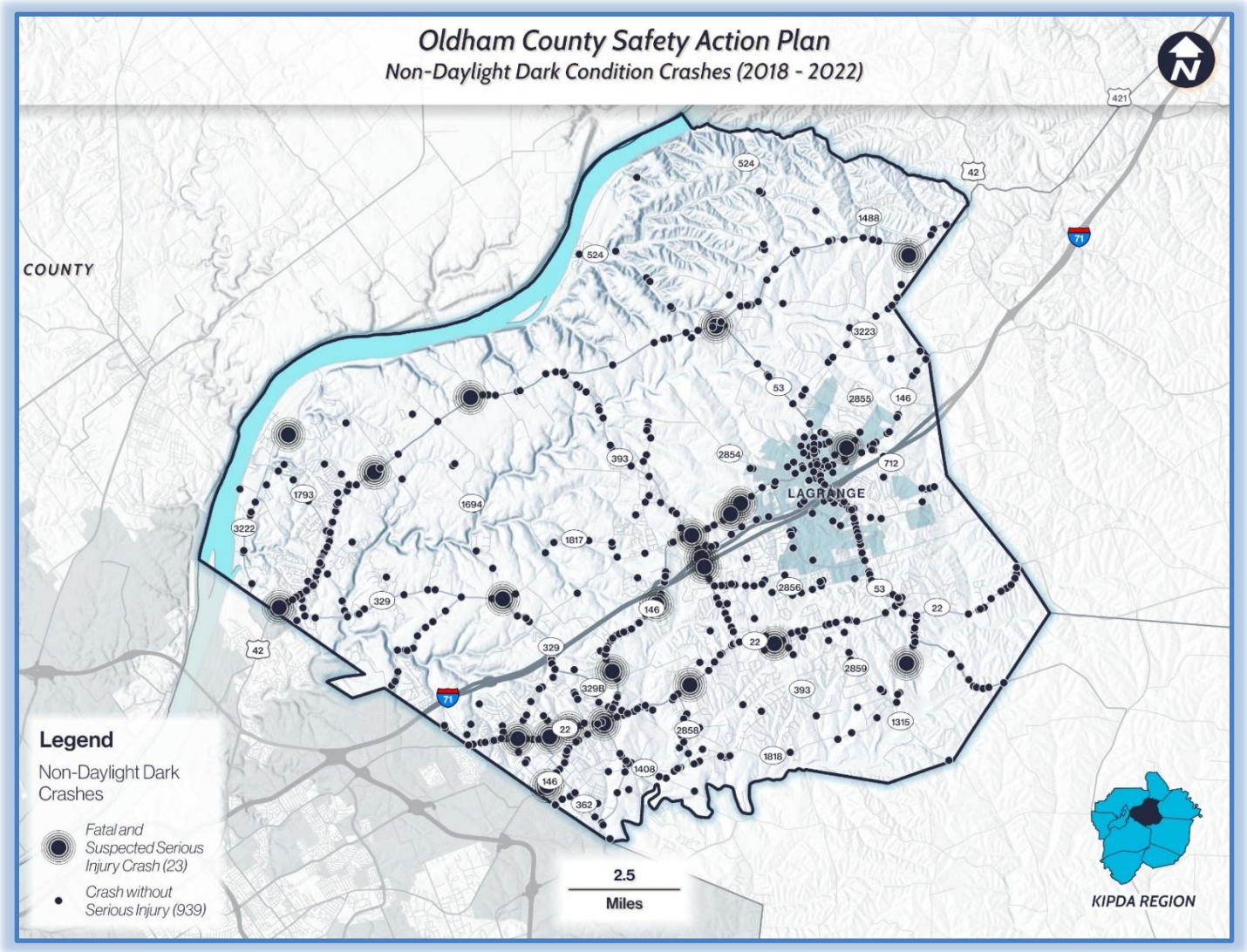


Figure 3-18. Lighting Condition: Non-Daylight Dark Condition Crashes Map

Crashes by Locations

The crash data highlights a distinct distribution between crashes occurring at intersections and on roadway segments. While 55% of all crashes (2,418) occur at intersections, 40% of fatal and suspected serious injury crashes (36) occur at intersections. In contrast, 45% of all crashes (1,946) and a notable 60% of fatal and suspected serious injury crashes occur on roadway segments. This indicates that crashes on roadway segments are more likely to be severe compared to those at intersections.

	Total Crashes	Fatal (K) and Suspected Serious Injury (A) Crashes
Intersection	55% (2,418)	40% (36)
Highway Segments	45% (1,946)	60% (54)

Figure 3-19. Crashes by Location

Intersections

Fatal and suspected injury crashes were clustered in Oldham County, along CR 53, which runs from I-71 to LaGrange, and along S. Highway 393, from I-71 into Buckner, as well as in Crestwood. Angle crashes were the most common overall intersection crash type, accounting for 3 of 6 fatal and 14 of 30 serious injury crashes. Of the angle crashes, the majority were undivided, urban, and partial stop intersections. This trend is explored in detail in **Chapter 6. Strategy and Project Selection** where the intersections have been mapped and prioritized.

Segments

A majority of the fatal and suspected serious injury crashes on segments were single vehicle crashes.

Roadway Departure Crashes

Roadway departure crashes occur when a vehicle crosses an edge line, a centerline, or leaves the traveled way. These crashes often lead to some of the most severe outcomes due to the increased risk of collision with fixed objects, overturning, or encountering unsafe roadside conditions. The inherent dangers of leaving the roadway contribute to higher rates of serious injuries and fatalities compared to other crash types.

The crash data, as seen in Figure 3-20 indicates that roadway departure crashes are a significant contributor to severe outcomes. Although roadway departure crashes account for 34% of all crashes, they disproportionately represent a much higher percentage of fatal and serious injury crashes. Specifically, 57% of fatal and suspected injury crashes are related to roadway departures. Figure 3-21 shows the locations of these crashes.

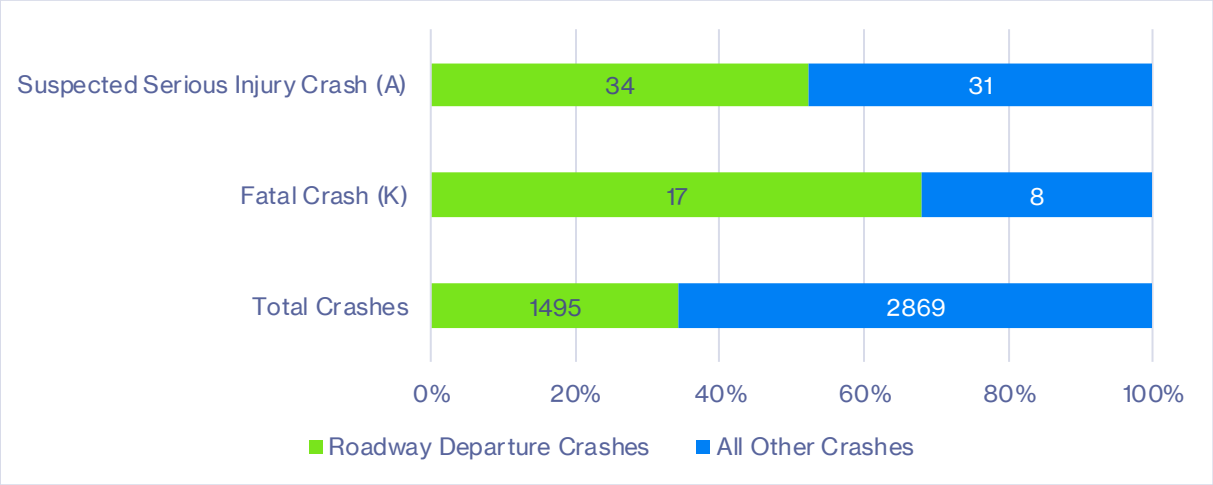


Figure 3-20. Roadway Departure Crashes by Severity

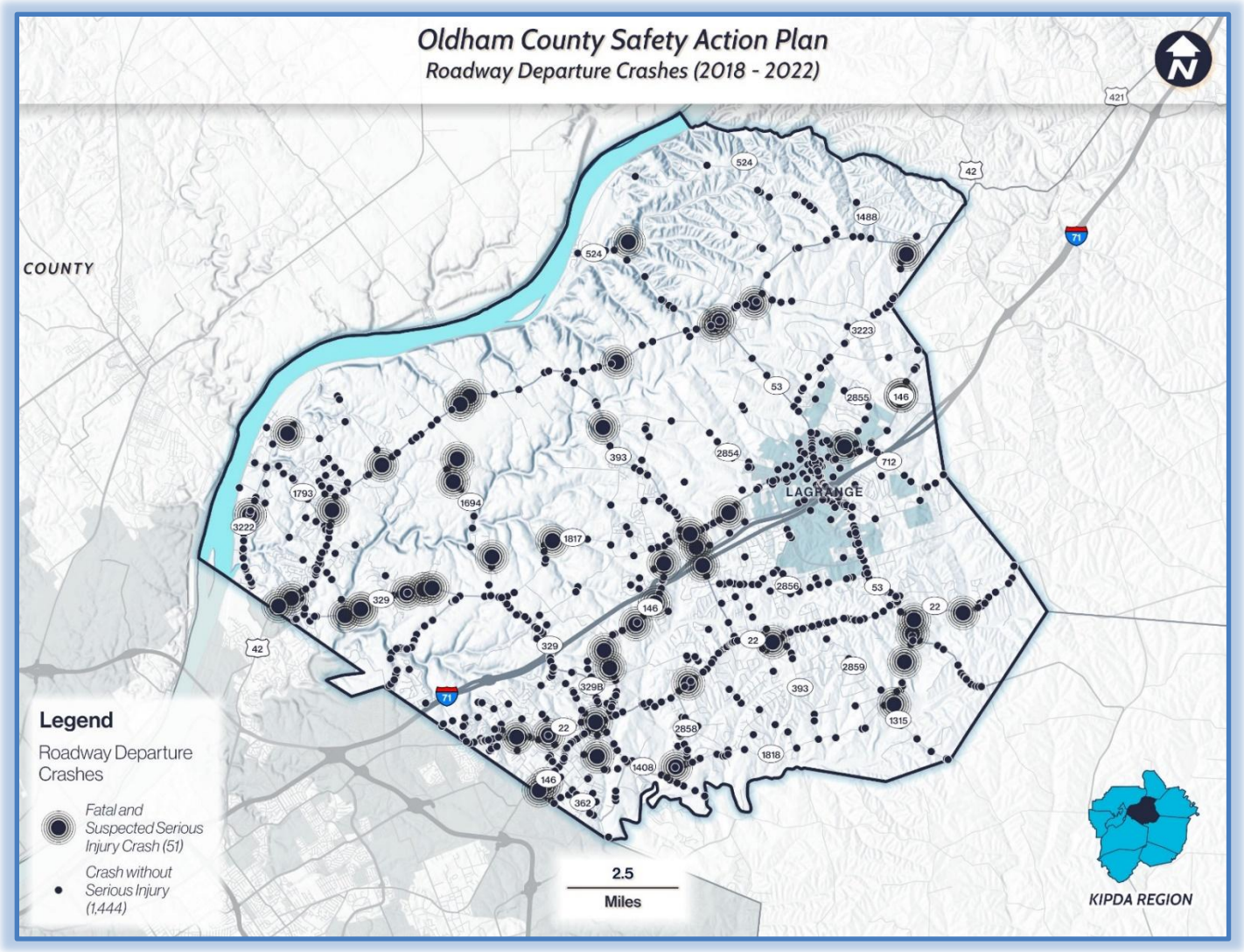


Figure 3-21. Roadway Departure Crashes Map

Vulnerable Road Users

Vulnerable road user crashes, including pedestrians and bicyclists, are at a greater risk due to their lack of physical protection compared to motor vehicle occupants. These crashes typically result in more severe injuries and fatalities because they have little to no buffer between them and the force of the collision.

Bicyclists

Oldham County is primarily rural with limited urban areas, and has experienced a small number of bicyclist crashes. Most of these crashes occur in La Grange, reflecting higher exposure in the urbanized area. Table 3-2 shows the breakdown of crashes and Figure 3-23 shows the location.

Severity	Description	Crashes	%
K	Fatal	-	-
A	Suspected Serious Injury	2	25%
B	Suspected Minor Injury	4	50%
C	Possible Injury	-	-
O	No Apparent Injury	2	25%
	TOTAL	8	

Table 3-2: Bicycle Crashes by Severity

Pedestrians

Oldham County, primarily rural with limited urban areas, experienced 32 pedestrian crashes. Of these, nearly one-third of the pedestrian crashes resulted in a fatality or suspected serious injury. While pedestrian crashes only accounted for less than 1% of all crashes, they represented 10% of the county's fatal and suspected serious injury crashes. This highlights the need for continued emphasis on pedestrian safety. Table 3-3 shows the breakdown of crashes by severity, Figure 3-22 shows the location.

Severity	Description	Crashes	%
K	Fatal	4	12%
A	Suspected Serious Injury	5	16%
B	Suspected Minor Injury	11	34%
C	Possible Injury	5	16%
O	No Apparent Injury	7	22%
	TOTAL	32	

Table 3-3. Pedestrian Crashes by Severity

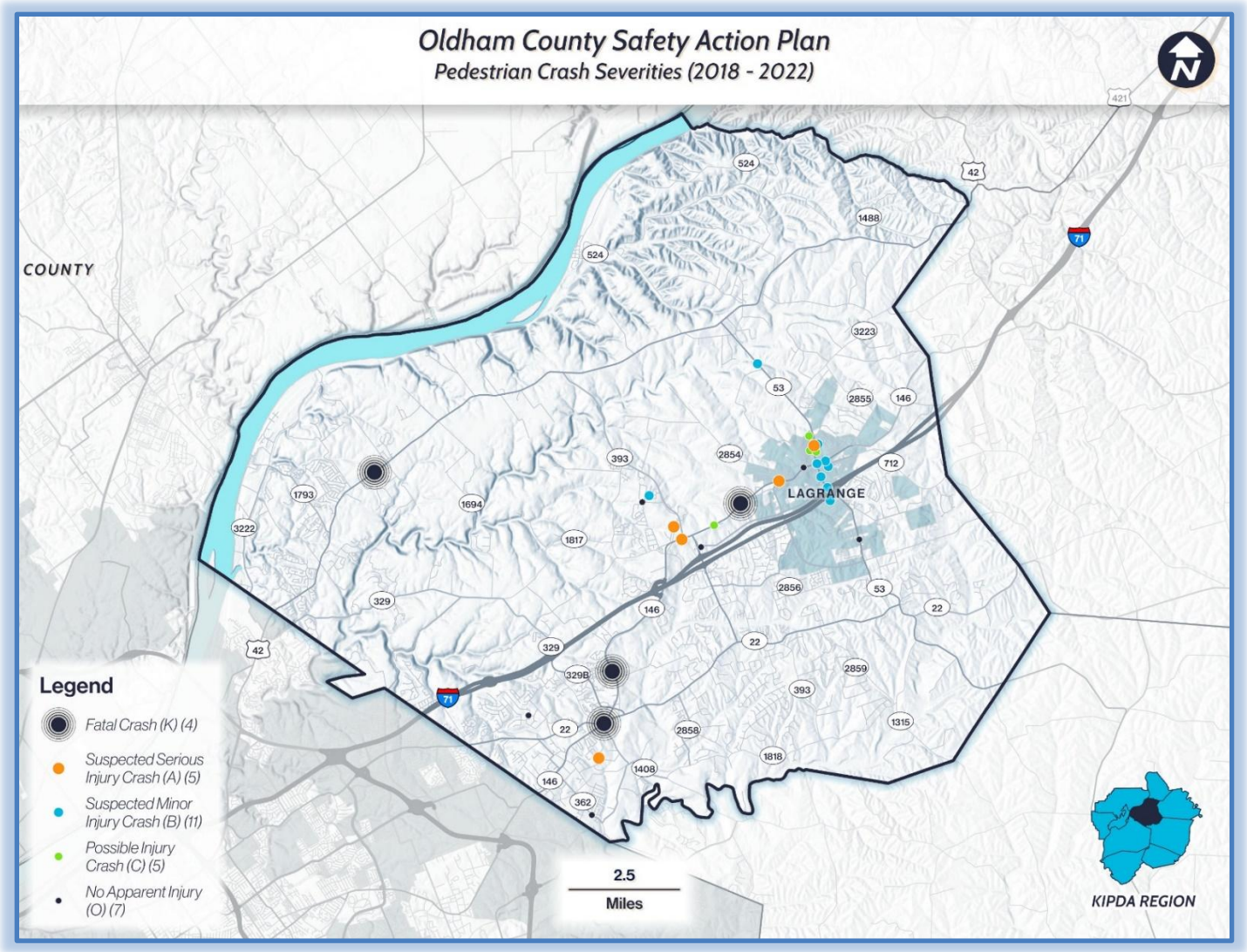


Figure 3-22. Pedestrian Crash Map

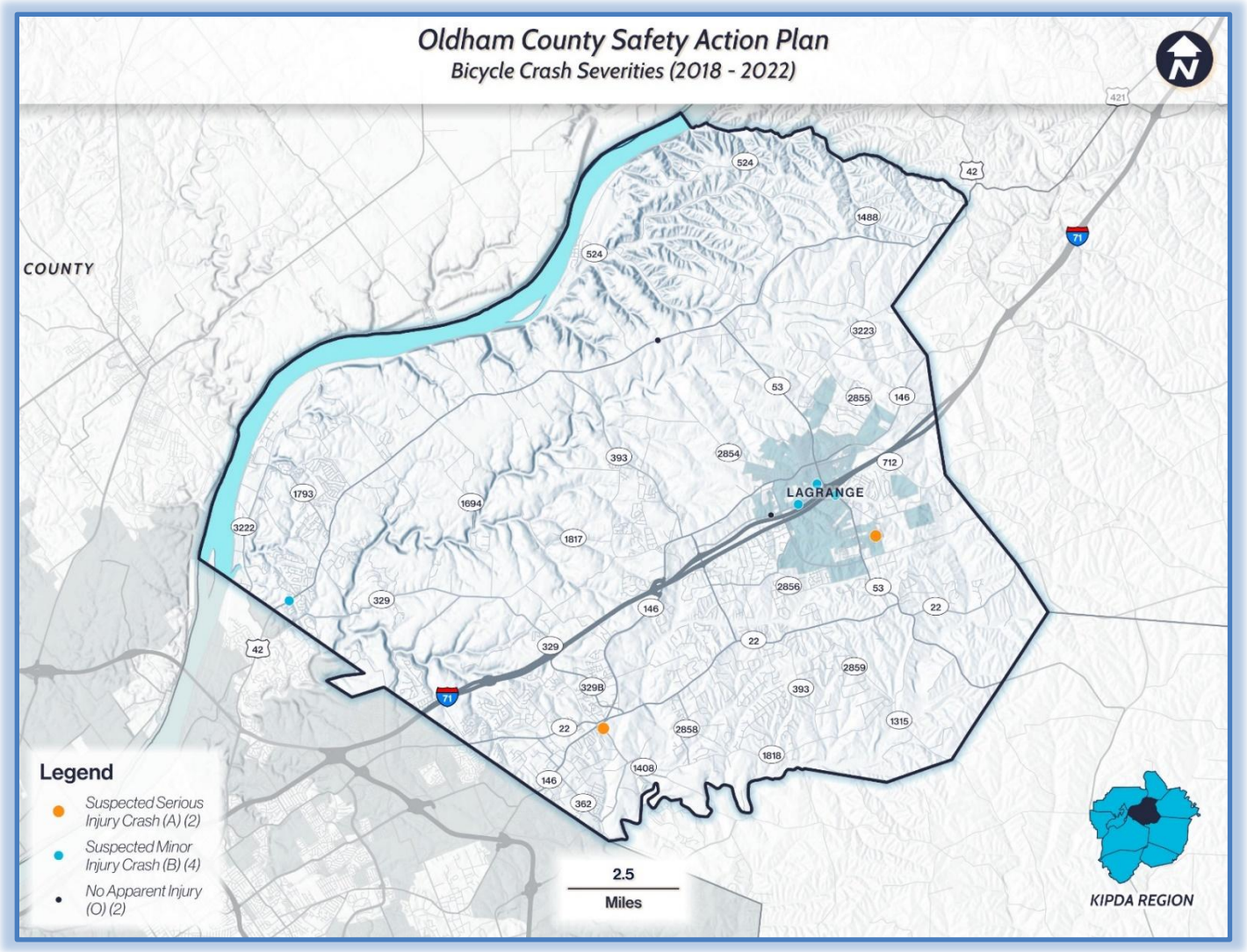


Figure 3-23. Bicyclist Crashes by Severity

Occupant Protection

Occupant Protection involves any device that is intended for protective use in a vehicle, such as seatbelt, airbag, child safety seat, or booster seat, which helps prevent death or serious injury in the event of a crash. The restraint crash data used for this study was based on all vehicle occupants being restrained. If a single occupant was unrestrained, i.e. not wearing a seatbelt, then the crash was categorized as unrestrained.

In Oldham County, the data shows a clear relationship between restraint usage and crash severity. Among fatal crashes, 56% involved occupants who were all restrained, meaning that 44% of these crashes had at least one unrestrained occupant, such as someone not wearing a seatbelt. Restraint usage increases as crash severity decreases, with 85% of suspected serious injury crashes, 91% of suspected minor injury crashes, 97% of possible injury crashes, and 99% of crashes with no apparent injury involving all occupants restrained. Figure 3-24 shows the breakdown.

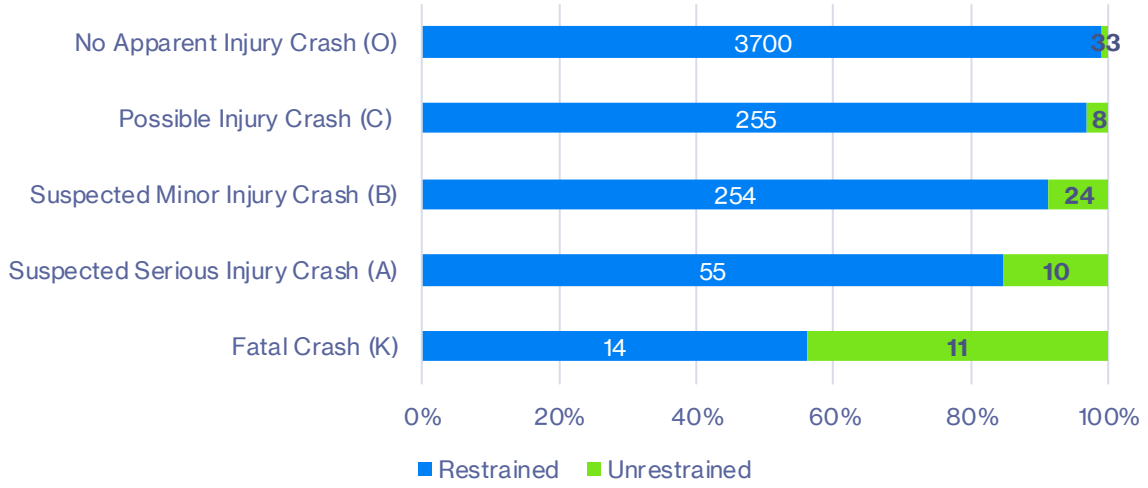


Figure 3-24. Restraint Use in Crashes

Driver Age and Gender

In Oldham County, 45% of fatal and suspected serious injury crashes involved drivers aged 15-39. Historically, this age group has been particularly prone to risky driving behaviors such as speeding and distracted driving. Table 3-4 shows the breakdown. In general, based on data from Oldham County and the region, young drivers and older drivers could benefit from outreach and education programs.

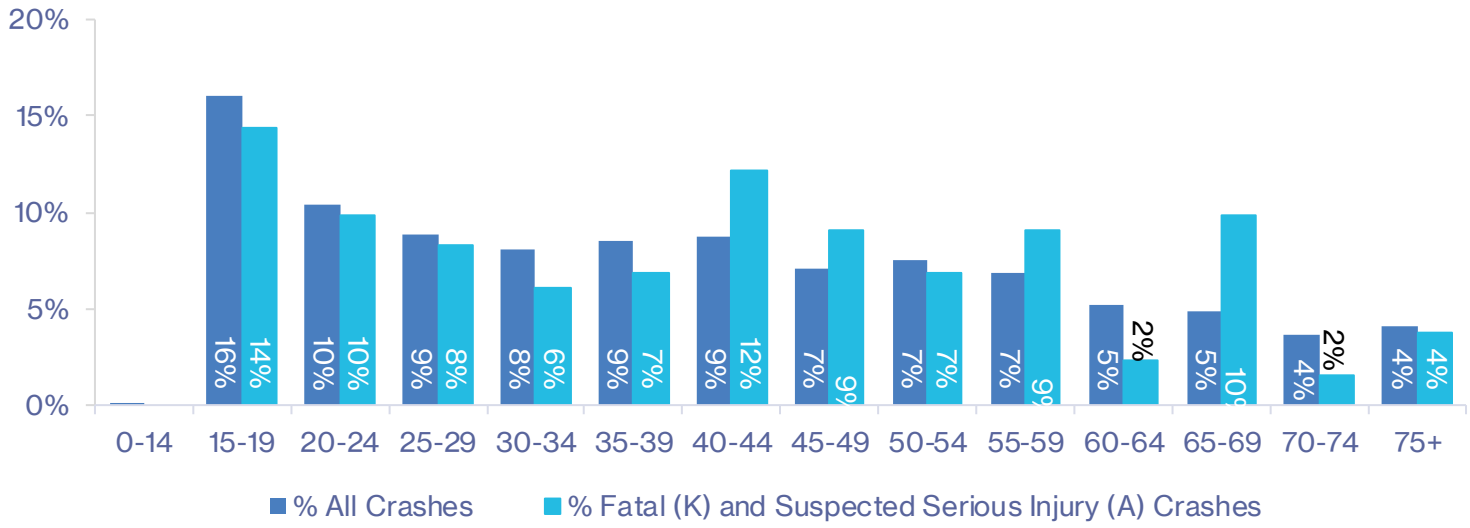


Table 3-4. Crash Percentages by Driver Age

In Oldham County, 55% of drivers involved in crashes were male and 45% female. Approximately 70% of the drivers involved in fatal and suspected serious injury crashes were male and 30% female.

Contributing Human Factors

Human factors play a significant role in crash occurrences, often tied to errors in judgment and risky behaviors. These factors include speeding, failing to yield, distractions, fatigue, and influence of alcohol or drugs.

In Oldham County, Driver Inattention is the leading factor, contributing to 1,704 crashes, followed by Not Under Proper Control (1,128) and Failed To Yield Right Of Way (661) crashes. Figure 3-25 shows the breakdown.

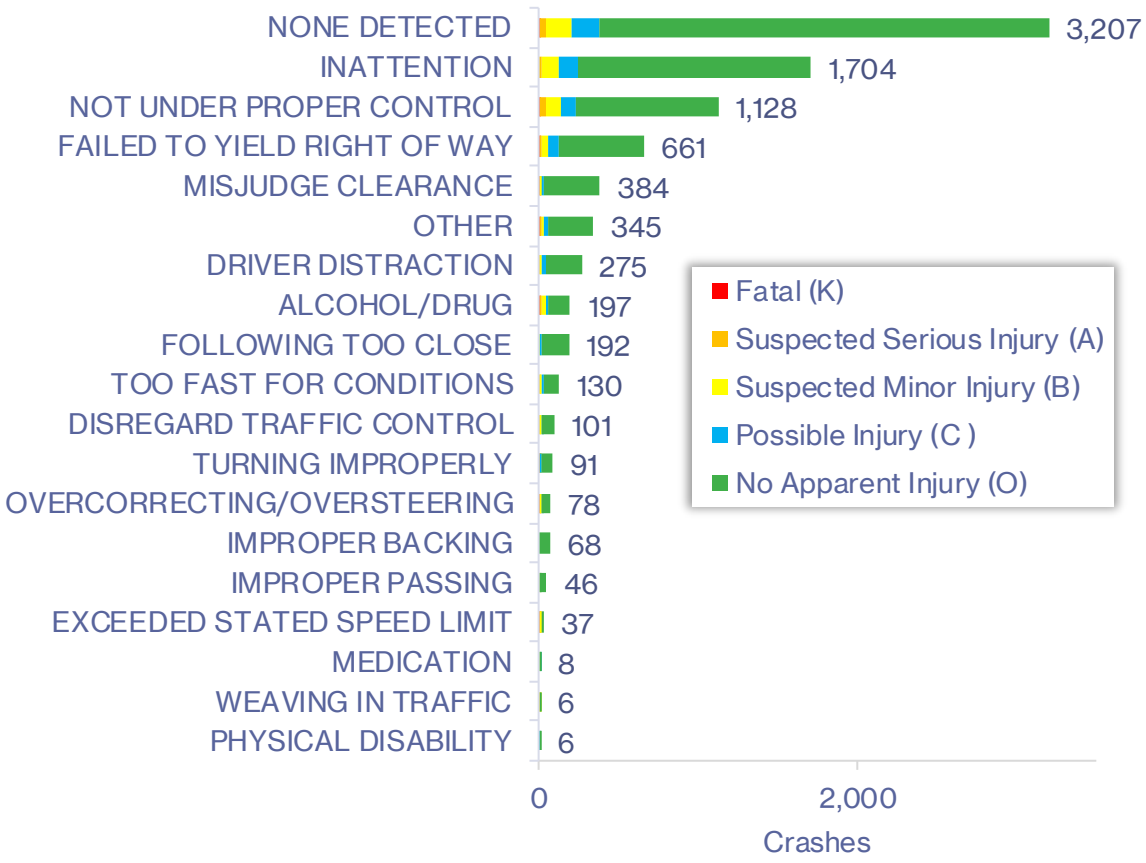


Figure 3-25. Crashes by Human Factor

Of the fatal and suspected serious injury crashes, 44% (40) were categorized as Not Under Proper Control. Driver inattention contributed to 29% of fatal and suspected serious injury crashes. Figure 3-26 shows the breakdown.

Given the high proportion of severe single-vehicle crashes and drivers not having proper control or being inattentive, a speed management program is recommended. This would be designed to encourage drivers to make better decisions regarding their speed in various conditions. It could include infrastructure, behavioral, educational, and enforcement elements.

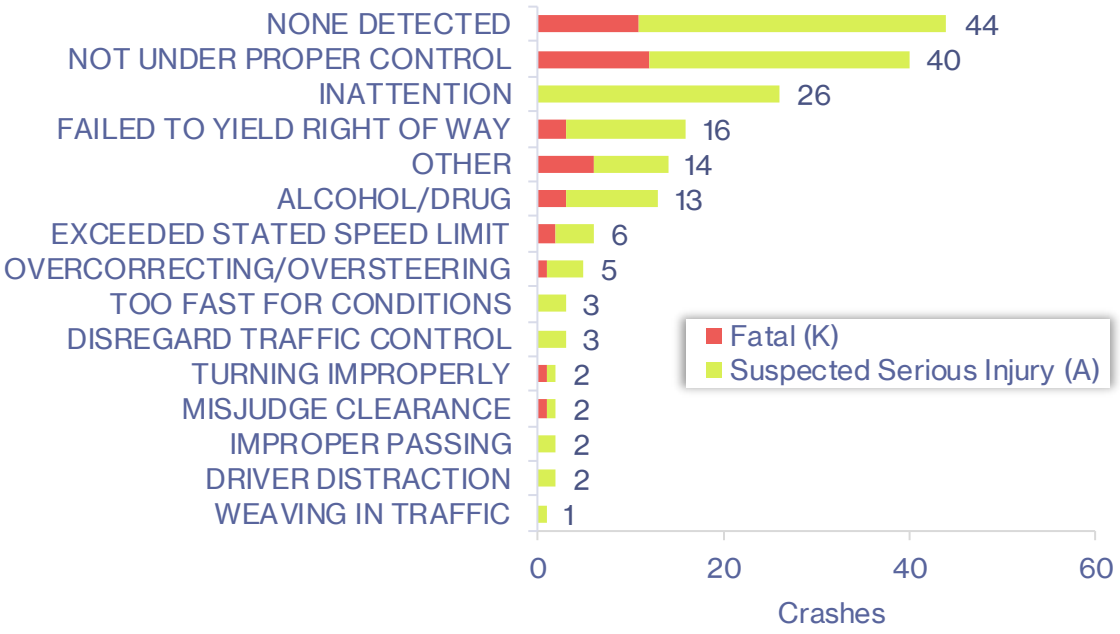


Figure 3-26. Fatal and Suspected Serious Injury Crashes by Human Factor

Environmental and Roadway Conditions

Environmental roadway conditions do not appear to be a significant contributing factor to crash occurrence or severity. Adverse roadway conditions, defined as wet, snow, ice, or less common road conditions, account for a small portion of overall crashes. Wet roads account for 20% of all crashes and 19% of fatal and suspected serious injury crashes, while icy conditions account for just 2% of all crashes and 4% of severe crashes. Snow, slush, standing water, and other conditions combined account for 3% of all crashes and one severe crash. This suggests that most crashes in Oldham County occur under typical dry conditions, with no clear pattern indicating that adverse environmental conditions play a substantial role in crash severity. Table 3-5 shows the breakdown.

Roadway Condition	All Crashes			Fatal and Suspected Serious Injury Crashes	
	#	%		#	%
Dry	3,282	75%		68	76%
Wet	890	20%		17	19%
Snow/Slush	80	2%		1	1%
Ice	78	2%		4	4%
Water (Standing or Moving)	5	<1%		-	
Sand-Mud-Dirt-Oil-Gravel	5	<1%		-	
Other	3	<1%		-	

Table 3-5. Crashes by Roadway Condition

High Injury Network

A High Injury Network (HIN) is a data-driven approach used to identify roadway segments that accounts for a disproportionate amount of a community's fatal and serious injury crashes. The HIN enables communities to concentrate their limited resources on improving safety along those high priority, dangerous corridors. Additionally, following the Safe System Approach, the HIN corresponds to the Safe Roads pillar. This pillar focuses on designing roadway environments to mitigate human mistakes and account for injury intolerances, to encourage safe behaviors, and to facilitate safe travel by the most vulnerable users.

The HIN provides a data-driven and focused list of corridors where a majority of the community's fatal and suspected serious injury crashes are occurring. The routes identified in the HIN will guide the development of strategies and project selection. These strategies and more information on the HIN can be found in **Chapter 6 Strategy and Project Selection.**

4. Engagement and Collaboration

A key component of the planning process is meaningful engagement with both the public and stakeholders. Throughout the development of this Safety Action Plan, engagement took various forms, allowing for a deeper understanding of current conditions, safety concerns, and challenges. These insights provide crucial context for the safety analysis. The following summarizes the community and stakeholder engagement completed for this Safety Action Plan.

Safety Action Plan Community Engagement

Steering Committee

The Steering Committee, comprised of diverse members from the region, was the guiding force and planning structure for the Safety Action Plan development. The Safety Action Plan's development evolved through five (5) Committee meetings.

The first meeting provided an overview of the Safe Streets for All (SS4A) program and plan components, an explanation of the safety analysis process, outline of the engagement process connection points and tools, an overview of considerations, and an overview of the project selection strategy and potential countermeasures. The second meeting reviewed detailed preliminary findings from the crash analysis. The project team identified focus areas based on feedback and local insights. Then, the project team guided the communities to adopt a Leadership Commitment resolution, setting a goal for each community to achieve the eventual goal of zero fatalities and serious injuries. The third meeting focused on the data collected from the public engagement to date and updates to the draft Safety Action Plan documents. During the fourth meeting, the discussions of the Committee centered on how the communities can use the Safety Action Plans, project identification, and potential improvements at the prioritized intersections and corridors on the High Injury Network (HIN).

Stakeholder Meetings

Twice during the planning process, the project team held one-on-one meetings with key stakeholders in the community to discuss elements brought up during the overall steering committee meetings. Local community engagement with the Safety Action Plan provided invaluable local knowledge and insight.

Meeting One

In July 2024, the first meeting introduced the project and set expectations for the project team and local leadership. The meeting included a request for previous plans and initiatives for community safety and future commitment goals to safety. The project team informed Stakeholders that the team would form Safety Committees following the first stakeholder meeting. The project team then provided a more extensive discussion of the currently available data and facilitated a discussion focusing on local conflict areas.

Meeting Two

The second meeting, held in February 2025, focused on reviewing the crash analysis dashboard and getting feedback on the initial prioritized High Injury Network (HIN) segments and priority intersections. Data on the dashboard included the location of the crash, mode of transportation, directional analysis, manner of collision, roadway condition, light condition, and the updated human factor. The group then discussed edits to the presented HIN potential corridor strategies, priority intersections, and potential intersection strategies. There was considerable discussion about the portions of KY 22 and US 42 that are near Jefferson County. There was also discussion about maintenance of county roadways and the projects being completed along I-71.

Safety Committee

The Oldham County Safety Committee, comprised of diverse members from the community, such as emergency response representatives and Oldham County Road Committee, played a key role in developing the Oldham County Safety Action Plan. Participants provided valuable feedback and insights into existing safety issues and concerns through two safety committee meetings.

Meeting One

Ten committee members attended the first meeting inconjucture with the August Oldham County Road Committee, which introduced the Safety Action Plan, its key components, and the Safe System Approach. The committee discussed historic crashes and brainstormed improvements for their local vehicular, pedestrian, and cyclist safety concerns. Data provided to the Committee included detailed crash maps organized by severity – including those for pedestrians and bicyclists – and intersection crash maps showing total and severe crashes. A committee member informed members of the committee and public to provide feedback via the online survey for ease of compilation.

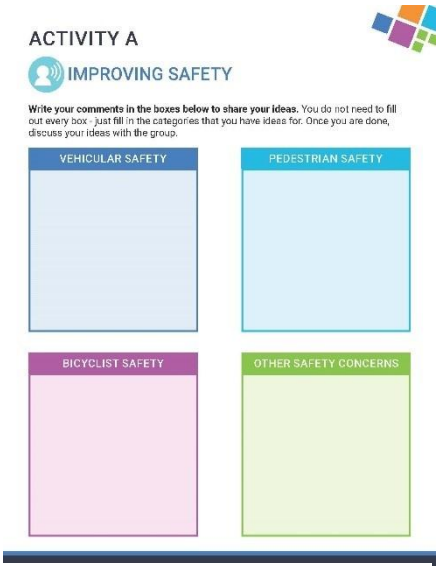


Figure 4-1. Meeting One Brainstorming Exercise

Meeting Two

Eleven committee members attended the second meeting. The Committee reviewed the draft prioritized HIN corridor segments, prioritized intersections, and potential safety countermeasures. The data provided included a preliminary ranking for each intersection and HIN corridor. It also included descriptions

of potential countermeasures with their expected safety impacts. The project team provided maps of the HIN corridors and intersections for reference. The committee provided their priorities for both the HIN and the intersection list. They also provided feedback on what improvements they thought would be most appropriate and beneficial. There were four activities designed to elicit this information.

Activity A: Prioritizing HIN Corridors – There were differing opinions on the top five (5) prioritized segments. The committee thought KY-35 from Pine Ridge Road to Zhale-Smith should be considered a high priority.

Activity B: Potential Corridor Improvements - Most participants noted that all recommendations were appropriate. The committee noted that segment 2 is a mjor issue due to semi-truck traffic and segment 2 should consider a Green-T intersection.

Figure 4-2. Meeting Two Handout: Potential Safety Countermeasures

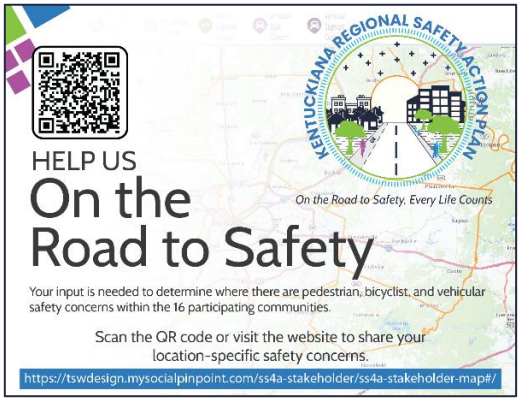
Activity C: Prioritizing Intersections – The committee prioritization focused on a variety of lower ranked intersections including intersection 12 (KY-329 bypass and Claymont Crossing)) and 7 (Ballardsville Rd (KY-22) and Wooldridge Ave) as the highest priorities. These locations have been highlighted in **Chapter 6. Strategy and Project Selection**.

Activity D: Potential Intersection Safety Countermeasures – The committee agreed with the recommendations but also included potential countermeasures to the proposed additional intersection of KY-53 and Zhale Smith or turn lanes, lighting, and speed management countermeasures. These suggestions have been incorporated into **Chapter 6. Strategy and Project Selection**.

Public Engagement

Survey One

The project team and committees conducted public engagement for the Safety Action Plan through an interactive online map. Residents within the KIPDA Region, including Oldham County, could provide input by identifying specific pedestrian, bicycle, or vehicle concerns on a map. Participants could add comments, images, and review or react to the contributions of others. This input offered valuable community perspectives on local safety issues.



The survey was available between July 9, 2024, and October 18, 2024. A total of 1,047 comments were collected for the entire region, with 15 comments located within Oldham County. Figure 4-4 provides an example view of the engagement map and a summary of the responses within Oldham County.

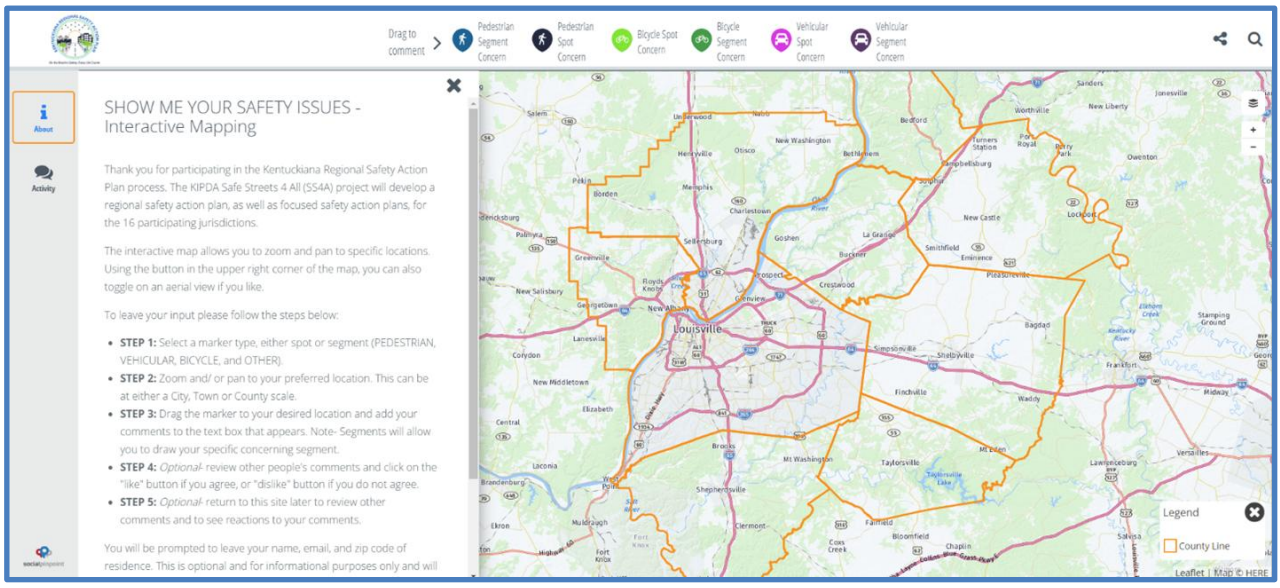


Figure 4-3. Social Pinpoint Online Engagement

Vehicular Safety Concerns

- Road markings/striping
- Signalization
- Speed Limits
- Intersection Improvements
- Sight distance
- Turning lanes
- Shoulder condition

Pedestrian Safety Concerns

- Adding sidewalks
- Adding crosswalks
- Connections across interstate

Bicycle Safety Concerns

- Crossing interstate overpasses and underpasses

The feedback collected from this platform played an integral role in identifying high-risk areas and shaping safety strategies so that the KIPDA Regional Safety Action Plan and the Oldham County Safety Action Plan address the concerns and needs of the public. The project team compared comment locations to the fatalities (K) and suspected serious injuries (A) in the 2018-2022 crash data to compare public perception of safety and data-driven crash densities. The following map shows the crash locations (blue) with the public comments (yellow). The locations where these two colors overlap (green-toned areas) represent locations where the perception of a safety issue is consistent with where severe crashes have occurred. An example of this is the area around the intersection of State Road 22 and State Road 329B.

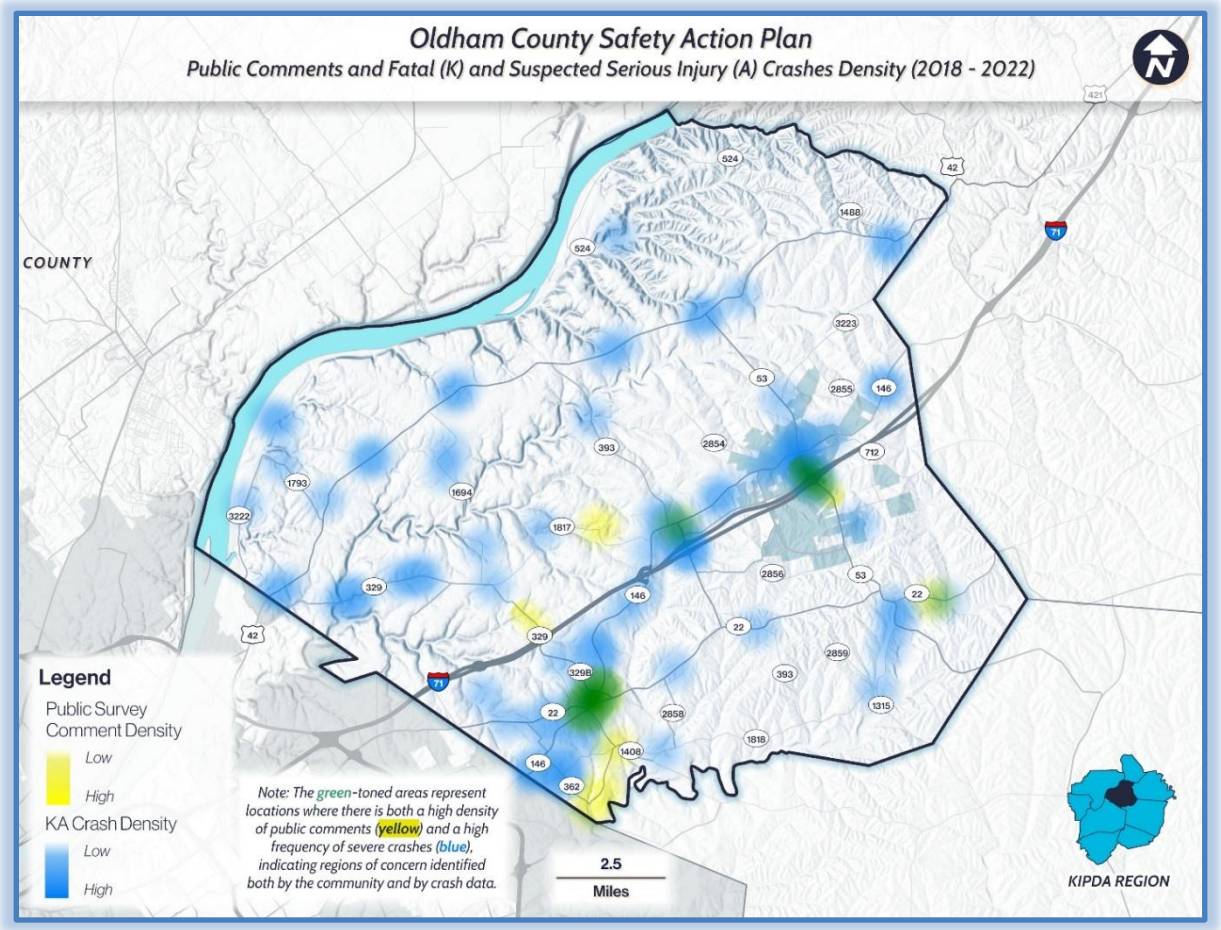


Figure 4-4. Safety Concern Comments and High Severity Crash Density

Survey Two

The project team and committees conducted a second public survey for the Safety Action Plan. Residents within the KIPDA Region, including Oldham County, could provide input on the results of the crash data analysis and potential countermeasures to improve safety in each community. Participants could provide opinions on if the identified recommended strategies and safety improvements were appropriate for each community. Links to additional information about the recommended strategies were included for reference.

The survey was available between April 1, 2025, and April 30, 2025. A total of 524 responses were collected for the entire region, with 43 responses located within Oldham County. Three of the highest ranked segments were KY 22 west of Crestwood, KY 146 in Buckner, and KY 53 near I-71 in Lagrange. The highest rated intersections included KY 146 / KY 329 Bypass, KY 22 / Wooldridge Ave, and KY 53 / I-71 NB Ramps. The countermeasures receiving the most support included intersection and highway lighting, left turn lanes, shoulder treatments, crosswalk visibility enhancements, center two-way left turn lanes, and enhanced curve signing and other curve improvements.

Active and Planned Projects

The transportation plans of all relevant stakeholders, including the Kentucky Transportation Cabinet Enacted Highway Plan (2024-2030) and KIPDA Transportation Improvement Program (TIP), as well as ongoing Oldham County projects were coordinated to identify and document project overlaps and stages of project development. This collaborative effort is summarized in the following table and map highlighting the current projects with committed funds that are actively moving forward.

Map No.	KYTC Item (CHAF ID)	Route	Begin	End	Status	Description
1	5-234.00	KY 393 / KY 146	5.13 / 7.419	5.868 / 7.64	Committed	KY 393 reconstruction from 140 ft south of railroad crossing (CSX) extending northwest towards KY 146 ending at station 12+00
2	5-477.00	KY 329	8.9	8.935	Planned	Railroad crossing safety project on KY 329 in Crestwood
3	5-8852.00	KY 53	3.068	5.685	Planned	Design for improving KY 53 from Zhale Smith Rd to KY 22
4	5-80209.00	KY 53	5.69	6.27	Planned	Improve safety and reduce congestion on KY 53. Includes consideration of a five lane widening and bike/ped accommodations
5	5-80211.00	KY 524	0	1.0	Planned	Landslide repair on Westport Rd from Jct. US 42 West
6	5-80307.00	US 42	0.942	6.034	Planned	Improve traffic flow, minimize congestion, and address safety issues on US 42 between Ridgmoor Dr and KY 1694 (Gum St). Includes consideration of a three lane widening and bike/ped accommodations
7	5-80314.00	KY 362	0.975	3.039	Planned	Improve safety, access, and address geometric deficiencies along KY 362 from the Oldham / Shelby county line to KY 146. Includes consideration of a 3 lane widening with a two way left turn lane and bike/ped accommodations
8	5-80325.00	KY 146	6.81	7.42	Planned	Reduce congestion, improve safety and enhance mobility on KY 146 in Buckner from KY 1817 to KY 393
9	5-80345.00	KY 22	1.4	2.1	Planned	Improve safety and reduce congestion along US 22

Table 4-1. Current Highway Plan Projects

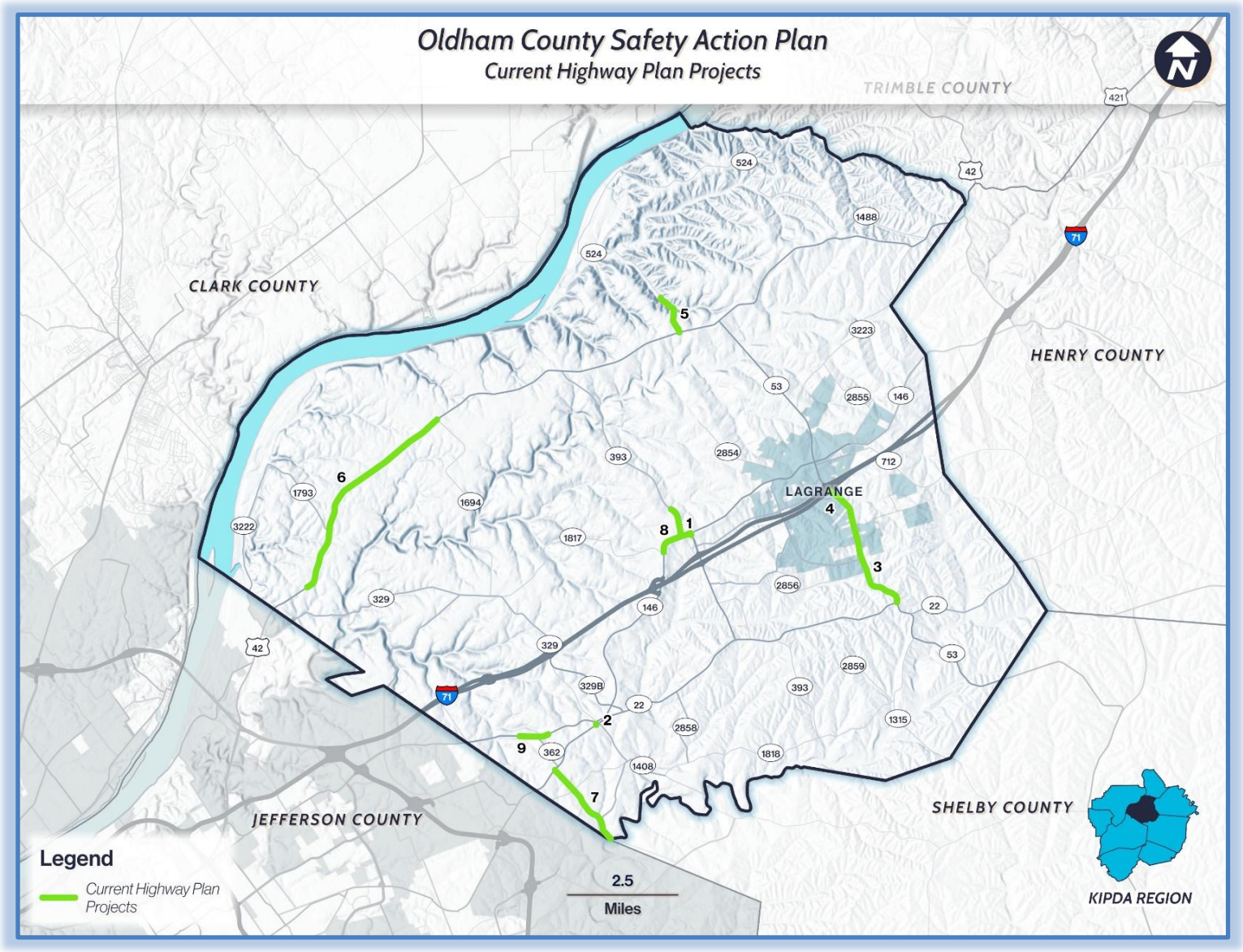


Figure 4-5. Highway Plan Map

Projects Recently Completed by Oldham County

Oldham County has implemented and continues to implement many low-cost safety countermeasures around the county. Here are recent examples.

Pavement Markings

- **Goshen Lane:** 2020, associated with a new residential subdivision, centerline pavement markings were added to two approximately 90 degree curves to reduce centerline crossover.
- **Clore Lane from KY Hwy 22 to Spring Hill Trace (~1 mile):** 2023, centerline and edge line pavement markings were added as a result of traffic volumes and having sufficient pavement width.
- **South Buckeye Lane:** 2023, centerline pavement markings were added to curves to reduce centerline crossover.

Signage

- **Locke Lane approaching KY Hwy 329:** 2019/2020, As a result of reports of vehicles departing the road and to address concerns with steep grade combined with horizontal curvature/alignment, curve warning signage was added.
- **Fraziertown Rd:** August 2020, 15 mph speed limit signs were placed. No speed limit signs were previously present. The speed limit determination was primarily based on stopping sight distance and length of tangent sections between horizontal curves.
- **Massie School Road:** 2022, As a result of reports of vehicles departing the pavement, horizontal curvature warning signage combined with advisory speed reduction plaques were added to three curves.
- **Bohannon Lane:** 2022, horizontal curve warning signs with advisory speed plaques were added at various curves.
- **Crystal Drive:** 2023, Crystal Lake neighborhood residents requested additional speed limit signage to address speeding concerns. Oldham County Engineering Department investigation found that appropriate speed limit signs were present in the neighborhood. However, the investigation resulted in horizontal curvature warning signage combined with advisory speed reduction plaques added at this location.
- **Eighteen Mile Creek Rd and other:** Following road resurfacing in Summer 2023, object Marker warning signs (OM3L/R) were placed at culvert headwall ends in close proximity to the edge of pavement. This is done at other locations throughout the county.
- **North Camden Ln:** 2023, horizontal curve warning signs with advisory speed plaques were added at five locations.
- **Croftboro Farms subdivision:** As a result of speeding concerns reported by neighborhood representatives, speed limit signage was evaluated and placement modified to most

appropriate locations considering intersections and traffic patterns. This was primarily on Monfort Ln, Outer Circle Dr, and Hillock Ln.

Speed Feedback Signs

- **Countywide:** The Oldham County Police Department also has four radar speed limit signs that they rotate around the county upon request by residents as a speed control effort. OCPD is planning to obtain two more of these to add to the rotation.

Speed Limit Reductions

- **Old Taylor Place:** 2019, the speed limit of Old Taylor Place was reduced from 25 mph to 15 mph primarily based on horizontal curvature and historic posting.
- **Forrest Park Dr:** 2023, the speed limit of Forrest Park Dr from Ernie Harris Pkwy to Kinlock Rd was reduced from 35 mph to 25 mph based primarily on vertical alignment and functional classification.
- **Centerfield Dr:** 2024, the speed limit of Centerfield Dr from KY Hwy 393 to KY Hwy 22 was reduced from 45 mph to 35 mph based primarily on horizontal geometry, traffic volume, and functional classification.

Intersection Modifications

- **Hensley Rd at John Moser Way and Moser Farm Rd at Interlaken Way:** 2022, these two intersections were converted from one-way stop T-intersection to all-way (i.e. three-way) stop intersections.
- **Goshen Lane at Valley Drive:** 2024, the intersection was converted from one-way stop T-intersection to an all-way (i.e. three-way) stop intersection.
- **Goshen Ln at Valley Dr and Goshen Ln at Cliffwood Dr:** 2024, unnecessary acceleration lanes were removed from Goshen Lane at these intersection to improve intersection sight distance.

Community Considerations

The Safety Action Plan analyzed socio-economic and demographic data together with the crash data to determine if there are important trends, findings, or considerations related to specific areas or communities within the county.

Areas of Persistent Poverty

The Safe Streets and Roads for All 2025 Notice of Funding Opportunity defines Areas of Persistent Poverty based on the Infrastructure Investment and Jobs Act (IIJA, 49 U.S.C. 6702(a)(1)). It also states that this applies as the definition of Underserved Communities. Based on this definition, a project is located in an Area of Persistent Poverty if:

1. *The County in which the project is located consistently had greater than or equal to 20% of the population living in poverty in all three of the following datasets: (a) the 1990 decennial census; (b) the 2000 decennial census; and (c) the most recent (2021) Small Area Income Poverty Estimates; OR*

2. *The Census Tract in which the project is located has a poverty rate of at least 20% as measured by the 2014-2018 5-year data series available from the American Community Survey of the Bureau of the Census; OR*

3. *The project is located in any territory or possession of the United States.*

Oldham County is not located within a designated Area of Persistent Poverty.

Community Demographic Summary

The following four populations were analyzed using the US Census American Community Survey (ACS) data. The 2022 ACS five-year table was used.

Elderly Population

Approximately 13.8% of Oldham County is 65 or older. Portions of the county with high elderly populations should consider tailored roadway safety countermeasures. Oversized signage, lighting, pedestrian refuge islands, leading pedestrian intervals (LPIs), and raised crosswalks are some of the countermeasures that benefit elderly populations.

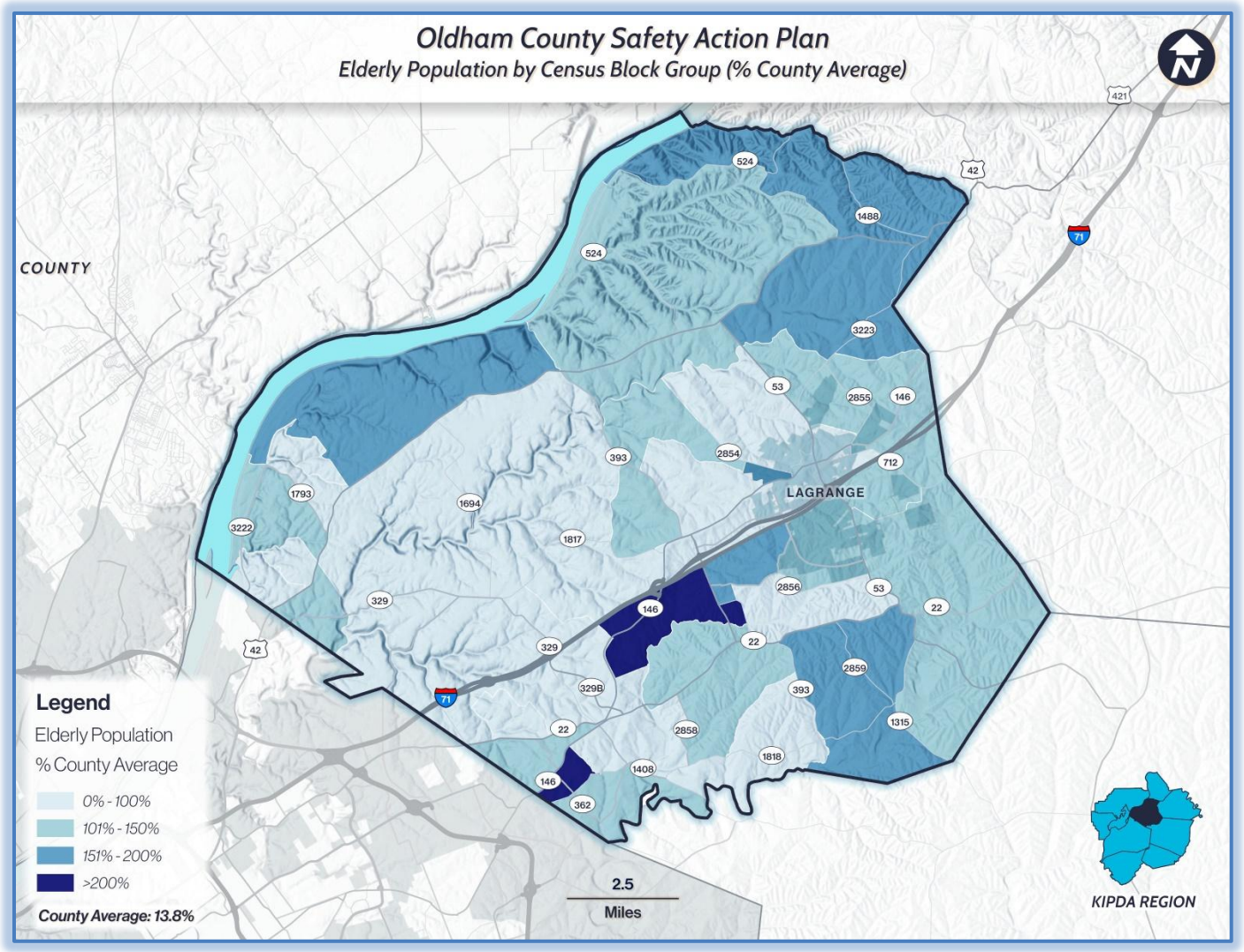


Figure 4-6. Elderly Population by Census Block Group Map

Population Impacted by Disability

In Oldham County, approximately 21.6 % of households have one or more occupants with a disability. Similar to elderly populations, there are safety countermeasures available that support disabled populations. Many of these relate to pedestrian facilities such as curb ramps.

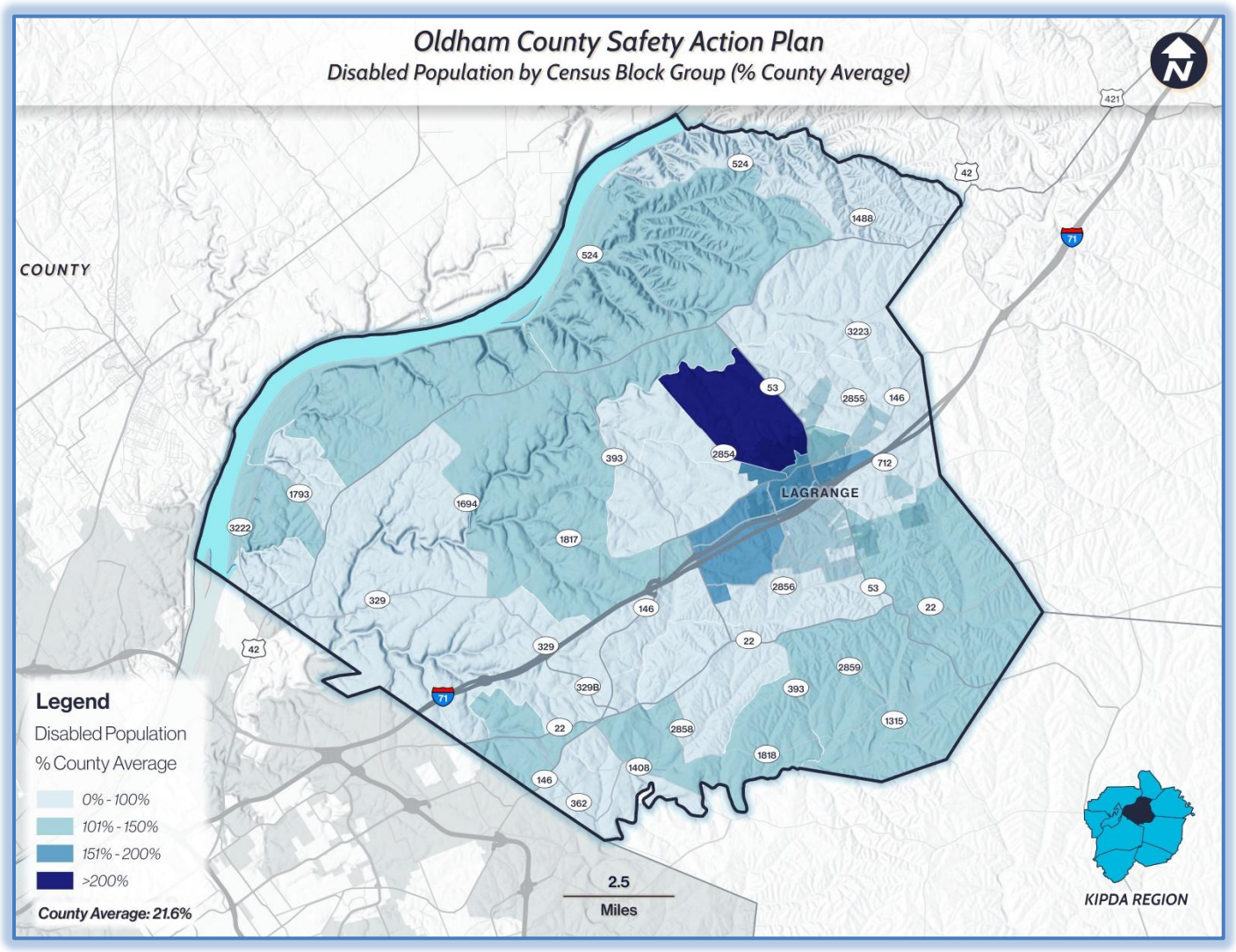


Figure 4-7. Disabled Population by Census Block Group Map

Population Experiencing Poverty

The poverty population of Oldham County includes individuals with incomes below the poverty line. Oldham County has approximately 4.0% of all individuals who meet this definition. Areas with high poverty rates are often areas of underinvestment with regard to infrastructure and safety.

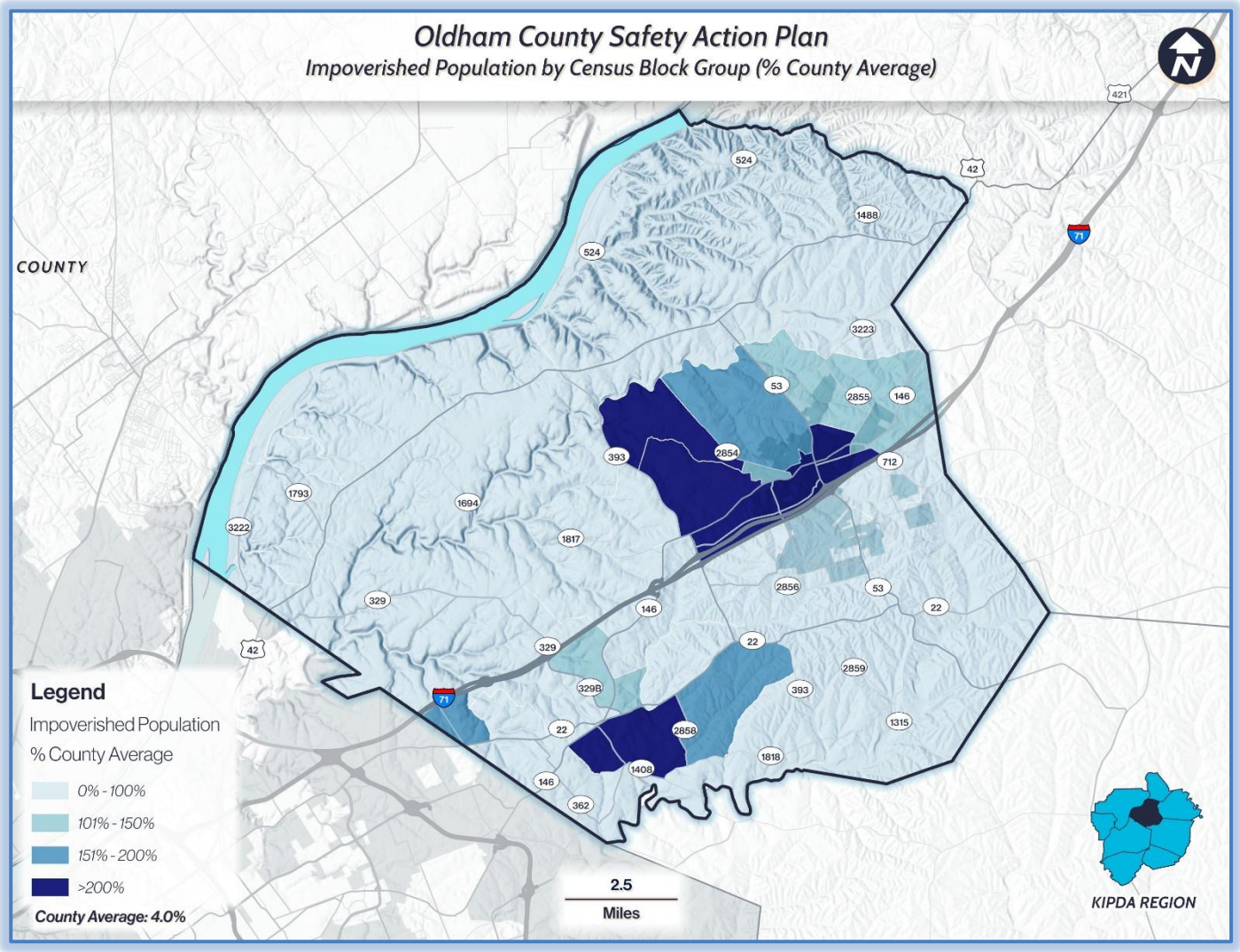


Figure 4-8. Impoverished Population by Census Block Group Map

Minority Population

Approximately 11.1% of the population of Oldham County identifies as non-white. The central and western portions of the county have the highest percentage of minorities. Given the location of crashes in the county over the five-year period, consideration should be given to investing in safety upgrades in this area.

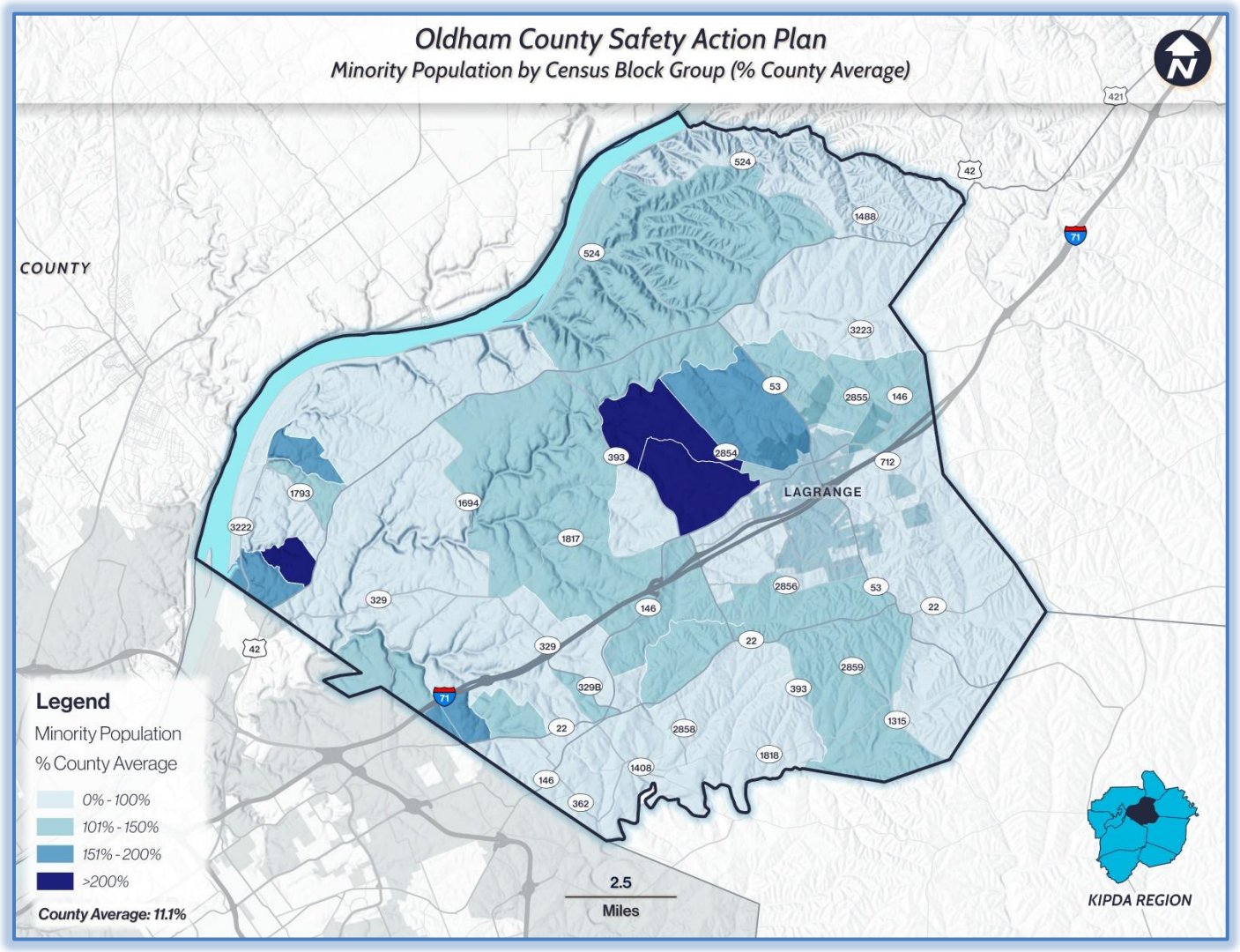


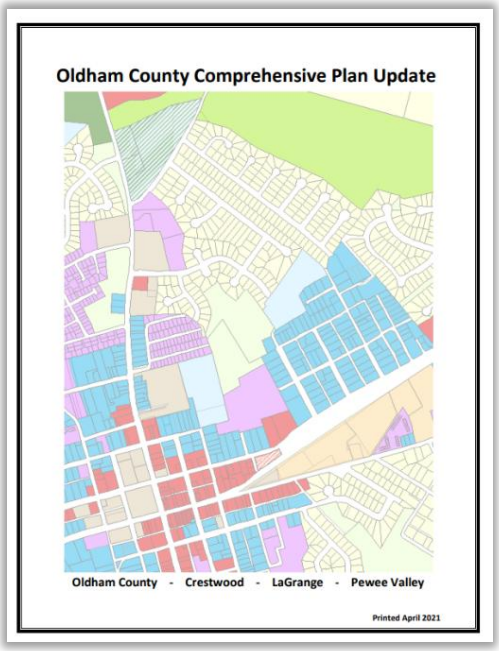
Figure 4-9. Minority Population by Census Block Group Map

5. Policy and Process Changes

A comprehensive review of Oldham County's existing policies, plans, guidelines, and standards has identified key opportunities to enhance transportation safety. The county aims to elevate safety as a priority while also creating a more inclusive and accessible transportation network for all users.

Oldham County KY Comprehensive Plan - 2021

Link: Oldham County Comprehensive Plan



This Plan is designed as a tool to be used by all decision makers, both public and private. In so doing, this Plan reflects the expressed desires of the community, serves as a guide to decision making (i.e., zone changes, subdivision plats, and development plans), and outlines governmental strategies that can be employed to accomplish the various components of this Plan. The following are goals related to transportation safety in the County:

- To provide the citizens of Oldham County with a well-planned and coordinated system of major thoroughfares and collectors that are safe, cost-effective, and responsive to planned growth and development.
- To coordinate the Major Thoroughfare Plan with other modes of travel, including bus transit, rail, pedestrian, and bicycle, to comprehensively address mobility issues and needs within Oldham County.
- To protect and preserve scenic or culturally important transportation corridors and resources.

Improvements to the roadway system in the area have been identified to address the goals and objectives outlined in the comprehensive plan. Figure 6.1 in the comprehensive plan illustrates the proposed location of improvements from the KYTC Six-Year Plan, and Table 6.1 summarizes the recommended road improvements.

The 2021 Oldham County Comprehensive Plan is currently in the process of being updated. The new plan is anticipated to be complete and legislatively approved by November 2025. The updated plan is expected to refer to this Safety Action Plan.

Future Comprehensive Plan Considerations

Implement Context Sensitive and Active Transportation Street Policies: To improve how processes prioritize safety, it is recommended to develop and context-sensitive street guidelines that support safety,

connectivity, comfort, and accessibility for all users. These guidelines would be applied to new and existing road projects, ensuring that streets are designed to accommodate pedestrians, cyclists, motorists, and transit riders.

Strengthen Public Engagement and Transparency: Enhance public engagement processes by providing multiple avenues for community input, including online platforms, public meetings, focus groups, and surveys. Feedback should be incorporated into planning decisions and updates on progress should be regularly communicated to the public. Enhancing public engagement and transparency will build public trust and support.

Oldham County Comprehensive Zoning Ordinance

Link: Oldham County Comprehensive Zoning Ordinance

These regulations intend to promote the public health, safety, and the general welfare; to prevent overcrowding of land and provide for planned and orderly growth; to protect land from premature or unsuitable development; to avoid undue concentration of the population; to protect and guide development of rural areas; to insure adequate provision for transportation, water supply, sewage disposal, schools, parks, open space, natural areas and other public requirements; to encourage the most appropriate use of land and structures throughout the county and its cities; to guide and accomplish a coordinated, adjusted, and harmonious development of all areas of the county and its cities; and to aid in the implementation of the Comprehensive Plan.

Subdivision Regulations

Link: Oldham County Subdivision Regulations

The Oldham County Subdivision Control Ordinance, last amended in March 2018, governs land division and development within the county. The regulations include road design and construction standards and guidelines for pedestrian infrastructure.

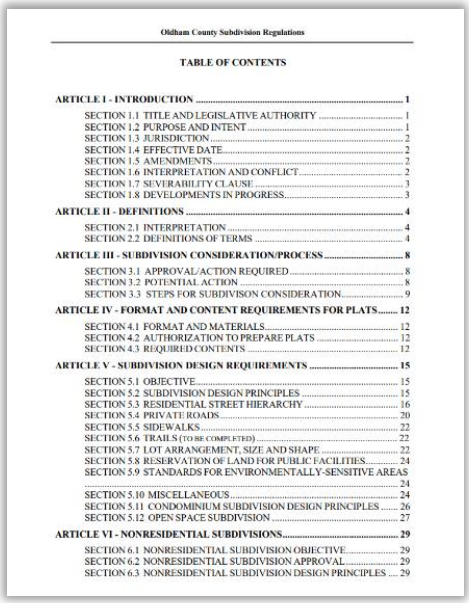

Oldham County Subdivision Regulations

TABLE OF CONTENTS

ARTICLE I - INTRODUCTION 1
SECTION 1.1 TITLE AND LEGISLATIVE AUTHORITY 1
SECTION 1.2 PURPOSE AND INTENT 1
SECTION 1.3 JURISDICTION 2
SECTION 1.4 EFFECTIVE DATE 2
SECTION 1.5 AMENDMENTS 2
SECTION 1.6 INTERPRETATION AND CONFLICT 2
SECTION 1.7 SEVERABILITY CLAUSE 3
SECTION 1.8 DEVELOPMENTS IN PROGRESS 3
ARTICLE II - DEFINITIONS 4
SECTION 2.1 INTERPRETATION 4
SECTION 2.2 DEFINITIONS OF TERMS 4
ARTICLE III - SUBDIVISION CONSIDERATION/PROCESS 8
SECTION 3.1 APPROVAL/ACTION REQUIRED 8
SECTION 3.2 POTENTIAL ACTION 8
SECTION 3.3 STEPS FOR SUBDIVISON CONSIDERATION 9
ARTICLE IV - FORMAT AND CONTENT REQUIREMENTS FOR PLATS 12
SECTION 4.1 FORMAT AND MATERIALS 12
SECTION 4.2 AUTHORIZATION TO PREPARE PLATS 12
SECTION 4.3 REQUIRED CONTENTS 12
ARTICLE V - SUBDIVISION DESIGN REQUIREMENTS 15
SECTION 5.1 OBJECTIVE 15
SECTION 5.2 SUBDIVISION DESIGN PRINCIPLES 15
SECTION 5.3 RESIDENTIAL STREET HIERARCHY 16
SECTION 5.4 PRIVATE ROADS 20
SECTION 5.5 SIDEWALKS 22
SECTION 5.6 TRAILS (TO BE COMPLETED) 22
SECTION 5.7 LOT ARRANGEMENT, SIZE AND SHAPE 22
SECTION 5.8 RESERVATION OF LAND FOR PUBLIC FACILITIES 24
SECTION 5.9 STANDARDS FOR ENVIRONMENTALLY-SENSITIVE AREAS 24
SECTION 5.10 MISCELLANEOUS 24
SECTION 5.11 CONDOMINIUM SUBDIVISION DESIGN PRINCIPLES 26
SECTION 5.12 OPEN SPACE SUBDIVISION 27
ARTICLE VI - NONRESIDENTIAL SUBDIVISIONS 29
SECTION 6.1 NONRESIDENTIAL SUBDIVISION OBJECTIVE 29
SECTION 6.2 NONRESIDENTIAL SUBDIVISION APPROVAL 29
SECTION 6.3 NONRESIDENTIAL SUBDIVISION DESIGN PRINCIPLES 29

Future Considerations

These recommendations include guidance for future amendments that support eliminating road deaths and serious injuries.

Traffic Calming Measures: Consider updating regulations to include guidelines for traffic calming measures, such as roundabouts, speed humps, chicanes, and raised intersections and crosswalks in residential subdivisions to reduce vehicle speeds and enhance safety for pedestrians and bicyclists. Implementing traffic calming strategies will reduce the risk and severity of crashes.

Active Transportation Infrastructure: Consider updating active transportation infrastructure requirements for new developments within the county to promote safe access for all vulnerable road users. Sidewalks should meet accessibility standards and provide safe crossings at all intersections. Consider incorporating dedicated pathways or multi-use trails in all new developments and encouraging connectivity to existing pedestrian and active transportation networks.

Traffic Safety Analysis and Improvements: Consider including language that requires a traffic safety analysis to demonstrate that the development or subdivision is not significantly impacting safety on nearby roads or intersections. Language could also be integrated into zoning and subdivision ordinances to provide for the analysis of, and recommendations for, potential countermeasures to address any potential impacts.

6. Strategy and Project Selection

The development of strategies and project selection is based on a comprehensive analysis of historical crash data, implementation of best practices, and active engagement with stakeholders and the community, and an assessment of Areas of Persistent Poverty (APP) and Underserved Communities. The reactive approach involves a detailed examination of crash data by frequency, severity, and location to identify the areas needing improvement the most. The following sections detail the methodology for prioritizing projects and strategy selection.

Prioritization

The County's goal is to eliminate fatal and serious injury crashes; therefore, crash severity is a critical factor in prioritizing projects and strategy selection. Comprehensive crash costs combine the economic cost of a crash and monetized pain and suffering. The Federal Highway Administration (FHWA) developed national crash costs to use as default crash unit values (Crash Costs for Highway Safety Analysis), that states and municipalities can adjust based on regional differences. The table below provides the comprehensive cost per crash adjusted to the KIPDA region as prescribed in the FHWA Crash Costs for Highway Safety Analysis.

Severity	Severity Description	Comprehensive Cost Per Crash (2022 Dollars)
K	Fatal Injury	$10,175,024
A	Suspected Serious Injury	$594,471
B	Suspected Minor Injury	$182,274
C	Possible Injury	$116,572
O	No Apparent Injury	$12,220

Table 6-1 KIPDA Comprehensive Crash Cost

Equivalent Property Damage Only Method

The Equivalent Property Damage Only (EPDO) is a method of weighting crashes by severity using the equivalent number of No Apparent Injury Crash costs, also referred to as a Property Damage Only property damage only (PDO) crash costs, to develop the weights. The following table shows the breakdown of the comprehensive costs and EPDO value by crash severity.

Severity	Comprehensive Cost Per Crash (2022 Dollars)	EPDO Weighted Value
K	$10,175,024	833
A	$594,471	49
B	$182,274	15
C	$116,572	10
O	$12,220	1

Table 6-2. KIPDA EPDO Crash Value

As shown in Table 6-2, the comprehensive cost of a fatal crash (K) compared to the other crash severities is significant. The EPDO method, however, may overly emphasize fatal crashes, potentially skewing focus towards areas with fewer crashes. To address this imbalance, analysts used a modified EPDO (MEPDO) approach to equally consider both fatal and suspected serious injury crashes by blending their values based on their comprehensive costs and frequency. Table 6-3 presents a breakdown of the MEPDO, providing a more balanced evaluation while maintaining a focus on fatal and suspected serious injury crashes. The crashes for the entire KIPDA region were used to calculate weighted average costs and MEPDO.

Severity	Crashes	Comprehensive Cost Per Crash (2022 Dollars)	Severity	Weighted Average Costs	MEPDO Value
K	618	$10,175,024	KA	$2,224,193	182
A	3,015	$594,471			
B	12,841	$182,274	B	$182,274	15
C	11,770	$116,572	C	$116,572	10
O	113,611	$12,220	O	$12,220	1

Table 6-3. KIPDA MEPDO Crash Value

Reactive Approach

Methodology

The reactive approach for analyzing crashes includes joining the crash data with roadway data. KYTC provided geographic information system (GIS) files of roadway and traffic data, known as the Highway Information System (HIS) database. HIS data includes roadway characteristics and traffic data for state-owned roadways. Analysts combined the crash data with GIS information to facilitate detailed analysis by identifying the location of the crashes by road segment and intersection.

After joining the crashes to the roadway segments and intersections, analysts applied the MEPDO method to generate lists of prioritized intersections and corridors.

The lists are for planning purposes only. The intersections and corridors identified could potentially benefit from safety countermeasures; however, it is not necessary to make improvements in the listed order. In addition, there may be other high priority locally identified safety projects. Therefore, these lists provide high-level planning guidance for future agency consideration.

Intersections

Enhancing safety at intersections is vital for achieving a Safe System Approach. Evaluating roadway features such as geometrics and traffic operation and control is necessary for eliminating fatal and serious injury crashes. Intersections are deliberate points of interaction where vehicles and non-motorized users converge, significantly impacting the overall safety performance of the transportation system. These conflict points are historically where fatal and serious injury crashes occur. Therefore, intersection projects present unique opportunities to incorporate Safe System principles into planning, design, and operational decisions. Improving intersections can play a significant role in eliminating fatal and serious injury crashes.

Prioritized Intersections

Oldham County experienced 12 fatal and suspected serious injury crashes at intersections, representing 30% of all fatal and suspected serious injury crashes. These crashes occurred at both signalized and unsignalized intersections. Both intersections contain multiple conflict points and offer significant opportunities to enhance safety for all users. MEPDO was calculated and ranked for each intersection.

The table below lists the top 20 intersections by MEPDO. The top 20 intersections account for 26 of the 36 fatal and suspected serious injury crashes that occurred at intersections.

Ranking	Intersection	K	A	B	C	O	KA	TOTAL	MEPDO
1	KY-393 & I-71 NB Ramps	0	3	2	2	19	3	26	614
2	Ash Ave (KY-362) & Old Floydsburg Rd	1	2	3	0	17	3	23	608
3	S 1st Ave (KY-53) & I-71 NB Ramps	0	2	3	6	77	2	88	543
4	LaGrange Rd (KY-146) & KY-329 Bypass	0	2	3	6	55	2	66	521
5	S 1st Ave (KY-53) & I-71 SB Ramps	0	1	5	8	36	1	50	369
6	S 1st Ave (KY-53) & E Crystal Dr	0	1	1	3	78	1	83	304
7	Ballardsville Rd (KY-22) & Wooldridge Ave	1	0	2	6	27	1	36	296
8	S 1st Ave (KY-53) & E Main St	0	1	2	0	36	1	39	248
9	Ballardsville Rd (KY-22) & Park Woods Rd	0	1	2	2	3	1	8	234
10	N 1st Ave (KY-53) & US-42	1	0	1	3	8	1	13	234
11	Ballardsville Rd (KY-22) & KY-329	1	0	1	1	22	1	25	228
12	KY-329 Bypass & Claymont Crossing	0	1	2	0	12	1	15	224
13	S 1st Ave (KY-53) & W Adams St	0	1	1	1	17	1	20	223
14	KY-329 Bypass & Dovefield Dr	0	1	2	0	5	1	8	217
15	KY-393 & I-71 SB Ramps	0	1	1	1	8	1	11	214
16	N 1st Ave (KY-53) & W Madison St	1	0	1	1	6	1	9	212
17	LaGrange Rd (KY-146) & Maple Ave	0	1	1	1	3	1	6	209
18	LaGrange Rd (KY-146) & KY-393	0	1	0	1	17	1	19	209
19	KY-329 (Covered Bridge Rd) & KY-1817 (Halls Hill Rd)	0	1	1	1	2	1	5	208
20	LaGrange Rd (KY-146) & Bird Rd	0	1	1	0	1	1	3	198

Table 6-4. Prioritized Intersections by MEPDO

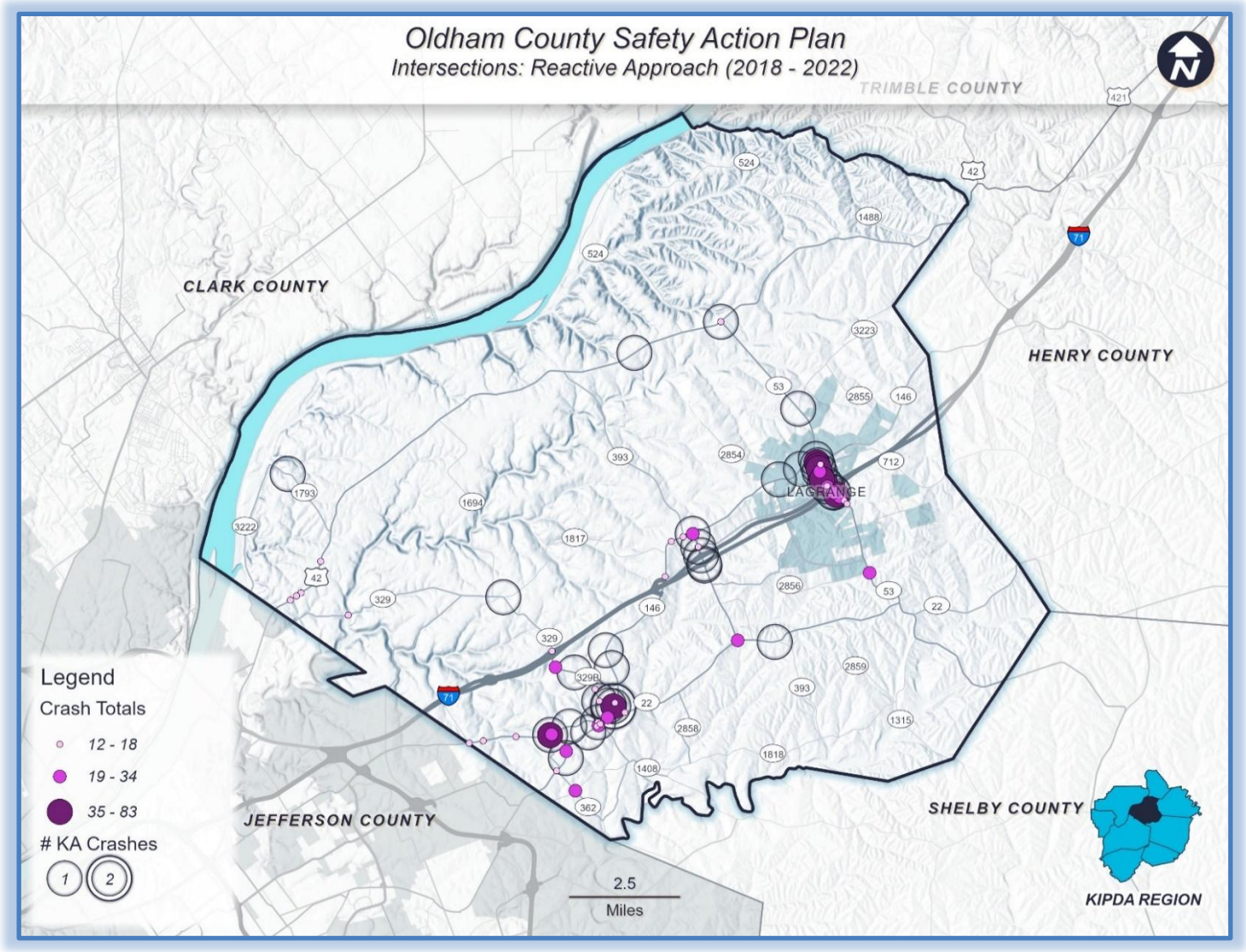


Figure 6-1. Intersections: Reactive Approach Map

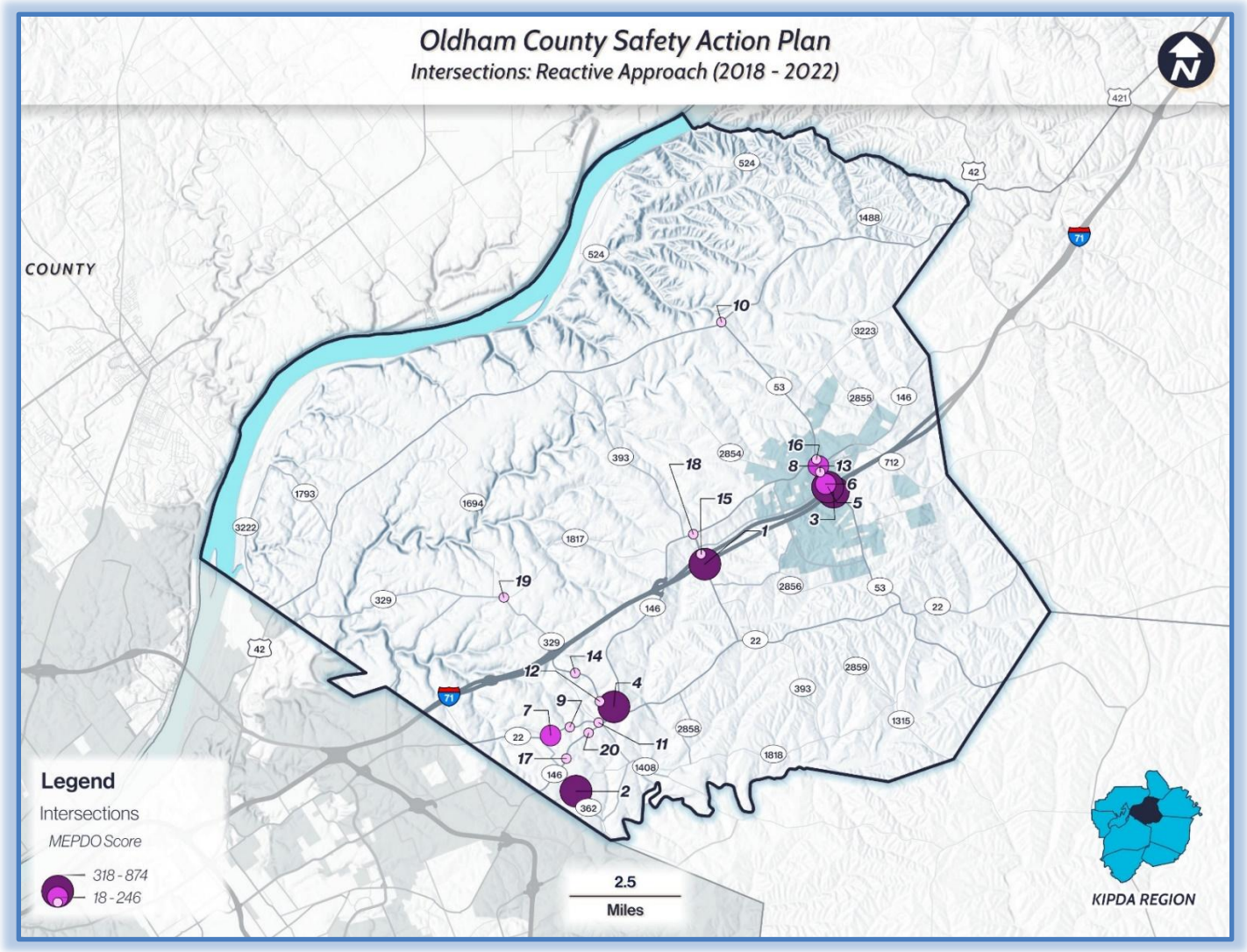


Figure 6-2. Intersections Prioritized by MEPDO Map

High Injury Network and Prioritized Corridors

A High Injury Network (HIN) is a data-driven approach to identify roadway segments that experience a disproportionately high number of fatal and serious injury crashes. This approach enables communities to focus resources on improving safety along those high-priority corridors. Oldham County's HIN was developed using detailed crash data analysis and GIS mapping to pinpoint corridors with the highest concentration of severe crashes. The following table and maps illustrate Oldham County's HIN, highlighting its overlap with locations of fatal and serious injury crashes, and prioritized intersections based on MEPDO analysis.

Ranking	Route	Begin	End	Length (mile)	MEPDO	MEPDO/ mile
1	S First Ave (KY-53)	Pine Ridge Rd	West Jefferson St (KY-146)	1.31	2455	1868
2	N First Ave (KY-53)	W Jefferson St (KY-146)	Woodcreek Dr	0.45	621	1384
3	Lagrange Rd (KY-146)	Ballardsville Rd (KY-22)	Cottage Ln	1.27	1006	791
4	Lagrange Rd (KY-146)	Jefferson County Line	Ballardsville Rd (KY-22)	2.36	1416	599
5	Ballardsville Rd (KY-22)	Central Ave (KY-362)	Lagrange Rd (KY-146)	1.68	962	573
6	W Jefferson St (KY-146)	Sixth Ave	Fort Pickens	1.30	692	530
7	KY-329 Bypass	KY-329	Ballardsville Rd (KY-22)	2.06	1004	487
8	Lagrange Rd (KY-146)	Cedar Point Rd (KY-1817)	Oldham County Detention Center	1.14	512	450
9	US-42	Jefferson County Line	Hillcross Pkwy	1.47	651	444
10	KY-393	Ballardsville Rd (KY-22)	Lagrange Rd (KY-146)	2.62	1116	427
11	Lagrange Rd (KY-146)	Oldham County Detention Center	KSR Main Entrance	1.29	449	347
12	Ash Ave (KY-362)	Lagrange Rd (KY-146)	Shelby County Line	2.06	713	345
13	Lagrange Rd (KY-146)	Old Lagrange Rd S Conn	Cedar Point Rd (KY-1817)	1.06	318	300
14	KY-329	Jefferson County Line	Constatine Dr	3.37	1010	299
15	Floydsburg Rd (KY-1408)	Old Floydsburg Rd (KY-1408)	Lagrange Rd (KY-146)	1.10	290	265
16	KY-329	Constatine Dr	Halls Hill Rd (KY18-17)	1.73	452	262
17	KY-329	Halls Hill Rd (KY-1817)	KY-329 BYP	2.13	556	261
18	Ballardsville Rd (KY-22)	Jefferson County Line	Central Ave (KY-362)	1.83	407	223
19	Lagrange Rd (KY-146)	Cottage Ln	Old Lagrange Rd S Conn	2.13	470	220
20	Lagrange Rd (KY-146)	KSR Main Entrance	Sixth Ave	1.33	289	217
21	Old Hannah Rd (KY-1315)	Floyds Fork	KY-53	2.04	435	213
22	W Mount Zion Rd (KY-1818)	Todds Point Rd (KY-1408)	Willow Bend Dr	1.65	323	196
23	KY-53	Old Sligo Rd (KY-3223)	US 42	2.65	493	186
24	KY-53	Ballardsville Rd (KY-22)	Ernie Harris Pkwy	1.43	264	184
25	US-42	Poplar Woods Dr	Gum St (KY-1694)	2.22	409	184
26	Ballardsville Rd (KY-22)	Northwood Dr	KY-393	1.60	286	179
27	US-42	KY-393	KY-53	3.80	657	173
28	KY-53	Shelby County Line	Ballardsville Rd (KY-22)	3.07	495	161
29	S Rose Island Rd (KY-3222)	Reserves Cove Dr	Harmony Marina Rd	1.45	233	161
30	Goshen Lane	North Rose Island Road	Plantation Blvd	1.30	199	153
31	Ballardsville Rd (KY-22)	KY-393	Fible Ln (KY-2859)	2.37	354	149
32	Lagrange Rd (KY-146)	Fort Pickens Rd (KY-2855)	Henry County Line	2.90	422	146
33	New Cut Rd (KY-1817)	Halls Hill Rd (KY-1817)	Cedar Point Rd (KY-1817)	1.55	218	140
34	Old Sligo Rd (KY-3223)	Lesprit Pkwy	US-42	1.58	221	140

Table 6-5. Prioritized Corridors - High Injury Network

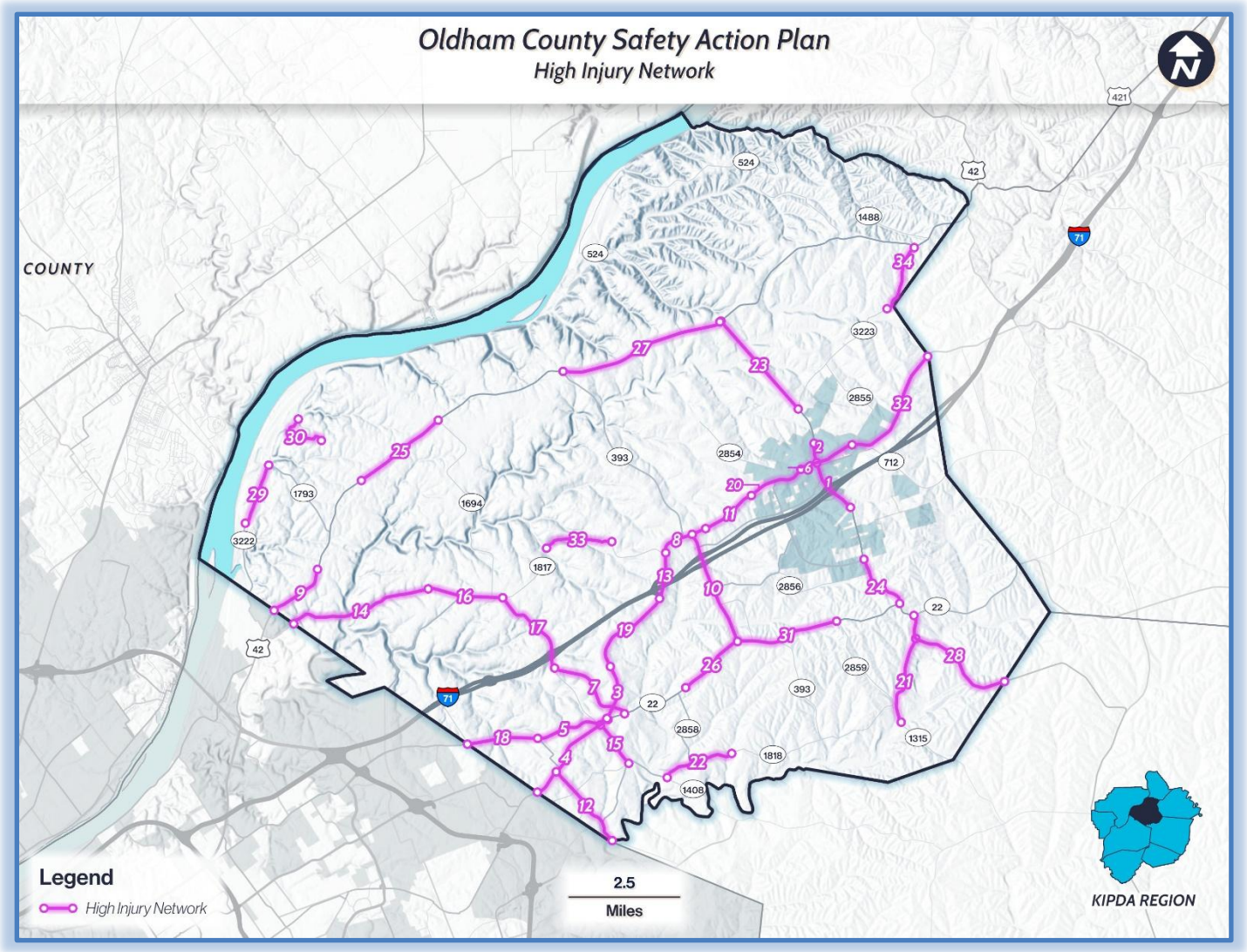


Figure 6-3. High Injury Network

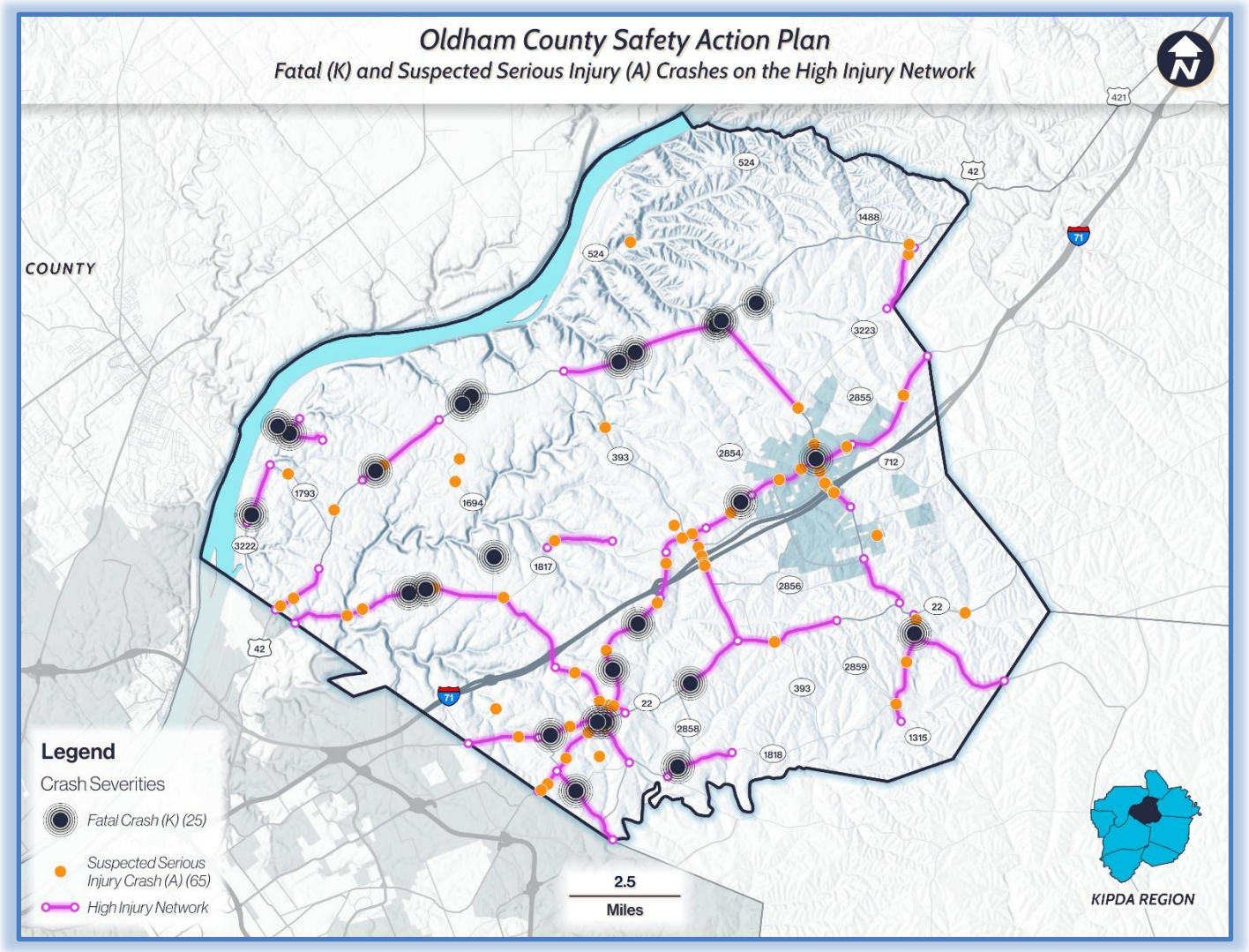


Figure 6-4. High Injury Network and Fatal and Suspected Serious Injury Crashes

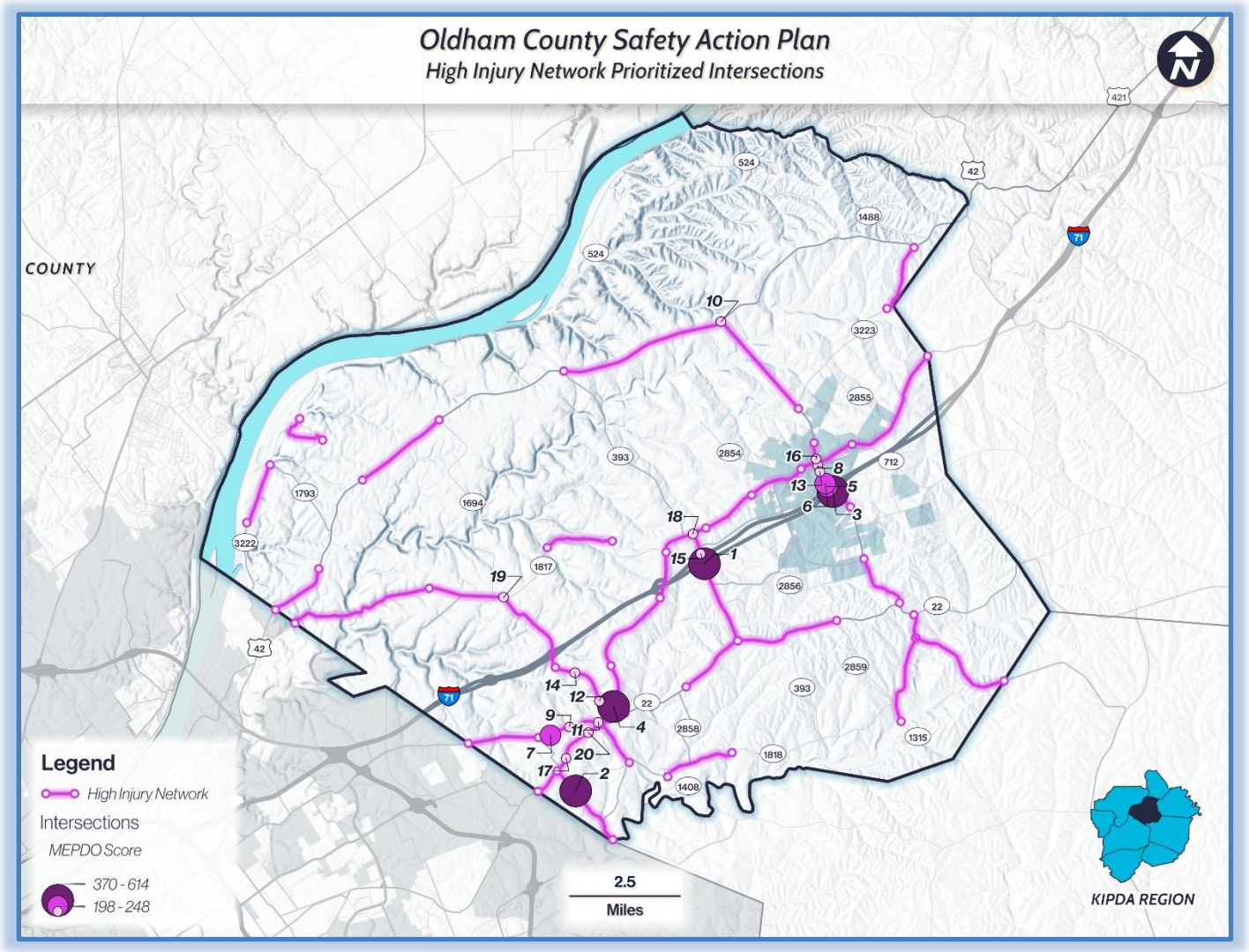


Figure 6-5. High Injury Network and Prioritized Intersections

Project Selection

A comprehensive set of recommended strategies and safety improvements was developed for the top-ranked intersections and corridors within the HIN. The improvements are based on the results of the safety analysis, feedback from Safety Committee and the public, and are guided by the principles of the Safe System Approach.

Proven Safety Countermeasures

The following tables present a selection of proven safety countermeasures designed to reduce crashes. These measures are informed by before-and-after crash data from case studies. The countermeasures are organized into roadway segment and intersection improvement tables. The countermeasures includes an image, a description of the countermeasure's safety benefits, estimated safety impact statistics, and a link for further information.

Countermeasures should be implemented as appropriate based on the prioritized project locations. Estimated cost ranges for safety countermeasures can be found in Appendix A. This appendix also includes a project implementation timeline reference chart, which provides high-level guidance on the time required to complete a range of potential safety improvement projects. Please refer to the notes on the chart during the development of project timelines.

Additional information on potential safety countermeasures can be found using these links:

Proven Safety Countermeasures (Federal Highway Administration)
https://highways.dot.gov/safety/proven-safety-countermeasures

Innovative Intersections (Virginia Department of Transportation)
https://www.vdot.virginia.gov/about/our-system/highways/innovative-intersections/virginia-icap/

Federal Highway Administration Safety Programs
Intersection Safety - https://highways.dot.gov/safety/intersection-safety/about
Roadway Departure Safety – https://highways.dot.gov/safety/RwD
Speed Management Safety - https://highways.dot.gov/safety/speed-management
Pedestrian and Bicycle Safety – https://highways.dot.gov/safety/pedestrian-bicyclist
Local and Rural Safety - https://highways.dot.gov/safety/local-rural
Safety Data Analysis and Tools - https://highways.dot.gov/safety/data-analysis-tools

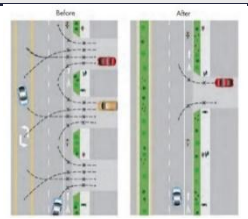
Example Segment Countermeasures							
Countermeasure	Description	Safety Impact	Links	Countermeasure	Description	Safety Impact	Links
Enhanced Delineation for Horizontal Curves				**Roadside Design Improvements at Curves**			
	High visibility markings and delineators around curves provide drivers with better information about curves.	Severe crashes ↓15-18%	FHWA		Includes treatments that improve horizontal curves, giving drivers the opportunity to recover safely or reducing crash severity.	Single Vehicle or All Crashes ↓8-44%	FHWA
Access Management (segment treatments)				**Medians and Pedestrian Refuge Islands**			
	Reducing the number and proximity of access points to focus turning traffic to fewer locations. Reduces turning conflicts.	2-lane Rural Road Crashes ↓5- 23% Urban Severe Crashes ↓25- 31%	FHWA		Provide curbed median between opposing travel lanes to provide separation, reduce left-turn risks, and improve pedestrian safety.	Ped Crashes ↓46-56% Vehicle Crashes ↓15%	FHWA and FHWA
Roadway Reconfiguration (Right Sizing or Road Diet)				**Shoulder Treatment – Safety Edge**			
	Often involves converting a 4-lane undivided road to a 3-lane road with 2 through lanes and a center two-way left-turn lane, which slows traffic and reduces conflicts.	All Crashes ↓19-47%	FHWA		Shoulder edge upgrades to improve recoverability for roadway departures.	Severe ↓11% Run-Off-Road ↓21% Head-On ↓19%	FHWA
Dynamic Speed Feedback Signs				**Pavement Friction Management**			
	Provide positive and negative feedback to drivers regarding their speed.	All Crashes ↓5%	FHWA (pg 5) FHWA Clearing house		High Friction Surface Treatment (HFST) can prevent roadway departure, intersection, and pedestrian-related crashes.	Severe Crashes at Curves ↓48% Crashes at Intersections ↓48%	FHWA

Table 6-6. Example Segment Countermeasures

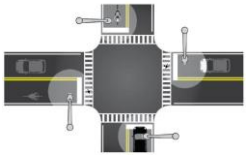
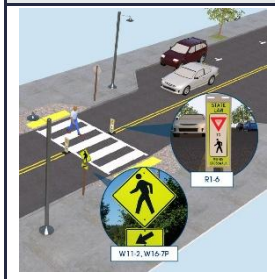
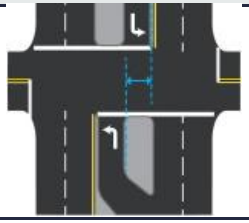
Example Intersection Countermeasures							
Countermeasure	Description	Safety Impact	Links		Countermeasure	Description	Safety Impact	Links
Access Management (intersection treatments)					**Intersection Lighting**			
	This refers to the design and control of access points including intersections which can enhance safety for all modes.	2-lane Rural Road Crashes ↓5- 23% Urban Severe Crashes ↓25- 31%	FHWA			Increased visibility at nighttime can improve safety for all modes of travel.	Nighttime Ped Injuries ↓42% Nighttime Crashes ↓33-38%	FHWA
Crosswalk Visibility Enhancement					**Reflective Backplates**			
	High-visibility crosswalks can reduce pedestrian injury crashes.	Pedestrian Injury Crashes ↓40%	FHWA			Improve the visibility of the illuminated face of the signal by introducing a controlled-contrast background.	Total Crashes ↓15%	FHWA
Low-Cost Countermeasures at Stop-Controlled Intersections					**Modern Roundabouts (RAB)**			
	Deploying a package of low-cost countermeasures, including enhanced signing and pavement markings increasing driver awareness.	Severe Crashes ↓10% Night Crashes ↓15% Rural Severe Crashes ↓27%	FHWA			Converting an intersection (stop or signal) into a roundabout can slow traffic. It also minimizes conflicts and reduces crash severity.	2-way Stop to RAB Severe Crashes ↓82% Signal to RAB Severe Crashes ↓78%	FHWA
Left and Right Turn Lanes					**Positive Offset Left-Turn Lane**			
	Left and right turn lanes provide physical separation between through traffic and turning traffic that is slowing or stopped.	Left Turn Lane ↓28-48% Right Turn Lane ↓14-26%	FHWA			Provides increased visibility for drivers turning left. It prevents opposing left turning vehicles from blocking sightlines.	Severe crashes ↓36%	FHWA

Table 6-7. Example Intersection Countermeasures

Potential Intersection Strategies

The following table lists the prioritized intersections based on their MEPDO values. Each intersection was evaluated for its existing condition. Relevant safety countermeasures were identified as potential improvements for each intersection.

Intersections – Reactive Approach													
Ranking	Intersection	Potential Countermeasures											
		Roundabouts / Alternative Int.	Turn Lanes	Tighten Intersection	Reflective Backplates	Enhanced Striping	Enhanced Signing	Access Management / Raised Median	Lighting	Sight Distance Improvements	Pedestrian Enhancements	Re-Align Intersection	Speed Management
1	KY-393 & I-71 NB Ramps [1]	X		X		X	X						X
2	Ash Ave (KY-362) & Old Floydsburg Rd [2]	X				X	X			X			X
3	S 1st Ave (KY-53) & I-71 NB Ramps [3]					X	X				X		
4	LaGrange Rd (KY-146) & KY-329 Bypass [4]	X				X	X		X		X		
5	S 1st Ave (KY-53) & I-71 SB Ramps			X		X	X				X		
6	S 1st Ave (KY-53) & E Crystal Dr [5]					X	X	X			X		
7	Ballardsville Rd (KY-22) & Wooldridge Ave [6]	X	X			X	X		X	X			
8	S 1st Ave (KY-53) & E Main St					X	X		X		X		X
9	Ballardsville Rd (KY-22) & Park Woods Rd		X			X	X			X			X
10	N 1st Ave (KY-53) & US-42	X	X	X		X	X						
11	Ballardsville Rd (KY-22) & KY-329 [7]	X		X	X	X	X				X	X	X
12	KY-329 Bypass & Claymont Crossing [4]	X		X		X	X	X	X		X		X
13	S 1st Ave (KY-53) & W Adams St		X			X	X	X	X		X		
14	KY-329 Bypass & Dovefield Dr [4]	X	X			X	X						
15	KY-393 & I-71 SB Ramps	X		X		X	X						X
16	N 1st Ave (KY-53) & W Madison St	X	X			X	X	X			X		
17	LaGrange Rd (KY-146) & Maple Ave		X			X	X						
18	LaGrange Rd (KY-146) & KY-393	X	X			X	X		X				
19	KY-329 (Covered Bridge Rd) & KY-1817 (Halls Hill Rd)	X		X		X	X					X	X
20	LaGrange Rd (KY-146) & Bird Rd					X	X				X		

Notes:

1. *Intersection was signalized within the last few years*
2. *This was converted to a four-way stop in 2021*
3. *This intersection was modified with added lanes in the last several years*
4. *Included in an active planning study; intersection was recently restriped*
5. *Turn lanes were added within the last two years at this intersection*
6. *This intersection is part of an active improvement project (5-596)*
7. *Alternatives for this intersection are being investigated with respect to the railroad crossing*

Table 6-8. Potential Intersection Strategies

Potential High Injury Network Corridor Strategies

The following table outlines potential safety improvement strategies for the identified HIN. The list of improvements was developed using proven safety countermeasures aimed at reducing and eventually eliminating severe crashes. These routes can be further studied to guide implementation efforts.

Rank	Route Name	Begin and End Limits	Length (mile)	Potential Project Strategies
1	S First Ave (KY-53)	Pine Ridge Rd to West Jefferson St (KY-146)	1.31	Access management, roundabouts and/or alternative intersections, left turn lanes, improved pedestrian and cyclist facilities, intersection lighting, rightsizing **Active Project:** 5-80209.00 - Improve safety and reduce congestion on KY 53. **Past Project:** Turn lanes added at Crystal Drive.
2	N First Ave (KY-53)	W Jefferson St (KY-146) to Woodcreek Dr	0.45	Transition zone treatments, roundabouts, enhanced pedestrian and cyclist facilities, pedestrian crossings, enhanced signage, intersection lighting **Past Project:** KY 146 / KY 53 was signalized.
3	Lagrange Rd (KY-146)	Ballardsville Rd (KY-22) to Cottage Ln	1.27	Shoulder widening, edgeline rumble strips (starting at MP 2.85), roundabouts, left turn lanes, pedestrian and cyclist facilities, speed management **Active Project:** Shared use path along Old Lagrange Rd from N Camden to 329B then along 329B from Old Lagrange Rd to KY 146 (currently in ROW acquisition)
4	Lagrange Rd (KY-146)	Jefferson County Line to Ballardsville Rd (KY-22)	2.36	Shoulder widening, edgeline rumble strips, tree trimming, access management, speed management, pedestrian and cyclist facilities, left turn lanes, utility relocation or undergrounding, long-term: consider urban section
5	Ballardsville Rd (KY-22)	Central Ave (KY-362) to Lagrange Rd (KY-146)	1.68	Section is being designed. Transition zone treatment. **Active Projects:** 5-596 – improve KY 22 intersections at Clore Lane and Wooldridge Ave. 5-80345.00 – Improve safety and reduce congestion along KY 22 from MP 1.4 to 2.1.
6	W Jefferson St (KY-146)	Sixth Ave to Fort Pickens	1.30	Shoulder widening, edgeline rumble strips (at end of curb & gutter near MP 11.0), access management, roundabout, upgrade pedestrian and cyclist facilities, traffic calming/speed management **Past Project:** KY 146 / KY 53 was signalized.
7	KY-329 Bypass	KY-329 to Ballardsville Rd (KY-22)	2.06	Intersection upgrades, roundabouts, RCUTs, pedestrian and cyclist enhancements, shoulder rumble strips, lighting **Active Project:** 5-590 - KY 329B Corridor Study from I-71 to KY 22
8	Lagrange Rd (KY-146)	Cedar Point Rd (KY-1817) to Oldham County Detention Center	1.14	Shoulder widening, edgeline rumble strips, tree trimming, roundabout or alternative intersections, left turn lanes, pedestrian facilities **Active Projects:** 5-234.00 - Includes limited KY 146 reconstruction from MP 7.42 to MP 7.64 (Committed Project) 5-80325.00 - Reduce congestion, improve safety, and enhance mobility on KY 146 in Buckner from KY 1817 to KY 393 (Planned Project)
9	US-42	Jefferson County Line to Hillcross Pkwy	1.47	Shoulder widening, edgeline rumble strips, tree trimming, roundabout, left turn lanes (not right turn lanes), intersection lighting, guardrail upgrade, curve signing **Active Project:** 5-80307.00 – Improve traffic flow, minimize congestion, and address safety issues on US-42 between Ridgemoor Dr and KY-1694 Note: The skewed Locke Lane intersection is located a short distance north of Hillcross Pkwy. It presents safety challenges which are expected to become more critical as development continues in the area. This intersection should be considered as an alternate end location for this HIN segment.
10	KY-393	Ballardsville Rd (KY-22) to Lagrange Rd (KY-146)	2.62	Roundabouts or alternative designs at interchange, reduce angle of right turn lanes at ramp termini, access management and RCUT, edgeline/centerline rumble strips, guardrail upgrade **Recent and Active Projects:** Northbound I-71 ramps intersection was signalized within last few years. Lighting is being investigated for the KY 393 / Centerfield intersection.

Rank	Route Name	Begin and End Limits	Length (mile)	Potential Project Strategies
11	Lagrange Rd (KY-146)	Oldham County Detention Center to KSR Main Entrance	1.29	Shoulder widening, edgeline rumble strips, left turn lanes, pedestrian facilities. *Note: There is also a need for transportation for released inmates. Funding for this service would be beneficial until pedestrian facilities could be constructed.*
12	Ash Ave (KY-362)	Lagrange Rd (KY-146) to Shelby County Line	2.06	Shoulder widening, edgeline rumble strips, tree trimming, roundabout, guardrail upgrade, curve signing, curve widening, striping enhancement **Active Project:** 5-80314.00 – Improve safety, access, and address geometric deficiencies along KY 362 from county line to KY 146. *Note: The intersection at Old Floydsburg Rd was converted to a four-way stop in 2021.*
13	Lagrange Rd (KY-146)	Just south of I-71 NB Ramps to Cedar Point Rd (KY-1817)	1.06	Shoulder widening, edgeline rumble strips, roundabout *Note: Striping upgrades have been made in the last several years.*
14	KY-329	Jefferson County Line to Constatine Dr	3.37	Shoulder widening, centerline rumble strips, guardrail upgrade, curve widening, curve re-alignment, tree trimming
15	Floydsburg Rd (KY-1408)	Old Floydsburg Rd (KY-1408) to Lagrange Rd (KY-146)	1.10	Shoulder widening, edgeline rumble strips, curve signing, curve widening
16	KY-329	Constatine Dr to Halls Hill Rd (KY1817)	1.73	Shoulder widening, edgeline rumble strips, tree trimming, intersection signing, redesign intersection in curve
17	KY-329	Halls Hill Rd (KY-1817) to KY-329 BYP	2.13	Shoulder widening, edgeline rumble strips, tree trimming, curve widening, curve re-alignment, guardrail upgrade **Active Project:** At interchange
18	Ballardsville Rd (KY-22)	Jefferson County Line to Central Ave (KY-362)	1.83	Shoulder widening, edgeline/centerline rumble strips, left turn lanes or center turn lane, guardrail upgrade, tree trimming **Active Project:** 5-80345.00 – Improve safety and reduce congestion along KY 22 from MP 1.4 to 2.1. *Note: There is a proposed, but currently unfunded, project to improve the intersection of KY 22 and Haunz Lane.*
19	Lagrange Rd (KY-146)	Cottage Ln to Just south of I-71 NB Ramps	2.13	Curve widening, curve signing, intersection signing, tree trimming, left turn lanes, speed management
20	Lagrange Rd (KY-146)	KSR Main Entrance to Sixth Ave	1.33	Shoulder widening, edgeline rumble strips, tree trimming, left turn lanes, transition zone treatments, pedestrian facilities *Note: Allen Lane will be realigned to intersect with Spring House Pike as part of active project 5-434.*
21	Old Hannah Rd (KY-1315)	Floyds Fork to KY-53	2.04	Shoulder widening, centerline rumble strips, intersection signing, curve signing, curve re-alignment, curve widening *Note: Improvements to KY 53 (project 5-88520 may include improvements to intersection of KY 53 and KY 1315.*
22	W Mount Zion Rd (KY-1818)	Todds Point Rd (KY-1408) to Willow Bend Dr	1.65	Shoulder widening, centerline rumble strips, tree trimming, guardrail upgrade, curve signing, curve widening, curve re-alignment
23	KY-53	Old Sligo Rd (KY-3223) to US 42	2.65	Shoulder widening, centerline rumble strips, guardrail upgrade, intersection signing, access management
24	KY-53	Ballardsville Rd (KY-22) to Ernie Harris Pkwy	1.43	Shoulder widening, centerline rumble strips, enhanced curve signing, guardrail upgrade, left turn lanes **Active Project:** 5-8852.00 - Design for improving KY 53 from Zhale Smith Rd to KY 22
25	US-42	Poplar Woods Dr to Gum St (KY-1694)	2.22	Shoulder widening, edgeline rumble strips, tree trimming, roundabout, guardrail upgrade, curve signing, curve widening, striping enhancement, access management, left turn lanes **Active Project:** 5-80307.00 – Improve traffic flow, minimize congestion, and address safety issues on US-42 between Ridgemoor Dr and KY-1694
26	Ballardsville Rd (KY-22)	Northwood Dr to KY-393	1.60	Shoulder widening, edgeline rumble strips, tree trimming, roundabout, left turn lanes
27	US-42	KY-393 to KY-53	3.80	Tree trimming, intersection signing, curve widening, curve signing, roundabout at KY-53

Rank	Route Name	Begin and End Limits	Length (mile)	Potential Project Strategies
28	KY-53	Shelby County Line to Ballardsville Rd (KY-22)	3.07	Shoulder widening, centerline rumble strips, curve signing, curve widening, curve re-alignment, tree trimming *Note: Project 5-8852 may include improvements to KY 53 from KY 1315 to KY 22.*
29	S Rose Island Rd (KY-3222)	Reserves Cove Dr to Harmony Marina Rd	1.45	Shoulder widening, edgeline rumble strips, tree trimming, striping enhancement *Note: There have been ongoing discussions regarding upgrades to this section.*
30	Goshen Lane	North Rose Island Road to Plantation Blvd	1.30	Tree trimming, signage, speed management countermeasures
31	Ballardsville Rd (KY-22)	KY-393 to Fible Ln (KY-2859)	2.37	Shoulder widening, edgeline rumble strips (MP 7-7.9), centerline rumble strips (MP 7.9-9.45), tree trimming, curve widening, curve signing, left turn lanes
32	Lagrange Rd (KY-146)	Fort Pickens Rd (KY-2855) to Henry County Line	2.90	Shoulder widening, centerline rumble strips, tree trimming, curve widening, curve signing
33	New Cut Rd (KY-1817)	Halls Hill Rd (KY-1817) to Cedar Point Rd (KY-1817)	1.55	Shoulder widening, edgeline rumble strips, tree trimming, striping enhancement, curve widening, curve signing
34	Old Sligo Rd (KY-3223)	Lesprit Pkwy to US-42	1.58	Shoulder widening, edgeline rumble strips, curve signing, curve widening, guardrail upgrade, curve re-alignment

Table 6-9. Potential High Injury Corridor Safety Strategies

System Level Approach and Strategies

The system level (or systemic) approach to safety identifies and addresses high-risk features across the entire roadway network rather than focusing solely on specific crash locations, as in the reactive approach. Risk factors for Oldham County's roadway network were identified by analyzing crash and roadway data. The major safety challenges appear to be on major highway corridors, major intersections, and rural highways.

Systemic strategies involve implementing widespread improvements to reduce the likelihood and severity of crashes across an area, not just at specific locations. These strategies proactively identify and mitigate potential hazards to prevent crashes.

Strategy 1 – Upgrades to Arterials and Major Collectors

Over half of all severe crashes in the county were flagged as driver control and judgement error crashes. To reduce the likelihood of these crashes (and severity when they happen), Oldham County could work with KYTC and others to improve the safety performance of some of the key streets and highways. This could be done using innovative intersection designs, medians, access management, narrower lanes (using striping), smaller intersection curve radii (with truck aprons), and possibly fewer right turn lanes. Upgraded signage and markings along with improved lighting could also be beneficial.

For critical highways such as US 42, KY 22, KY 146, and others with high volumes and limited capacity, these concepts could be integrated into current and future upgrade projects.

Strategy 2 – Curve Signing and Striping / Rural Highway Safety

Upgrade the signing and striping in sharp curves throughout the county. This could be prioritized based on speeds and volumes but should ultimately lead to upgrades for all 45 mph and higher roadways. Curve widening and upgraded safety treatments such edge rumble strips, wide edge lines, center rumble strips, centerline buffers, and upgraded guardrails could also be beneficial. Oldham county has already been actively pursuing these types of improvements across the county.

Strategy 3 – Speed Management

High speeds and aggressive driving in Oldham County are associated with severe crashes. As highways are upgraded over time, steps should be taken to incorporate speed management techniques. For example, roundabouts could be installed at key intersections to promote slower speeds. Speed feedback signs and speed transition zone treatments, along with strict school speed limit enforcement could be beneficial as well.

Strategy 4 – Vulnerable Road User Safety Upgrades

Many of the countermeasures listed above would benefit pedestrians and bicyclists. In particular, improved crosswalk signing and striping and intersection lighting would be beneficial. Other upgrades could include completion of missing sidewalk connections and lighting along roadways, especially near side-streets and driveways.

Safety Action Plan Implementation

This plan has documented and prioritized many safety challenges. Based on the data, agency / stakeholder input, and best practices, it has also identified potential strategies and projects that would address these challenges. The focus continues to be on reducing high-severity crashes across the community. This section outlines an initial action plan for deploying potential strategies, projects, and safety programs. The actions are proposed to be implemented in four time ranges: short-term (0-3 years); mid-term (4-6 years); long term (7+ years); and ongoing. They cover the main intervention categories: infrastructure, behavioral safety, operational safety, and policies/procedures.

The implementation of each project, strategy, or program is dependent on funding availability. It is also dependent on the support of all relevant agencies and the County's capacity to execute each action. In cases where the County does not have primary authority for implementing the action, they will need to play a supporting role.

Timeframe	No	Project / Strategy / Program Description	Document Reference	Recommended First Step	Primary Category
Short Term (0 to 4 years)	1	Adopt Complete Street, Active Transportation and/or updated safety related zoning policies	Chapter 5	Work with KIPDA to obtain model policies for adoption	Policy / Procedures
	2	Submit agreed on joint application for SS4A grant funding for one of top HIN segments	Chapter 6; Table 6-9	Work with KYTC to identify and agree on a project and match funding	Infrastructure
	3	Begin outreach and education initiative with young and older drivers	Chapter 3	Collaborate with school district, public agencies, and non-profits	Behavioral
	4	Implement initial low-cost Speed Management strategies	Chapters 3 and 6; Systemic Sec.	Work with law enforcement and KYTC to identify key corridors	Operational
	5	Support targeted speed and traffic control enforcement	Chapter 3	Work with law enforcement and KYTC to identify key locations	Operational
Mid Term (4 to 8 years)	6	Implement one easy to implement systemic infrastructure focused project	Chapters 3 and 6; Systemic Sec.	Work with KYTC to identify a promising project and funding	Infrastructure
	7	Implement high priority HIN segment project	Chapter 3 and Chapter 6	Work with KYTC to identify a promising project and funding	Infrastructure
	8	Implement high priority intersection project	Chapter 3 and Chapter 6	Work with KYTC to identify a promising project and funding	Infrastructure
	9	Implement safety focused local street/highway upgrades and maintenance	Chapter 3 and Chapter 6	Use local funds to advance priority local projects / maintenance	Infrastructure
	10	Initiate countywide safety initiative; Consider focusing on aggressive driving, speeding, distracted driving, seat belt usage, and vulnerable road user safety	Chapter 3	Work with KIPDA and other counties to develop a multi-county outreach approach	Behavioral
Long Term (9+ years)	11	Implement additional systemic infrastructure focused projects (goal is one or more every five years)	Chapters 3 and 6; Systemic Sec.	Build long-term partnership with KYTC (District 5 and HSIP) to identify and address key systemic needs	Infrastructure
	12	Implement additional infrastructure projects on HIN (goal is one or more every five years)	Chapter 3 and Chapter 6	Build long-term partnership with KYTC (District 5 and HSIP) to identify and address key HIN needs	Infrastructure
	13	Implement additional intersection infrastructure projects (goal is one or more every five years)	Chapter 3 and Chapter 6	Build long-term partnership with KYTC (District 5 and HSIP) to identify and address key intersection needs	Infrastructure
	14	Implement additional safety focused local street/highway improvements (goal is one or more every five years)	Chapter 3 and Chapter 6	Increase local funds to advance priority local projects / maintenance	Infrastructure
Ongoing	15	Continue Local Safety Meetings	Chapters 2 and 4	Schedule quarterly meetings	Policy / Procedures
	16	Collaborate with KIPDA to monitor, assess, and publicly report progress	Chapter 7	Coordinate with KIPDA to implement reporting plan	Policy / Procedures
	17	Continue building staff/agency knowledge regarding highway safety	Chapters 4, 5, and 6	Coordinate with KIPDA to schedule annual sessions	Policy / Procedures

Table 6-10: Implementation Action Plan Timeline

7. Progress and Transparency

Oldham County, with support from KIPDA, is dedicated to ensuring the success of this Safety Action Plan. Effective communication, continuous monitoring, and evaluation are crucial to eliminating fatalities and serious injury crashes by 2050. Maintaining ongoing transparency through public accessibility and clear communication of outcome data is also essential.

The following chapter outlines the plan for measuring progress, maintaining transparency, and continuously incorporating feedback to enhance this road safety initiative.

Safety Performance Measurement

Safety improvements are measured using community-wide performance metrics to assess progress. Additionally, project-specific performance is monitored to promote effective implementation and positive safety impacts. The following sections outline the annual public and accessible progress reporting structure and proposed metrics.

Annual Safety Performance Measures

Crash Severity

The County and KIPDA expect to monitor the total number of crashes annually by crash severity: Fatal, Suspected Serious Injury, Suspected Minor Injury, Possible Injury, and No Apparent Injury. In addition, the crash rate for the total number of crashes would be estimated. The crash rate is the total number of crashes per vehicle miles traveled in the County.

Fatal and Suspected Serious Injury Crashes

Evaluating fatal and suspected serious injury crash trends is a key focus. Fatal and suspected serious injury crashes should be monitored annually. The measurement includes monitoring the total number of fatal and suspected serious injury crashes and the crash rate. The crash rate is the number of fatal and suspected serious injury crashes per vehicle miles traveled in the County annually.

Vulnerable Road User Crashes

Crashes involving vulnerable road users should be monitored annually, focusing on fatal and suspected serious injury crashes. Since a significant portion of severe crashes involve vulnerable road users, this metric is critical for assessing safety improvements.

Community Focused

The County and KIPDA expect to assess the above safety performance metrics by Census Tract to explore underlying factors contributing to crash trends. By comparing these metrics to county-wide results, patterns can be identified, allowing for tailored solutions and resources to meet the needs of different parts of the community. This approach aims to create a safer environment for all, by addressing concerns and promoting safety across the different parts of the community.

Project-Specific Performance Measures

The safety action plan recommends improvements using both the reactive and systemic approaches. Monitoring focuses on project-specific improvements at prioritized signalized intersections, unsignalized intersections, and along the corridors identified on the High Injury Network. Key project-specific measures anticipated to be collected include:

Safety Improvement Projects Implemented at Prioritized Locations

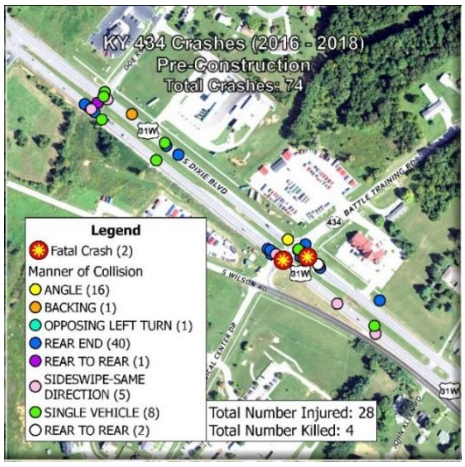
This performance measure tracks the number of safety-focused improvement projects constructed from the potential improvements listed in **Chapter 6**. The total number of safety improvements implemented at the intersection and along the corridors identified on the HIN would be recorded annually.

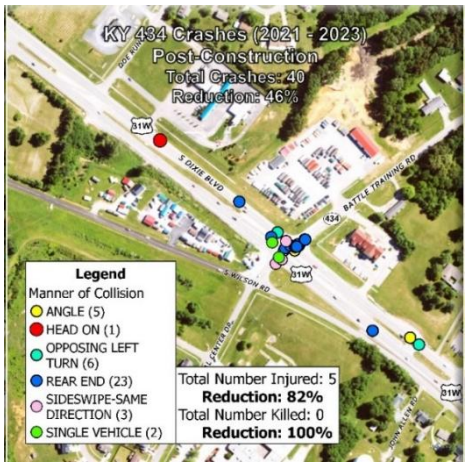
Crash Trends at Project Locations

When a safety improvement project has been constructed, pre-construction and post-construction crash data are collected to document the realized crash reduction benefit. Crash trends are measured for each project specific-improvement and aid decision-makers in future safety improvement decisions. This performance measure tracks fatal and suspected serious injury crashes for each improvement project.

Safety Studies and Design

The status of safety studies and design plans are monitored annually. These studies and design plans, which include cost estimates, public engagement, NEPA documentation, and project readiness, move projects closer to construction and the ultimate goal of eliminating fatal and suspected serious injury crashes.



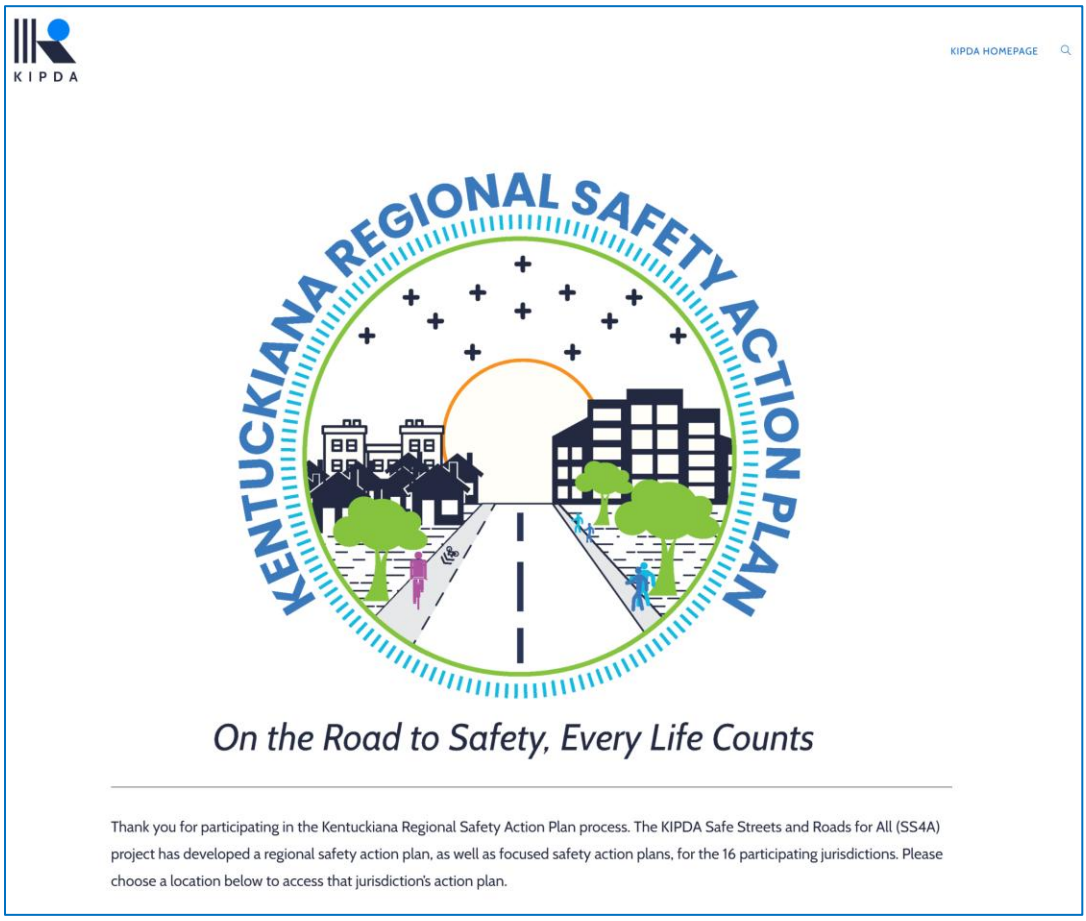


PRE-CONSTRUCTION → **POST-CONSTRUCTION**

Geospatial representation of crash trends for specific projects is an effective method to demonstrate their impact to the community. Illustrating pre and post-construction crash data, with a focus on the decrease in fatal and suspected serious injury crashes, clearly communicates safety improvements.

Transparency

The development of the Safety Action Plan has been shared publicly with residents and other relevant stakeholders through the KIPDA website. The MPO utilized its website to engage the community and disseminate further resources, including maps, the Safe Streets and Roads for All Grant Program, and the Safe Systems Approach. The Oldham County Safety Action Plan is posted publicly online at **SS4A – KIPDA Transportation**. The KIPDA website will continue to be the platform to engage the community and serve as a source of information and updates to the public.



Feedback and Continuous Improvement

Oldham County recognizes the importance of continuous improvement in achieving our safety goals. During the development of the Safety Action Plan, community engagement focused on public surveys and stakeholder engagement through the Stakeholder and Safety Committees. The County will continue to engage with the public and stakeholders to gather feedback and make necessary adjustments to the plan based on effectiveness.

Appendix A

Safety Countermeasure Cost Estimate Ranges

and

Project Implementation Timeline Reference Chart

Planning Level Safety Countermeasure Cost Estimate Ranges

Values are based on an assumed construction cost and percentages for all other categories

Results are for order of magnitude cost estimation only

6/12/2025

Notes: ***Low Cost*** *Assumes Minimal Scope, Low Cost Approaches, and/or Ideal Conditions*

High Cost *Assumes Full Scope and Several Project Challenges*

All category and contingency percentages may need to be adjusted based on project size and complexity

													(7%/yr compounded)	
Cost Percentages ==>		*5%*	*15%*	*20%*	*10%*	*12%*			*15%*	*50%*			*61%*	*61%*
Project	**Unit**	**Planning**	**Design and Environmental Permitting**	**Right-of-Way**	**Utilities**	**Construction Inspection**	**Construction**	**Subtotal**	**Low Planning Level Contingency**	**High Planning Level Contingency**	**Low Total 2025 Cost**	**High Total 2025 Cost**	**Low Total 2032 Programming Cost**	**High Total 2032 Programming Cost**
Curve Realignment (moderate right-of-way/utilities)	Curve	$37,500	$112,500	$150,000	$75,000	$90,000	$750,000	$1,215,000	$182,250	$607,500	$1,397,250	$1,822,500	$2,243,678	$2,926,537
Dynamic Speed Feedback Sign	Each	$1,250	$3,750	$5,000	$2,500	$3,000	$25,000	$40,500	$6,075	$20,250	$46,575	$60,750	$74,789	$97,551
Enhanced Signing/Striping - Curves	Curve	$750	$2,250	$3,000	$1,500	$1,800	$15,000	$24,300	$3,645	$12,150	$27,945	$36,450	$44,874	$58,531
Enhanced Signing/Striping - Intersection	Intersection	$1,500	$4,500	$6,000	$3,000	$3,600	$30,000	$48,600	$7,290	$24,300	$55,890	$72,900	$89,747	$117,061
Enhanced Signing/Striping - Transition Zones	Location	$1,500	$4,500	$6,000	$3,000	$3,600	$30,000	$48,600	$7,290	$24,300	$55,890	$72,900	$89,747	$117,061
Enhanced Striping - Highway	Mile	$1,000	$3,000	$4,000	$2,000	$2,400	$20,000	$32,400	$4,860	$16,200	$37,260	$48,600	$59,831	$78,041
Guardrail Upgrades (minimal regrading)	500 Feet	$1,500	$4,500	$6,000	$3,000	$3,600	$30,000	$48,600	$7,290	$24,300	$55,890	$72,900	$89,747	$117,061
High Friction Surface Treatments ($40/sq yd)	Curve	$5,000	$15,000	$20,000	$10,000	$12,000	$100,000	$162,000	$24,300	$81,000	$186,300	$243,000	$299,157	$390,205
Lighting - Highway (multilane)	Mile	$30,000	$90,000	$120,000	$60,000	$72,000	$600,000	$972,000	$145,800	$486,000	$1,117,800	$1,458,000	$1,794,943	$2,341,229
Lighting - Intersection	Intersection	$3,750	$11,250	$15,000	$7,500	$9,000	$75,000	$121,500	$18,225	$60,750	$139,725	$182,250	$224,368	$292,654
Pedestrian Enhancements (signs, striping, ADA, bulb outs)	Location	$5,000	$15,000	$20,000	$10,000	$12,000	$100,000	$162,000	$24,300	$81,000	$186,300	$243,000	$299,157	$390,205
Pedestrian Enhancements (signs, striping, ADA, refuge)	Location	$2,500	$7,500	$10,000	$5,000	$6,000	$50,000	$81,000	$12,150	$40,500	$93,150	$121,500	$149,579	$195,102
Positive Offset Left Turn Lanes	Each	$15,000	$45,000	$60,000	$30,000	$36,000	$300,000	$486,000	$72,900	$243,000	$558,900	$729,000	$897,471	$1,170,615
Raised Median (no widening)	Sq Yards	$8	$23	$30	$15	$18	$150	$243	$36	$122	$279	$365	$449	$585
Reflective Backplates (no signal rebuild)	Intersection	$1,250	$3,750	$5,000	$2,500	$3,000	$25,000	$40,500	$6,075	$20,250	$46,575	$60,750	$74,789	$97,551
Reflective Backplates (with signal rebuild)	Intersection	$10,000	$30,000	$40,000	$20,000	$24,000	$200,000	$324,000	$48,600	$162,000	$372,600	$486,000	$598,314	$780,410
Restricted Crossing U-Turn Crossing Intersection (un-signalized)	Location	$87,500	$262,500	$350,000	$175,000	$210,000	$1,750,000	$2,835,000	$425,250	$1,417,500	$3,260,250	$4,252,500	$5,235,249	$6,828,586
Restricted Crossing U-Turn Crossing Intersection (signalized)	Location	$150,000	$450,000	$600,000	$300,000	$360,000	$3,000,000	$4,860,000	$729,000	$2,430,000	$5,589,000	$7,290,000	$8,974,713	$11,706,147
Road Reconfiguration (Convert 4-lane to 3-lane, w/ resurfacing)	Mile	$25,000	$75,000	$100,000	$50,000	$60,000	$500,000	$810,000	$121,500	$405,000	$931,500	$1,215,000	$1,495,785	$1,951,024
Roundabout (dual-lane)	Each	$120,000	$360,000	$480,000	$240,000	$288,000	$2,400,000	$3,888,000	$583,200	$1,944,000	$4,471,200	$5,832,000	$7,179,770	$9,364,918
Roundabout (single lane)	Each	$50,000	$150,000	$200,000	$100,000	$120,000	$1,000,000	$1,620,000	$243,000	$810,000	$1,863,000	$2,430,000	$2,991,571	$3,902,049
Rumble Strips - Center (no widening)	Mile	$1,000	$3,000	$4,000	$2,000	$2,400	$20,000	$32,400	$4,860	$16,200	$37,260	$48,600	$59,831	$78,041
Rumble Strips - Edge (no widening, both sides)	Mile	$1,250	$3,750	$5,000	$2,500	$3,000	$25,000	$40,500	$6,075	$20,250	$46,575	$60,750	$74,789	$97,551
Rural Re-Align Skewed Intersection (limited ROW/utilities)	Intersection	$37,500	$112,500	$150,000	$75,000	$90,000	$750,000	$1,215,000	$182,250	$607,500	$1,397,250	$1,822,500	$2,243,678	$2,926,537
Rural to Urban Transition Zone Treatments (high-cost)	Location	$37,500	$112,500	$150,000	$75,000	$90,000	$750,000	$1,215,000	$182,250	$607,500	$1,397,250	$1,822,500	$2,243,678	$2,926,537
Rural to Urban Transition Zone Treatments (low-cost)	Location	$12,500	$37,500	$50,000	$25,000	$30,000	$250,000	$405,000	$60,750	$202,500	$465,750	$607,500	$747,893	$975,512
Shoulder Widening & Roadside Improvements (limited ROW/utilities)	Mile	$60,000	$180,000	$240,000	$120,000	$144,000	$1,200,000	$1,944,000	$291,600	$972,000	$2,235,600	$2,916,000	$3,589,885	$4,682,459
Sidewalks - Highway (one side only)	Mile	$20,000	$60,000	$80,000	$40,000	$48,000	$400,000	$648,000	$97,200	$324,000	$745,200	$972,000	$1,196,628	$1,560,820
Sidewalks - Intersection (includes ADA)	Intersection	$4,000	$12,000	$16,000	$8,000	$9,600	$80,000	$129,600	$19,440	$64,800	$149,040	$194,400	$239,326	$312,164
Sight Distance Improvements (vegetation)	Intersection	$1,000	$3,000	$4,000	$2,000	$2,400	$20,000	$32,400	$4,860	$16,200	$37,260	$48,600	$59,831	$78,041
Signal Timing - Cycle Length, Clearance and Leading Ped Intervals	Intersection	$500	$1,500	$2,000	$1,000	$1,200	$10,000	$16,200	$2,430	$8,100	$18,630	$24,300	$29,916	$39,020
Signal Upgrade (may be required for protected left turn phasing)	Intersection	$10,000	$30,000	$40,000	$20,000	$24,000	$200,000	$324,000	$48,600	$162,000	$372,600	$486,000	$598,314	$780,410
Tighten Intersection (small intersection, limited drainage)	Each	$17,500	$52,500	$70,000	$35,000	$42,000	$350,000	$567,000	$85,050	$283,500	$652,050	$850,500	$1,047,050	$1,365,717
Tree Trimming	Linear Foot	$3	$8	$10	$5	$6	$50	$81	$12	$41	$93	$122	$150	$195
Turn Lanes (one turn lane, 150 ft plus taper)	Each	$12,500	$37,500	$50,000	$25,000	$30,000	$250,000	$405,000	$60,750	$202,500	$465,750	$607,500	$747,893	$975,512
Urban Re-Align Skewed Intersection (limited ROW/utilities)	Intersection	$75,000	$225,000	$300,000	$150,000	$180,000	$1,500,000	$2,430,000	$364,500	$1,215,000	$2,794,500	$3,645,000	$4,487,356	$5,853,073
Access Management (Low Complexity)	Mile	$75,000	$225,000	$300,000	$150,000	$180,000	$1,500,000	$2,430,000	$364,500	$1,215,000	$2,794,500	$3,645,000	$4,487,356	$5,853,073
Adjusted Cost Percentages ==>		*3%*	*12%*	*20%*	*10%*	*10%*			*10%*	*35%*			*61%*	*61%*
Access Management (Moderate Complexity)	Mile	$120,000	$480,000	$800,000	$400,000	$400,000	$4,000,000	$6,200,000	$620,000	$2,170,000	$6,820,000	$8,370,000	$10,951,430	$13,440,391
Access Management (High Complexity, Often Complete Rebuild)*	Mile	$300,000	$1,200,000	$2,000,000	$1,000,000	$1,000,000	$10,000,000	$15,500,000	$1,550,000	$5,425,000	$17,050,000	$20,925,000	$27,378,574	$33,600,977

Project Implementation Timeline Reference Chart
6/23/2025

This chart is intended to provide high-level guidance on the time required to complete a range of potential safety improvement projects.
1) The time required to secure funding for each phase (federal, state, or local) is not included. The time to execute federal grant agreements or other state or federal project agreements is also not included.
2) Time to procure planning, design, or other professional services should be added as required. Construction and inspection procurement are included if they can reasonably be accommodated during the pre-construction phases.
3) Local agencies should coordinate with state and KIPDA staff to estimate the time required for each task. This applies to local public agency (LPA) projects and includes projects using federal, state, and KIPDA funding.

To use this table, please determine the level of complexity for each phase of the project you are considering. For example, a project may be moderate with respect to planning, design, and construction, but complex with respect to right-of-way and utility coordination. This would likely result in a project that is somewhere between those two categories for the total project timeline.

Level of Complexity for Each Phase	Planning	Preliminary Engineering and Environmental	Final Design	Right-of-Way (ROW)	Utility Coordination	Construction	Estimated Total Project Timeline
Simple	3-6 months Few alternatives Limited or no public involvement No anticipated controversy No TIP/STIP issues	6 - 9 months Minimal design No survey or geotech NEPA CE (programmatic or low level)	6 months Minimal design effort	N/A Within existing ROW	3-6 months Notification only No relocations	6 - 9 months <$500K No phasing needed	2 to 3 years
Moderate	6–12 months Several alternatives Public involvement May require TIP/STIP mods	6–12 months Straightforward design Survey required NEPA CE (with public input)	6-12 months Moderate design effort Agency reviews	6–12 months Easements and/or minor acquisitions	6-18 months Relocations possible Agreements possible	6–12 months $500K–$2M Lane closures/phasing	3 to 6.5 years
Complex	12–18 months Numerous alternatives Public involvement May require TIP/STIP mods Multiple agencies involved	12–18 months Alternatives analysis Extensive design (survey, traffic, geotech) NEPA EA or CE (with public input)	12-18 months Major design effort Extensive permitting Environmental constraints	12–24 months Full ROW Relocations/eminent domain	12–18 months Major relocations Agreements required	12–24 months $2M+ Detours or complex staging	6 to 10 years

Notes:
Schedule estimates assume all required project funding is available
NEPA = National Environmental Policy Act of 1969
CE = Categorical Exclusion
EA = Environmental Assessment
TIP/STIP = Transportation Improvement Program / State Transportation Improvement Program