GATEWAY TO SAFER ROADWAYS

East-West Gateway
Council of Governments

Gateway to Safer Roadways

St. Louis Regional Safety Action Plan

June 2024

EAST-WEST GATEWAY Council of Governments

CBB TRANSPORTATION ENGINEERS+PLANNERS

BUILDING STRONGER COMMUNITIES CDI

excel Business Concepts

EQUITABLE CITIES

[This page is intentionally left blank]

Acknowledgments

This document was prepared in collaboration with the East-West Gateway Council of Governments (EWG) by a consultant team led by CBB Transportation Engineers + Planners. Although many people contributed to the final plan, key leadership was provided by the following project team members.

Project Team

East-West Gateway: Marcie Meystrik, Anna Musial, Rachael Pawlak

CBB Transportation Engineers + Planners: Joanne Stackpole, Brian Rensing, Shawn Leight, Mirza Sharif, Mike Albin, Julia Curry

Civil Design Group, Inc.: Jeremy Linley, Austin Luberda, Luke Jansen, Andrew Henke, Courtney Flach, Jarrod Chandler, Kevin Lane

Excel Business Concepts: Crystal Allen Dallas, Jared Jones

Equitable Cities: Charles Brown, Xavier Lofton, Ziwei Liu

EWG is grateful for the members of the Regional Task Force and Stakeholder Groups. The collaborative spirit from the group members was a critical element of the Action Plan and will help to make the plan's goal a reality.

Regional Task Force

Automobile Club of Missouri
Bi-State Development Agency
Federal Highway Administration
Generate Health STL
Great Rivers Greenway
Illinois Department of Transportation (IDOT)
Illinois State Highway Patrol
Madison County
Missouri Department of Transportation (MoDOT)
Missouri State Highway Patrol
Monroe County
St. Charles County
St. Charles County Ambulance District
St. Clair County
City of St. Louis
St. Louis County
Traffic Injury Research Foundation
Trailnet
Transform 314
Urban League

County Stakeholder Groups

City of St. Louis: Board of Alderman, Board of Public Service, MoDOT, Office of the Disabled, Office of the Mayor, Planning & Urban Design Agency, St. Louis Metropolitan Police Department, Street Department

Franklin County and Jefferson County: Arnold, Crystal City, Franklin County, Jefferson County, Jefferson County Sheriff's Department, MoDOT, Sullivan, Washington

Illinois Tri-County: Alton, Belleville, Collinsville, Columbia, Fairview Heights, Granite City, IDOT, Madison County, Maryville, Monroe County, Monroe County Emergency Management, O'Fallon, St. Clair County, Waterloo

St. Charles County: St. Charles County, MoDOT

St. Louis County: Berkley, Brentwood, Chesterfield, Chesterfield Police Department, Creve Coeur Police Department, Kirkwood, MoDOT, Department of Transportation, Department of Planning, Health Department, Thriving Communities Program, Webster Groves

The Project team thanks the EWG Board of Directors for their commitment to eliminating roadway fatalities and serious injuries and making the EWG Region's streets and roads safer for all who use them.

Acknowledgments (Cont.)

This publication was produced with the cooperation of CBB, East-West Gateway Council of Governments and the U.S. Department of Transportation (FHWA). The work that provided the basis of this publication was supported, in part, by a grant provided from the U.S. Department of Transportation (FHWA).

East-West Gateway Council of Governments (EWG) hereby gives public notice that it is the policy of the agency to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related statutes and regulations in all programs and activities. Title VI requires that no person in the United States of America, on the grounds of race, color, or national origin, shall be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which EWG receives federal financial assistance. Any person who believes they have been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with EWG. Any such complaint must be in writing and filed with EWG's Title VI Coordinator within one hundred eighty (180) calendar days following the date of the alleged discriminatory occurrence. For more information, or to obtain a Title VI Nondiscrimination Complaint Form, please see EWG's website at www.ewgateway.org/titlevi or call (314) 421-4220 or (618) 274-2750.

Table of Contents

Executive Summary 9
Introduction 13
Study Purpose and Objectives 13
What is the Safe System Approach? 14
Three Components of the Action Plan 15
Equity Considerations 17
Goal Setting 19
Engagement 20
Stakeholder and Task Force Groups 20
Stakeholder and Task Force Group Meetings 22
Other Stakeholder and Task Force Engagement Activities 23
Regional Branding and Public Relations 24
Safety Analysis 26
Existing Crash Summary 26
Crash Risk Assessment 30
High-Injury Network Analysis 44
High-Injury Network Priority Lists 64
Safety Treatments 85
Safety Treatment Implementation 106
Policy Review 109
Guiding Safety Concepts & Resources 109
Policy & Programming Strengths in the EWG Region 113
Policy & Programming Needs and Opportunities in the EWG Region 124
Policy & Programming Recommendations 130
How to Reach the Goal 147
Appendix A - Detailed Safety Assessments
Appendix B - High-Injury Network Methodology
Appendix C - Measuring and Tracking Progress

List of Figures

Figure 1. Components of the Action Plan . . . 9
Figure 2. Fifty by Fifty Goal . . . 10
Figure 3. 2021 Motor Vehicle Crash Fatalities, Deaths per 100 MVMT (Source: FARS) . . . 13
Figure 4. Action Plan Study Area . . . 15
Figure 5. CEJST Disadvantaged Communities in the EWG Region . . . 17
Figure 6. Comparison of Population and Fatal and Serious Injury Crashes in CEJST Areas in EWG Region (2018-2022) . . . 18
Figure 7. Fifty by Fifty Goal . . . 19
Figure 8. Images from County Stakeholder Groups and Regional Task Force Meeting Series . . . 21
Figure 9. Screenshot of Web Map Tutorial . . . 23
Figure 10. SS4A Grant Application Workshop Title Slide . . . 23
Figure 11. Action Plan Logos . . . 24
Figure 12. East-West Gateway Instagram and Facebook Social Media Pages . . . 25
Figure 13. Total Crashes in EWG Region (2018-2022) . . . 26
Figure 14. Total Crashes per 100,000 Residents per Year (2018-2022) . . . 27
Figure 15. Total Crashes and Motor Vehicle Miles Traveled per Year (2018-2022) . . . 27
Figure 16. Fatal Crashes by Year and County (2018-2022) . . . 28
Figure 17. Serious Injury Crashes by Year and County (2018-2022) . . . 28
Figure 18. Fatalities per 100 Million Vehicle Miles Traveled Comparison (2018-2021) . . . 29
Figure 19. Fatal and Serious Injury Crashes in EWG Region by County (2018-2022) . . . 30
Figure 20. Contributing Factors of Fatal and Serious Injury Crashes in EWG Region (2018-2022) . . . 31
Figure 21. Age Distribution of Persons Involved in Fatal and Serious Injury Crashes in EWG Region (2018-2022) . . . 31
Figure 22. Fatal and Serious Injury Crashes in the EWG Region by Month and Day (2018 - 2022) . . . 32
Figure 23. Fatal and Serious Injury Crashes in the EWG Region by Day of Week and Time (2018 - 2022) . . . 33
Figure 24. Fatal and Serious Injury Crashes in EWG Region Road Surface Conditions (2018-2022) . . . 34
Figure 25. Fatal and Serious Injury Crashes in EWG Region Lighting Conditions (2018-2022) . . . 34
Figure 26. Lighting Conditions for Fatal Pedestrian Crashes in EWG Region (2018-2022) . . . 35
Figure 27. Pedestrian Fatal and Serious Injury Crashes in EWG Region (2018-2022) . . . 35
Figure 28. Bicycle Fatal and Serious Injury Crashes in EWG Region by Functional Classification (2018-2022) . . . 36
Figure 29. Comparison of Population and Fatal and Serious Injury Crashes in CEJST Areas in EWG Region (2018-2022) . . . 37
Figure 30. Fatal and Serious Injury Crashes in EWG Region Road Type (2018-2022) . . . 38
Figure 31. Non-Interstate Urban Fatal and Serious Injury Crashes by Year and County (2018-2022) . . . 38

List of Figures (Cont.)

Figure 32. Non-Interstate Urban Crash Types in EWG Region (2018-2022) 39
Figure 33. Non-Interstate Rural Fatal and Serious Injury Crashes by Year and County (2018-2022) 40
Figure 34. Non-Interstate Rural Crash Types in EWG Region (2018-2022) 41
Figure 35. Interstate Fatal and Serious Injury Crashes by Year and County (2018-2022) 42
Figure 36. Crash Types of Interstate Fatal and Serious Injury Crashes in EWG Region (2018-2022) 43
Figure 37. Fatal and Serious Injury Crash Data Points (2018 - 2022) 44
Figure 38. HIN 1 - All Modes 44
Figure 39. High-Injury Network Corridors View (1 to 3 mile lengths) 45
Figure 40. High-Injury Network Segments View (0.25 mile lengths) 45
Figure 41. High-Injury Network Intersections View (within 150 feet of intersection) 45
Figure 42. Franklin County All Modes HIN 46
Figure 43. HIN 1 - All Modes 47
Figure 44. HIN 2 - VRU Pedestrians 48
Figure 45. HIN 2 - VRU Bicyclists 48
Figure 46. CEJST Disadvantaged Areas 49
Figure 47. HIN 3 - Underserved 49
Figure 48. HIN 4 - CF 1 Speeding 50
Figure 49. HIN 4 - CF 2 Failing to Yield Right-Of-Way 50
Figure 50. HIN 4 - CF 3 Improper Lane Usage 51
Figure 51. HIN 4 - CF 4 Alcohol/Drugs 51
Figure 52. HIN 4 - CF 5 Distraction 52
Figure 53. HIN 5 - Interstate 52
Figure 54. Unbelted Fatal and Serious Injury Crash Heat Map 53
Figure 55. St. Louis County All Modes HIN 54
Figure 56. City of St. Louis All Modes HIN 54
Figure 57. Jefferson County All Modes HIN 54
Figure 58. St. Clair County All Modes HIN 55
Figure 59. Franklin County All Modes HIN 55
Figure 60. Monroe County All Modes HIN 55
Figure 61. St. Charles County All Modes HIN 55
Figure 62. Madison County All Modes HIN 55

List of Figures (Cont.)

Figure 63. City of St. Louis HIN vs. Zero Vehicle Households 56
Figure 64. Jefferson County HIN vs. Income 57
Figure 65. St. Louis County HIN vs. Income 58
Figure 66. St. Clair County HIN vs. Race 59
Figure 67. St. Charles County HIN vs. Age 60
Figure 68. HIN 5 - Monroe County HIN vs. Age 61
Figure 69. Madison County HIN vs. Income 62
Figure 70. Franklin County HIN vs. Income 63
Figure 71. Regional Priority Corridors 64
Figure 72. Regional Priority Intersections 71
Figure 73. Regional Priority Hot Spots 76
Figure 74. Regional Priority Pedestrian Corridors 79
Figure 75. Regional Priority Interstate Corridors 83
Figure 76. Top 10% Corridors of HIN 1 - All Modes 106
Figure 77. Example Collision Diagram 107
Figure 78. Fatal Motorcycle Crashes Missouri Statewide (2014 - 2023) 125
Figure 79. Fifty by Fifty Goal 147

List of Abbreviations

ADA	Americans with Disabilities Act
BDE	IDOT Bureau of Design and Environment
CEJST	Climate and Economic Justice Screening Tool
CMF	Crash Modification Factor
EPG	MoDOT Engineering Policy Guide
EWG	East-West Gateway Council of Governments
FHWA	Federal Highway Administration
IDOT	Illinois Department of Transportation
KSI	Fatal (or Killed) and Serious Injury Crashes
MoDOT	Missouri Department of Transportation
MUTCD	Manual on Uniform Traffic Control Devices
MVMT	Million Vehicle Miles Traveled
NHTSA	National Highway Traffic Safety Administration
RRFB	Rectangular Rapid Flashing Beacon
RSA	Road Safety Audit
SS4A	Safe Streets and Roads for All Grant Program
STEP	FHWA Safe Transportation for Every Pedestrian
VMT	Vehicle Miles Traveled
VRU	Vulnerable Road Users (pedestrians and bicyclists)

Executive Summary

The **Gateway to Safer Roadways: St. Louis Regional Safety Action Plan** (Action Plan) is both a call to action and a blueprint for how the Region can significantly reduce the number of people killed and seriously injured on roadways. Roadway fatalities and serious injuries are an urgent public health and safety concern in the United States. Roadway fatalities account for 3% of all deaths in the United States and are the leading cause of death for those 8-20 years old.[1] **The fatalities and serious injuries that result from roadway crashes are preventable and thus unacceptable.** Past efforts to improve the safety of vehicles, roads, drivers, and the effectiveness of post-crash care have made the transportation system safer and have saved thousands of lives. Still, this problem remains and there is much more work to do. Roadway fatalities and serious injuries impact real people in a very deep way. The Action Plan provides a collaborative approach to improve roadway safety equitably for motorized and non-motorized users.

Action Plan Development

The Action Plan was developed for all eight counties under East-West Gateway Council of Governments (EWG) jurisdiction through three major components: **engagement, safety analysis,** and **policy review**. Each component has equity woven throughout and was based on the principles of the Safe System Approach (see Figure 1).

1. **Engagement** was completed through a Regional Task Force of safety experts, stakeholder engagement at the county level, and unified messaging for the greater regional community. The Regional Task Force and five county stakeholder groups met three times during the plan development process.

2. A **safety analysis** of regional crash data for the years 2018 to 2022 was completed. This study analyzed historical trends and identified the locations of the highest frequencies of fatal and serious injury crashes. A Geographic Information System (GIS) database was established to aid in the data analysis and communicate the results to the stakeholder groups. Three major sets of analyses were completed: crash history summary, crash risk assessment, and development of high-injury networks.

3. A **policy review** was completed to identify national best practices and compare them against the policies, practices, and programs in the EWG Region. This work focused in three major areas: summary of national best practices and guiding principles, regional strengths to understand what is working well in the EWG Region, and the needs of the EWG Region which provide opportunity for improvement. This work resulted in sixteen policy and programming recommendations.

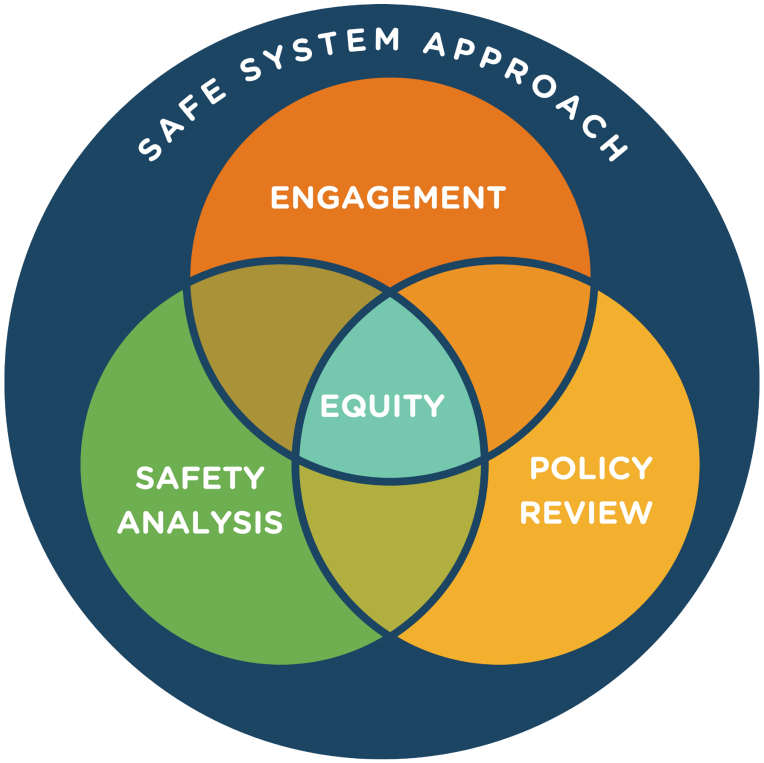


Figure 1. Components of the Action Plan

1 https://crashstats.nhtsa.dot.gov/#!/PublicationList/89

Focus on Equity

The Action Plan was developed with equity as a core principle and sets a goal to eliminate roadway fatalities and serious injuries in a way that is **consistent, fair, just, and impartial** to everyone in the community. The Action Plan aligns with the Justice40 Initiative and leverages the Climate and Economic Justice Screening Tool (CEJST) as recommended in the 2024 SS4A Notice of Funding Opportunity (NOFO). The EWG Regional data shows a clear need for equitable solutions. While 18% of the EWG Region lives in CEJST disadvantaged areas, these areas account for almost 40% of the EWG Region's fatal and serious injury crashes. The Action Plan was developed with equity interwoven throughout the plan development process. Underserved communities were identified through data analysis and engagement. The crash risk assessment and high-injury network analyses identifies road safety disparities in disadvantaged communities. The policy review was developed with the consistent, fair, just, and impartial treatment of all people in mind, and special equitable considerations are given for recommendations that may have a particular impact on disadvantaged populations. The Action Plan prioritizes resources where they are needed most. Finally, emphasis is given to vulnerable road users, who are overrepresented in severe crashes. Implementation of the resulting plan will provide tremendous benefit to areas of the EWG Region that have experienced decades of underinvestment.

Fifty by Fifty Goal

This Action Plan aims to eliminate all fatalities and serious injuries resulting from roadway crashes in the EWG Region. A goal for 50% reduction of fatalities and serious injuries by 2050 was set to create accountability and momentum (see Figure 2). This goal is achievable if the Region is willing to work hard and work together. Reaching this goal will require **safety projects** to be implemented on the **high-injury network**, **systemic safety treatments** to be applied across the Region, and **policy and programming recommendations** to be adopted. By taking this approach, a 50% reduction of fatalities and serious injuries on the EWG Region's road network by 2050 is possible.

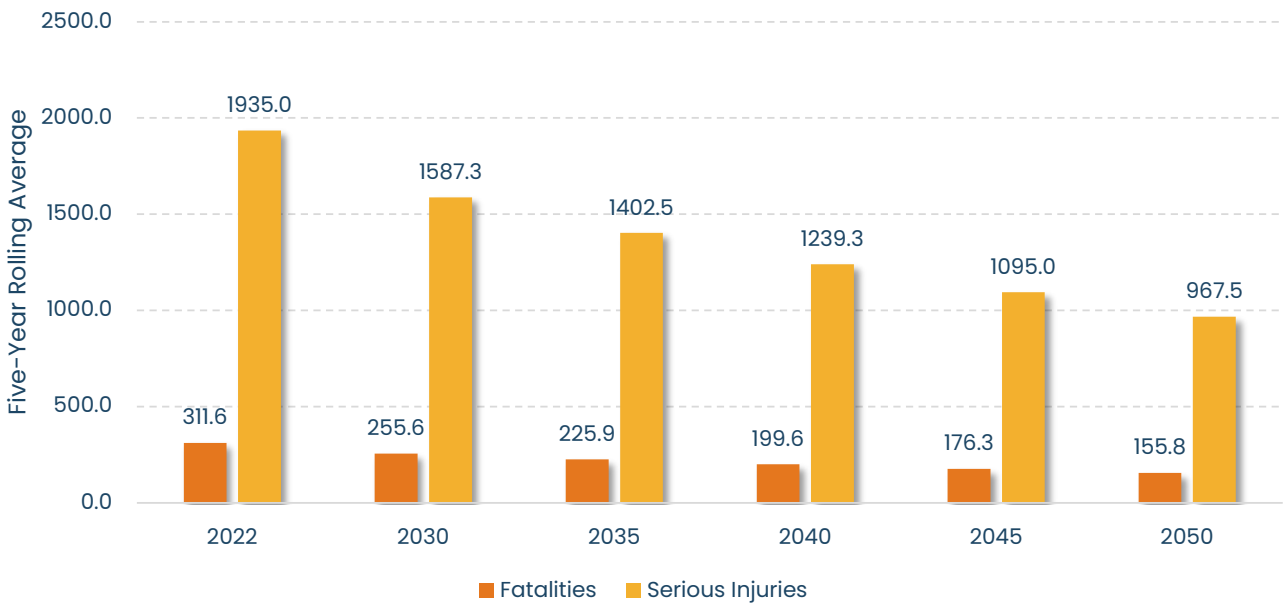


Figure 2. Fifty by Fifty Goal

Fifty by Fifty Goal (Cont.)

Implementation of three critical strategies will make this goal a reality:

1. The first strategy accounts for a 30% reduction in fatalities and serious injuries on regional roads by 2050. **This strategy involves implementing safety projects on the top 25% of the Region's high-injury networks.** This will be effective given the fact that 50% of all fatal and serious injury crashes throughout the Region happen on these corridors, intersections, and segments.
2. The second strategy accounts for a further 10% reduction in fatalities and serious injuries on regional roads by 2050. **This strategy involves systemically implementing relevant safety improvements throughout the EWG Region.** This addresses crashes by cause, not just by location. This approach will prevent fatalities and serious injuries on a wider scale.
3. The third strategy accounts for the final 10% of the 50% reduction in fatalities and serious injuries. **This strategy involves promoting the adoption and implementation of relevant policies and programs.** Driver error causes over half of harmful crashes in the Region. Policies and programs can address and attempt to correct the dangerous behaviors of drivers, which can lower the number of fatalities and serious injuries from crashes in the Region.

Milestones for the years 2030, 2035, and 2050 mark the Region's progress toward this goal:

By 2030, all locations on the high-injury network priority lists should have safety projects that are either completed or in progress. Local transportation departments should be in the process of piloting 2-4 new systemic treatments and kick-starting 2-4 new policy/program recommendations.

By 2035, the top 10% of high-injury networks *1 - All Modes*, *2 - Pedestrians and Bicyclists*, and *5 - Interstates*, should have safety projects that are either completed or in progress. The systemic treatments and policy/program recommendations kick-started by 2030 should be fully implemented. Local transportation departments should pilot 2-4 additional systemic treatments and 2-4 new policy/program recommendations.

By 2050, the top 25% of high-injury networks *1 - All Modes*, *2 - Pedestrians and Bicyclists*, and *5 - Interstates*, should have safety projects that are either completed or in progress. All relevant systemic treatments and policy/program recommendations should be in place.

The Action Plan is the gateway to achieving safer roadways for all in the bi-state St. Louis Region. It provides the tools and strategies that will achieve a 50% reduction in fatalities and serious injuries in the EWG Region by 2050. The hard work, commitment, and collaboration required will prevent 2,300 fatalities and 14,000 serious injuries in the EWG Region between now and 2050.

[This page is intentionally left blank]

Introduction

Fatalities and serious injuries due to roadway crashes are a significant public health issue in the United States. Motor vehicle crashes are the leading cause of death for ages 8-20 and the second leading cause of death for ages 4-7 and 21-24.[2] The St. Louis Region shares in this problem, with the 21st highest traffic fatality rate per 100 million vehicle miles traveled (MVMT) of 50 peer regions across the United States, as shown in Figure 3.[3]

Roadway crashes that result in fatalities and serious injuries are preventable and thus unacceptable. The rate of traffic fatalities per 100 MVMT in the United States has dropped from more than 21 in 1923 to 1.3 in 2022.[4] More recently, over the past 25 years, the rate has dropped by 24% from 1.7 to 1.3.[4] Safer vehicles, roads, drivers, and more effective post-crash care have all helped to make roads safer and have saved lives.

Still there is much more work to do. Roadway fatalities and serious injuries impact real people in a very deep way, through loss of loved ones, financial impacts, and impacts to physical ability. Lives can be continued to be saved through coordinated, comprehensive, consistent, and persistent action. The **Gateway to Safer Roadways: St. Louis Regional Safety Action Plan** (Action Plan) is both a call to action and a blueprint for how the St. Louis Region can significantly reduce the number of people killed and injured on roadways.

1	**Memphis**	**2.09**
2	Tampa	1.78
3	Miami	1.63
4	Louisville	1.54
5	Sacramento	1.46
6	Jacksonville	1.43
7	Riverside	1.43
8	New Orleans	1.33
9	Virginia Beach	1.29
10	Phoenix	1.24
11	Orlando	1.24
12	Las Vegas	1.18
13	Houston	1.17
14	Oklahoma City	1.12
15	San Antonio	1.12
16	Chicago	1.11
17	Hartford	1.11
18	Philadelphia	1.10
19	Dallas	1.08
20	Atlanta	1.07
21	**St. Louis**	**1.06**
	Peer Average	**1.04**
22	Columbus	1.04
23	San Diego	1.04
24	Richmond	1.00
25	Detroit	1.00
26	Los Angeles	0.99
27	Austin	0.99
28	Indianapolis	0.96
29	Denver	0.94
30	Portland	0.92
31	Seattle	0.92
32	Cleveland	0.91
33	Kansas City	0.90
34	Buffalo	0.90
35	New York	0.88
36	Charlotte	0.88
37	Baltimore	0.87
38	Nashville	0.84
39	Birmingham	0.84
40	Milwaukee	0.82
41	Washington, D.C.	0.81
42	San Jose	0.78
43	Cincinnati	0.77
44	Salt Lake City	0.76
45	Pittsburgh	0.75
46	Providence	0.72
47	San Francisco	0.69
48	Minneapolis	0.63
49	Boston	0.59
50	Raleigh	0.58

Figure 3. 2021 Motor Vehicle Crash Fatalities, Deaths per 100 MVMT (Source: FARS)

Study Purpose and Objectives

The purpose of the Action Plan is to improve roadway safety for all users and prevent fatal and serious injury crashes in the East-West Gateway (EWG) Region. The number of fatal and serious crashes has been increasing in the EWG Region in the past five years and action needs to be taken to reverse the trend. The Action Plan provides a collaborative approach to improve roadway safety equitably for all users.

To improve roadway safety for all users in the EWG Region, the Action Plan has the following objectives:

1. Identify equitable near and long-term strategies based on the Safe System Approach to address high-severity crash locations.
2. Work with county stakeholders and a Regional Task Force in the development of the plan.
3. Assess the compatibility of existing policies and guidelines with the Safe System Approach.
4. Create unified branding to ensure consistent communication across the Region.
5. Establish a method to measure progress.
6. Provide an opportunity for counties and municipalities to apply for funding based on the Action Plan.

These objectives will achieve a unified effort toward eliminating roadway fatalities and serious injuries in the EWG Region. The objectives will be accomplished through three major components of the Action Plan: **engagement, safety analysis, and policy review.** Each component had equity woven throughout and was based on the principles of the Safe System Approach.

2 https://crashstats.nhtsa.dot.gov/#!/PublicationList/89
3 https://www.ewgateway.org/research-center/where-we-stand/
4 https://injuryfacts.nsc.org/motor-vehicle/historical-fatality-trends/deaths-and-rates/

What is the Safe System Approach?

The Safe System Approach is the foundation of the Action Plan. Adopted by the United States Department of Transportation in 2022, the Safe System Approach lays a framework for eliminating roadway fatalities and serious injuries through multiple layers of protection. It promotes strategies that both prevent crashes and minimize the severity of crashes when they occur. The Safe System Approach is centered around six founding principles and aims to achieve five major objectives.

Principles of a Safe System Approach

Death and Serious Injuries are Unacceptable.

Protecting against the loss of human life is more important than protecting against damaged objects. Mitigating fatal and serious injury crashes should be prioritized over less severe crash types.

Humans Make Mistakes.

The transportation environment should be designed knowing that users are human and will make mistakes.

Humans Are Vulnerable.

Vehicles and roadways should be designed to protect humans who are susceptible to injury and prioritizing the most vulnerable road users.

Responsibility is Shared.

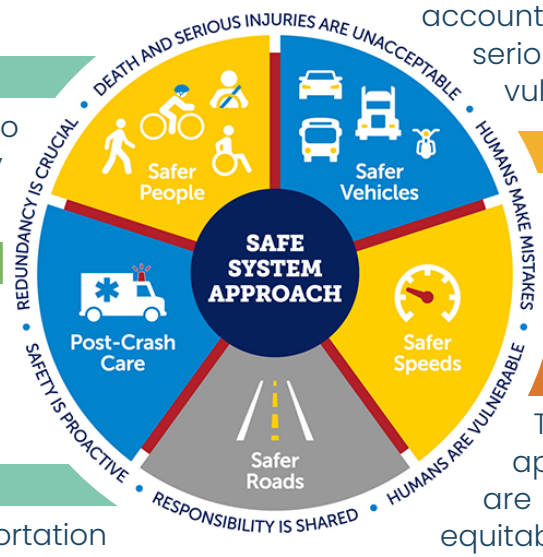
Everyone plays a part in transportation safety: users, designers, owners, researchers, government leaders, advocates and educators. It takes everyone working together.

Safety is Proactive.

A proactive approach should be taken to transportation safety, rather than reactive. Risks should be assessed and measures should be taken before a history of crashes develops.

Redundancy is Crucial.

Risks should be mitigated in several layers of protection, so that when one layer fails (say the road user) another layer may prevent a crash from becoming fatal (like the vehicle or road design).



Objectives of a Safe System Approach

Safer People.

The first layer of protection is to have safer road users including drivers, pedestrians, and bicyclists. Educating people about how to be safe and responsible road users proactively prevents crashes.

Safer Roads.

The second layer of protection is to construct roadways that account for human mistakes and minimize risk of serious injuries and fatalities, particularly for the most vulnerable road users.

Safer Vehicles.

The third layer of protection is to design vehicles and technologies that prevent crashes and prioritize safety of both the occupants and non-occupants in the event of a crash.

Safer Speeds.

The fourth layer of protection is to achieve context appropriate speeds by designing roadways that are self-enforcing of the speed limit, conducting equitable enforcement, and encouraging safer speeds through education and outreach.

Post-Crash Care.

The last layer of protection is to prevent fatalities when a crash occurs through effective post-crash care. Safe and efficient incident management is key to protect the crash victims and emergency responders and to prevent secondary crashes.

Three Components of the Action Plan

The Action Plan covers the entire eight-county Region under EWG's jurisdiction, as shown in Figure 4. There are three major components of the Action Plan: **engagement, safety analysis, and policy review**. Each component is essential and interrelated for identifying projects and strategies that will eliminate roadway fatalities and serious injuries in the EWG Region.

Engagement

Successful engagement is key to developing a comprehensive and implementable Action Plan. The goal of the engagement process is to understand local nuances, problems, and challenges for each county and to uncover new and innovative ideas to make the regional transportation system safer. Engagement was conducted at three levels.

1. **Stakeholder engagement at the county level** (e.g. local government staff, including planners, engineers, public works, law enforcement personnel, and other safety stakeholders.): Five county-level stakeholder groups were established that covered all eight counties in the EWG Region.
2. **Regional safety experts through the development of a Task Force** comprised of key transportation officials and representatives of each element of the Safe System Approach: The Regional Task Force reviewed project findings, refined strategies, vetted the Action Plan framework, and more.
3. **Branding and unified messaging for the greater regional community** (i.e. the purpose and major findings of the Action Plan): EWG will lay the groundwork and equip stakeholders with a digital toolkit for a greater message through branding on social media and websites.

The recommendations in the Action Plan are guided by this engagement process as well as an extensive safety analysis.

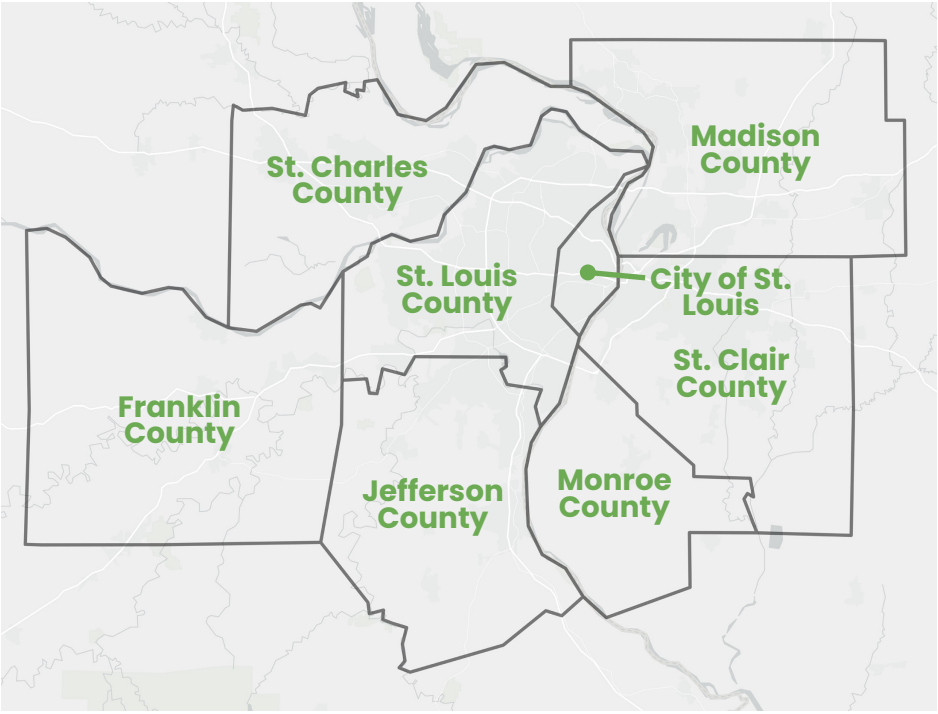


Figure 4. Action Plan Study Area

Three Components of the Action Plan (Cont.)

Safety Analysis

A safety analysis was completed to identify historical trends and the locations of the highest frequencies of fatal and serious injury crashes in the EWG Region. Crash data from 2018 and 2022 was obtained for all roadways (from local roads up to interstates) for the entire EWG Region. The analysis focused only on fatal and serious injury crashes since the severe crash types are the highest priority. The crash data was analyzed at three different levels:

1. **Existing crash summary** to determine the baseline level of crashes involving fatalities and serious injuries for all modes in the EWG Region.
2. **Crash risk assessment** to identify trends in the data that signify roadway and crash characteristics that have higher severities and determine systemic treatment measures to apply to higher risk locations before a crash history develops.
3. **High-injury networks** to identify specific corridors, intersections, and hot spots that have the most occurrences of fatal and serious injury crashes considering all modes, bikes and pedestrian-related crashes, contributing factors, disadvantaged communities, and interstate-only crashes.

The Action Plan provides a prioritized list of corridors, intersections, hot spots, pedestrian corridors, and interstate corridors based on the high-injury network results as well as systemic treatments to address specific crash types. The crash data also helped identify safety issues that should be addressed through policy or programmatic changes.

Policy Review

A policy review was completed to identify national best practices and compare them against the policies, practices, and programs in the EWG Region. There are multiple areas where agencies in the EWG Region are making positive advancements towards improving roadway safety for all through policies and programs, but there are also multiple areas that still need improvement. The "Policy Review" section is divided in three sub-sections:

1. **Guiding safety concepts and resources** which summarizes the national best practices and guiding principles like Vision Zero, Safe Transportation for Every Pedestrian, and Missouri and Illinois's Strategic Highway Safety Plans.
2. **Strengths in the EWG Region** which summarizes existing policies, programs, and practices that help prevent roadway fatalities and serious injuries including local laws, complete streets policies, safety action plans, advocacy and education programs, transportation equity programs, and more.
3. **Needs and opportunities in the EWG Region** which summarizes the areas where crashes should be mitigated through policy and programmatic recommendations like speeding, seatbelt use, distracted and impaired driving, bike and pedestrian safety, and more.

Policy and program recommendations are presented for safe road users, safe roads, safe vehicles, and enforcement. These recommendations, along with the safety analysis and engagement efforts, were developed considering the various elements of equity.

Equity Considerations

The Action Plan was developed with equity as a core principle. It aims to eliminate roadway fatalities and serious injuries in a way that is consistent, fair, just, and impartial to everyone in the community.

Equity Requirements

The Safe Streets and Roads for All (SS4A) program seeks to align with USDOT mission and strategic goals such as safety; climate change and sustainability; equity and Justice40; and workforce development, job quality, and wealth creation.[5] The Action Plan aligns with the Justice40 Initiative. "Justice40 is an opportunity to address gaps in transportation infrastructure and public services by working toward the goal that at least 40% of the benefits from many of our grants, programs, and initiatives flow to disadvantaged communities."[6] In addition, the Action Plan aligns with federal laws and requirements that prohibit discrimination including Title VI of the Civil Rights Act of 1964, Executive Order (EO) 12898, EO 13985, and EO 13166. Lastly, the SS4A program requires action plans to consider equity through representative and inclusive processes, using data-driven methods to identify underserved communities, and assessing the equitable impact of plan recommendations.[7]

What is Equity?

Equity is the consistent, fair, just, and impartial treatment of all people.

Equity in the EWG Region

The development of the Action Plan leveraged the Council on Environmental Quality's Climate and Economic Justice Screening Tool (CEJST)[8] as recommended in the 2024 SS4A Notice of Funding Opportunity (NOFO). This tool provides an interactive map to analyze eight types of burdens facing communities: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. Figure 5 shows the designated CEJST disadvantaged communities in the EWG Region.

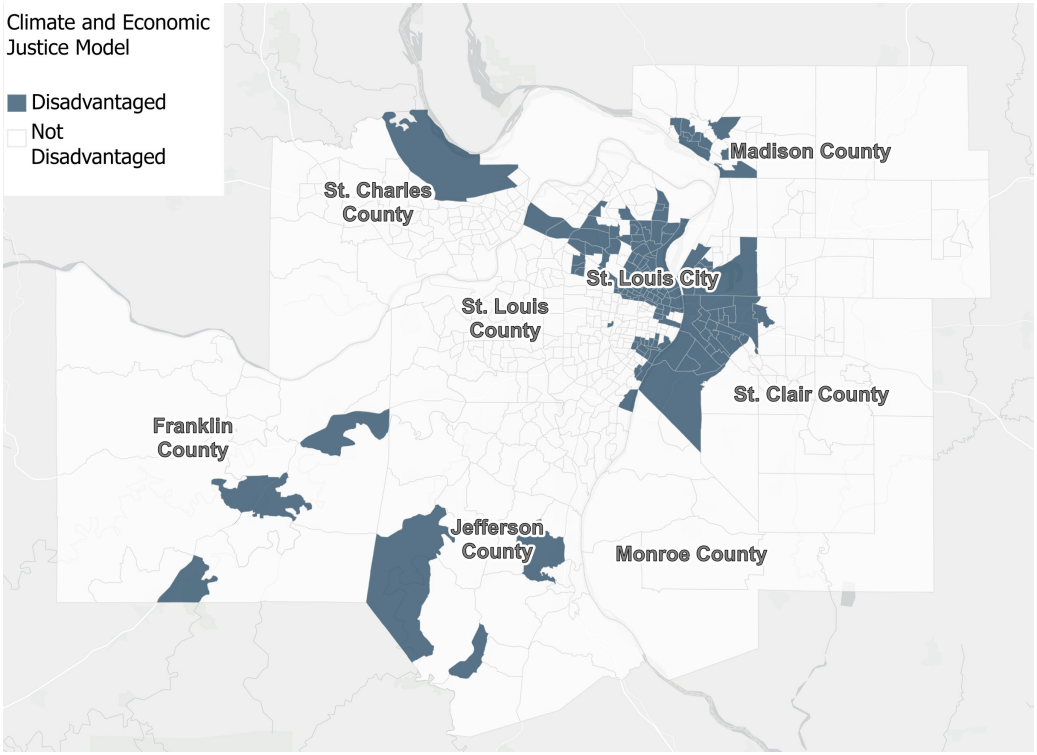


Figure 5. CEJST Disadvantaged Communities in the EWG Region

5 https://www.transportation.gov/grants/ss4a/fy24-nofo
6 https://www.transportation.gov/equity-Justice40
7 https://www.transportation.gov/grants/ss4a/self-certification-worksheet
8 https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5

Equity Considerations (Cont.)

Equity in the EWG Region (Cont.)

The CEJST disadvantaged areas in the EWG Region are overrepresented in crashes that result in fatalities and serious injuries. While 18% of the EWG Region lives in CEJST disadvantaged areas, these areas account for 40% of the EWG Region's fatal and serious injury crashes. This disparity is particularly prominent in St. Clair County, St. Louis County, and City of St. Louis, see Figure 6.

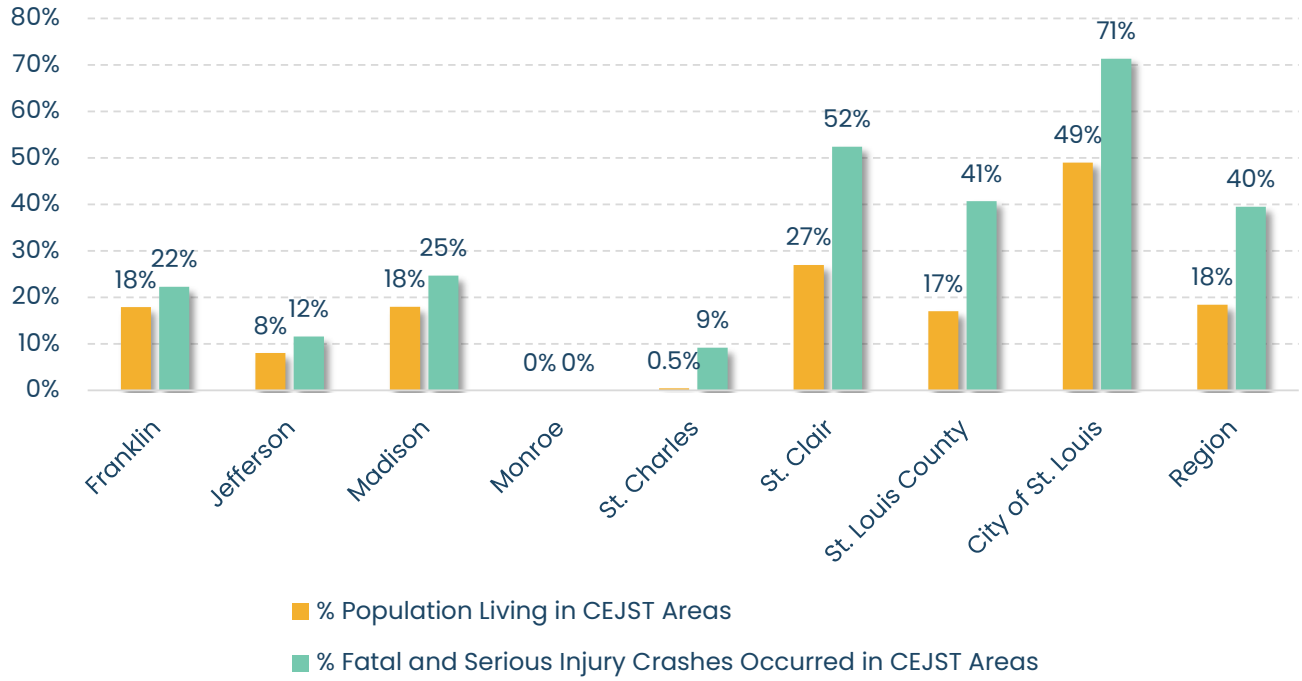


Figure 6. Comparison of Population and Fatal and Serious Injury Crashes in CEJST Areas in EWG Region (2018-2022)

Equity in the Action Plan

Understanding the need for equitable solutions in the EWG Region, the Action Plan was developed with equity interwoven throughout the plan development process. Underserved communities were identified through CEJST, safety analyses, and discussions with stakeholders. The Task Force and stakeholder groups were representative and advocates for equity had a seat at the table. The crash risk assessment and high-injury network analyses analyzed the disparities in fatal and injury crashes occurring in disadvantaged communities in order to prioritize efforts and resources where they are needed most. Particular emphasis was given to vulnerable road users, who are overrepresented in severe crashes. Additionally, the policy review was conducted through an equity lens. All recommendations were developed with the consistent, fair, just, and impartial treatment of all people in mind, and special equitable considerations are given for recommendations that may have a particular impact on disadvantaged populations. The resulting plan provides special consideration to areas of the EWG Region that have experienced decades of underinvestment and includes recommendations for equitable investments that will prevent roadway fatalities and injuries for everyone in the EWG Region.

Goal Setting

EWG is committed to an eventual goal of zero fatalities and serious injuries resulting from crashes on the surface transportation system. **As a first step towards this goal, the Action Plan sets a target to reduce the number of fatalities and serious injuries resulting from roadway crashes in the EWG Region by 50% by 2050.** EWG has been tracking the number of fatalities and serious injuries using a five-year rolling average. These five-year rolling averages since 2015 are shown in Figure 7. Based on the 2022 five-year rolling average (i.e. 2018-2022), the "Fifty by Fifty" goal is for the 2050 five year rolling average (i.e. 2045-2050) to be less than 155.8 fatalities and 967.5 serious injuries, which equates to the need for a 2.5% annual reduction. As shown, the trend has been moving in the wrong direction. The number of fatalities and serious injuries has been increasing since 2015, showing a significant need for increased efforts to improve roadway safety in the EWG Region. While ambitious, this target is achievable through a concentrated, coordinated, and sustained effort.

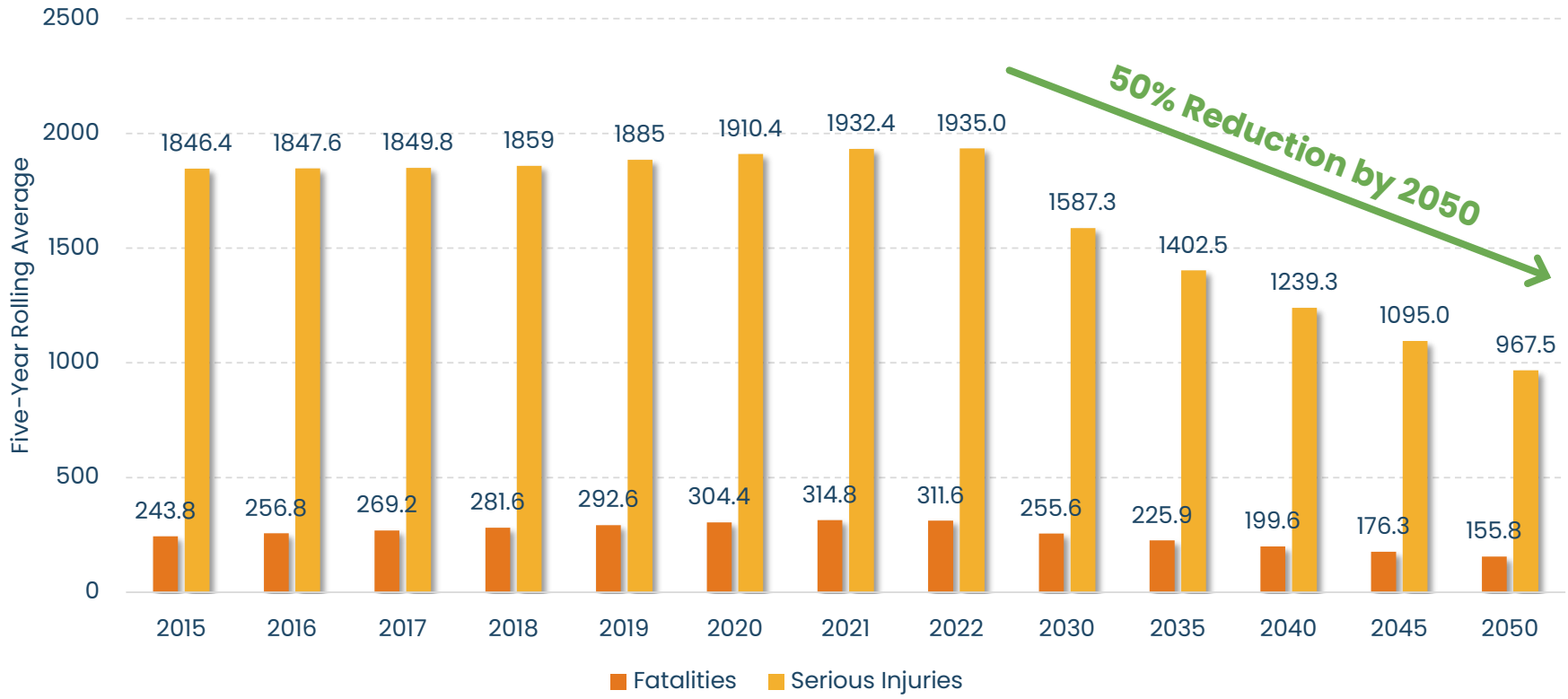


Figure 7. Fifty by Fifty Goal

Achieving a 50% reduction in fatal and serious injury crashes in the EWG Region by 2050 will be accomplished by: 1) implementing safety projects on the high-injury network; 2) applying safety treatments systemically across the EWG Region; and 3) adopting and implementing policy and programming recommendations outlined in this Action Plan.

Engagement

Collaboration with stakeholders is essential in creating an Action Plan that works for everyone in the EWG Region. By having inclusive conversations with stakeholders from the start, the challenges and concerns of the stakeholders can be better understood and addressed within the plan. Intentional engagement also builds trust and momentum, which can encourage buy-in from community members, organizations, and local leaders and spur the implementation of the Action Plan.

The primary outcomes of the engagement process are:

1. Educate stakeholders and the public on the purpose of the Action Plan, the Safe Streets and Roads for All program, and the concepts guiding the plan, such as the Safe System Approach, Vision Zero, and Complete Streets principles.
2. Understand the unique concerns and challenges of the stakeholders that should be addressed within the Action Plan.
3. Coordinate with stakeholder agencies on data-gathering activities.
4. Receive feedback from stakeholders on the findings and recommendations in the Action Plan.
5. Encourage stakeholders (local leaders, community members, organizations) to implement the Action Plan.

Stakeholder and Task Force Groups

The Action Plan promotes safer streets for all in the eight counties of the EWG Region. First, a Regional Task Force was created to help guide the plan from a regional perspective. The Task Force representatives are from across the Region and were selected based on their expertise related to the Safe System Approach, emphasizing the equal importance of safe vehicles, safe road users, safe speeds, safe roads, post-crash care, and equity. The Regional Task Force is comprised of representatives from the following organizations:

Safe Road Users	Safe Roads	Enforcement	Equity	Post-Crash Care
Automobile Club of Missouri Bi-State Development/ Metro Transit Great Rivers Greenway Traffic Injury Research Foundation Trailnet	County Engineers and Administrators Federal Highway (FHWA) Missouri FHWA Illinois Illinois Department of Transportation (IDOT) Missouri Department of Transportation (MoDOT)	Illinois State Highway Patrol Missouri State Highway Patrol Missouri Eastern Region Law Enforcement Liason	Generate Health STL Urban League Transform 314	St. Charles County Ambulance District

EWG staff will convene the Regional Task Force, at a minimum of twice a year, to advance the Action Plan's recommendations and follow its progress.

Second, five separate county stakeholder groups were created to ensure the plan worked for each county within the EWG Region. The five stakeholder groups are comprised of local officials, planners, engineers, law enforcement personnel, advocacy groups, and other stakeholders from the following counties and municipalities:

Franklin & Jefferson County
Franklin County
Jefferson County
Jefferson County Sheriff's Department
MoDOT
Arnold
Crystal City
Sullivan
Washington

Illinois Tri-County
Madison County
Monroe County
St. Clair County
Monroe County Emergency Management
IDOT
Alton
Belleville
Collinsville
Columbia
Fairview Heights
Granite City
Maryville
O'Fallon
Waterloo

St. Charles County
St. Charles County
MoDOT

St. Louis County
St. Louis County (STL County) Department of Planning
STL County Department of Transportation
STL County Health Department
MoDOT
Berkley
Brentwood
Chesterfield
Chesterfield Police Department
Creve Coeur
Creve Coeur Police Department
Kirkwood
Webster Groves
Thriving Communities Program

City of St. Louis
City of St. Louis (City) Street Department
City Board of Public Service
City Planning & Urban Design Agency
City Office of the Mayor
City Office of the Disabled
Board of Alderman
MoDOT
St. Louis Metropolitan Police Department
City Transportation Mobility Plan Team

Note, St. Charles County had previously developed its own safety action plan, which also meets the eligibility requirements of the SS4A program. Thus, the St. Charles County Stakeholder Group was smaller in scope and scale. The focus of the St. Charles County Stakeholder Group was to identify how this regional safety action plan could support and expand upon the previous efforts conducted for its county-level safety action plan. This minimized duplicative efforts and enhanced St. Charles County's safety action plan from a regional perspective. Images taken at the county stakeholder and Regional Task Force meeting series are shown in Figure 8.

Figure 8. Images from County Stakeholder Groups and Regional Task Force Meeting Series

Stakeholder and Task Force Group Meetings

Engagement with stakeholders primarily occurred during three rounds of scheduled meetings. The team met with the Regional Task Force and the five county stakeholder groups three times each, for a total of eighteen meetings. These meetings were held in person, but an online option was provided for those who could not physically attend. Meeting notes and presentation slides were distributed to all invited attendees post-meeting.

The overall purpose of these stakeholder meetings was to ensure that the Action Plan encompasses all perspectives. The stakeholders participating in the discussions have wide-ranging areas of expertise and come from communities across the Region with unique challenges and concerns. Involving these stakeholders throughout the process helped ensure that multiple perspectives were considered within the Action Plan.

Stakeholder engagement is also crucial for the adoption and implementation of the Action Plan. In order for the Action Plan to be implemented, regional and county leaders must believe in the plan and be willing to adopt and champion its components. Without effective stakeholder engagement, the Action Plan risks not appealing to regional and county leaders and never being implemented. A summary of the topics discussed during each meeting series is provided below.

Meeting 1 *Held January 16th through January 25th*

1. Educated stakeholders about the SS4A program.
2. Informed stakeholders about the study components and engagement efforts.
3. Educated stakeholders about zero death safety concepts, the Safe System Approach, and Complete Streets principles.
4. Discussed and documented group members' experiences with implementing the concepts listed above.
5. Coordinated data-gathering activities for the crash analysis.
6. Described the safety analysis methodology for the crash risk assessment and high-injury networks development.
7. Discussed and documented perceived safety issues throughout the EWG Region.
8. Brainstormed ideas for the name of the safety action plan.
9. Presented the project timeline.
10. Confirmed and identified additional representatives for the Regional Task Force and five county stakeholder groups.

Meeting 2 *Held February 26th through March 1st*

1. Informed stakeholders about the release of the SS4A Notice of Funding Opportunity.
2. Educated stakeholders on the approach to incorporating equity.
3. Presented the draft crash risk assessment and high-injury networks for the Region and the high-injury networks developed for the respective county or counties.
4. Discussed if crash analysis results met expectations.
5. Discussed initial policy review, including identified strengths in the EWG Region and areas that are in need of improvement.
6. Brainstormed projects and policy recommendations and discussed ideas for potential SS4A grant applications.
7. Informed stakeholders of the SS4A application workshop that was hosted by the project team.

Meeting 3 *Held April 29th through May 3rd*

1. Presented the priority list based on the high-injury networks and systemic treatments from the crash risk assessment.
2. Discussed the recommendations, implementation strategy, and county action items from the crash analysis and policy review.

Other Stakeholder and Task Force Engagement Activities

High-Injury Network Web Mapping Application Tutorial

In addition to the three rounds of stakeholder and Task Force group meetings, the team developed multiple resources for group members throughout the study process. To assist group members with their high-injury network independent review, the team hosted two virtual tutorials demonstrating how to navigate the online web mapping used to view the high-injury network results. A recording was made available to all stakeholders and Task Force group members for those who were not able to attend the scheduled tutorial meeting times. A screenshot of the virtual tutorial recording is shown in Figure 9. The web application was used by stakeholders to review the high-injury network results, to provide feedback and a list of safety projects that have been constructed since 2018 (the first year of the crash data) or are planned and funded on any of the high-injury network corridors, and was used for preliminary planning purposes by the stakeholders for SS4A or other safety projects and funding.

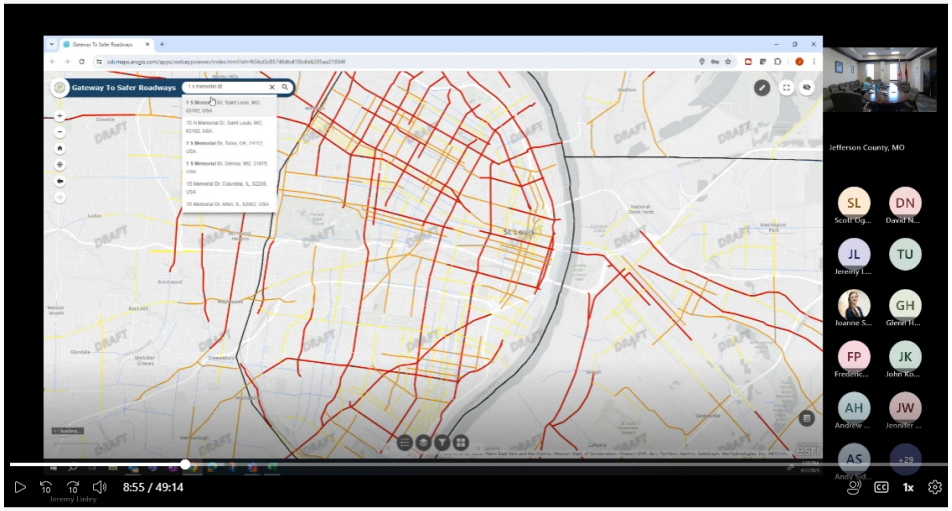


Figure 9. Screenshot of Web Map Tutorial

"SS4A Application How-To" Guides and Workshop

Also, to encourage and help stakeholders with SS4A applications, two "SS4A Application How-To" guides were prepared for Planning and Demonstration Grants and for Implementation Grants, separately. The guide provided a simple summary of the 2024 Notice of Funding Opportunity, clear application instructions, SS4A scoring criteria, and links to useful resources available on the SS4A website.

To accompany the application guides, a two-hour "SS4A Application How-To Workshop" was held on May 10 for anyone within EWG's jurisdiction to attend (see Figure 10). The information in the simplified guides was presented in a workshop format, allowing for questions and discussion between attendees. The intent of the guide and workshop was to demystify the SS4A application process and improve the quality and competitiveness of the submitted applications to encourage safety funding in the EWG Region. There were eighteen attendees at the workshop. A recording of the workshop presentation was made available online for anyone to view virtually.

Figure 10. SS4A Grant Application Workshop Title Slide

Regional Branding and Public Relations

As part of the Action Plan, regional branding was developed to inform the public about the plan. Social media will be used to spread awareness of the actions the EWG Region is taking to improve roadway safety. The social media campaign will lay the groundwork to engage the general public. Further public engagement conducted by the stakeholders is encouraged when communities seek to implement recommendations from the plan. The regional branding developed during this process ensures consistent messaging to the public and set communities up for additional public engagement in the implementation of the plan. A logo and project name were developed for easy identification of the plan and the project website and social media campaign will be used to inform the public of the plan's key findings. The regional branding highlights how it takes everyone in the community to play a part in reducing roadway fatalities and serious injuries.

Logo and Project Name

Figure 11. Action Plan Logos

A memorable and unique logo and project name are essential for gaining awareness from the public. The logo needs to effectively communicate the project focus and purpose. **Together with the Task Force and stakeholder group member input, the team chose "Gateway to Safer Roadways" as the project name.** Incorporating the term "Gateway" was preferred over the use of "St. Louis" since it is more encompassing of counties outside of the City of St. Louis and St. Louis County. Additionally, the term "roadways" was preferred over "streets" or "roads" since the EWG Region is comprised of both urban and rural roadways.

The title "Gateway to Safer Roadways" indicates that this plan provides the strategies needed to pave the way for roadway safety for all and is the start of the journey for eliminating roadway fatalities and serious injuries in the EWG Region. The more nuanced components of the safety action plan were displayed visually through the logo. The two logos shown in Figure 11 were developed for the Action Plan.

The two logos of different shapes allow for more versatility in the different branding uses. Both logos incorporate the four symbols that display the different transportation users that should be considered in roadway safety: pedestrians, vehicles, bicyclists, and persons with disabilities. **Together with the name and the symbols, the logo tells the story that roadway safety is equally important for all transportation users. A circle is a symbol of unity, and it evokes that it takes every user type to work together and be considerate of each other in order to achieve safer roadways in the EWG Region.** The symbols in the rectangular logo are arranged in a single line and the symbols in the circular logo overlap each other, but not a single symbol is the one on top, signifying the equality of each roadway user type. This uplifts the importance of considering all roadway users not only when developing a safety action plan, but also by everyone using transportation on a daily basis. The logos will be used on EWG's website and social media campaign to make the public aware of the Action Plan.

Social Media Content

A targeted social media campaign and stakeholder digital toolkit is being developed and will be launched in the fall of 2024 to raise awareness about the Action Plan and relay important safety messages to the public to influence positive habits for all roadway users. EWG will post timely messages for the public using online platforms such as EWG's website, Instagram, Facebook, and LinkedIn, see Figure 12. Graphics and clear and concise messaging will be used to inform the target audience about the Action Plan's purpose, goals, and key findings.

EWG Social Media Campaign

EWG will launch a social media campaign to spread awareness and educate the public about the Action Plan and encourage safe road behaviors. Tailored content, including infographics, and Action Plan information will be used to engage different demographics, ensuring wide-reaching impact. The social media campaign will be launched using Facebook, Instagram, and LinkedIn in the fall of 2024.

Digital Toolkit for Stakeholders

A crucial component of this Action Plan is the digital toolkit which will be provided to stakeholders. This resource will include ready-to-use templates, data visualizations, and educational materials that stakeholders can utilize to advocate for road safety in their respective domains. The toolkit will be designed for ease of use, allowing stakeholders to effectively communicate safety measures to their audiences.

Equipping stakeholders with comprehensive and ready-to-use tools, the Action Plan can build a robust network of informed advocates working collaboratively towards a safer future.

Stakeholder Social Media Amplification Day

Stakeholder Social Media Amplification Day is also being planned as part of the social media campaign. On this day, all stakeholders will promote continuity and awareness by posting a unified message about the Action Plan to their respective social media platforms, helping to spread awareness of the Action Plan across the entire EWG Region.

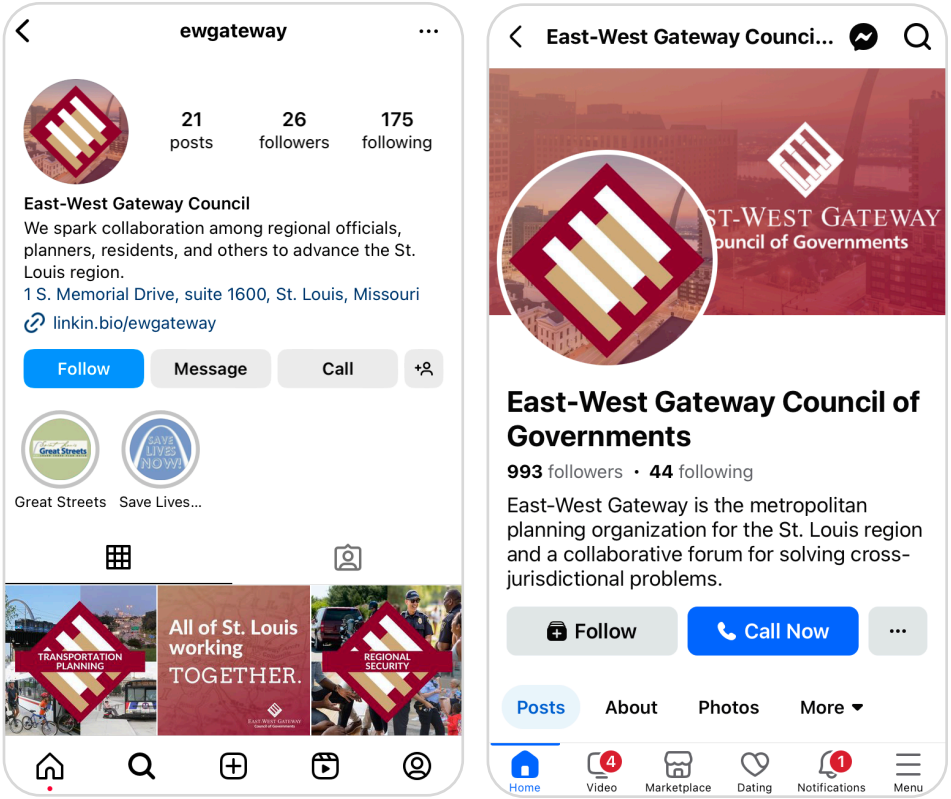


Figure 12. East-West Gateway Instagram and Facebook Social Media Pages

These resources will effectively inform the public about the Action Plan and how to promote roadway safety within their own area of influence, improving roadway safety for all across the EWG Region.

Existing Crash Summary

Data from 2018 to 2022 was gathered for all crashes in the EWG Region, which includes the City of St. Louis, Franklin, Jefferson, St. Charles, and St. Louis counties in Missouri, and Madison, Monroe, and St. Clair counties in Illinois. The Missouri crash data was obtained from MoDOT's Transportation Management Systems (TMS), and the Illinois crash data was provided by IDOT's Transportation Safety department. The dataset includes a range of information pertinent to each crash, such as the time and date of the crash, crash type, specific location (latitude, longitude), contributing circumstances, and environmental conditions like lighting and weather.

The obtained data includes all crashes occurring on public roadways that involve a fatality, injury, or property damage. Severity ratings are assigned by the responsible agencies based on the presence and significance of an injury resulting from the crash.

Crash Severity Definitions

Fatal - an injury that results in death within 30 days after the motor vehicle crash in which the injury occurred.

Serious Injury - any injury other than fatal which prevents the person from walking, driving, or normally continuing the activities the person could perform before the injury occurred, such as severe lacerations, broken or distorted extremity, crush injuries, suspected skull, chest, or abdominal injuries other than bruises or minor lacerations, significant burns, unconsciousness when taken from the crash scene, or paralysis.

Minor Injury - an injury that is evident at the scene, that is reported, or that is claimed but is not fatal or serious.

Property Damage Only - no apparent injury or where there is no reason to believe an injury occurred and where property damage of $500 or more for Missouri or $1,500 or more in Illinois occurred.

Total Crashes in EWG Region

Over the span of 2018 to 2022, a total of 349,528 crashes occurred in the EWG Region. On average over 69,000 crashes occurred each year, or about 200 crashes per day. Figure 13 provides a visual representation of the total number of crashes in each of the eight counties in the EWG Region during this period. Notably, St. Louis County reported the highest number of crashes, accounting for approximately 41% of the Region's total, followed by City of St. Louis with 21%.

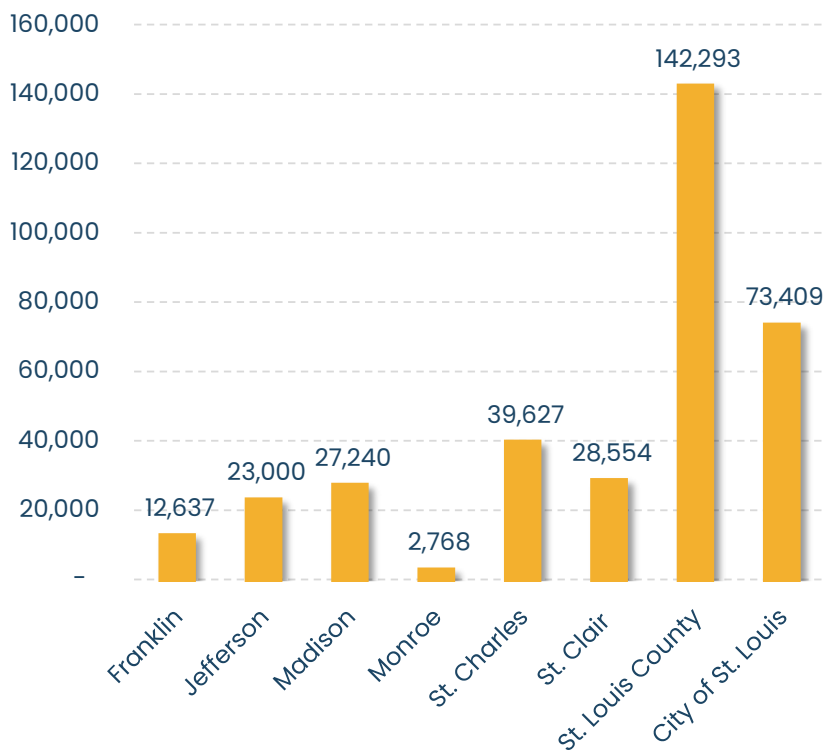


Figure 13. Total Crashes in EWG Region (2018-2022)

Total Crashes per 100,000 Residents

Figure 14 shows the total number of crashes per 100,000 residents per year in the eight counties from 2018 to 2022. In this figure, City of St. Louis is notably higher than the regional average and other counties, indicating a disproportionately high number of crashes relative to its population size. St. Louis County is also marginally above the regional average compared to the Region. Other counties are below the regional average, showing a lower total crash frequency per capita.

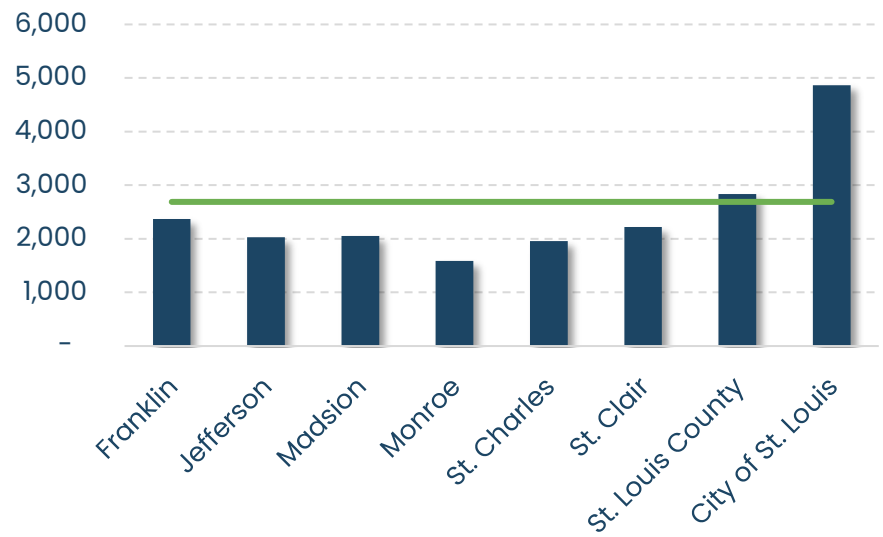


Figure 14. Total Crashes per 100,000 Residents per Year (2018-2022)

Total Crashes and Vehicle Miles Traveled

Figure 15 shows the total number of crashes in the EWG Region each year from 2018 to 2022. The total crashes are relatively consistent except in 2020, during COVID-19 when there was a 20% drop in total crashes. Travel, measured in 100 million vehicle miles traveled (MVMT), also decreased in the EWG Region by approximately 10% between 2019 and 2020 and has been moving back towards pre-2020 values ever since. This trend is consistent with statewide and nationwide travel trends. It should be noted that although total traffic crashes and vehicle miles traveled (VMT) were down in 2020 there was an increase in fatal and serious injuries that started in 2020.

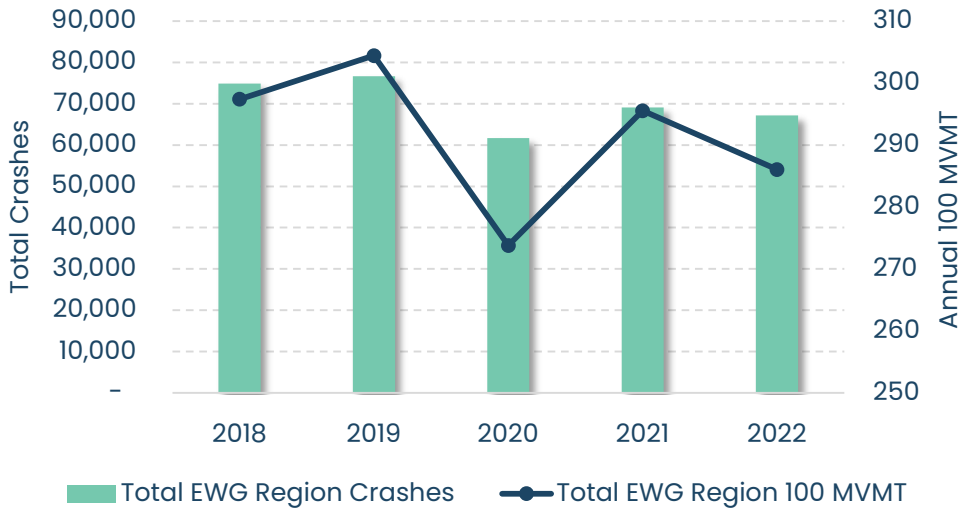


Figure 15. Total Crashes and Motor Vehicle Miles Traveled per Year (2018-2022)

Fatal Crashes in EWG Region

Figure 16 illustrates the yearly trends in fatal crashes in the Region. The regional five-year average of fatal crashes was 302 crashes per year from 2018-2022. Unfortunately, fatal crashes in the Region increased in 2020 and thereafter. As shown, St. Louis County, City of St. Louis and St. Clair County had the largest increase in fatal crashes in 2020, while minor increases were experienced in St. Charles and Jefferson County. Franklin County, Madison County, and Monroe County maintained similar levels across the years. The Region's average fatality rate increased about 14% from before 2019 and after 2020.

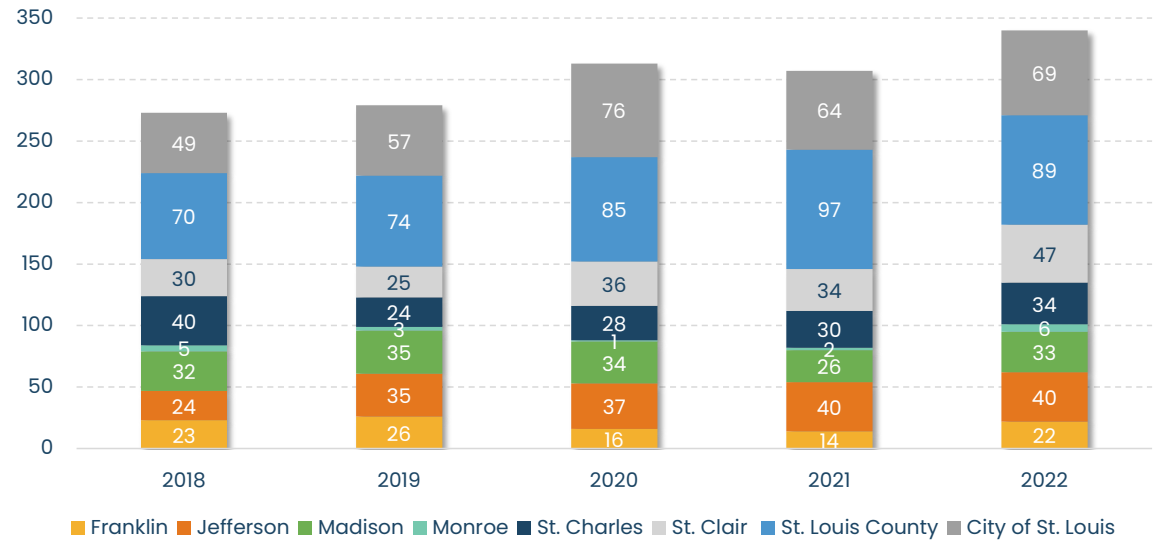


Figure 16. Fatal Crashes by Year and County (2018-2022)

Serious Injury Crashes in EWG Region

Figure 17 summarizes the yearly trends in serious injury crashes in the Region. The regional five-year average of serious injury crashes was over 1,600 serious injury crashes per year from 2018-2022. For serious injury crashes, there was a slight decrease in 2020, but 2021 stands out with the highest number of serious injury crashes in the five-year period. The higher-than-average trend continued into 2022. The data suggests a sustained increase in serious injuries since COVID-19.

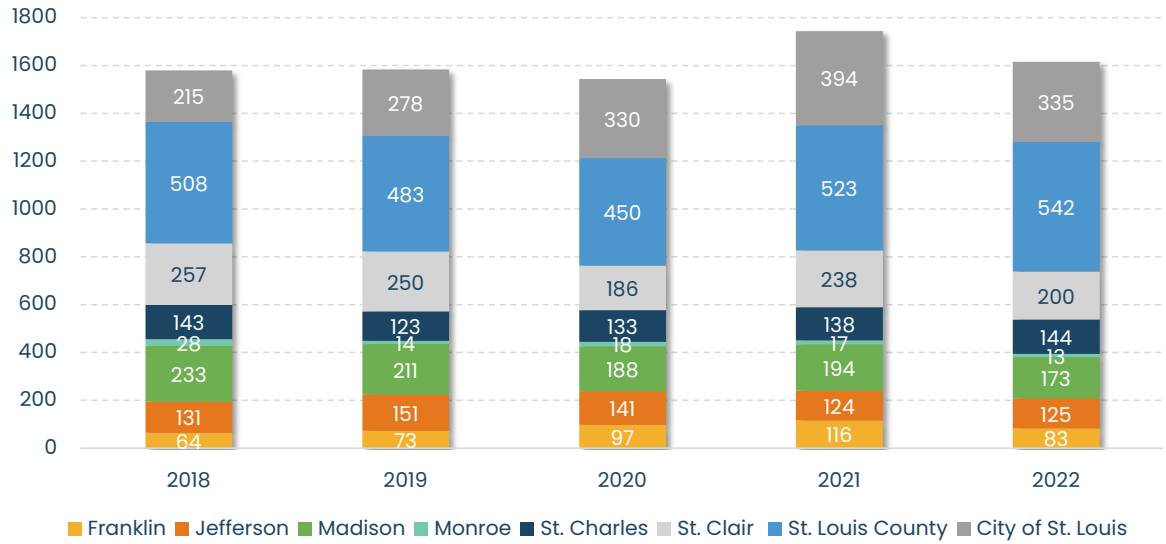


Figure 17. Serious Injury Crashes by Year and County (2018-2022)

St. Louis Compared to Other Regions

EWG publishes "Where We Stand, The Strategic Assessment of the St. Louis Region" to compare St. Louis to similar Regions. One measure tracked through the program is motor vehicle crash fatalities per VMT (deaths per 100 MVMT). For comparison, the most recent available data was analyzed for the years 2018 to 2021.

The St. Louis Metropolitan Statistical Area (MSA), which spans 15 counties in Missouri and Illinois in the St. Louis area,[9] had a fatal crash rate per 100 MVMT ranging from of 0.81 to 1.06, while the average among the fifty most populous MSAs had a fatal crash rate of 0.80 to 1.04. Figure 18 compares St. Louis's fatality rate to the average among the 50 most populous MSAs and peer cities Kansas City and Chicago.

Generally, St. Louis's fatality rate has followed the average trend except in 2020, when it surpassed the average. Chicago and Kansas City were below the average prior to 2020 but converged on the average in 2020. In 2021, St. Louis dropped back to near the average while Chicago increased and Kansas City decreased.

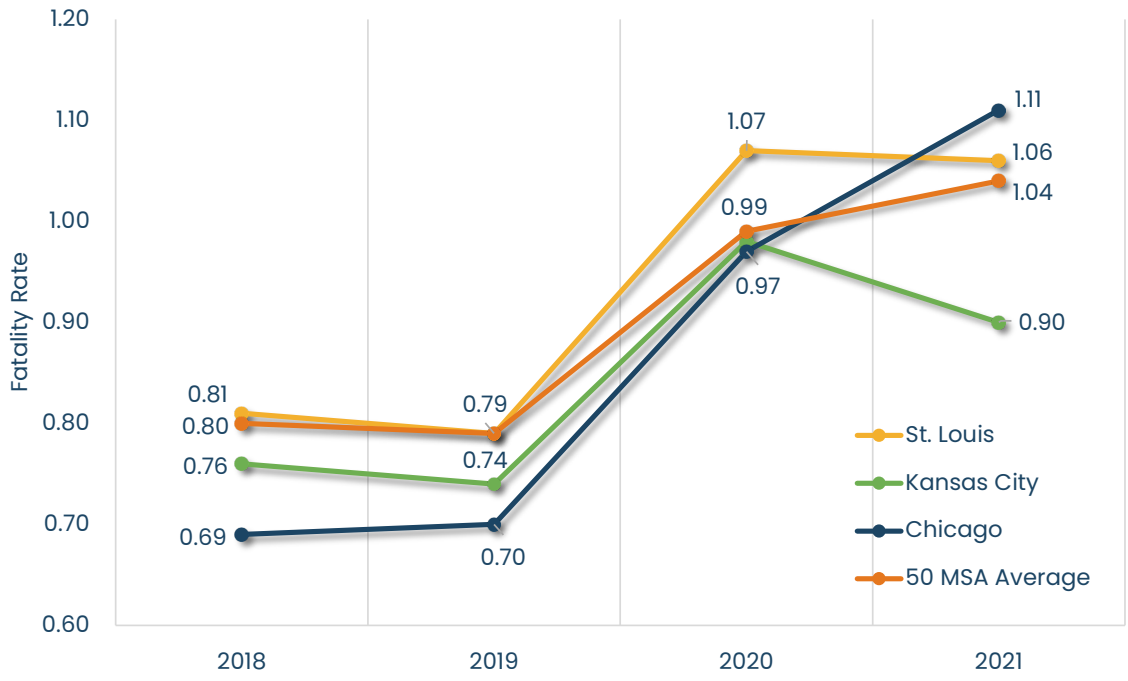


Figure 18. Fatalities per 100 Million Vehicle Miles Traveled Comparison (2018-2021)

9 https://www.ewgateway.org/wp-content/uploads/2024/04/MSA_2024.pdf

Crash Risk Assessment

A systemic-based approach looks beyond crashes at specific locations and evaluates risk across an entire roadway system. It identifies crash patterns and characteristics and proactively treats locations with identified risks. A systemic safety analysis evaluates data to identify key combinations of factors that contribute to predominant crash types. Then, it guides the selection and systemic implementation of low-cost proven safety countermeasures. This proactive technique complements traditional site-specific analysis and supports the Safe System Approach. Following the principles of the Safe System Approach, the systemic safety analysis in the Action Plan focused on fatal and serious injury crashes only. Figure 19 summarizes the fatal and serious injury crashes for each county in the Region. Similar to the total crashes, St. Louis County had the most fatal and serious injury crashes followed by City of St. Louis.

The systemic safety analysis used the existing crash data in the EWG Region to evaluate the roadways to better understand trends such as; contributing factors, age group, time of day, day of the week, month of the year, road surface/weather condition, light conditions, type of crashes, and roadway context (like interstate/non-interstate and urban or rural settings).

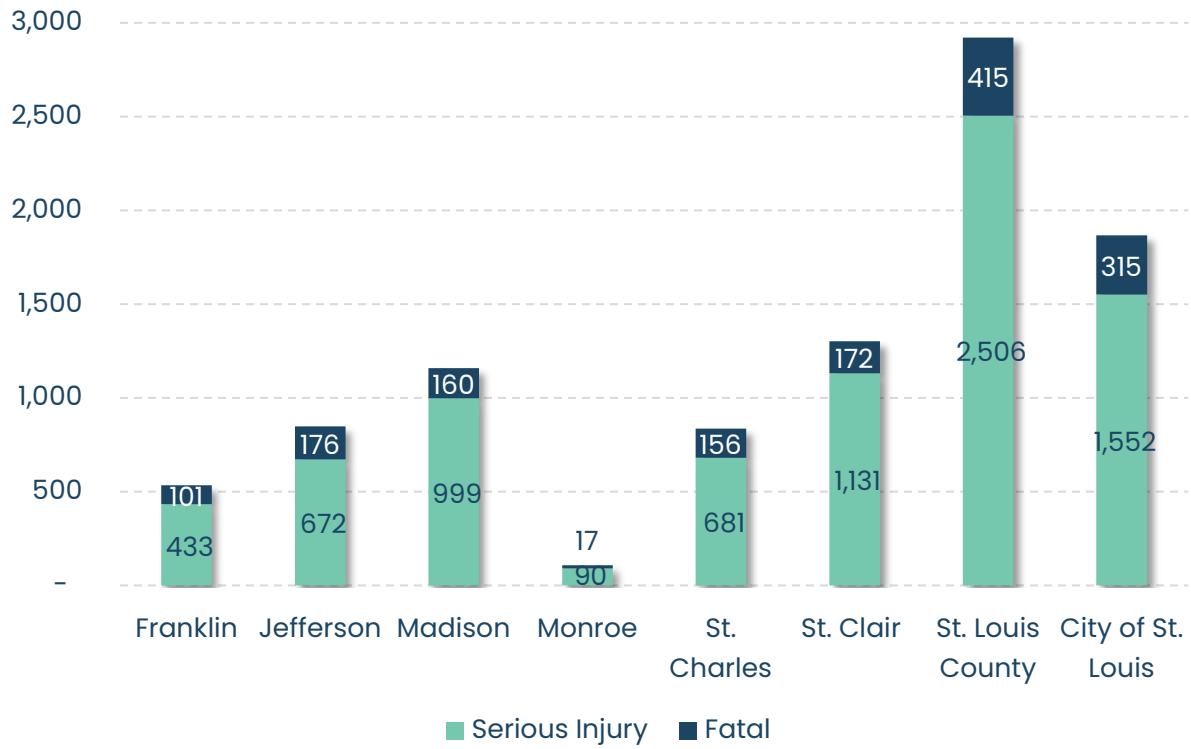


Figure 19. Fatal and Serious Injury Crashes in EWG Region by County (2018-2022)

What Are the Contributing Factors of Fatal and Serious Crashes?

When analyzing fatal and serious injury crashes, it is vital to understand the underlying reasons for these occurrences. To gain insights into the human risk factors involved in such crashes, contributing circumstances were extracted and summarized from the crash data. Figure 20 depicts the top contributing factors in the fatal and serious injury crashes across the EWG Region from 2018-2022. **The contributing circumstances reveal that speeding-related issues were the primary cause of serious and fatal crashes, accounting for 30% of all incidents.** This indicates that driving at excessive speeds is a significant issue in the EWG Region. Failing to yield the right-of-way was the second most common factor, accounting for 19%, followed by improper lane usage at 16%. The use of alcohol and/or drugs was the fourth leading cause, responsible for 11% of all crashes, whereas driver distraction completed the top five factors at 9%. Other notable contributing factors included ignoring signals or signs, the physical condition of the driver (including potential medical or fatigue-related impairments), overcorrecting, following too closely, and driving the wrong way. The Action Plan identifies high-injury networks for the top five contributing factors to help focus solutions on those problematic areas.

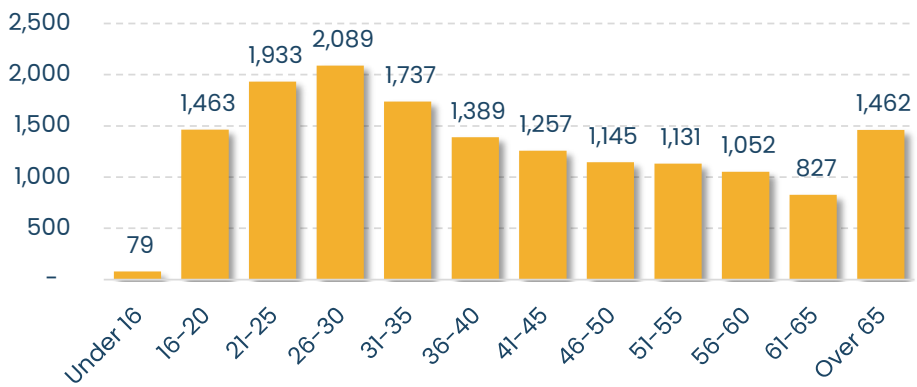


Figure 21. Age Distribution of Persons Involved in Fatal and Serious Injury Crashes in EWG Region (2018-2022)

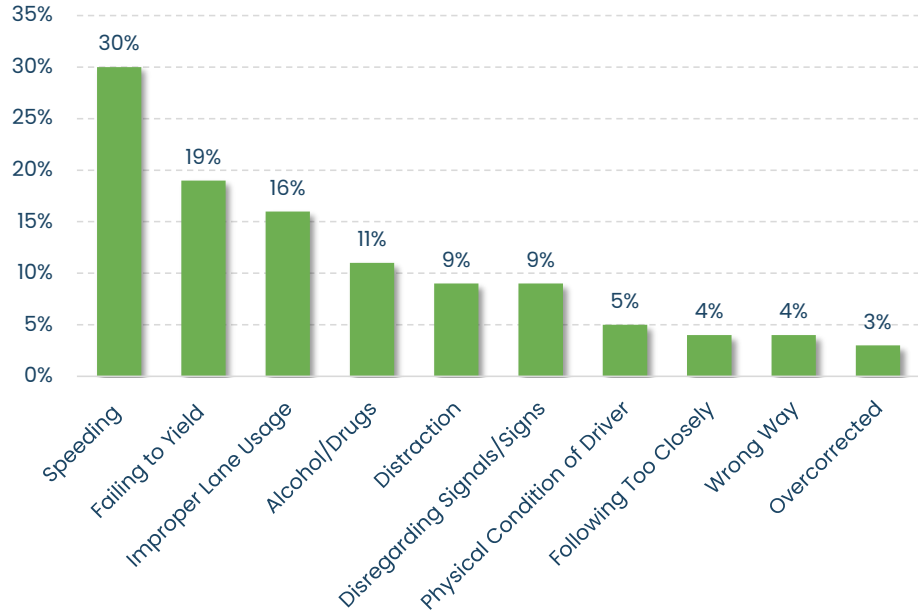


Figure 20. Contributing Factors of Fatal and Serious Injury Crashes in EWG Region (2018-2022)

What is the Age Distribution for Fatal and Serious Crashes?

To identify what age groups are more likely to be involved in fatal or serious injury crashes, the crash data was categorized into age groups based on the methodology used by the National Highway Traffic Safety Administration (NHTSA). This includes those under 16 years old as a group, those older than 65 years old as a group and then groups for every five-year increments in-between. Figure 21 depicts the age distribution of those involved in a fatal and serious injury crash in the EWG Region from 2018-2022, which includes all modes (drivers, pedestrians, and bicyclists). **The most prominent age group involved in fatal and serious injury crashes is the 26-30 age bracket, followed closely by the 21-25 group, indicating that young adults are at higher risk of being involved in a fatal or serious injury crash.** Additionally, the 'over 65' age group makes up a higher percentage of the fatal and serious injury crashes compared to the middle-aged groups. Based on this data, systemic solutions should be tailored towards both younger and older populations.

When do Fatal and Serious Crashes Occur?

Trends based on the time of day, day of the week, month of the year for the fatal and serious injury crashes were also evaluated. The heat map provided in Figure 22 shows fatal and serious injury crashes by month and day of the week in the EWG Region over the period of 2018-2022. In the figure, red colors indicate higher frequencies of crashes while the green colors represent a lower frequency of crashes. The crash data indicates the risk of fatal and serious injury crashes increases towards the weekend, with Friday notably starting this uptick. Based on the data, crashes are 33% more likely to occur on a Friday, Saturday, or Sunday from May through August than on any other day. **This trend clearly underscores a time-based pattern of road safety risk in the EWG Region, emphasizing weekends and warmer months (summer/fall) as periods of higher risk.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mon	95	59	72	95	91	111	130	117	100	121	109	113
Tue	99	74	86	93	108	106	115	103	115	128	115	102
Wed	88	60	101	83	96	120	119	117	132	132	118	110
Thu	94	67	104	113	102	124	114	108	120	120	102	108
Fri	103	97	107	101	153	145	147	135	136	136	137	111
Sat	101	86	103	126	161	152	140	144	153	153	111	113
Sun	102	91	114	119	158	125	134	149	162	162	100	118

Figure 22. Fatal and Serious Injury Crashes in the EWG Region by Month and Day (2018 - 2022)

When do Fatal and Serious Crashes Occur? (Cont.)

There is also a visible trend for the day of the week and time of fatal and serious injury crashes, as shown in Figure 23. There is an increase in crashes during the late afternoon to early evening period across all days, with the time frame from 3:00 PM to 6:00 PM being particularly prone to higher frequencies of crashes, which is the typical afternoon rush hour. Conversely, the early morning hours from midnight to 6:00 AM during weekdays are associated with the lowest crash occurrences. **The most significant crash pattern that emerges is the increased likelihood of crashes in the latter half of the day on weekends.** Fatal and serious injury crashes are highly concentrated on Friday, Saturday and Sunday evenings. A third of the total fatal and serious injury crashes occurred on Friday, Saturday, or Sunday between 3:00 pm and 4:00 am. This shows the need for enhanced safety measures and increased awareness during these hours of the week.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
5:00 AM	25	17	21	28	31	39	28
6:00 AM	30	33	46	46	43	29	24
7:00 AM	48	52	57	45	29	29	23
8:00 AM	54	51	56	42	41	28	26
9:00 AM	33	30	46	42	44	43	28
10:00 AM	49	47	36	40	46	36	46
11:00 AM	56	51	45	60	52	44	56
12:00 PM	68	80	62	65	51	59	57
01:00 PM	51	51	67	64	64	67	53
02:00 PM	69	87	79	81	83	79	77
03:00 PM	100	77	86	93	96	93	82
04:00 PM	74	85	89	80	102	64	89
05:00 PM	86	82	98	77	104	94	102
06:00 PM	68	88	71	68	101	98	107
07:00 PM	66	78	63	72	92	75	94
08:00 PM	52	74	65	68	99	82	87
09:00 PM	53	50	65	57	106	106	69
010:00 PM	52	55	57	59	76	94	55
011:00 PM	38	45	43	38	78	67	55
12:00 AM	42	34	31	25	45	84	86
1:00 AM	30	21	25	27	40	86	107
2:00 AM	19	21	18	31	27	72	60
3:00 AM	24	11	22	25	23	49	53
4:00 AM	19	16	18	14	18	33	40

Figure 23. Fatal and Serious Injury Crashes in the EWG Region by Day of Week and Time (2018 - 2022)

Crash Risk Assessment (Cont.)

Road Surface of Fatal and Serious Crashes

Understanding the roadway surface conditions of fatal and serious injury crashes can help to identify if weather or pavement friction is a significant factor. Figure 24 shows that a vast majority of the fatal and serious injury crashes in the EWG Region occurred on roadways that were dry (84%), versus roadway surfaces that were wet (14%), or on pavement with ice/snow/slush (2%). Each of the counties in the Region are relatively consistent with the regional average except Franklin County, which increases to 19% of the fatal and serious injury crashes occurring on wet pavement, showing a particular need in Franklin County. According to research conducted by the Federal Highway Administration (FHWA) and the National Transportation Research Board (NTRB), a significant portion of wet pavement crashes occur on surfaces with inadequate pavement friction, and about 70% of wet pavement crashes could be prevented or minimized by improving pavement friction. The pavement friction issue can be a localized issue that may only occur in curves or on grades.

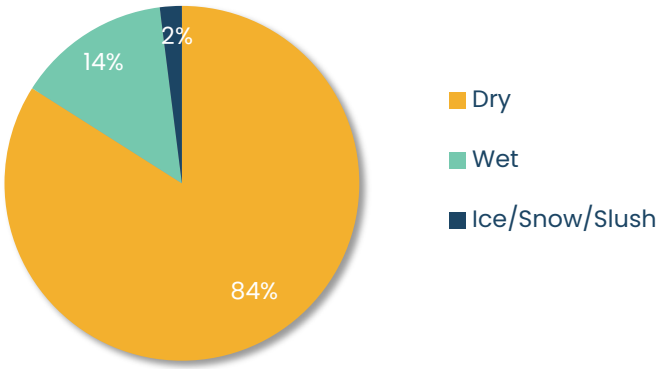


Figure 24. Fatal and Serious Injury Crashes in EWG Region Road Surface Conditions (2018-2022)

Lighting Conditions of Fatal and Serious Crashes

Understanding the lighting conditions can help identify ways to reduce fatal and serious injury crashes. Figure 25 shows that 57% of the fatal and serious injury crashes occur during daylight conditions and approximately 42% of fatal and serious injury crashes occur in darkness. Although the percentage of fatal and serious injury crashes during dark conditions are somewhat similar to the daylight, FHWA data indicates that only 25% of VMT occur at night. Vehicles tend to travel at higher speeds during night conditions, which may impair their ability to stop in time once a hazard or change in the road ahead becomes visible in the headlights. **When considering only the fatal crashes in the EWG Region, the daylight crashes are reduced to 45% and the nighttime crashes are increased to 55%.**

Nighttime driving is inherently more dangerous due to limited visibility, which reduces the time drivers have to react to obstacles on the road, particularly at higher speeds. Additionally, vision tends to deteriorate with age, making it even more challenging for older drivers to see at night. According to the American Optometric Association, drivers aged 60 and older may find nighttime driving particularly difficult. Lighting can be applied continuously or at spot locations such as intersections and pedestrian crossings to improve visibility and reduce the potential of crashes. Generally, all the counties had similar daylight versus nighttime fatal and serious crashes, except City of St. Louis, which had less than half of fatal and serious injury crashes occur under daylight, showing a higher risk for severe crashes during dark conditions in the City of St. Louis.

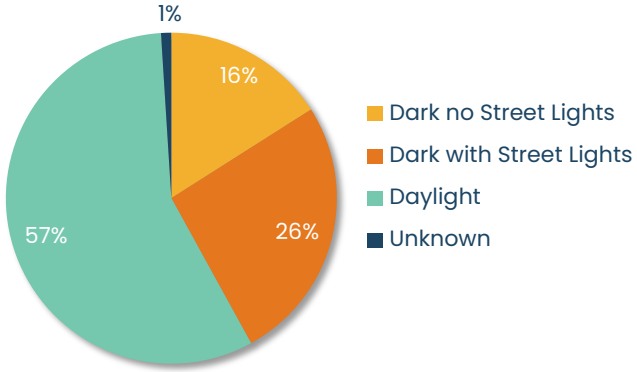


Figure 25. Fatal and Serious Injury Crashes in EWG Region Lighting Conditions (2018-2022)

Crash Risk Assessment (Cont.)

Vulnerable Road User (VRU) Focus

According to FHWA, vulnerable road users (VRUs) are non-motorists, including pedestrians, bicyclists, and individuals on personal conveyances, such as wheelchairs, who are at greater risk in traffic environments. Overall, VRUs represent a small fraction of the total crashes in the Region (1.3% combined) but account for a disproportionate percentage of fatal and serious injury crashes from 2018 to 2022. In fact, pedestrians were involved in 19.5% of fatal crashes alone in the EWG Region.

The fatal and serious injury pedestrian crashes were found to occur nearly equally at intersections versus non-intersection locations.

As shown in Figure 26, only around 20% of the pedestrian fatal crashes in the EWG Region occurred in daylight, showing a much higher risk for pedestrians after dark.

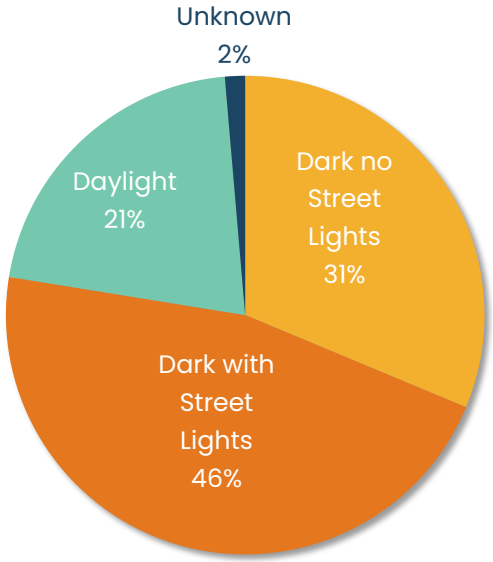


Figure 26. Lighting Conditions for Fatal Pedestrian Crashes in EWG Region (2018-2022)

Analysis of the hourly distribution of pedestrian fatal and serious crashes throughout the months of year, shown in Figure 27, identifies a distinct trend of higher crashes near sunset, with hourly concentrated surges happening in July, November, and December. **The correlation between the time of day and month is clear: the risk to pedestrians increases in the later months of the year, with a specific vulnerability in the evenings when daylight fades.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5:00 AM	1	4	0	3	2	2	1	4	1	3	1	2
6:00 AM	8	2	2	0	1	1	1	0	5	8	5	3
7:00 AM	2	3	3	1	3	1	1	0	1	2	2	0
8:00 AM	1	1	3	0	1	2	1	3	4	4	2	2
9:00 AM	0	2	1	3	0	4	2	1	0	2	2	2
10:00 AM	0	1	1	2	1	2	2	2	4	3	1	2
11:00 AM	1	2	3	0	3	4	0	1	3	3	3	3
12:00 PM	2	1	1	1	2	2	3	4	6	4	3	5
1:00 PM	0	1	2	1	1	2	4	1	3	1	4	1
2:00 PM	4	2	5	4	2	2	0	6	1	1	2	4
3:00 PM	4	2	4	5	2	4	2	3	6	4	4	6
4:00 PM	3	1	2	0	2	2	4	3	3	6	3	4
5:00 PM	13	1	1	3	2	3	3	2	5	9	14	23
6:00 PM	14	8	4	3	3	0	1	6	5	9	19	9
7:00 PM	3	8	5	4	1	4	2	5	12	12	8	11
8:00 PM	5	5	7	10	8	7	9	11	10	13	10	6
9:00 PM	7	8	7	10	10	5	19	14	13	9	6	3
10:00 PM	3	1	3	3	14	7	7	9	2	12	3	2
11:00 PM	1	7	4	5	6	3	4	6	4	4	7	2
12:00 AM	3	2	3	4	7	2	10	2	7	5	3	3
1:00 AM	4	4	2	1	5	3	5	7	3	3	2	0
2:00 AM	0	2	2	1	1	1	4	2	1	2	1	0
3:00 AM	0	2	2	3	2	4	3	3	2	1	1	1
4:00 AM	3	0	1	1	3	1	0	0	4	0	2	1

Sunset Line

Figure 27. Pedestrian Fatal and Serious Injury Crashes in EWG Region (2018-2022)

Vulnerable Road User (VRU) Focus (Cont.)

There was a total of 152 fatal and serious injury bicycle-involved crashes in the EWG Region from 2018 to 2022, which relates to about 1.6% of such crashes. Due to the relatively low number of bicycle crashes, time-of-day trends were not very informative, but generally concluded that more crashes occurred during the warmer/summer months. One of the more apparent trends is that 72% of the fatal and serious injury bicycle crashes occurred on arterial roads. These roads are generally higher speed and higher volume roads, which increases the risk of bicyclists being seriously injured or killed. Figure 28 illustrates the breakdown of the functional classification of the bicycle involved serious injury and fatal crashes. More information about functional classification can be found on EWG's website.[10]

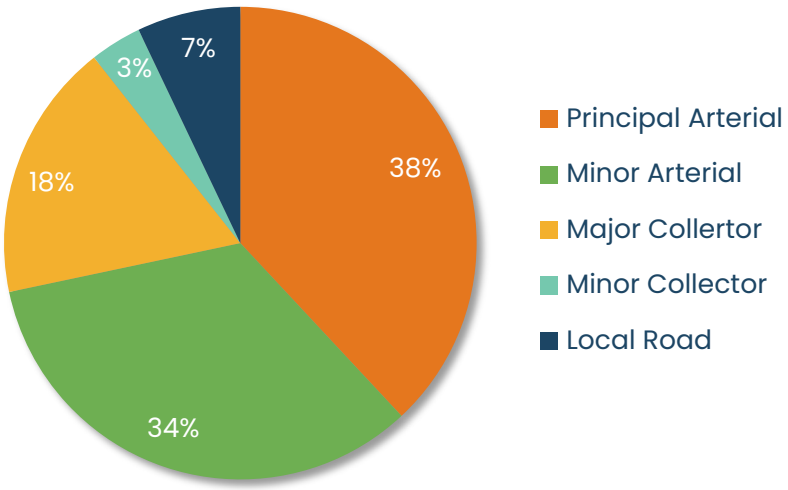


Figure 28. Bicycle Fatal and Serious Injury Crashes in EWG Region by Functional Classification (2018-2022)

10 https://www.ewgateway.org/transportation-planning/roadway-functional-classification/

Crashes in Underserved Communities

CEJST maps were used to identify disparities for disadvantaged communities. The percentage of the population living in disadvantaged communities was compared to the percentage of fatal and serious injury crashes recorded in those CEJST areas, as shown in Figure 29. A higher percentage of fatal and serious injury crashes compared to the population in disadvantaged areas indicates an overrepresentation of severe crashes in those communities.

In the EWG Region, only 18% of the Region's population lives in disadvantaged areas, yet nearly 40% of fatal and serious crashes occur in disadvantaged areas. This shows that CEJST areas have a much higher exposure to fatal and serious injury crashes compared to non-disadvantaged communities. The trend generally continues at the county levels as well, with the largest disparities occurring in City of St. Louis, St. Louis County, and St. Clair County.

This discrepancy highlights the need for increased resources and heightened efforts to address the underlying issues contributing to fatal and serious injury crashes within disadvantaged areas. It is important to understand the additional burdens and barriers these communities face, as identified by the CEJST so that more focused efforts can be directed toward improving transportation safety and health outcomes for the residents most at risk.

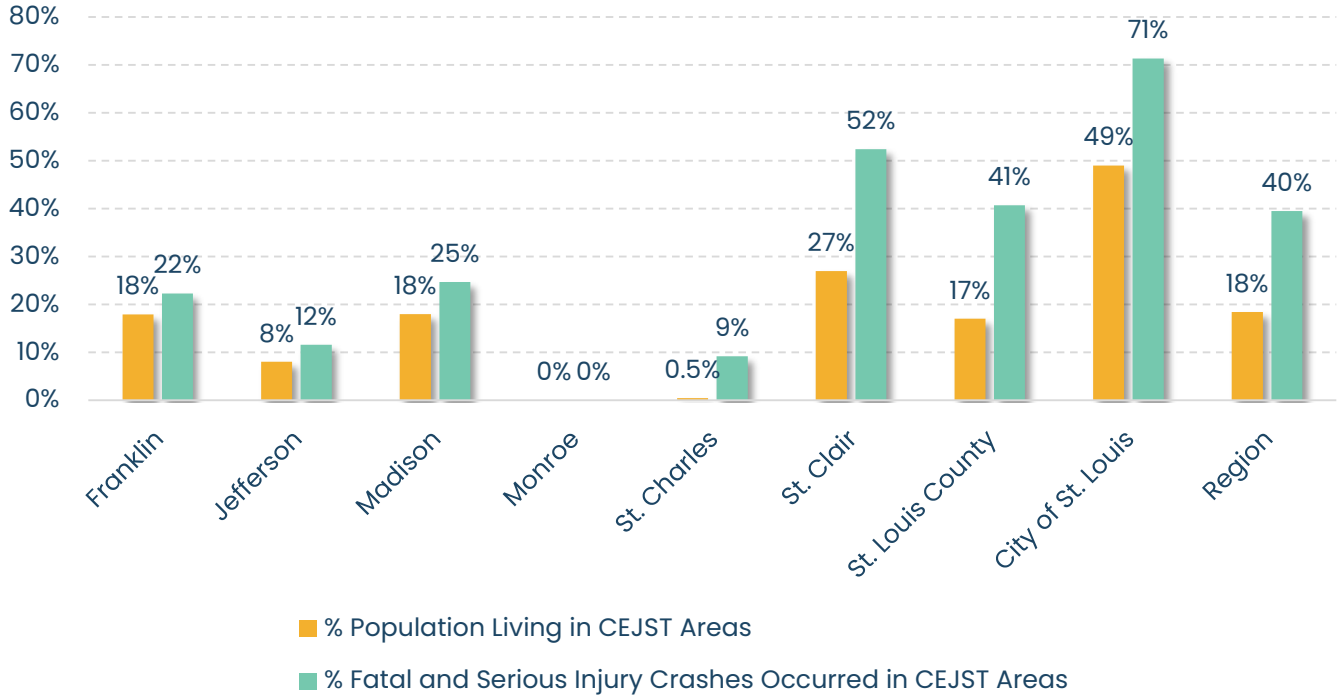


Figure 29. Comparison of Population and Fatal and Serious Injury Crashes in CEJST Areas in EWG Region (2018-2022)

Road Type Analysis

The EWG Region encompasses both urban and rural areas and includes a wide variety of roadway systems, such as interstates, arterials, collectors, and local roads. Urban and rural areas generally have different crash conditions due to differences such as volumes on roadways, number of intersections, and presence of animal life. In the EWG Region, urban areas are areas with a population of 5,000 or more and rural areas are all other areas not classified as urban[11]. Since interstates are higher-speed, access-controlled facilities with interchanges, the safety issues on those facilities are different than those on non-interstate facilities. Thus, three main categories were developed for the systemic safety analysis: non-interstate urban, non-interstate rural, and interstate. As shown in Figure 30, 20% of the Region's fatal and serious injury crashes occurred on interstates, 17% occurred on non-interstate roads in the rural areas, and 63% occurred on non-interstate urban roads.

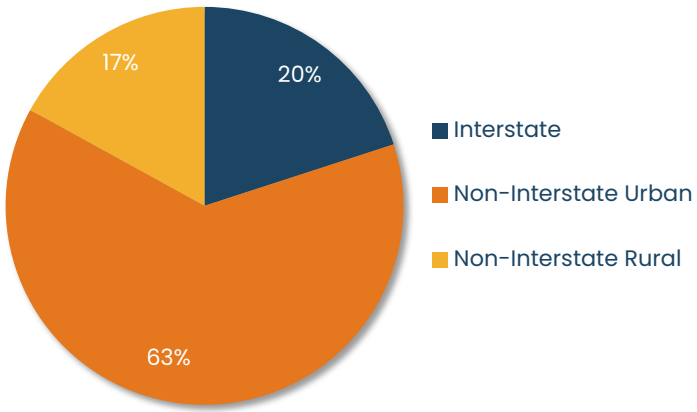


Figure 30. Fatal and Serious Injury Crashes in EWG Region Road Type (2018-2022)

Non-Interstate Urban Focus

Urban areas generally have higher traffic volumes, more complex intersections, and more VRUs. Approximately 80% of non-interstate fatal and serious injury crashes in the EWG Region occurred in urban areas. Improving safety in urban areas would significantly impact safety for the EWG Region.

Figure 31 shows the non-interstate urban fatal and serious injury crashes by year and county. As shown, severe crashes are on an upward trend. They are a major focus for City of St. Louis, St. Louis County, St. Clair County, and St. Charles County.

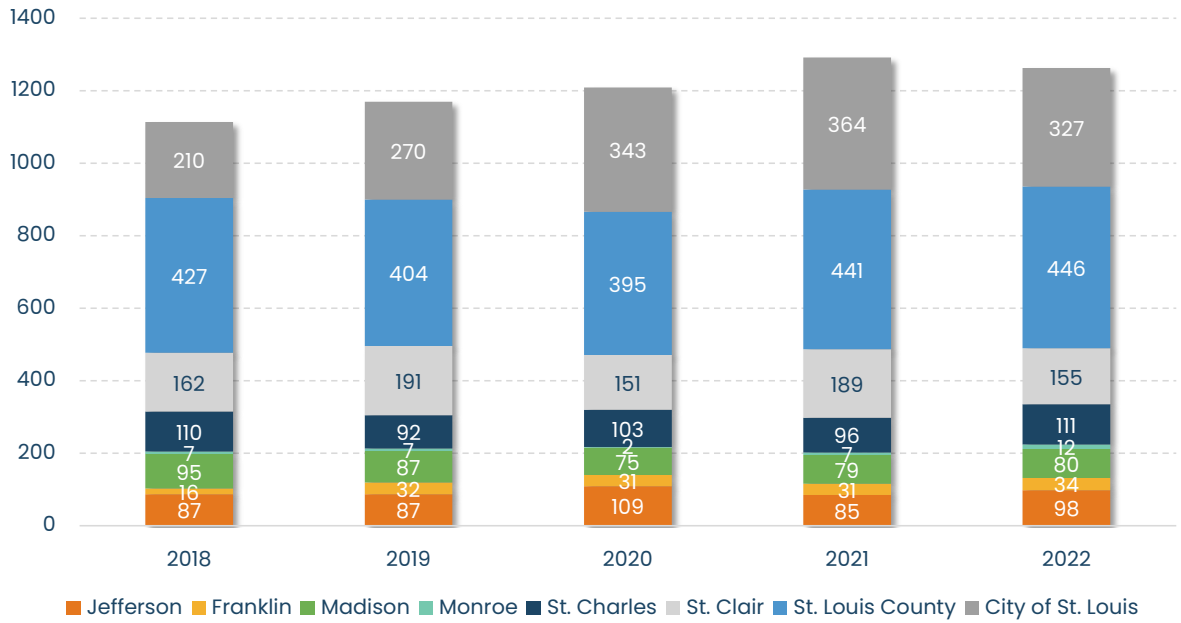


Figure 31. Non-Interstate Urban Fatal and Serious Injury Crashes by Year and County (2018-2022)

11 https://censusreporter.org/profiles/40000US77770-st-louis-mo-il-urban-area/

Non-Interstate Urban Focus (Cont.)

In urban areas, 67% of all crashes occurred at intersections, and 33% occurred along segments. Figure 32 summarizes the types of crashes occurring at intersections and along segments. The urban intersection crashes are mostly comprised of turning, fixed objects, angle, and pedestrian crashes. Along segments in urban areas, fixed object, pedestrian, head-on, rear end, and turning are a significant portion of the crashes. Pedestrian crashes are much more prevalent in urban areas compared to rural areas at both intersections and along segments. These results show that intersection treatments in urban areas should be prioritized, particularly those that address turning crashes and enhance VRU safety.

Non-Interstate Urban Segment Crashes (33% of Non-Interstate Urban Crashes)

Crash Type	Total Crashes	Percent of Total
Fixed Object	*710*	35%
Pedestrian Involved	*315*	16%
Head On	*233*	12%
Rear End	*201*	10%
Turning	*169*	8%
Sideswipe	*90*	5%
Parked/Parking	*78*	4%
Other	*58*	3%
Bicycle	*44*	2%
Overturned	*40*	2%
Angle	*37*	2%
Various*	*25*	1%
Total	***2,000***	**100%**

**Various= Animal, Avoiding, Backing & Train*

Non-Interstate Urban Intersection Crashes (67% of Non-Interstate Urban Crashes)

Crash Type	Total Crashes	Percent of Total
Turning	*967*	24%
Fixed Object	*718*	18%
Angle	*695*	17%
Pedestrian	*510*	13%
Head On	*405*	10%
Rear End	*398*	10%
Sideswipe	*102*	3%
Bicycle	*87*	2%
Parked/Parking	*76*	2%
Other	*48*	1%
Avoiding	*22*	<1%
Various*	*20*	<1%
Total	***4,048***	**100%**

**Various= Animal, Overturned, Backing & Train*

Figure 32. Non-Interstate Urban Crash Types in EWG Region (2018-2022)

Non-Interstate Rural Focus

Rural areas generally include more curved and unlit roads, the presence of animals, and higher speeds. Approximately 20% of the non-interstate fatal and serious injury crashes in the EWG Region occurred in rural areas. Although the regional crashes are significantly less in rural areas, Franklin, Madison, and Monroe counties have 55% or more of their county's fatal and serious injury crashes occurring in rural areas, and reducing severe crashes in rural areas would have significant impacts in those counties. As shown in Figure 33, non-interstate rural crashes experienced increases and decreases between the years 2018 and 2022, with a significant reduction in 2022. Systemic treatments can help maintain the reduction in future years. Note, City of St. Louis does not have any rural areas, thus it is not shown in Figure 33.

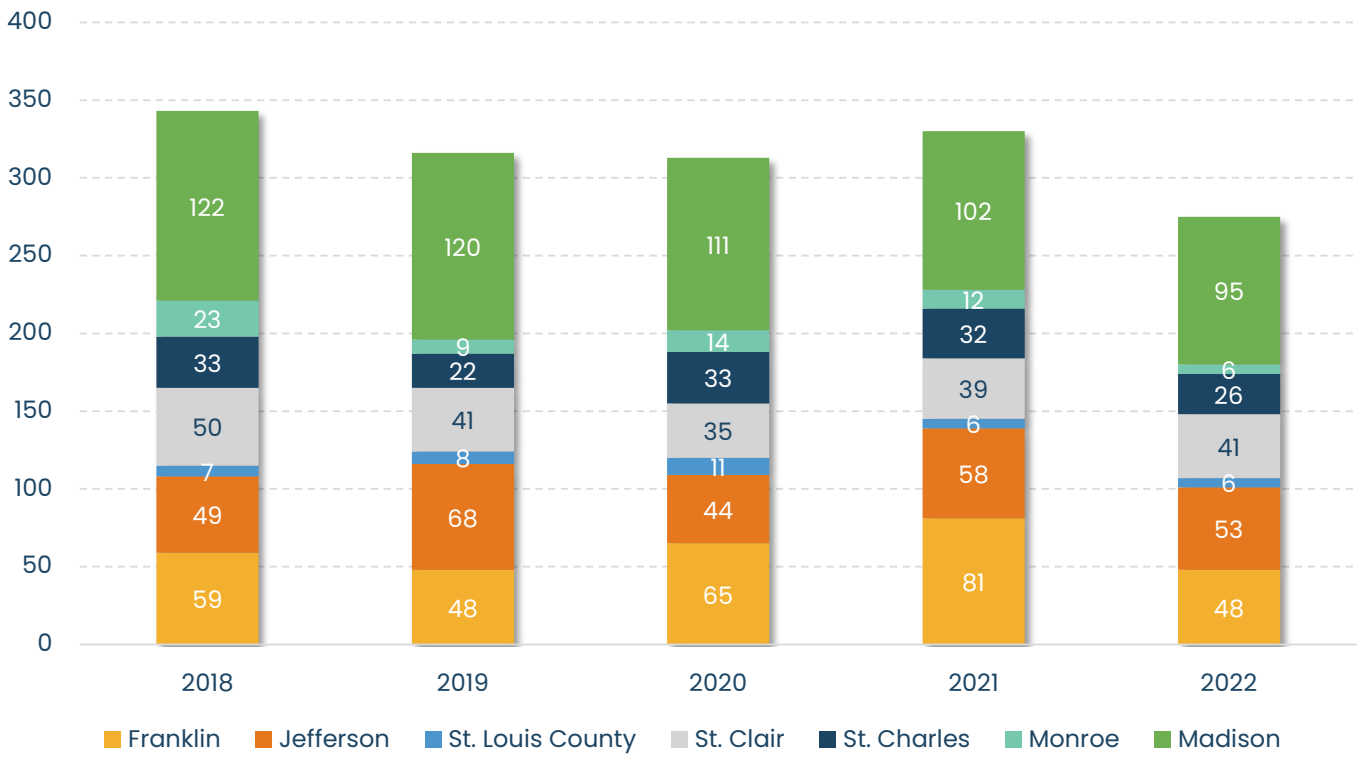


Figure 33. Non-Interstate Rural Fatal and Serious Injury Crashes by Year and County (2018-2022)

Non-Interstate Rural Focus (Cont.)

In rural areas, 67% of fatal and serious injury crashes occurred along segments, and 33% occurred at intersections. Figure 34 summarizes the types of crashes occurring along segments and at intersections in rural areas. Fixed object crashes or "run off roadway" crashes make up over 53% of the crashes along segments of rural areas, while head-on and overturned crashes make up another 20%. Typically, rural roadway departure crashes occur in locations that do not have lighting and can be concentrated in curves. Wet conditions or pavement friction can also be a factor in rural areas.

The intersection crashes in rural areas mostly comprise turning, angle and fixed object crashes. Rural intersections are generally on higher-speed facilities, which can lead to higher severity crashes when they occur but have lower volume compared to urban settings. Segment crashes are a higher priority in rural areas and treatments that keep vehicles on the road would address a majority of fatal and serious injury crashes on rural roads in the EWG Region.

Non-Interstate Rural Segment Crashes (67% of Non-Interstate Rural Crashes)

Crash Type	Total Crashes	Percent of Total
Fixed Object	567	53%
Head On	124	12%
Overturned	82	8%
Rear End	77	7%
Pedestrian	49	5%
Turning	37	3%
Sideswipe	36	3%
Other	31	3%
Animal	18	2%
Bicycle	13	1%
Parked/Parking	13	1%
Various*	13	1%
Total	**1,060**	**100%**

**Various= Animal, Avoiding*

Non-Interstate Rural Intersection Crashes (33% of Non-Interstate Rural Crashes)

Crash Type	Total Crashes	Percent of Total
Turning	168	32%
Angle	108	21%
Fixed Object	106	21%
Rear End	48	9%
Head On	29	6%
Sideswipe	12	2%
Overturned	12	2%
Other	12	2%
Pedestrian	10	2%
Bicycle	6	1%
Various*	6	1%
Total	**517**	**100%**

**Various= Animal, Avoiding, Backing & Train*

Figure 34. Non-Interstate Rural Crash Types in EWG Region (2018-2022)

Interstate Focus

Figure 35 shows the interstate (including mainline and ramps) fatal and serious injury crashes by year and county. Approximately 390 fatal and serious injury crashes occurred on interstates per year between 2018 and 2022. In 2020, there was a notable reduction in interstate serious injuries and fatalities. This reflects the broader impact of the COVID-19 pandemic on the Region's interstate system. However, the reduction was short-lived as there was a resurgence in 2021, returning to levels even higher than pre-pandemic years. Also, as shown, the highest number of interstate crashes occurred in St. Louis County.

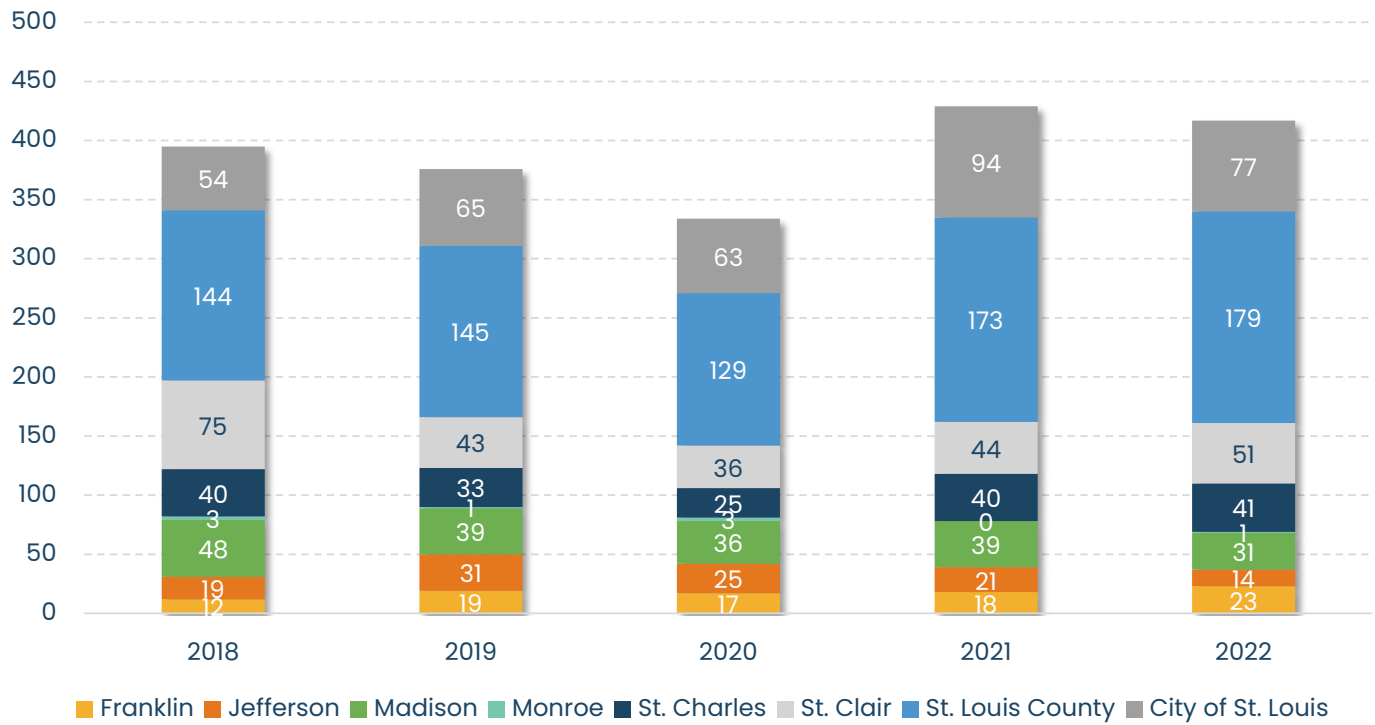


Figure 35. Interstate Fatal and Serious Injury Crashes by Year and County (2018-2022)

Interstate Focus (Cont.)

On the freeway system, fixed object collisions are the most frequent crash type, followed by rear-end, sideswipe, and pedestrians, as shown in Figure 36. Among the fixed object crashes, concrete traffic barriers and guardrails are the most commonly struck objects at approximately 55%. Although this data indicates that infrastructure elements (concrete barriers and guardrails) are a factor in interstate crash types, these objects are in place to prevent even more tragic crashes, such as head-on and rollover crashes. To reduce interstate crashes, systemic treatments should focus on increasing recovery areas, keeping vehicles on the road and in their lane, reducing congestion, and providing safe pedestrian facilities that cross the interstate system.

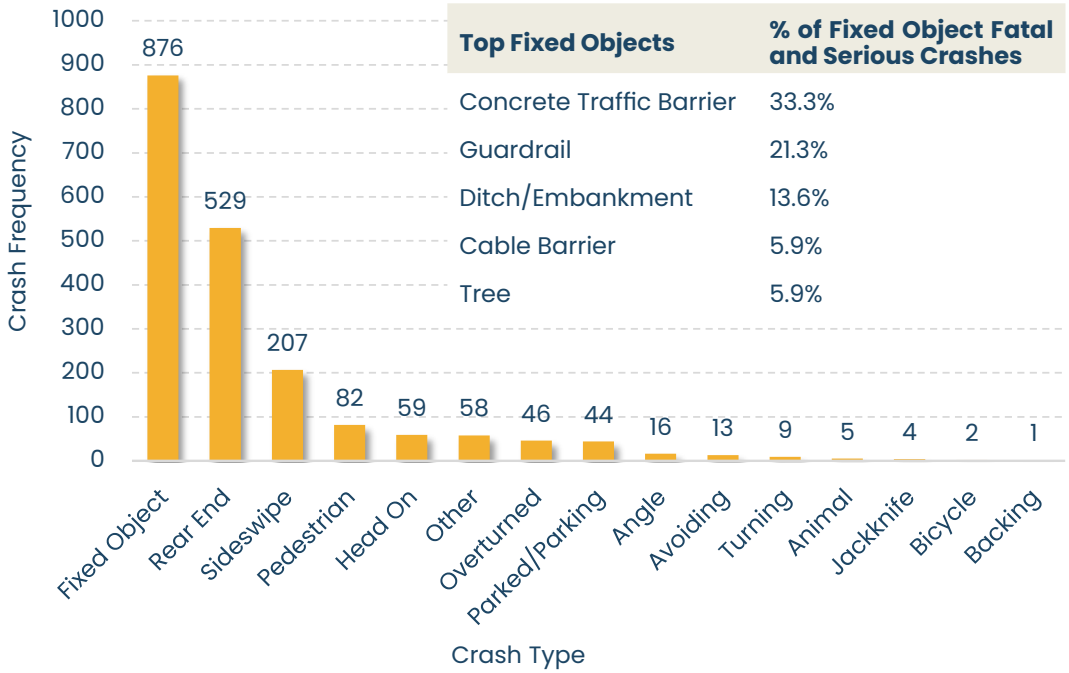


Figure 36. Crash Types of Interstate Fatal and Serious Injury Crashes in EWG Region (2018-2022)

In summary, the crash risk assessment identified the highest risk factors (including roadway departures, intersection related crashes, and vulnerable road users) and the top contributing factors (including speeding, failing to yield right-of-way, improper lane use, impaired driving, and distracted driving) of fatal and serious injury crashes in the EWG Region. This shows the priority for systemic treatments and policy and programming measures in the EWG Region. For more detailed crash information about the EWG Region or for detailed crash data for each county individually, see Appendix A.

High-Injury Network Analysis

To identify the roadways where the highest frequencies of fatal and serious injury crashes are occurring in the EWG Region, a series of high-injury networks were developed. The high-injury networks synthesize the crash data points into a scoring of the frequency of crashes across a particular location. For example, Figure 37 shows all fatal and serious injury crash locations on all roadways in the EWG Region from 2018 to 2022. Figure 38 shows the high-injury network for all non-interstate roads in the EWG Region, which used the crash data points from Figure 37, and ranked the corridors with the most occurrences of fatal and serious injury crashes. A series of high-injury networks were developed for this Action Plan to analyze specific crash focus areas.

Regional high-injury networks were generated for the following focus areas:

1. **All Roads and Modes**, Except Interstates and Ramps (HIN 1 - All Modes)
2. **Only Vulnerable Road Users** (HIN 2 - VRU)
   a. Pedestrians
   b. Bicyclists
3. **Underserved Communities** (HIN 3 - Underserved)
4. **Top Contributing Factors** (HIN 4 – Contributing Factors)
   a. Speeding
   b. Failing to Yield Right-of-Way
   c. Improper Lane Usage
   d. Alcohol/Drug Use (Impaired Driving)
   e. Distraction (Distracted Driving)
5. **Interstates and Ramps** (HIN 5 – Interstates)

Each interest area is significant to road safety in the EWG Region and requires different strategies. The different high-injury networks also allow users to pinpoint underlying issues at the identified crash locations.

In addition, high-injury networks were created for each county separately to provide individualized crash analysis. Thus, users can view priorities for the Region and their county separately.

The high-injury networks can be viewed through a mapping application on the project website: www.ewgateway.org/gtsr. The following sections include screenshots of the high-injury networks from the web map. However, due to the size of the study area, the high-injury networks are best viewed using the mapping application through your browser.

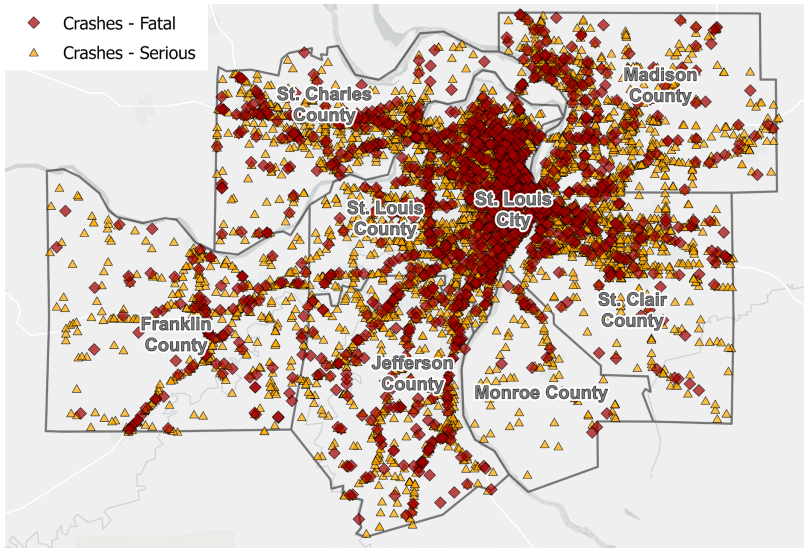


Figure 37. Fatal and Serious Injury Crash Data Points (2018 - 2022)

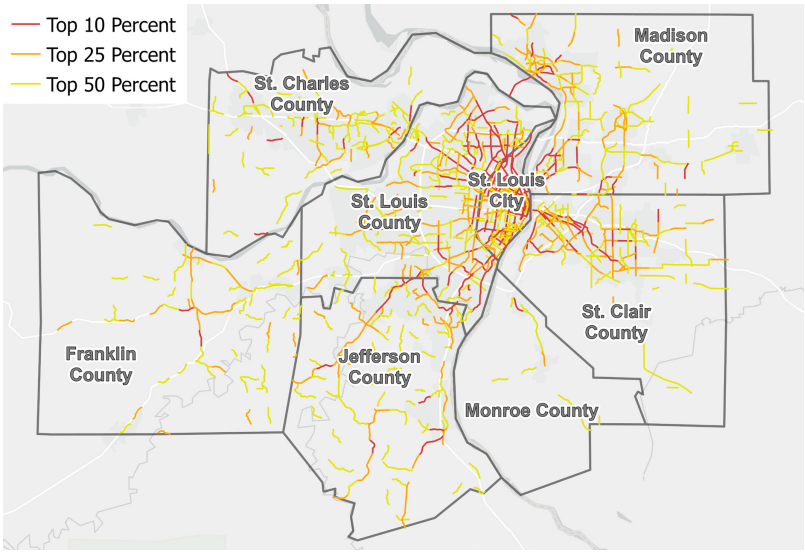


Figure 38. HIN 1 - All Modes

High-Injury Network Methodology

This section includes a brief discussion about the methodology for developing the high-injury network maps. For more detailed information about the high-injury network development methodology, refer to Appendix B.

Crash Data

The high-injury networks are based on only fatal and serious injury crashes between the years 2018 and 2022. All fatal and serious injury crashes that occurred on MoDOT, IDOT, county, and local routes within those years were incorporated except for crashes that occurred on interstates. Interstate crashes were only included in HIN 5 – Interstates since contributing factors and mitigation measures are unique for interstates compared to lower functional classifications. Additionally, for all high-injury networks, fatal crashes were weighted 1.5 times more than serious injury crashes, to prioritize the crashes that are the most consequential.

High-Injury Network Scales

Every high-injury network was generated at three different scales: corridors, segments, and intersections. The corridors evaluate the frequency of fatal and serious injury crashes on each roadway, including at intersections, over a one-mile minimum and three-mile maximum length of roadway. The corridor scale identifies stretches of roadway that have a high frequency of crashes.

The segment scale evaluates the frequency of fatal and serious injury crashes on each 0.25-mile segment of roadway, identifying the hot spots at a much finer-tuned scale.

Lastly, the intersections scale evaluates the frequency of fatal and serious injury crashes that have occurred within 150 feet of an intersection. It identifies the intersections with a high frequency of fatal and serious injury crashes. Examples of the three different scales are shown in Figure 39 through Figure 41.

All three scales should be considered when reviewing the high-injury networks. The high-injury network corridors may warrant larger-scale projects, the high-injury network segments can help identify particular locations within the corridors that have safety issues or certain short curves that have safety issues, and the high-injury network intersections identify where intersection treatments are needed.

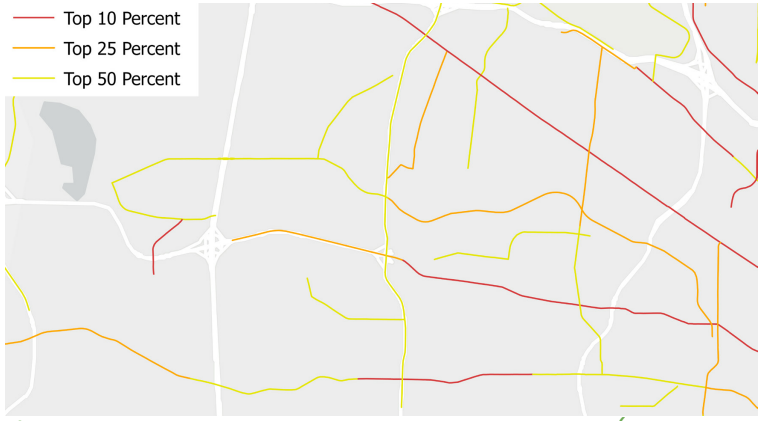


Figure 39. High-Injury Network Corridors View (1 to 3 mile lengths)

Figure 40. High-Injury Network Segments View (0.25 mile lengths)

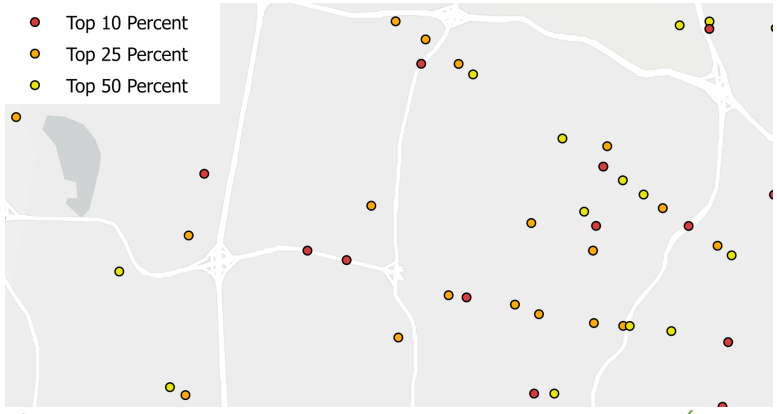


Figure 41. High-Injury Network Intersections View (within 150 feet of intersection)

High-Injury Network Methodology (Cont.)

High-Injury Network Ranking

Each high-injury network is color-coded to differentiate the higher-priority corridors, segments, and intersections. For each high-injury network, the corridors, segments, or intersections that are in the top 10% of that particular high-injury network are colored in red, top 25% are colored in orange, and top 50% are colored in yellow. Note, the county-level high-injury networks also display the bottom 50% of the high-injury network in blue. These are included in the county-level maps only so that counties and municipalities can identify local priorities for all roadways that have had fatal and serious injury crashes in their jurisdiction. The Franklin County All Modes high-injury network is shown in Figure 42 as an example of the rankings displayed in the maps on the county-level.

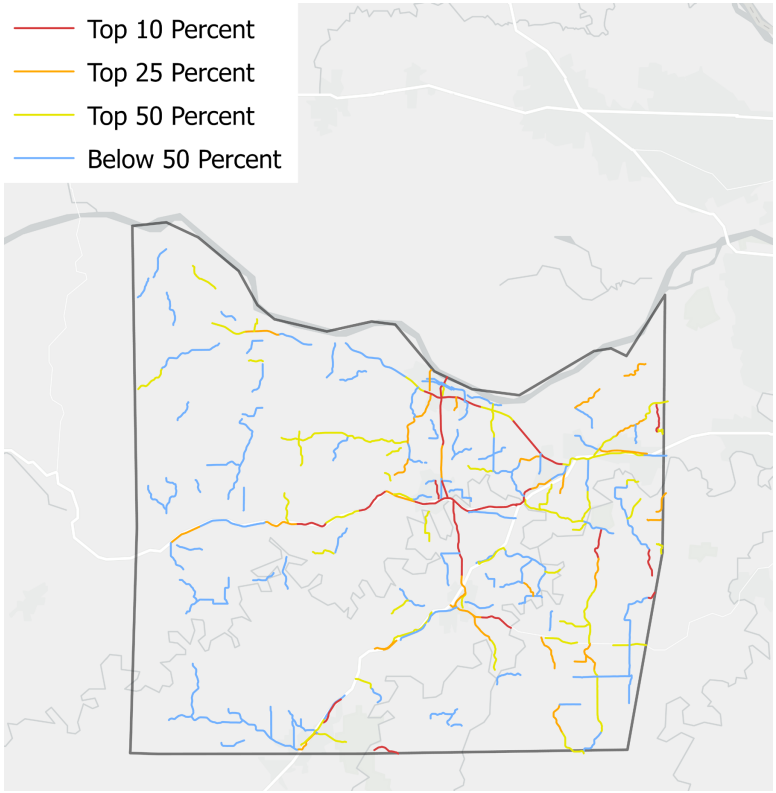


Figure 42. Franklin County All Modes HIN

High-Injury Network Findings

This section details major findings for each of the high-injury networks. It includes screenshots of the high-injury networks from the web map. However, due to the size of the study area, the high-injury networks are best viewed through the mapping application on the project website: www.ewgateway.org/gtsr.

HIN 1 - All Modes

The *All Modes* high-injury network includes fatal and serious injury crashes that occurred on MoDOT, IDOT, county, and local routes except for crashes that occurred on interstates and interstate ramps. Figure 43 shows the top 10% (red) top 25% (orange) and top 50% (yellow) corridors. The "ranking" of the corridors on the list is based on the number of fatal and serious injury crashes per year per mile. More detailed information for all high-injury networks can be obtained from the online web mapping application. The map shows that the *All Modes* high-injury network extends to all counties in the EWG Region, but with a particular concentration in the City of St. Louis and St. Louis County. Many of the highlighted routes are MoDOT and IDOT maintained routes. Addressing these routes will require partnerships between state and local governmental agencies.

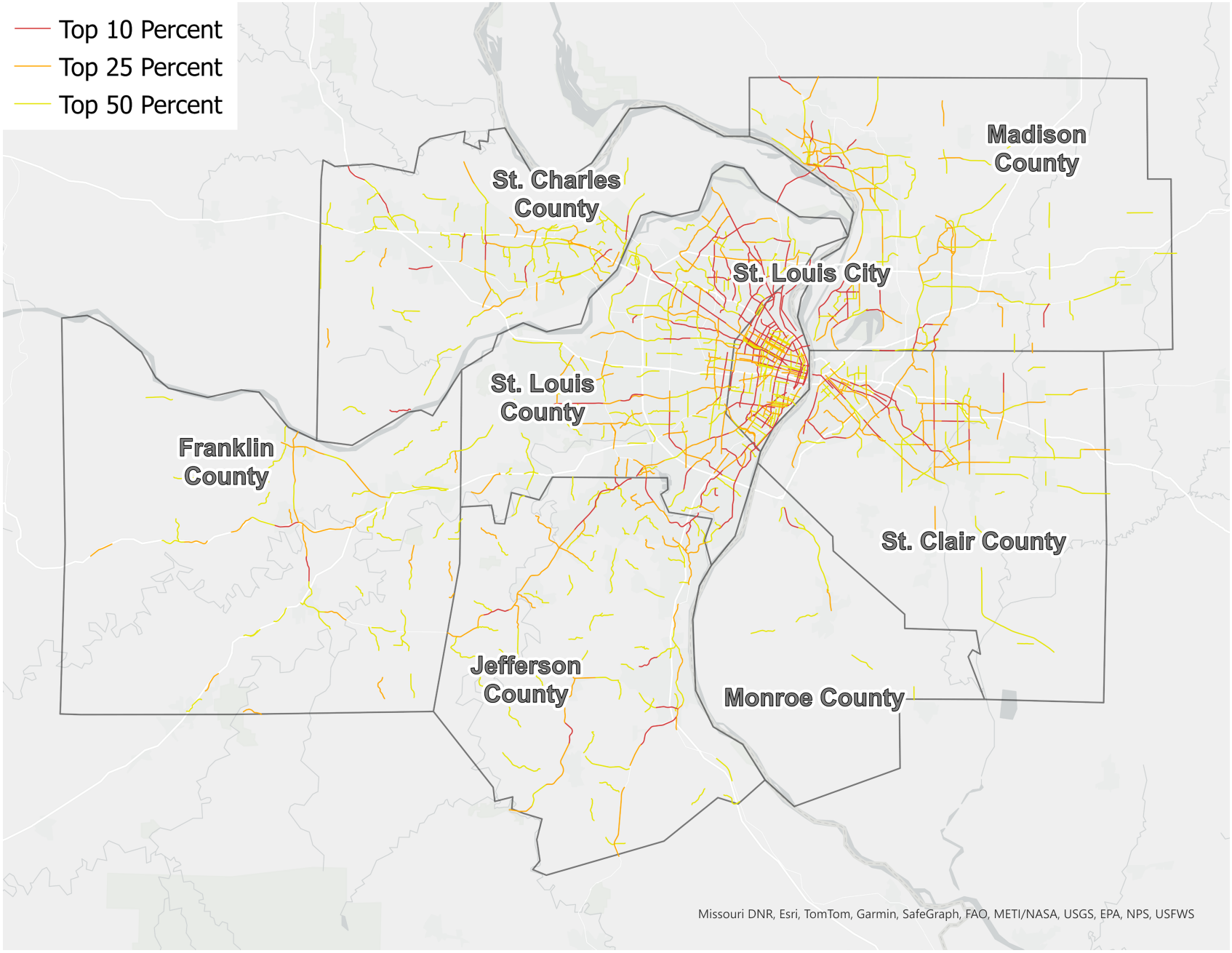


Figure 43. HIN 1 - All Modes

To view the maps visit: www.ewgateway.org/gtsr.

HIN 2 - VRU Pedestrians

Regional high-injury networks were also created for pedestrians and bicyclists. Figure 44 shows the top 10% (red) top 25% (orange) and top 50% (yellow) corridors for fatal and serious injury crashes involving pedestrians. The *VRU Pedestrians* high-injury network extends into all counties in the EWG Region except for Monroe County, but with a concentration in the City of St. Louis and St. Louis County. This high-injury network is strongly correlated with federally designated CEJST disadvantaged areas that have greater numbers of people who walk for basic mobility needs. Many of the roadways included in this high-injury network have higher volume and higher speeds that can cause significant safety challenges for pedestrians. This high-injury network can be used to focus efforts on improving pedestrian facilities in areas that will have the greatest impact on reducing the number of fatal and serious injury pedestrian crashes in the EWG Region.

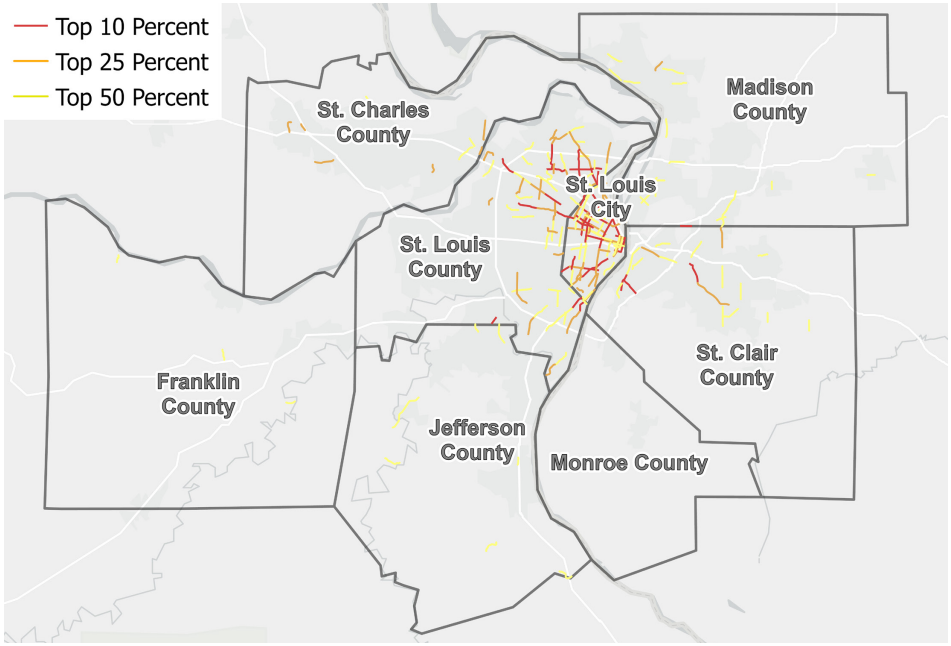


Figure 44. HIN 2 - VRU Pedestrians

HIN 2 - VRU Bicyclists

Figure 45 shows the high-injury network for fatal and serious injury crashes involving bicyclists. As with the *VRU Pedestrians* high-injury network, the *VRU Bicyclists* high-injury network extends into all counties in the EWG Region except for Monroe County. However, this high-injury network is more dispersed throughout the Region, extending, to a greater extent, into the suburban and rural areas in the Region.

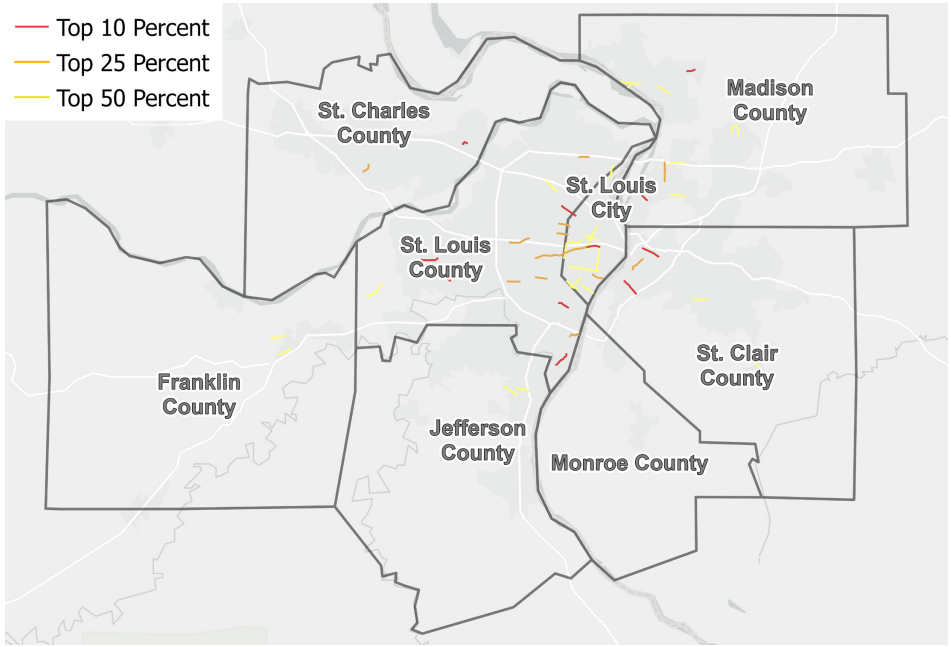


Figure 45. HIN 2 - VRU Bicyclists

To view the maps visit: www.ewgateway.org/gtsr.

HIN 3 - Underserved

The federal Council on Environmental Quality (CEQ) maintains CEJST, which is a tool that maps disadvantaged communities that are experiencing burdens in eight areas: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. These are the communities that are disadvantaged because they are overburdened and underserved. The EWG Region's CEJST areas are shown in Figure 46. Figure 47 provides an *All Modes* high-injury network specific to the EWG Region's CEJST areas. This map can be used to focus resources to support better transportation safety equity in the EWG Region.

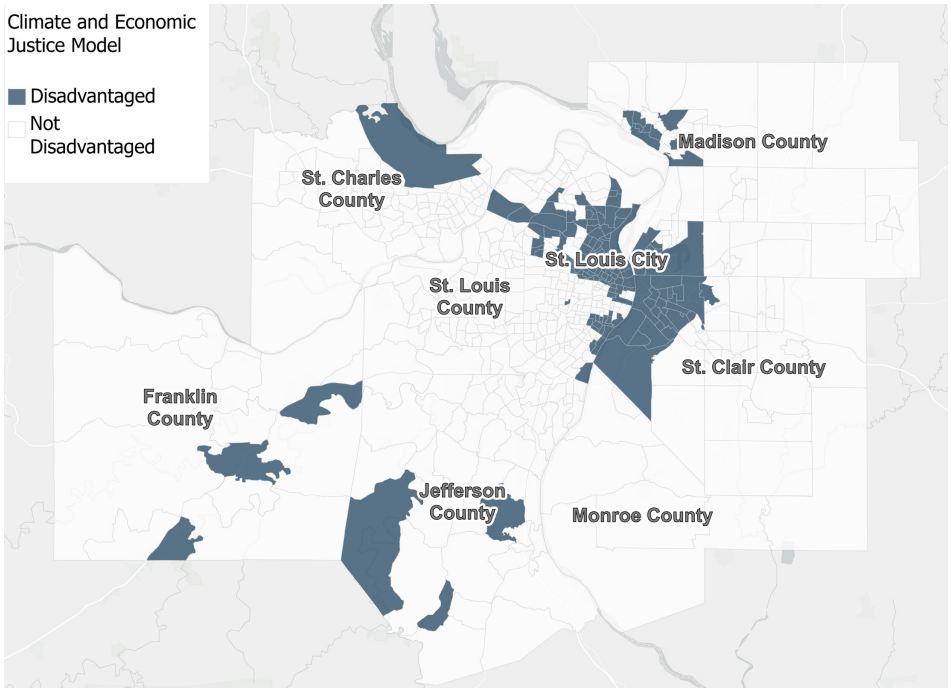


Figure 46. CEJST Disadvantaged Areas

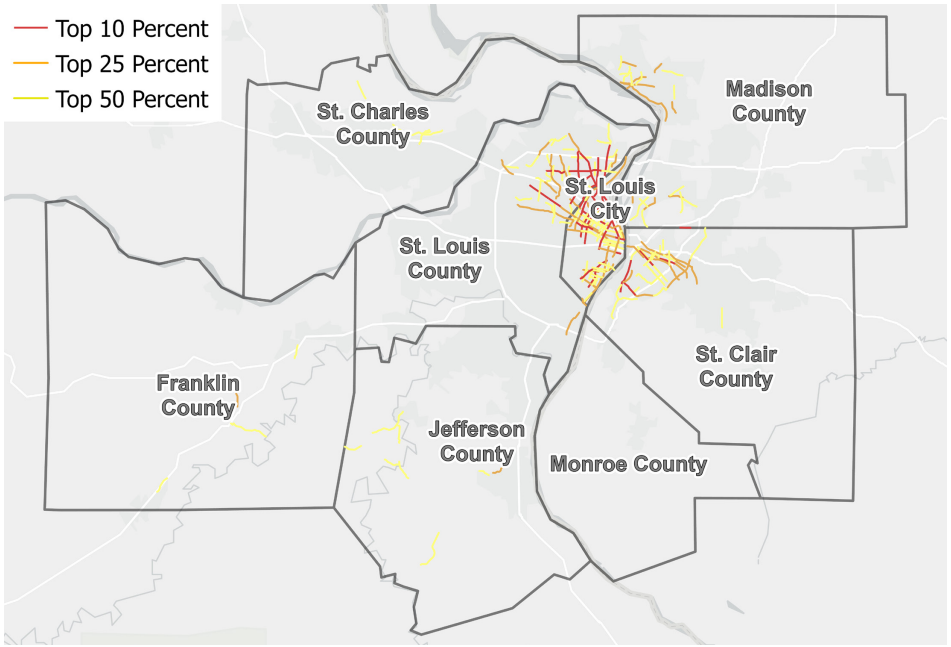


Figure 47. HIN 3 - Underserved

To view the maps visit: www.ewgateway.org/gtsr.

HIN 4 - Contributing Factors (CF)

High-injury networks were created for five of the EWG Region's top contributing factors of fatal and serious injury crashes. As described previously in the crash risk assessment, speeding, failing to yield right-of-way, improper lane use, impaired driving (alcohol/drug use), and distracted driving contribute to many fatal and serious injury crashes in the EWG Region. Each of these high-injury networks extend into all counties in the EWG Region. These high-injury networks are provided to help focus specific safety countermeasures, such as enhanced or automated enforcement, in areas where they can have the largest safety impact.

HIN 4 - CF 1 Speeding

Figure 48 shows the high-injury network for fatal and serious injury crashes involving excessive speed. Speeding is cited in 30% of all serious injury and fatal crashes in the EWG Region. There are several countermeasures that can be used to address excessive speed including education/outreach, enforcement, and geometric design. Agencies throughout the EWG Region have longstanding efforts to control excessive speed. This high-injury network can be used to focus those efforts to have the greatest impact on reducing the number of fatal and serious injury crashes in the EWG Region. Corridors that are on both the speeding and pedestrian high-injury network should receive special prioritization.

HIN 4 - CF 2 Failing to Yield Right-Of-Way

Figure 49 shows the high-injury network for fatal and serious injury crashes involving those failing to yield right-of-way to other users of the roadway. Failing to yield right-of-way accounts for 19% of all serious injury and fatal crashes in the EWG Region. Most of the failure to yield crashes occur at intersections, and this high-injury network can be used to prioritize red-light-running enforcement and intersection improvements. Improving intersection layout, control, and traffic signal timings can make intersections easier to drive and improve safety outcomes.

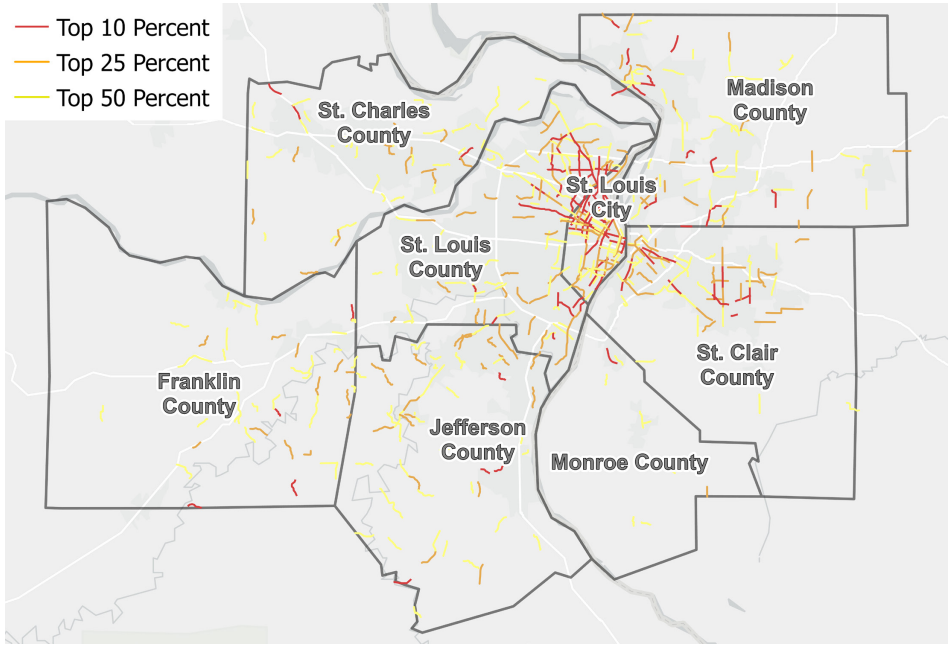


Figure 48. HIN 4 - CF 1 Speeding

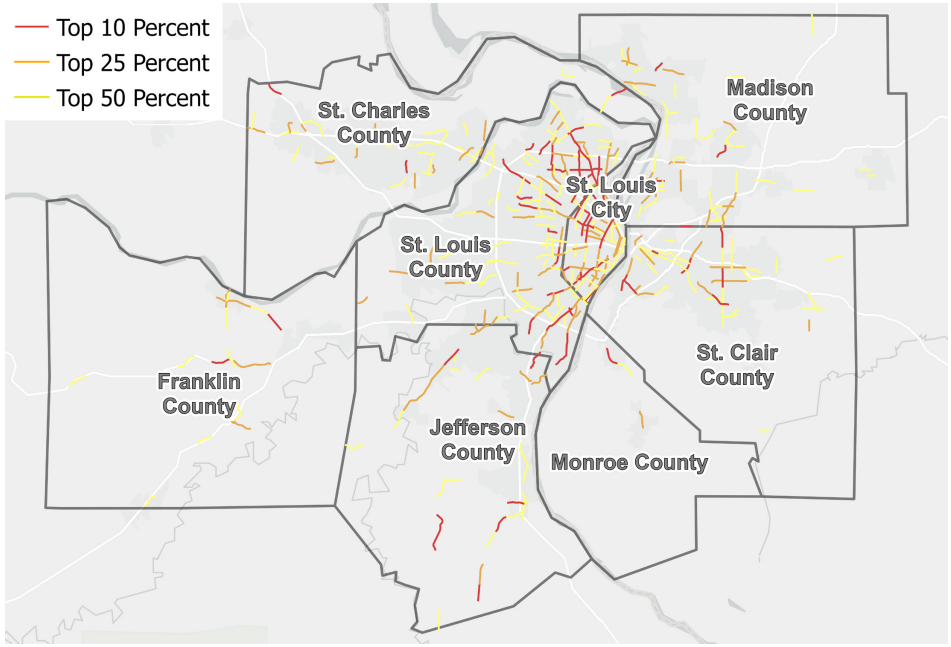


Figure 49. HIN 4 - CF 2 Failing to Yield Right-Of-Way

To view the maps visit: www.ewgateway.org/gtsr.

HIN 4 - CF 3 Improper Lane Usage

Figure 50 shows the high-injury network for fatal and serious injury crashes involving improper lane usage. Improper lane usage accounts for 16% of all serious injury and fatal crashes in the EWG Region. Improper lane usage often occurs when people have difficulty seeing roadway markings, when roadway signing is confusing, or when drivers do not understand which lane they should be in. This high-injury network can be used to prioritize projects to improve roadway signing and pavement marking visibility. Ensuring that signing and marking is understandable, visible, and well maintained can make roadways easier to drive and improve safety outcomes.

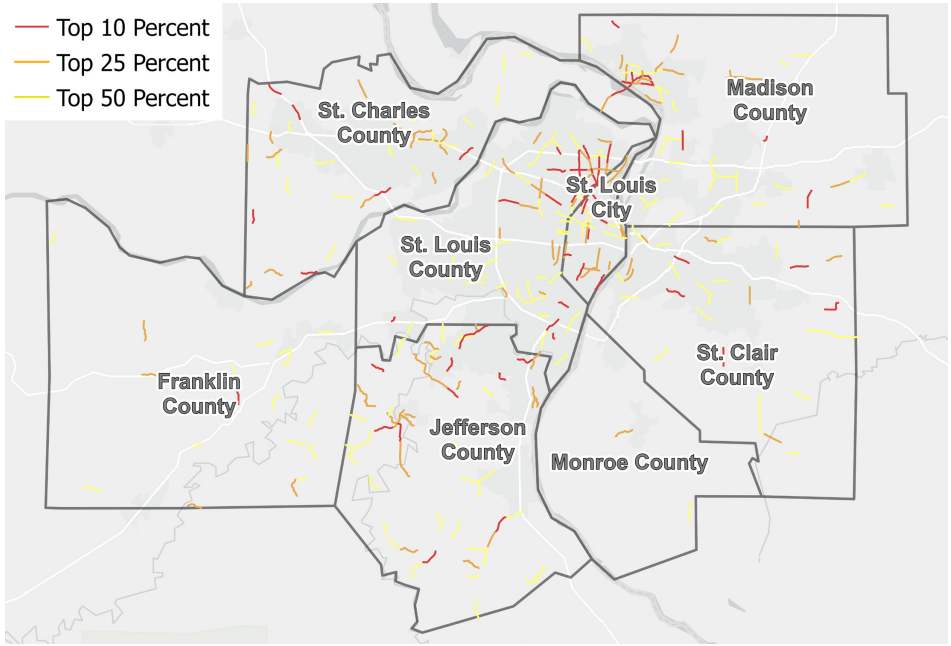


Figure 50. HIN 4 - CF 3 Improper Lane Usage

HIN 4 - CF 4 Alcohol/Drugs

Figure 51 shows the high-injury network for fatal and serious injury crashes involving impaired driving (driving under the influence of alcohol or drugs). Impaired driving plays a role in 11% of all serious injury and fatal crashes in the EWG Region. The incidence of impaired driving can be reduced through education/outreach and enforcement. The reduction of impaired driving has been a major national focus for education, outreach, and enforcement efforts over many years. While significant gains have been made in this area, further gains require consistent attention and effort. This high-injury network can be used to focus efforts in areas where they can have the greatest impact on reducing the number of fatal and serious injury crashes.

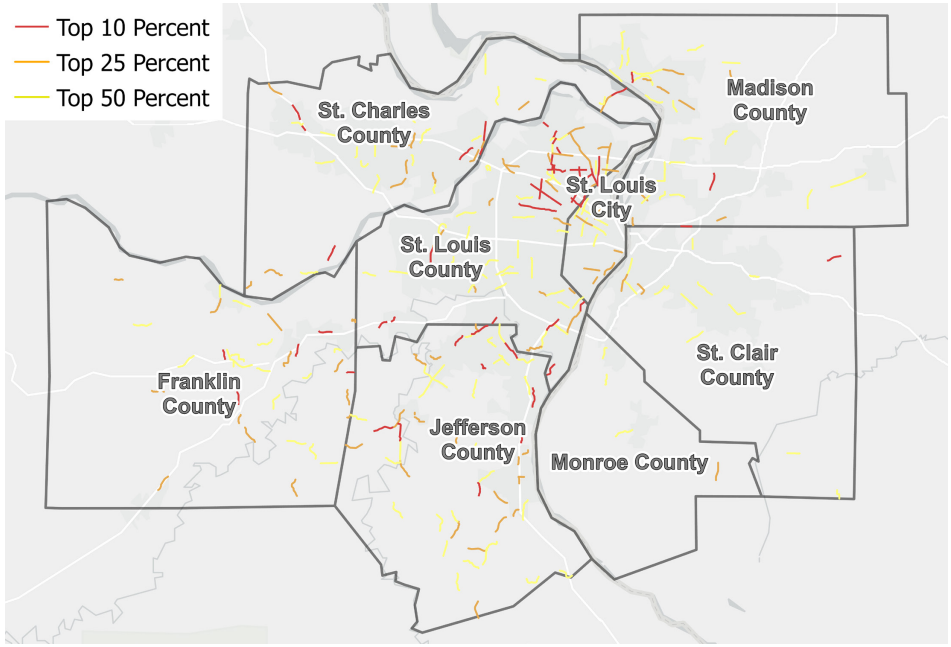


Figure 51. HIN 4 - CF 4 Alcohol/Drugs

To view the maps visit: www.ewgateway.org/gtsr.

HIN 4 - CF 5 Distraction

Figure 52 shows the high-injury network for fatal and serious injury crashes involving distracted driving. Distracted driving has become an increasingly more significant traffic safety issue over the past 15 years with the saturation of mobile communications in society. Distracted driving plays a role in 9% of all serious injury and fatal crashes in the EWG Region. The incidence of distracted driving can be reduced through education/outreach and enforcement. Both Illinois and Missouri have hands free driving laws. This high-injury network can be used to focus efforts in areas where they can have the greatest impact on reducing the number of fatal and serious injury crashes.

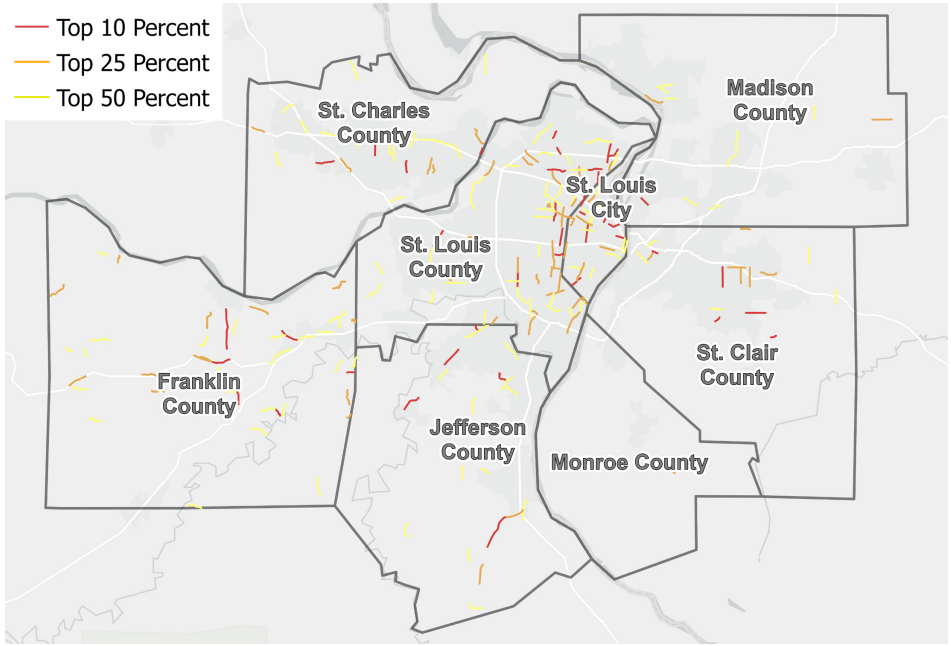


Figure 52. HIN 4 - CF 5 Distraction

HIN 5 - Interstate

The interstate high-injury network was generated to identify locations that are experiencing the highest number of fatal and serious injury crashes on the interstate system. For this map, interstate crashes are those crashes occurring along the mainline interstate lanes and the interstate ramps entering and exiting the interstate. Crashes at the ramp connections to cross streets at interchange terminals are NOT included in the interstate crashes. In addition, a few state-maintained facilities were included since they essentially operate as an interstate including IL 255 north of I-270 to IL 111, MO 364 from I-270 to I-64, MO 367 north of I-270 to Missouri River, MO 370 from I-270 to I-70 and MO 21 from MO 141 to State Route B (Hillsboro Road). Figure 53 shows the Top 10% (red) Top 25% (orange) and Top 50% (yellow) interstate corridors. This high-injury network can be used to focus interstate freeway improvement efforts on corridors with the worst safety performance.

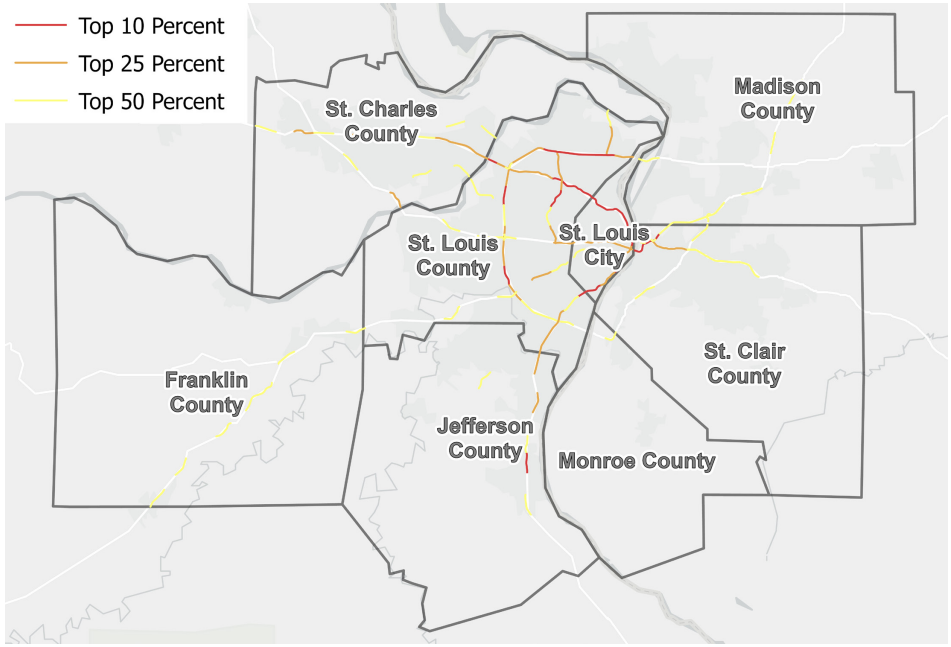


Figure 53. HIN 5 - Interstate

To view the maps visit: www.ewgateway.org/gtsr.

Unbelted Heat Map

Seatbelt use remains one of the most effective ways to prevent roadway fatalities and serious injuries. Nationally, 50% of passenger vehicle occupants killed in crashes are not wearing a seatbelt. Around 92% of Americans wear their seatbelt, so it is significant that half of the nation's passenger vehicle fatalities come from the 8% of the population that does not buckle up. Missouri does not have a primary seatbelt law, and seatbelt usage in Missouri is around 88%. Nearly two-thirds of roadway fatalities in Missouri are unbuckled. Illinois does have a primary seatbelt law and has higher seatbelt usage of 93.5%. Only 25% of those who are killed in Illinois crashes are not wearing seatbelts. The data is clear that using seatbelts saves lives. Figure 54 shows a heat map of fatal and serious injury crashes were the injured or killed occupant was not wearing a seatbelt. It is clear from this data that this is a greater problem in the Missouri EWG Regional counties as compared to the Illinois EWG Regional counties. Seatbelt use in Missouri can be improved by passing primary seatbelt laws and education/outreach.

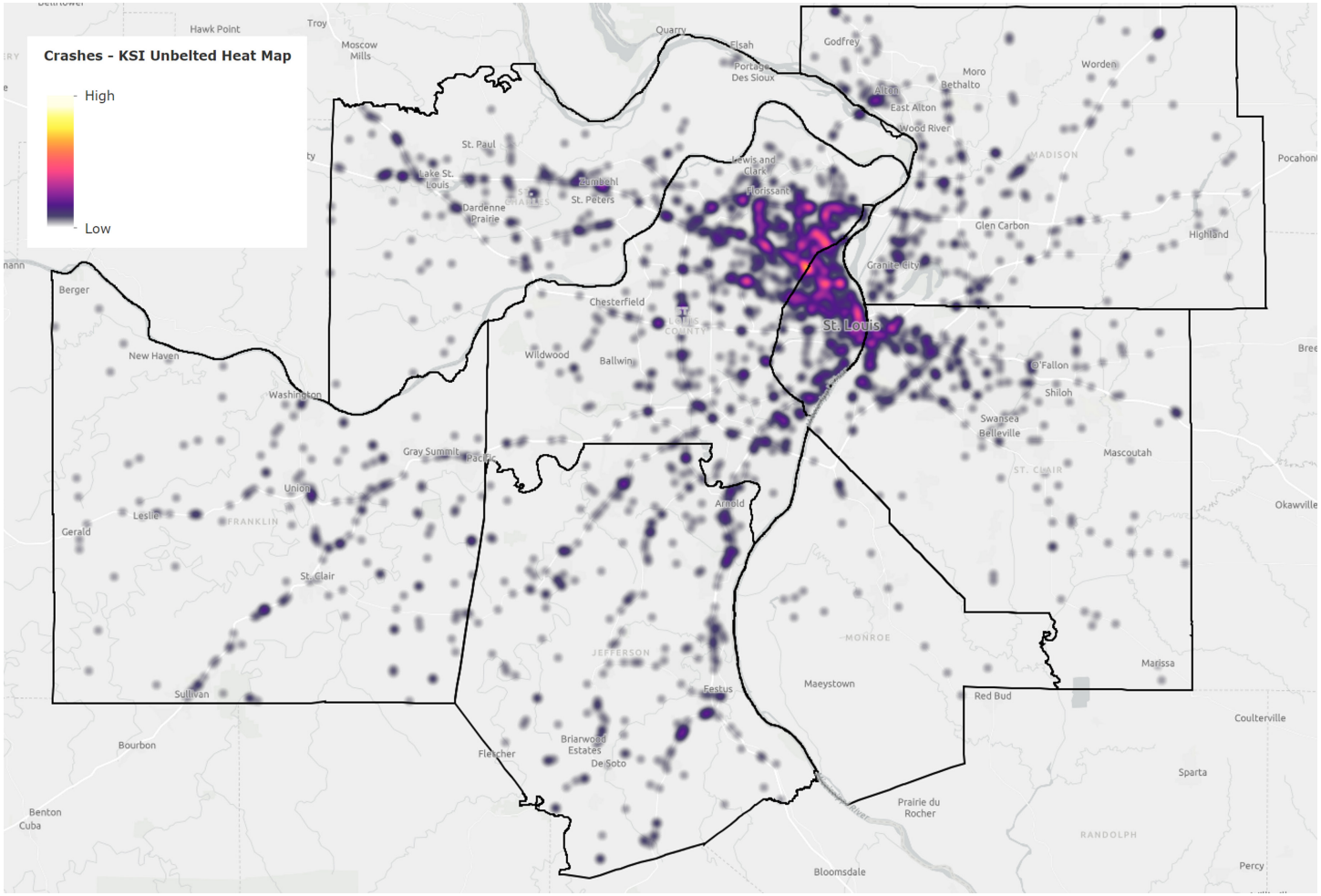


Figure 54. Unbelted Fatal and Serious Injury Crash Heat Map

To view the maps visit: www.ewgateway.org/gtsr.

County - All Modes

All Modes high-injury network maps are also included for all counties in the EWG Region as shown in Figure 55 through Figure 62. These maps were developed using the process used to develop the regional *All Modes* high-injury network except that the top 10% (red), top 25% (orange), and top 50% (yellow) corridors were developed with data limited to that county. Additionally, unlike the regional high-injury network maps, the bottom 50% (blue) corridors are displayed on the county high-injury network maps which will allow counties and municipalities to view and analyze all corridors that had fatal and serious injury crashes. The purpose of this mapping is to allow each county to determine local priorities.

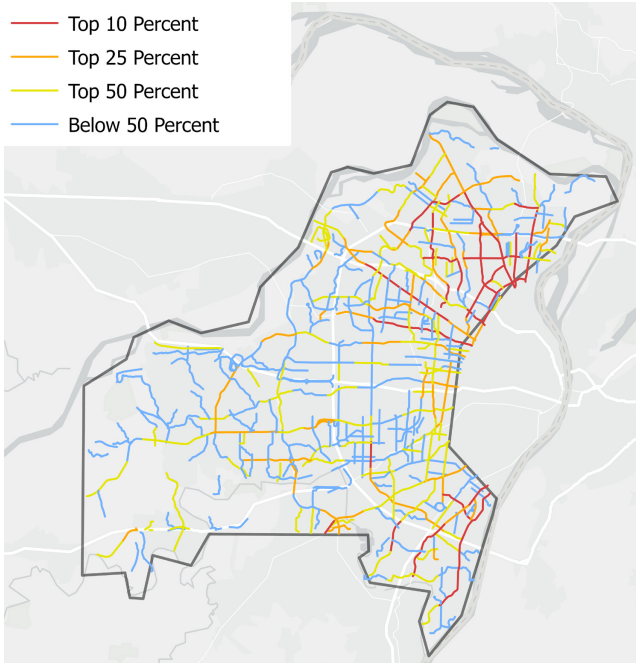


Figure 55. St. Louis County All Modes HIN

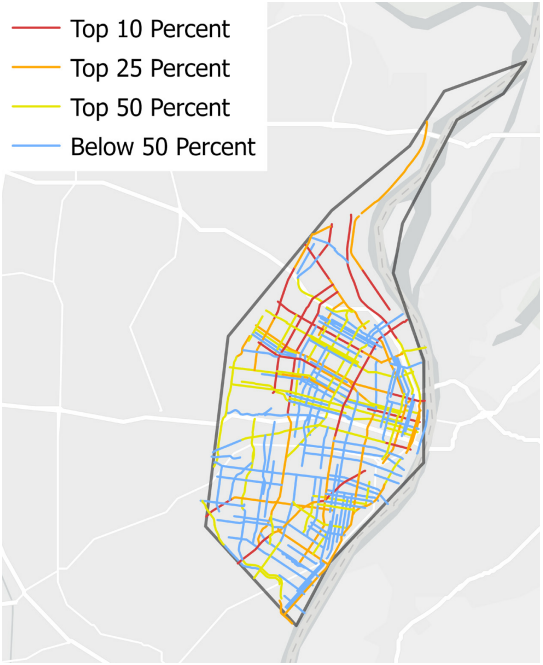


Figure 56. City of St. Louis All Modes HIN

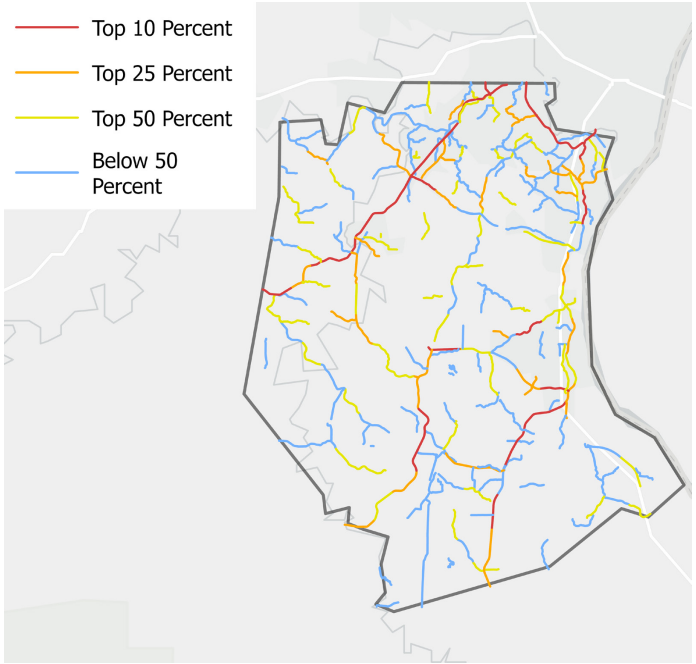


Figure 57. Jefferson County All Modes HIN

To view the maps visit: www.ewgateway.org/gtsr.

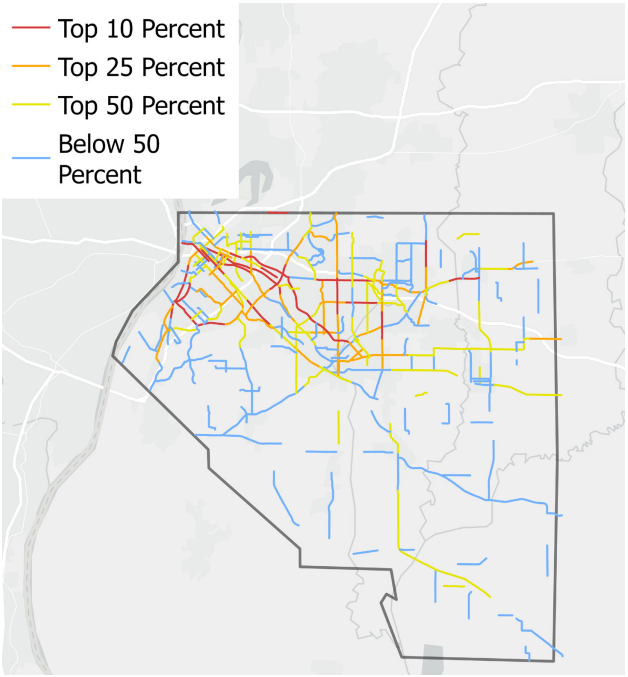


Figure 58. St. Clair County All Modes HIN

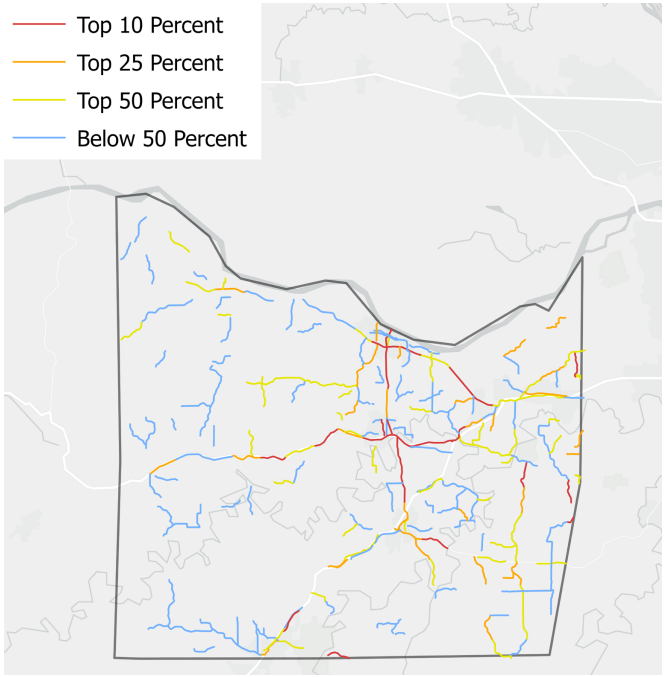


Figure 59. Franklin County All Modes HIN

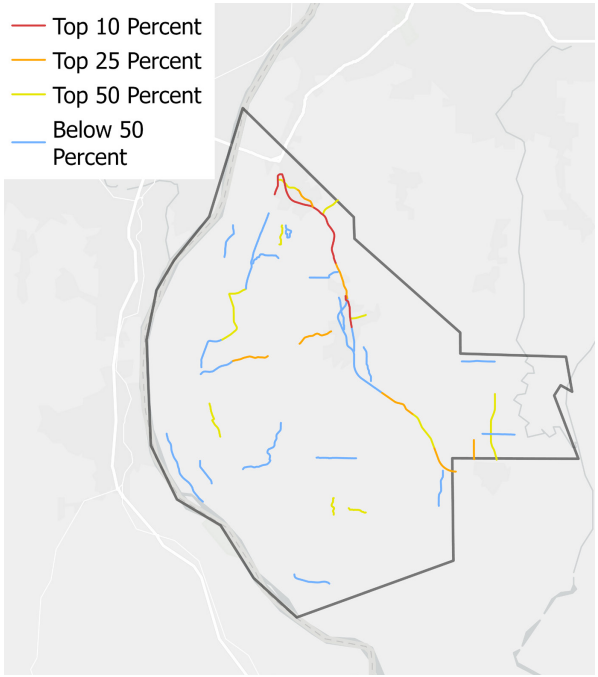


Figure 60. Monroe County All Modes HIN

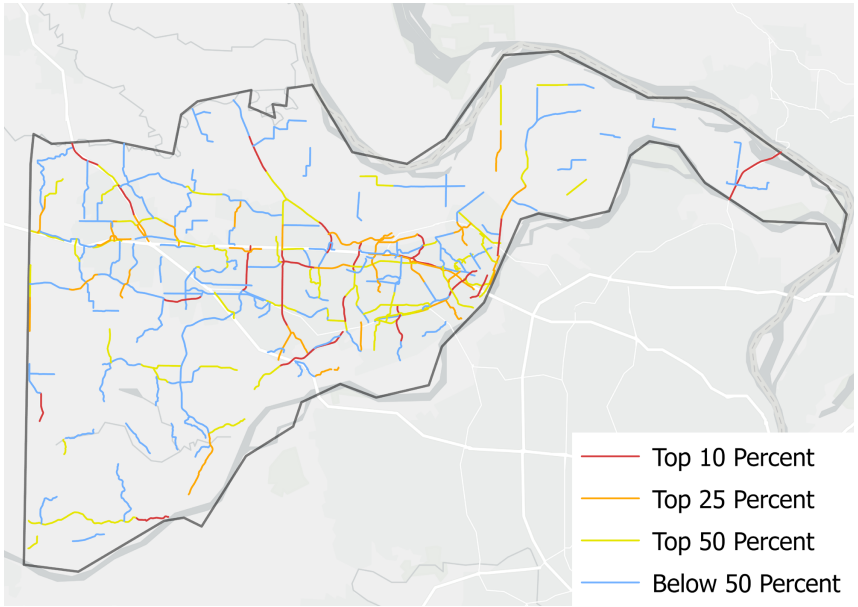


Figure 61. St. Charles County All Modes HIN

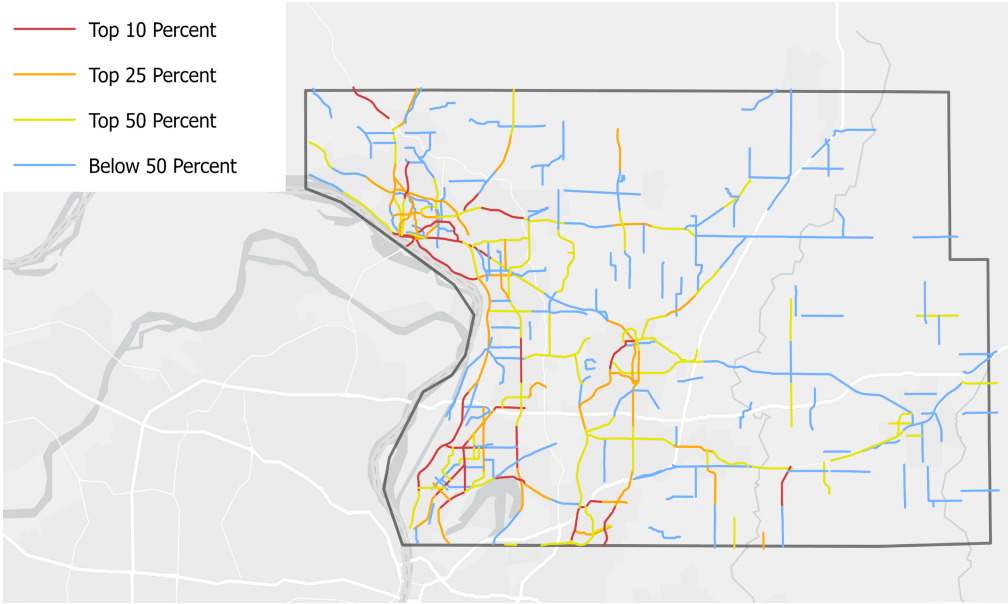


Figure 62. Madison County All Modes HIN

To view the maps visit: www.ewgateway.org/gtsr.

High-Injury Network Correlations to Equity Variables

The high-injury network results were also analyzed through an equity lens. Multiple equity variables were considered including low-income individuals, no vehicle households, race, and age. Since each county has a unique demographic composition, a review for each county's high-injury network was conducted separately. Understanding the correlation of the frequency of fatal and serious injury crashes with these equity variables is key to understanding underlying issues and identifying issues and populations on which to target resources and implementation strategies.

City of St. Louis

After examining the high-injury network for City of St. Louis, it was found that the majority of fatalities and serious injuries took place in areas with higher concentrations of people of color, low-income individuals, and zero vehicle households (see Figure 63). These areas are primarily located in the northern half of the city and a small portion in the southeast corner.

Further analysis revealed that the corridors with frequent severe incidents often involved vulnerable road users, underserved communities, speeding drivers, and failure to yield to the right-of-way. The high frequency of crashes in these neighborhoods indicates that there may not be enough safe places for those without vehicles to walk, insufficient measures to slow down traffic, and inadequate public awareness or education on road safety.

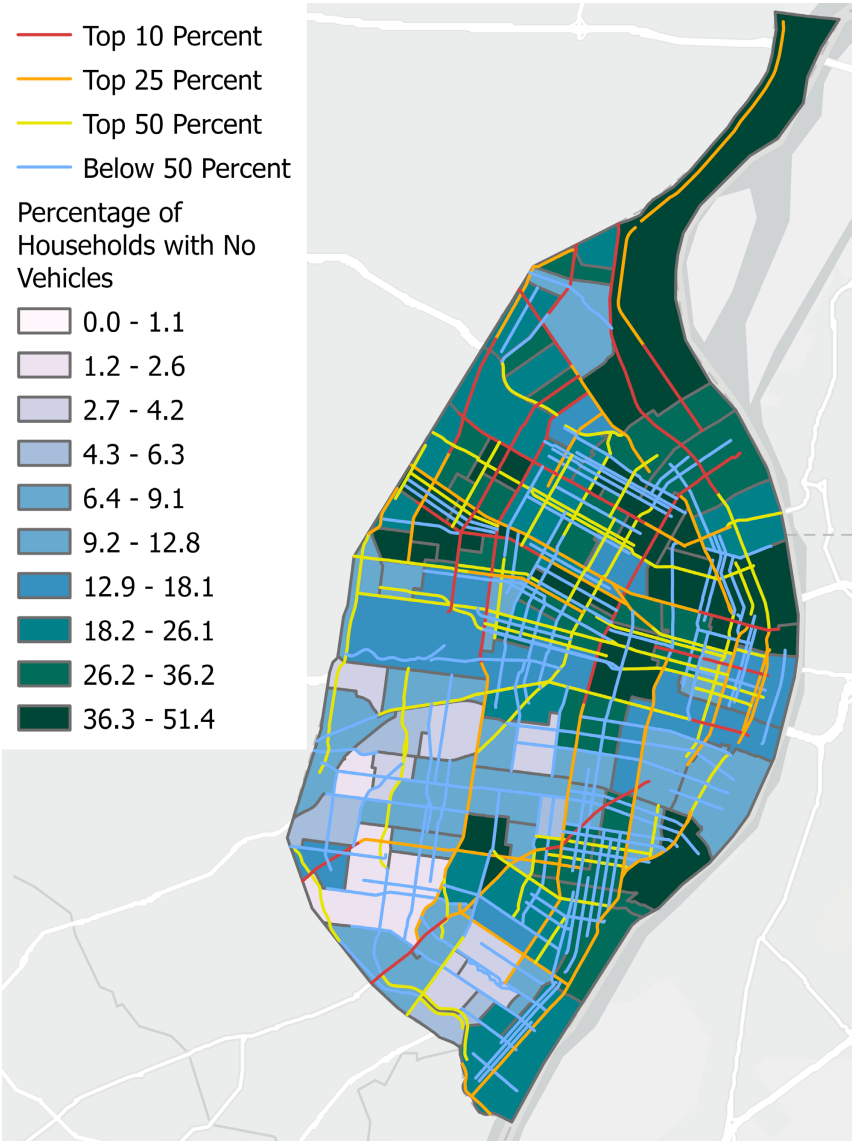


Figure 63. City of St. Louis HIN vs. Zero Vehicle Households

To view the maps visit: www.ewgateway.org/gtsr.

Jefferson County

In Jefferson County, it was found that fatal and serious injury crashes occurred more frequently in areas with low-income communities (see Figure 64). The reasons behind these crashes are primarily related to speeding and driving under the influence of alcohol or drugs. Low-income areas might not have sufficient resources to implement measures to control the speed of vehicles. Additionally, they might not have enough resources to prevent or enforce individuals driving after consuming alcohol or using drugs.

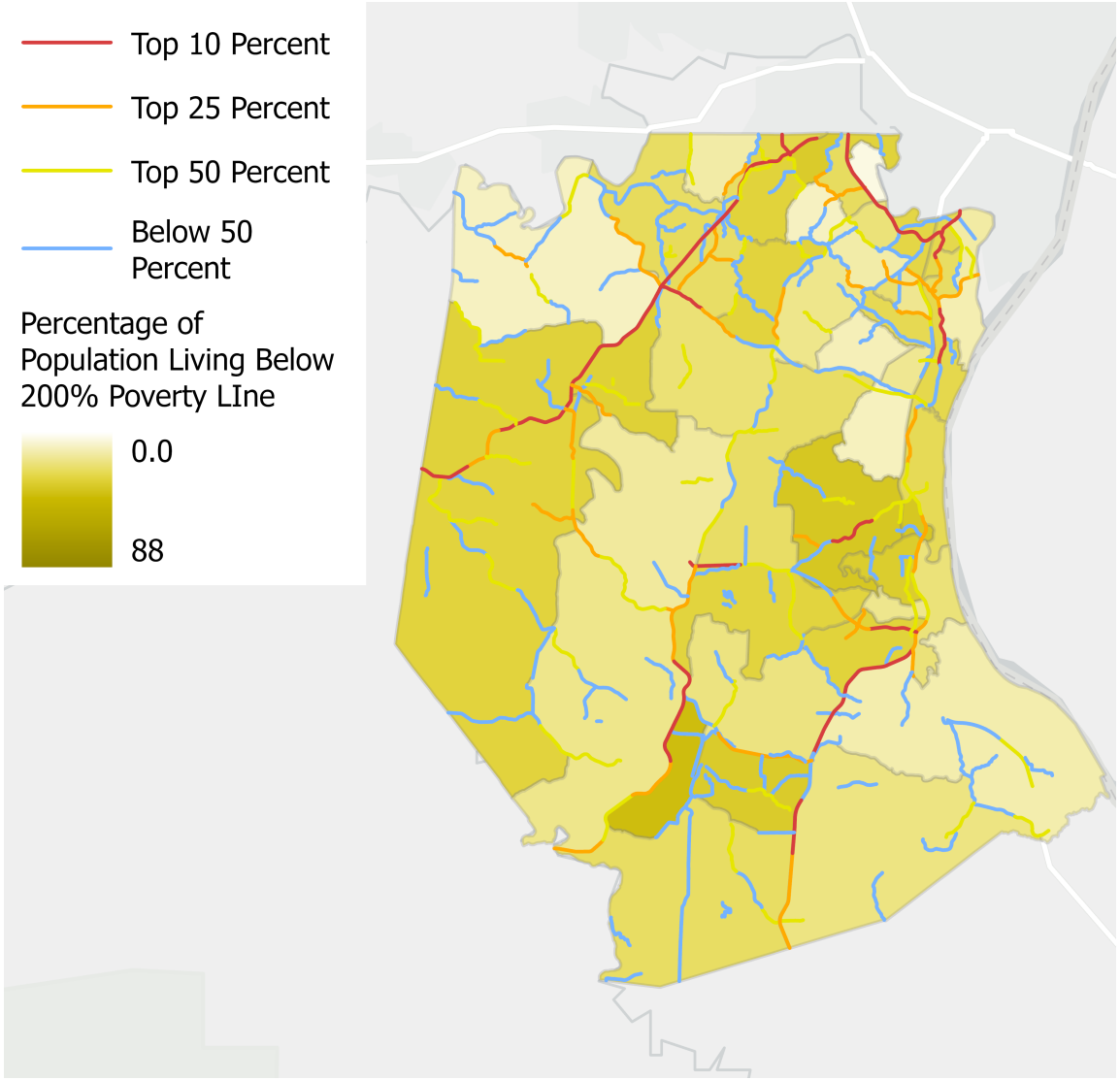


Figure 64. Jefferson County HIN vs. Income

To view the maps visit: www.ewgateway.org/gtsr.

St. Louis County

The majority of the high-injury network for St. Louis County is located in the northeast and southeast corners of the county limits. The northeast corner, where most of these crashes happen, is predominantly inhabited by people of color, low-income individuals (see Figure 65), and households without cars. The southeast corner does not fit this description.

The fatal and serious injury crashes are concentrated in disadvantaged communities, particularly in the northeast corner. These areas face various burdens such as transportation issues, health problems, poverty, and other socio-economic issues. Moreover, there is a noticeable trend of severe crashes resulting from speeding and failure to yield to right-of-way in these areas. This suggests that these neighborhoods not only face environmental, social, and economic challenges but also lack infrastructure or enforcement to regulate speed, as well as insufficient public education about defensive driving.

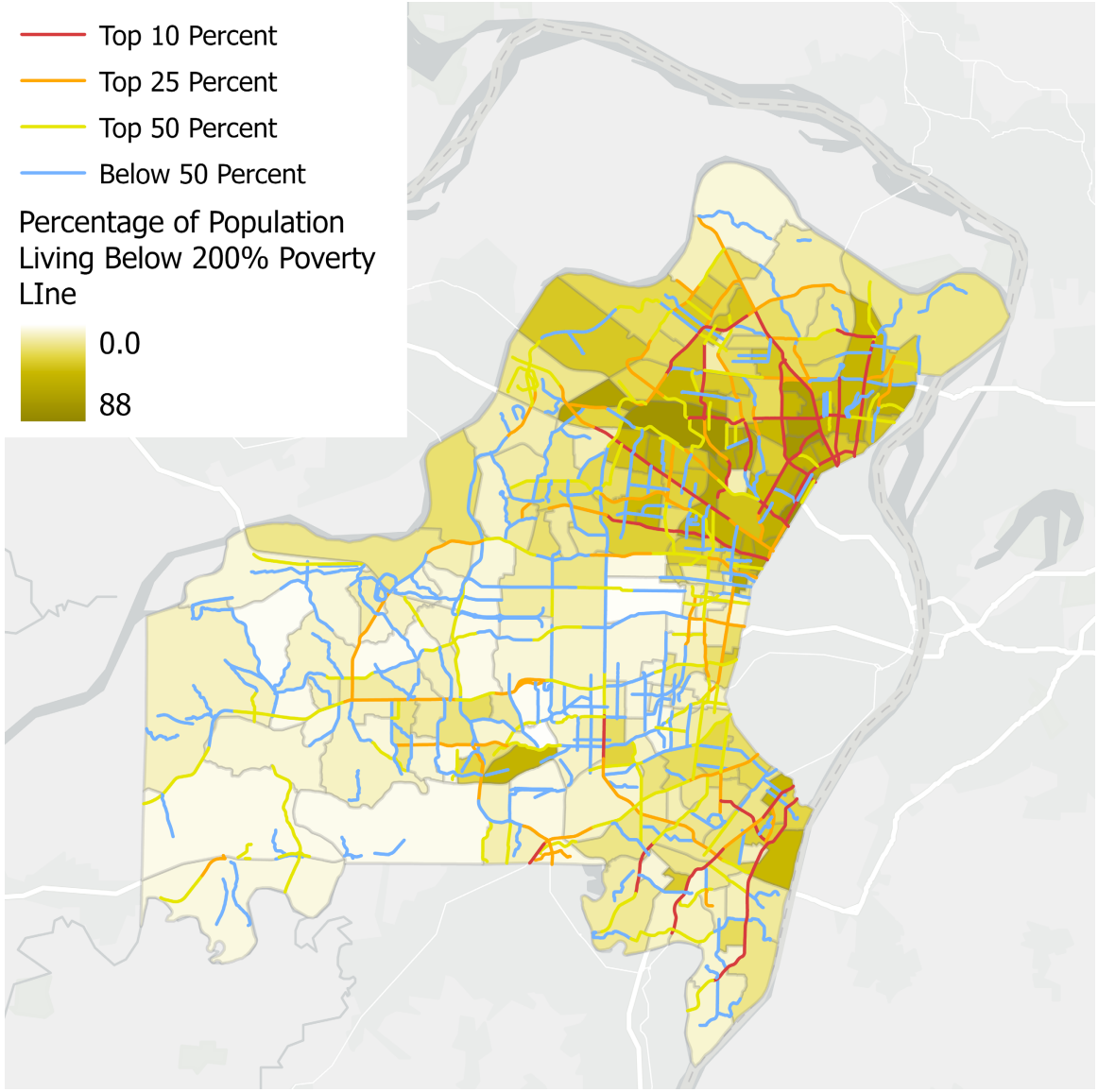


Figure 65. St. Louis County HIN vs. Income

To view the maps visit: www.ewgateway.org/gtsr.

St. Clair County

In St. Clair County, fatal and serious injury crashes are more common in areas with higher populations of people of color (see Figure 66), lower income, no-car households, and older adults (over 50 years old), particularly in the northwest and northern parts of the county. These crashes have occurred primarily in disadvantaged communities, which are mainly concentrated in the northwest part of the county. These areas are already experiencing a range of burdens, including health issues, workforce development, and legacy pollution.

The primary contributing factor to these fatal and serious injury crashes is speeding. This is the case in both disadvantaged communities, such as City of East St. Louis, Village of Sauget, and City of Cahokia Heights, and in the central northern part of the County, including Village of Swansea and Village of Shiloh. It appears that these neighborhoods not only face economic, social, and climate disadvantages, but also lack infrastructure or enforcement to slow down drivers.

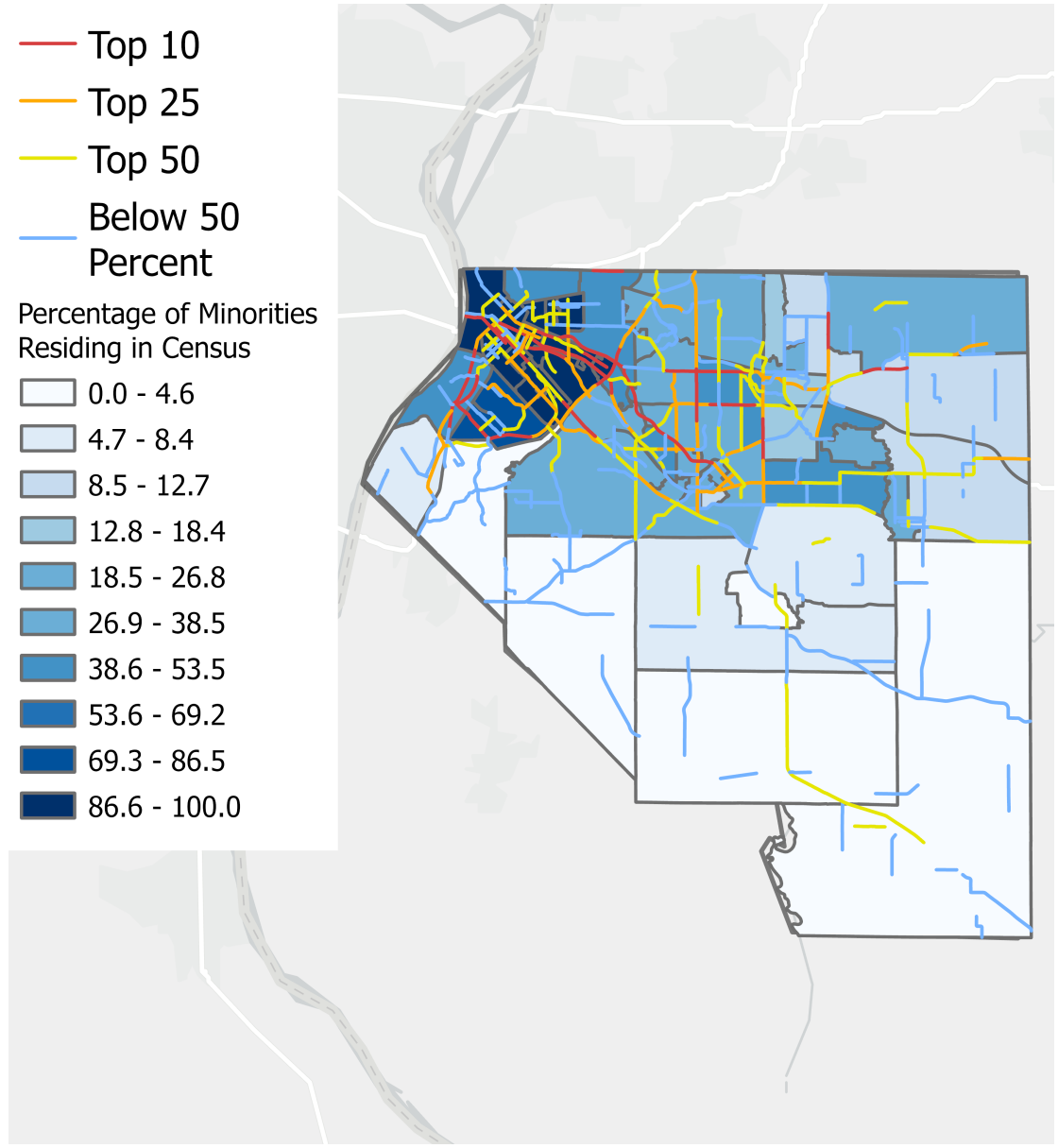


Figure 66. St. Clair County HIN vs. Race

To view the maps visit: www.ewgateway.org/gtsr.

St. Charles County

In St. Charles County, the areas with the highest frequency of fatal and serious injury crashes also overlap where the majority of the population is over 50 years old (see Figure 67). It's worth noting that the 65+ age group has grown the fastest between 2010 and 2022, which highlights the issue of an aging population in St. Charles and its impact on transportation safety.

Older adults require special considerations due to their limited ability to drive or access transportation modes. Addressing the unmet needs of the senior population is crucial for transportation equity.

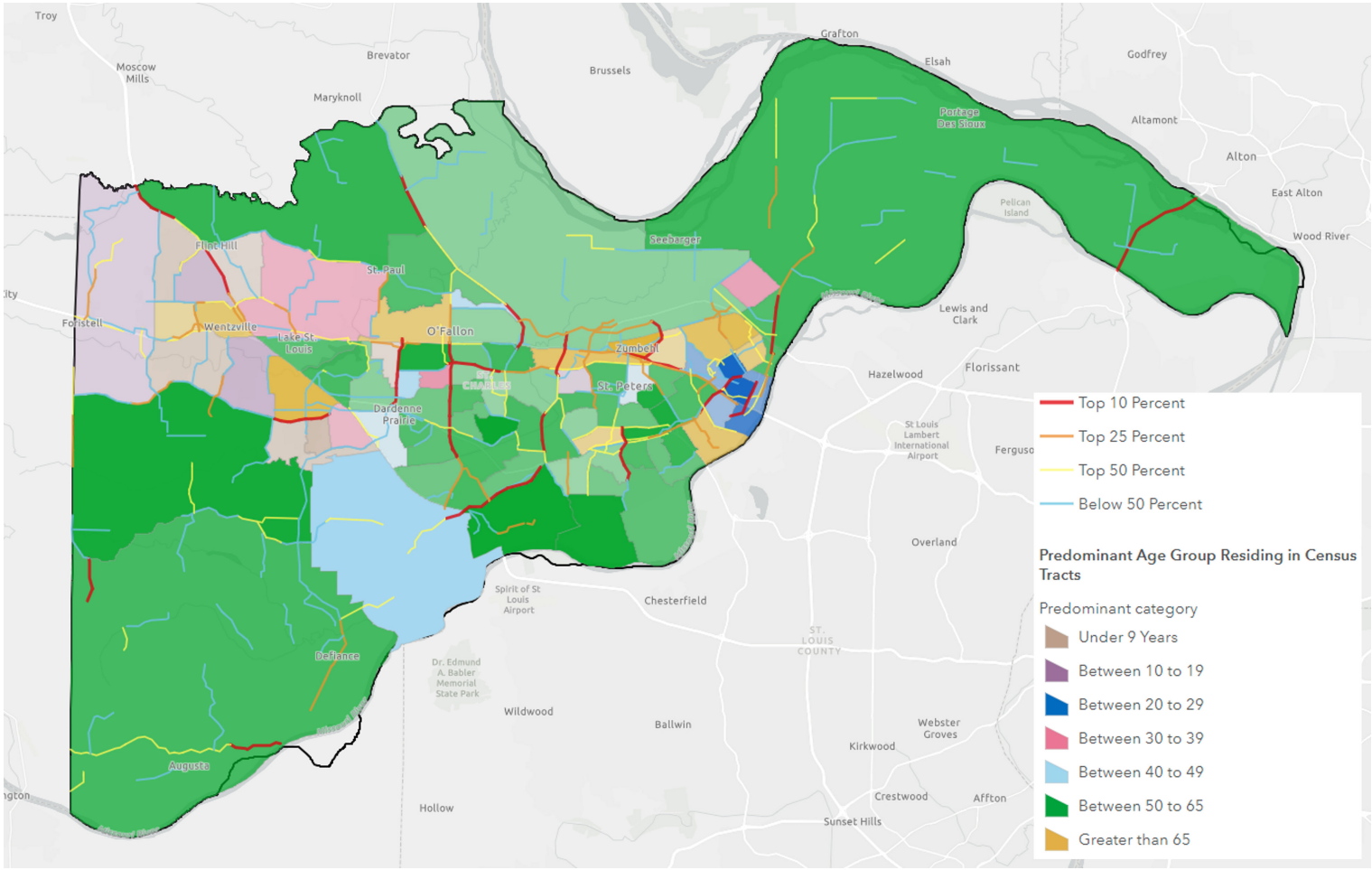


Figure 67. St. Charles County HIN vs. Age

To view the maps visit: www.ewgateway.org/gtsr.

Monroe County

In Monroe County, fatal and serious injury crashes most commonly occurred in Columbia City and along the Illinois Route 3 segments that pass through City of Columbia (see Figure 68). However, there were no clear signs of equity-related issues in these crashes. It is worth noting that, apart from the census tract around Columbia City, the rest of the area in Monroe County has a significant aging population. This demographic trend suggests that there might be a need to develop a mobility plan for older adults in the future.

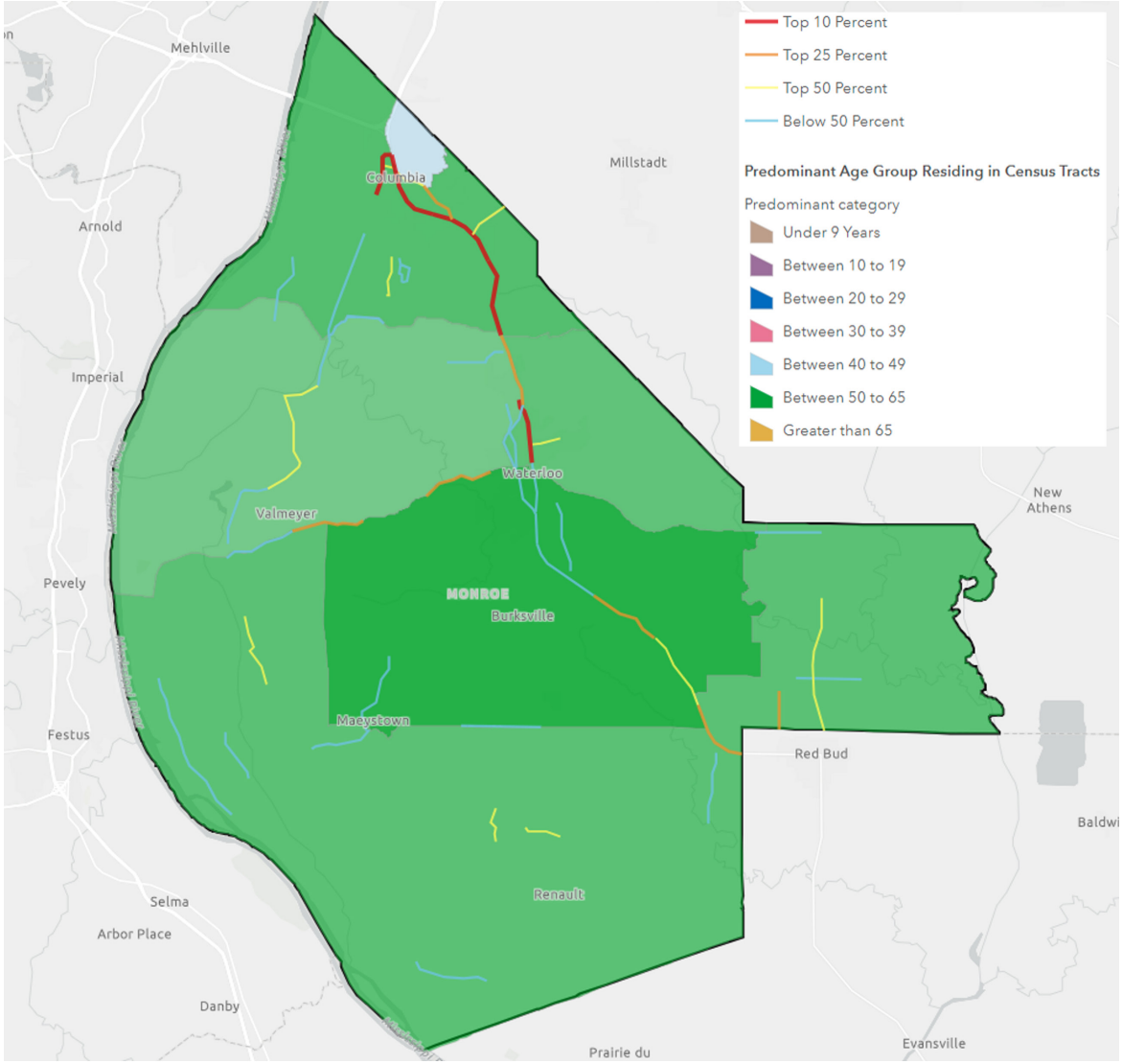


Figure 68. HIN 5 - Monroe County HIN vs. Age

To view the maps visit: www.ewgateway.org/gtsr.

Madison County

In Madison County, areas with a higher percentage of households without a car and lower incomes tend to experience more fatal and serious injury crashes than other places in the county (see Figure 69). These crashes most frequently occurred in the west side of the county.

Upon further investigation, speeding and failure to stay in the correct lane were found to be the main contributing factors to these incidents. This suggests that neighborhoods with lower incomes may not have adequate traffic calming measures in place and that there may be a lack of public education on how to use lanes correctly and safely.

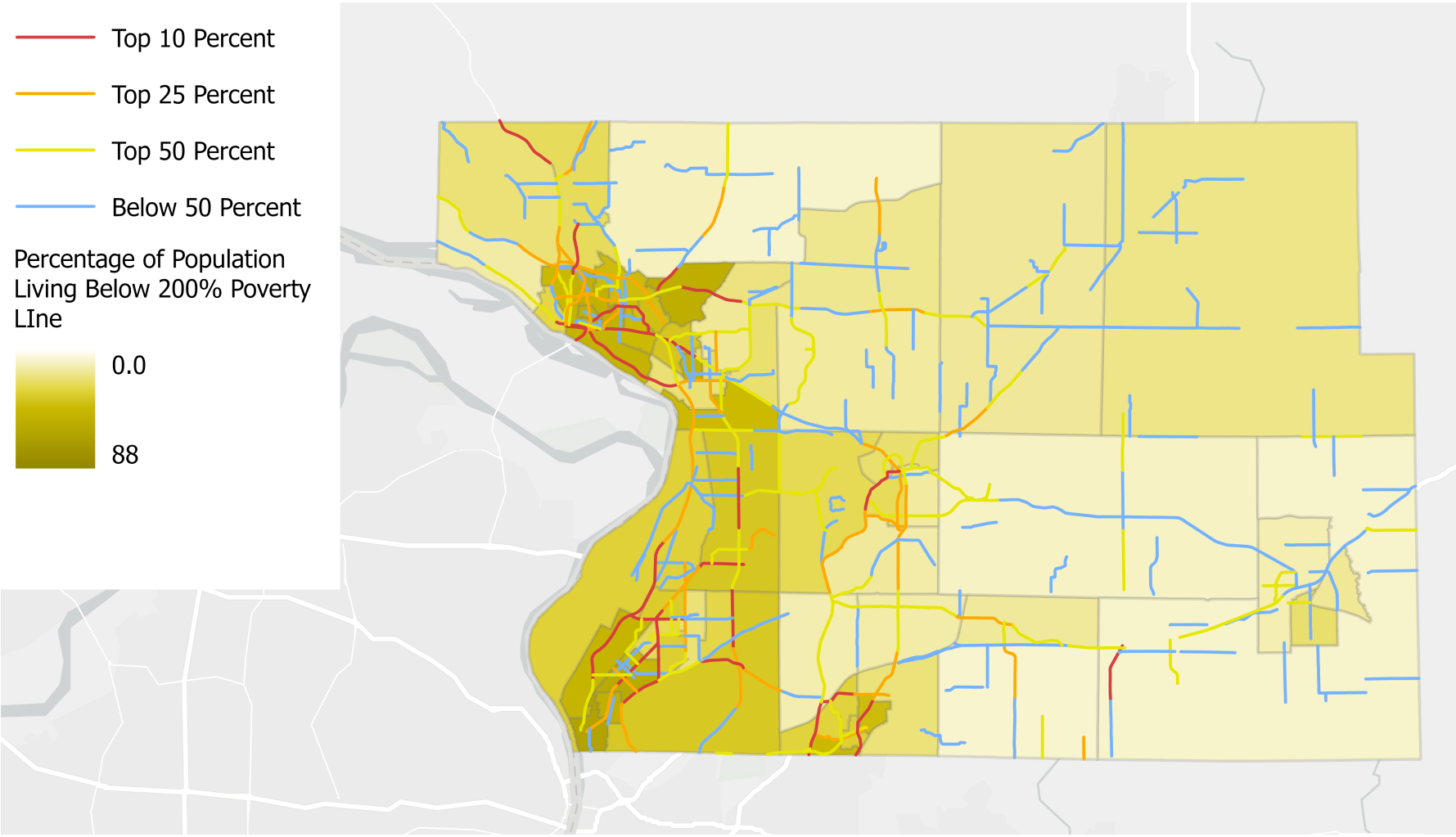


Figure 69. Madison County HIN vs. Income

To view the maps visit: www.ewgateway.org/gtsr.

Franklin County

In Franklin County, it was found that areas with lower income levels experienced a higher frequency of fatal and serious injury crashes (see Figure 70). The primary contributing factors were driving under the influence of alcohol or drugs and distracted driving.

It's worth mentioning that the hands-free law in Missouri was only recently implemented. Some people may not being fully aware of the new law and the importance of not driving distracted. Resources should be prioritized in these areas to educate community members about the consequences of distracted or impaired driving.

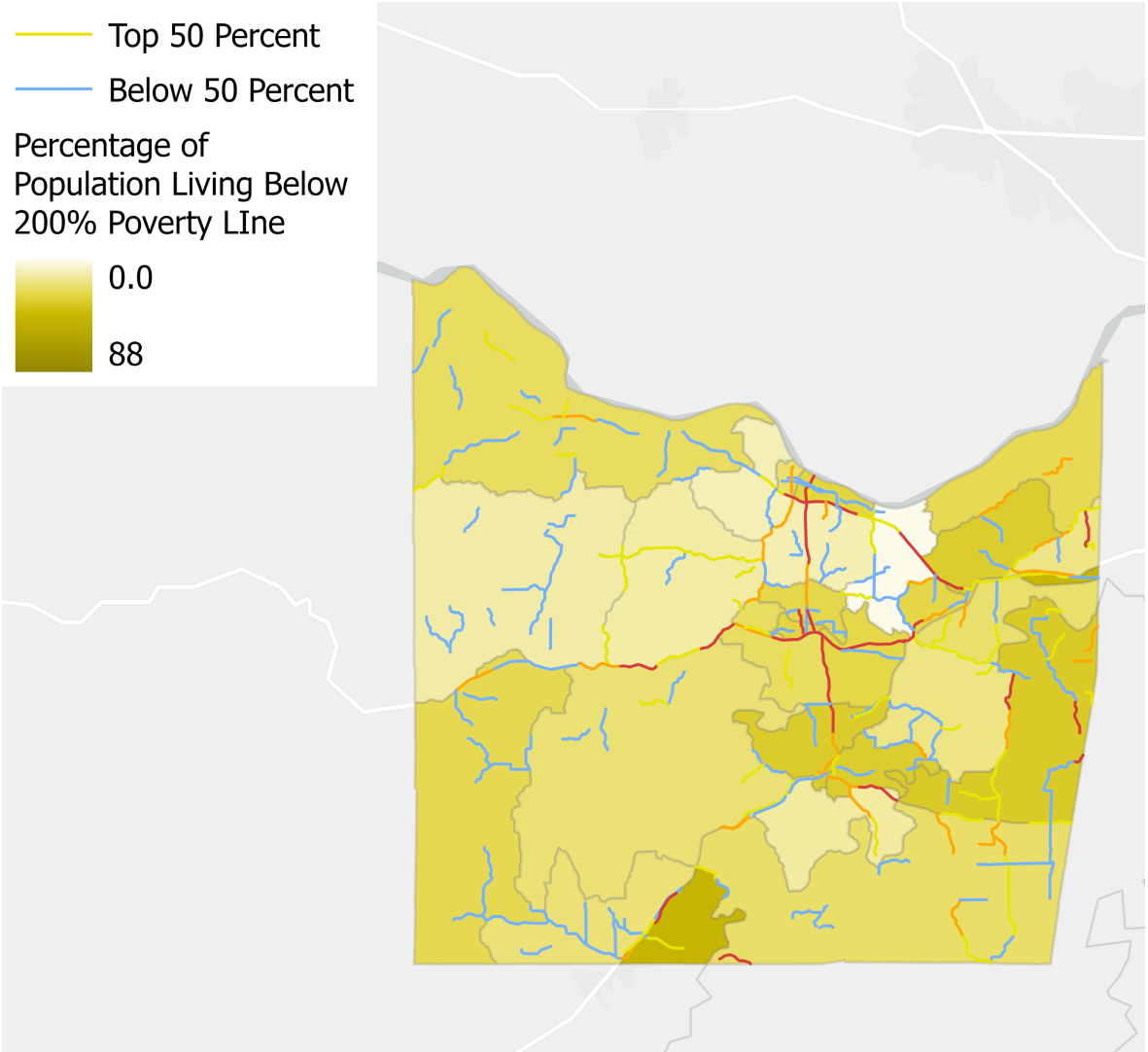


Figure 70. Franklin County HIN vs. Income

To view the maps visit: www.ewgateway.org/gtsr.

High-Injury Network Priority Lists

In order to provide clear direction on the most critical areas to focus safety efforts, "Priority Lists" were generated based on the results of the high-injury networks. Five separate lists were generated for the regionally significant locations: 1) All Modes Corridors, 2) All Modes Intersections, 3) All Modes Hot Spots, 4) Pedestrian Corridors, and 5) Interstates.

Region's Priority Corridors

HIN 1 – All Modes – Corridors was used to develop the EWG Region's corridor priority list. The corridor priority list includes stretches of continuous roadways that are one to three miles long and have at least one crash per year per mile. These 96 corridors on the priority list represent the top 5% of the Region's corridors. Since these corridors have the most fatal and serious injury crashes, the 96 priority corridors represent approximately 20% of the crashes in the Region. The list is in descending order of the high-injury network weighted score, which is the weighted number of fatal and serious injury crashes per year per mile (abbreviated as Wtd. KSI/Yr/Mi). The second column shows the weighted score, the total number of fatal crashes along the corridor in parentheses, and the total number of serious injury crashes along the corridor in brackets. Any projects that have been constructed or planned along the corridors since 2018 are also shown in order to track progress that has been made since the crash data was obtained. Lastly, the table indicates if the corridor also ranked in the top 10% of the other high-injury networks developed. The table is color-coded by county, see legend below. Figure 71 shows the locations of the regional priority corridors.

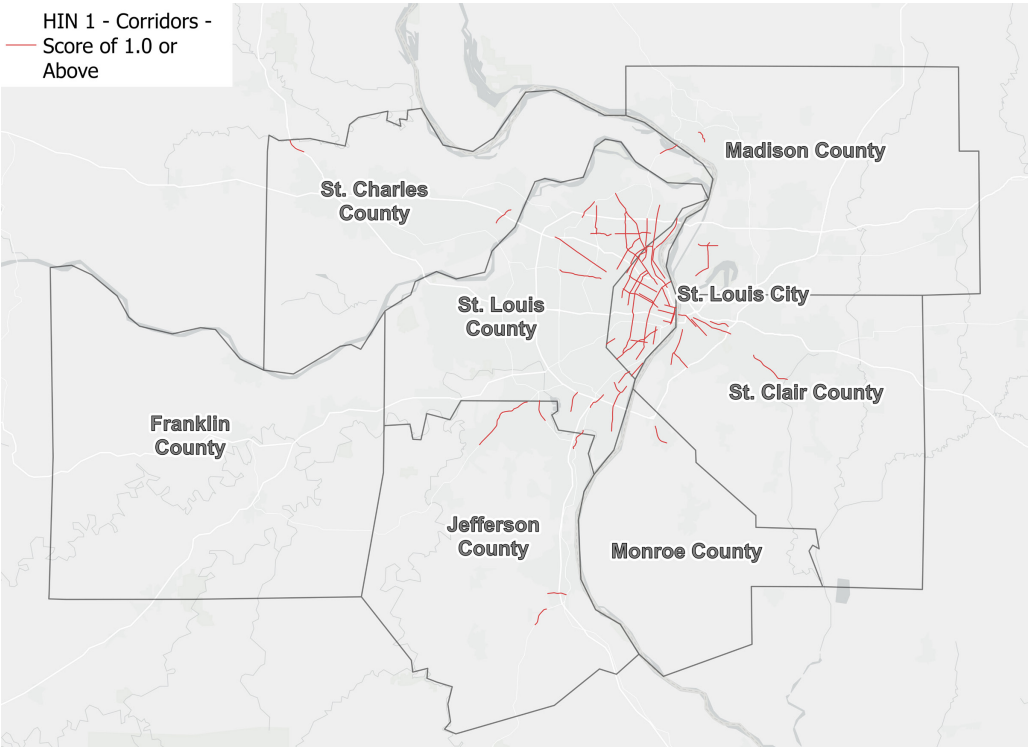


Figure 71. Regional Priority Corridors

Priority List Color Coding Legend	
	City of St. Louis
	Franklin County
	Jefferson County
	Madison County
	Monroe County
	St. Charles County
	St. Clair County
	St. Louis County

Priority List: Regional Corridors

#	Wtd. KSI/Yr/Mi (#Fatal) [#SI]	Corridor Name	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
1	5.28 (9) [34]	West Florissant Ave	Acme Ave to Emerson Ave	1.80	City of St. Louis	St. Louis		Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use
2	4.40 (12) [28]	MO 367 (Lewis and Clark Blvd)	Northumberland Dr to City/County Line	2.09	St. Louis County	St. Louis	MoDOT RSA from I-270 to Halls Ferry Circle (FY 2026)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug, Distraction
3	3.53 (14) [30]	Halls Ferry Rd	Halls Ferry Cir to Empire Dr	2.89	St. Louis County	Castle Point	MoDOT/St. Louis Co. Safety Design Build 2 (at St. Cyr)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug
4	3.48 (4) [29]	MO 115 (Natural Bridge)	Shreve Ave to Prairie Ave	2.01	City of St. Louis	St. Louis	Recent improvements between Shreve and Jefferson	Pedestrian, Underserved, Speeding, Improper Lane Use
5	3.29 (6) [27]	West Florissant Ave	Thatcher Ave to Solway Ave	2.19	St. Louis County	Dellwood	West Florissant Great Streets Project (WFGS)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug
6	2.93 (5) [35]	Kingshighway Blvd	West Florissant Ave to Cote Brilliante Ave	2.90	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield
7	2.89 (8) [20]	MO 115 (Natural Bridge)	Shreve Ave to Chevrolet Ave/ Hamilton Ave	2.21	City of St. Louis	St. Louis		Pedestrian, Underserved, Speeding, Fail to Yield
8	2.63 (5) [24]	IL 3 (Mississippi Ave)	8th St to Cahokia St	2.31	St. Clair	Cahokia	IL 3 Relocation to Monsanto Ave (25-29 MYP); Queeny Ave Intersection Improvements (local project)	Underserved, Speeding
9	2.63 (6) [24]	West Florissant Ave	Halls Ferry Rd to Thatcher Ave	2.50	St. Louis County	Unincorporated		Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use
10	2.47 (9) [17]	Chambers Rod	Elizabeth Ave to Winkler Dr	2.45	St. Louis County	Dellwood	WFGS project includes improvements at Chambers including pedestrian and transit. Plan for road diet, buffered bike lanes and roundabout Elizabeth to Forestwood. Needs funding for final design and construction.	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug
11	2.47 (2) [34]	Kingshighway Blvd	Cote Brilliante Ave to I-64 WB Ramps	2.99	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield, Distraction
12	2.38 (4) [25]	MO U (Lucas & Hunt Rd)	Halls Ferry Rd to West Florissant Ave	2.60	St. Louis County	Jennings	MoDOT/St. Louis Co. Safety Design Build 2 (at Hord Ave)	Underserved, Speeding, Fail to Yield, Alcohol/Drug
13	2.38 (2) [23]	West Florissant Ave	Woodstock Rd to Acme Ave	2.18	St. Louis County	St. Louis	2 separate projects that will include ped equipment upgrades at existing signals and bus pad upgrades.	Pedestrian, Underserved, Speeding, Fail to Yield
14	2.36 (6) [17]	MO 367 (Lewis and Clark Blvd)	I-270 to Northumberland Dr	2.21	St. Louis County	Bellefontaine Neighbors	MoDOT RSA from I-270 to Halls Ferry Circle (FY 2026)	Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug

#	Wtd. KSI/Yr/Mi (#Fatal) [#SI]	Corridor Name	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
15	2.35 (7) [23]	Airport Rd	James S McDonnell Blvd to Florissant Road	2.85	St. Louis County	Berkeley	Airport Rd Resurfacing (center turn lane, and buffered bike lanes on both sides of the roadway, Pedestrian Improvements)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug, Distraction
16	2.32 (4) [27]	Grand Blvd	Montgomery St to Rutger St	2.84	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield
17	2.29 (5) [20]	MO 30 (Gravois Rd)	Charless St to Bamberger Ave	2.42	City of St. Louis	St. Louis		Pedestrian, Underserved, Speeding, Fail to Yield
18	2.28 (3) [21]	Chambers Rd	Green Valley Dr to Fonda Dr	2.24	St. Louis County	Bellefontaine Neighbors		Pedestrian, Underserved, Speeding, Fail to Yield, Distraction
19	2.25 (5) [19]	Goodfellow Blvd	Sherry Ave to Terry Ave	2.34	City of St. Louis	St. Louis	STL ARPA resurfacing and safety	Underserved, Speeding, Improper Lane Use
20	2.14 (3) [27]	MO U (Lucas & Hunt Rd)	West Florissant Ave to Woodrow Ave	2.94	St. Louis County	Velda City	MoDOT/St. Louis Co. Safety Design Build 2 (at Pasadena & MO 115)	Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug
21	2.11 (7) [22]	Grand Blvd	Montgomery St to Hall St	2.99	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield
22	2.11 (4) [22]	Jennings Station Rd	West Florissant Ave to MO 115	2.65	St. Louis County	Jennings	MoDOT/St. Louis Co. Safety Design Build 2 (at Stratford)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug, Distraction
23	2.09 (8) [9]	Hall St	Aurora Ave to Adelaide Ave	2.01	City of St. Louis	St. Louis	MoDOT roadway reconstruction & MSD stormwater infrastructure	Underserved, Speeding
24	2.06 (5) [21]	MO D (Page Blvd)	Laurel St to Taylor Ave	2.77	City of St. Louis	St. Louis	MODOT resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield
25	2.01 (4) [22]	Halls Ferry Rd	Satiris Dr to Capitol Dr	2.79	St. Louis County	Ferguson		Underserved, Speeding, Fail to Yield
26	1.99 (4) [13]	MO 30 (Gravois Rd)	Rosa Ave to City/ County Line	1.83	City of St. Louis	St. Louis	MoDOT/St. Louis Co. Safety Design Build 2 (at Germania, Loughborough, Cecil, and Holly Hills)	Fail to Yield, Distraction
27	1.94 (4) [22]	MO D (Page Ave)	Kratky Rd to Burns Ave	2.89	St. Louis County	Overland	MoDOT/St. Louis Co. Safety Design Build 2 (at Dielman, Ashby and curve improvements)	Pedestrian, Speeding, Fail to Yield, Alcohol/ Drug
28	1.90 (3) [21]	Jennings Station Rd	Bellfontaine Rd to West Florissant Ave	2.68	St. Louis County	Jennings	Jennings Station Road Improvements (Resurfacing, off-street bike facility, full ADA sidewalk replacement and other improvement. Bellfontaine Rd to Halls Ferry)	Underserved, Improper Lane Use
29	1.86 (3) [8]	MO 366 (Chippewa St)	Childress Ave to City/ County Line	1.35	City of St. Louis	St. Louis	City of STL ARPA-Chippewa Safety	Pedestrian, Fail to Yield

#	Wtd. KSI/Yr/Mi (#Fatal) [#SI]	Corridor Name	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
30	1.85 (7) [18]	Broadway	Riverview Blvd to Humboldt Ave	3.08	City of St. Louis	St. Louis	City of STL CMAQ	Underserved, Speeding, Fail to Yield
31	1.82 (1) [25]	IL 15 (Missouri Ave)	10th St/Katherine Dunham Pl to 0.5 Mile south of 29th St	2.91	St. Clair	East St. Louis		Underserved, Speeding
32	1.77 (4) [17]	MO 180 (St. Charles Rock Rd)	Industrial Rd to Brown Rd	2.60	St. Louis County	St. John	Recent ADA Project	Underserved, Speeding, Alcohol/Drug
33	1.75 (4) [19]	Bellefontaine Rd	Pattern Dr to Coburg Lands Dr	2.86	St. Louis County	Spanish Lake		Underserved, Improper Lane Use, Distraction
34	1.73 (5) [14]	North Hanley Rd	I-270 to Airport Rd	2.49	St. Louis County	Berkeley		Pedestrian, Speeding, Fail to Yield, Alcohol/ Drug
35	1.69 (3) [17]	IL 3 (Mississippi Ave)	Jerome Ln to St. Monica Dr/Ruby St	2.54	St. Clair	Cahokia		Pedestrian, Underserved, Speeding, Fail to Yield
36	1.55 (5) [14]	MO 180 (St. Charles Rock Rd)	Normandy Dr to Brown Rd	2.78	St. Louis County	Bel-Nor	Road Diet and RRFB east of Hanley planned	Pedestrian, Underserved, Fail to Yield, Improper Lane Use, Alcohol/Drug
37	1.55 (4) [16]	Broadway	Ferry St to Keber Ave	2.85	City of St. Louis	St. Louis	City of STL CMAQ	Underserved, Speeding, Improper Lane Use
38	1.51 (7) [10]	US 67	S Buck Creek Rd to Montauk Dr	2.72	Jefferson	Unincorporated		Fail to Yield, Improper Lane Use, Alcohol/ Drug, Distraction
39	1.50 (1) [10]	MO 367 (Riverview Blvd)	City/County Line to North Pointe Blvd	1.53	City of St. Louis	St. Louis	MODOT resurfacing & safety-Riverview Blvd	Underserved, Speeding
10	1.49 (1) [7]	MO 100 (Chouteau Ave)	3rd St to 18th St	1.14	City of St. Louis	St. Louis	MODOT RSA underway	Pedestrian, Underserved
41	1.46 (2) [17]	Union Blvd	West Florissant Ave to Northland Ave	2.73	City of St. Louis	St. Louis	STL ARPA resurfacing and safety	Underserved, Speeding, Fail to Yield
42	1.41 (1) [8]	Graham Blvd	Reeb Ln to I-270	1.35	St. Louis County	Florissant		Pedestrian, Fail to Yield
43	1.41 (2) [16]	Union Blvd	Northland Ave to Grand Dr	2.70	City of St. Louis	St. Louis	STL ARPA resurfacing and safety	Pedestrian, Underserved, Speeding, Fail to Yield
44	1.40 (2) [8]	Cass Ave	1st St to 20th St	1.57	City of St. Louis	St. Louis	RAISE Grant Application Submitted (not funded)	Pedestrian, Underserved, Speeding, Distraction
45	1.38 (3) [11]	Washington Ave	Leffingwell Ave to I-44	2.25	City of St. Louis	St. Louis	TAP Funded Traffic Calming Project - 4th and 14th	Speeding
46	1.37 (3) [16]	W State Route 161	Pheasantwood Ct/ Hanna Dr to Prospect St/Wedegewood	3.00	St. Clair	Belleville		Speeding, Fail to Yield

#	Wtd. KSI/Yr/Mi (#Fatal) [#SI]	Corridor Name	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
47	1.37 (1) [17]	MO 94	Friedens/Zumbehl to Kingshigway/ Lindenwood	2.71	St. Charles	St. Charles	Added 3rd lane on 94, Friedens/Zumbehl Improvements, I-70 Fairgrounds to Cave Springs, & upcoming Access Management Project north of I-70	Speeding, Improper Lane Use, Alcohol/Drug
48	1.36 (4) [11]	Hall St	Riverview Dr to Aurora Ave	2.50	City of St. Louis	St. Louis	MODOT roadway reconstruction & MSD stormwater infra	Underserved, Speeding
49	1.36 (1) [18]	Bellefontaine Rd	Shepley Dr to Raford Ct	2.87	St. Louis County	Bellefontaine Neighbors	MoDOT/St. Louis Co. Safety Design Build 2 (at Chambers Rd)	Underserved, Speeding
50	1.35 (2) [11]	Broadway	Cass Ave to MO 100 (Chouteau Ave)	2.07	City of St. Louis	St. Louis	STL ARPA & TAP-Downtown Traffic Calming	Pedestrian
51	1.35 (2) [10]	Fourth St	N Broadway/Lumiere Place Blvd to Convent St	1.92	City of St. Louis	St. Louis	STL ARPA & TAP Downtown Traffic Calming & 4th St. Cycletrack	Speeding
52	1.35 (1) [15]	MO 30 (Gravois Rd)	S Spring Ave to Dahlia Ave	2.43	City of St. Louis	St. Louis		Pedestrian, Underserved, Fail to Yield
53	1.35 (2) [15]	IL 157 (Camp Jackson Rd)	IL 3/Mississippi Ave to I-255	2.67	St. Clair	Cahokia	Resurfacing and ADA (25-30 MYP)	Pedestrian, Bikes, Underserved, Fail to Yield
54	1.33 (5) [11]	Florissant Ave	Grand Blvd to Blair Ave	2.77	City of St. Louis	St. Louis		Pedestrian, Underserved
55	1.31 (1) [16]	State St	37th St to 69th St	2.68	St. Clair	East St. Louis		Underserved, Speeding
56	1.29 (2) [15]	MO 180 (St. Charles Rock Rd)	Little Flower Ln to I-70 WB Ramps	2.79	St. Louis County	Bridgeton	ADA Project/Rehab Bridge over I-70 (FY 26)	Fail to Yield
57	1.29 (3) [12]	West Florissant Ave	Emerson Ave to Alice Ave	2.56	City of St. Louis	St. Louis		Speeding
58	1.29 (2) [8]	Collinsville Rd	Black Ln/Fairmont Ave to Sand Prairie Rd	1.71	Madison/Nameoki Township	Collinsville/ Nameoki Township		Pedestrian, Speeding, Fail to Yield, Alcohol/ Drug
59	1.29 (3) [14]	Grand Blvd	Rutger St to Tholozan Ave	2.88	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	
60	1.28 (0) [16]	MO 267 (Lemay Ferry Rd)	Covington Manor Ln to Salem School Rd	2.51	St. Louis County	Mehlville	Pavement Resurfacing and ADA FY25	Fail to Yield, Alcohol/Drug
61	1.27 (2) [11]	MO 366 (Chippewa St)	Ridgewood Ave to Compton Ave	2.20	City of St. Louis	St. Louis		Pedestrian
62	1.25 (3) [12]	MO D (Page Blvd)/ Dr MLK	Taylor Ave to T.E. Huntley Ave	2.63	City of St. Louis	St. Louis	MODOT resurfacing & safety	Underserved, Speeding

#	Wtd. KSI/Yr/Mi (#Fatal) [#SI]	Corridor Name	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
63	1.25 (3) [14]	Eads Bridge/IL15 (E Broadway)	18 St to MO/IL Line	2.96	St. Clair	St. Louis		
64	1.25 (2) [14]	State St	MLK Dr to 37th St	2.73	St. Clair	East St. Louis		Bikes, Speeding
65	1.24 (0) [17]	MO 21	I-270 to Southmore Hills Dr	2.74	St. Louis County	Unincorporated		Fail to Yield
66	1.24 (5) [8]	US 61	Lincoln Co Line to N. Point Prairie Rd/ Farris Rd	2.50	St. Charles	Unincorporated	MoDOT TS&O Project Underway	Speeding, Fail to Yield, Improper Lane Use
67	1.23 (4) [12]	Kingshighway Blvd	I-64 WB Ramps to Fyler Ave	2.93	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	
68	1.22 (2) [14]	W State Route 161	Carson Dr to Pheasantwood Ct/ Hanna Dr	2.78	St. Clair	Belleville	SCCT Bike Trail Overpass Structure	
69	1.21 (2) [12]	Broadway	Iron St to River City Casino Blvd	2.48	City of St. Louis	St. Louis	City of STL CMAQ & Cycletrack	Fail to Yield
70	1.20 (5) [9]	MO D (Page Ave)	Dusky Dr to Burns Ave	2.75	St. Louis County	Vinita Park	MoDOT/St. Louis Co. Safety Design Build 2 (Woodson & Hanley)	Speeding, Alcohol/Drug
71	1.19 (2) [13]	US 67 (Lindbergh Blvd)	Washington St/ Charbonier Rd to Utz Dr	2.69	St. Louis County	Hazelwood	I-270 North/Replacement of Utz Signal/ upcoming US 67 ADA and Signal Improvement project	Fail to Yield
72	1.19 (1) [15]	Kingshighway Blvd	Fyler Ave to MO 30	2.77	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Improper Lane Use
73	1.18 (5) [11]	MO Route 30	Ridge Point Dr to Upper Byrnes Mill Rd	3.13	Jefferson	Byrnes Mill		Fail to Yield, Distraction
74	1.17 (1) [15]	MO Route 30	Delores Dr to Little Brennan Rd	2.82	Jefferson	Murphy	MoDOT Safety Design Build 2 (Enhanced delineation of 3 Curves)	Improper Lane Use, Alcohol/Drug
75	1.17 (3) [4]	Reavis Barracks Rd	Telegraph Rd to Green Park Rd	1.46	St. Louis County	Mehlville	Center left-turn Lane and shared use path planned Grants Trail to Lemay Ferry Rd	Speeding, Fail to Yield
76	1.16 (2) [11]	Dr Martin Luther King Jr Dr	Marcus Ave to MLK Dr	2.40	City of St. Louis	St. Louis		
77	1.16 (2) [11]	Goodfellow Blvd	Halls Ferry Cir to Sherry Ave	2.42	City of St. Louis	St. Louis	STL ARPA resurfacing and safety	Speeding
78	1.16 (4) [11]	IL 3 (Admiral Pkwy)	Palmer Road to Carl St	2.93	Monroe	Columbia	Resurfacing and ADA (2022)	Speeding, Fail to Yield
79	1.15 (6) [20]	MO 231 (Telegraph Rd/Kingston)	S Broadway to Golden Valley Dr	3.75	St. Louis County	Mehlville	Road Diet Telegraph to W. Ripa Ave	Fail to Yield

#	Wtd. KSI/Yr/Mi (#Fatal) [#SI]	Corridor Name	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
80	1.13 (2) [10]	Goodfellow Blvd	Terry Ave to Delmar Blvd	2.31	City of St. Louis	St. Louis	STL ARPA resurfacing and safety	
81	1.12 (0) [14]	MO A (Veterans Memorial Blvd)	US 61-67 to Pounds Rd	2.47	Jefferson	Festus		Fail to Yield
82	1.09 (3) [11]	Grand Blvd	Tholozan Ave to Holly Hills Ave	2.85	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Underserved, Speeding
83	1.09 (1) [15]	MO Route 30	Little Brennan Rd to Ridge Point Dr	3.04	Jefferson	High Ridge	MoDOT Safety Design Build 2 (Enhanced delineation of 1 Curve)	Improper Lane Use
84	1.08 (7) [16]	Riverview Dr	Coal Bank Rd to Chain of Rocks Dr	4.89	City of St. Louis	St. Louis	Road Diet and Median (2022)	
85	1.08 (3) [11]	MO 141	Romaine Creek Rd to St. Louis Co./ Jefferson Co. Line	2.86	Jefferson	Unincorporated	MoDOT Safety Design Build 2 (Enhanced delineation of 2 Curves)	
86	1.07 (2) [14]	Halls Ferry Rd	US 67 to West Florissant Ave	3.16	St. Louis County	Unincorporated	MoDOT/St. Louis Co. Safety Design Build 2	Speeding, Fail to Yield
87	1.07 (2) [11]	Pontoon Rd	Lewis and Clark Blvd to Maryville Rd	2.62	Madison	Granite City		Fail to Yield
88	1.06 (1) [10]	MO 267 (Lemay Ferry Rd)	River City Casino Blvd to Dumont Pl	2.15	St. Louis County	Lemay	Pavement Resurfacing and ADA FY25	Pedestrian, Speeding
89	1.06 (0) [9]	Brown St/Milton Rd/ Come In Pl	Dorothy Ave to Broadway	1.70	Madison	Alton	Pavement Resurfacing and ADA FY26	Speeding, Improper Lane Use
90	1.04 (0) [14]	IL 203 (Edwardsville Rd)	Kirkpatrick Homes to Gillespie St	2.68	Madison	Granite City	Resurfacing and ADA (25-30 MYP)	Speeding
91	1.04 (0) [12]	Jefferson Ave	Russell Blvd to Broadway St	2.31	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	
92	1.04 (1) [14]	US 61 (Jeff Co Blvd)	County Limit to Collier Dr	2.99	Jefferson	Arnold		Fail to Yield
93	1.04 (2) [10]	US 67	Mississippi River to St Charels St	2.51	St. Charles	West Alton	J Turns (West Alton)	Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug
94	1.02 (0) [14]	IL 203 (Nameoki Rd)	Spring Ave to Kirkpatrick Homes	2.74	Madison	Granite City	Resurfacing and ADA (Partially in 25-30 MYP)	
95	1.01 (0) [13]	St. Clair Ave	I-255 Underpass to 31st St	2.59	St. Clair	Washington Park	Resurfacing and ADA (Partially in 25-30 MYP)	
96	1.00 (2) [11]	MO 231 (Telegraph Rd)	Golden Valley Dr to Erb Rd	2.79	St. Louis County	Oakville		Fail to Yield

High-Injury Network Priority Lists (Cont.)

Region's Priority Intersections

HIN 1 – All Modes – Intersections was used to generate the intersections priority list. The intersections priority list includes intersections that had a weighted score of 5.0 crashes or more. The 72 intersections on the priority list represent approximately 9% of intersection crashes in the Region. The intersections priority list does not provide a ranking based on the crashes. Instead, a "tier" was assigned since many intersections have the same total weighted fatal and serious injury crashes. Tier 1 includes intersections with 7.0 and above weighted fatal and serious injury crashes, while Tier 2 includes intersections with 6.0 to 6.9 weighted fatal and serious injury crashes, and Tier 3 includes intersections with 5.0 to 5.9 weighted fatal and serious injury crashes. The second column shows the weighted score, the total number of fatal crashes along the corridor in parentheses, and the total number of serious injury crashes at the intersection in brackets. Any projects that have been constructed or planned at the intersections since 2018 are also shown in order to track progress that has been made since the crash data was obtained. Lastly, the table indicates if the intersection also ranked in the top 10% of the other high-injury networks developed. The table is color-coded by county, see legend below. Figure 72 shows the locations of the regional priority intersections.

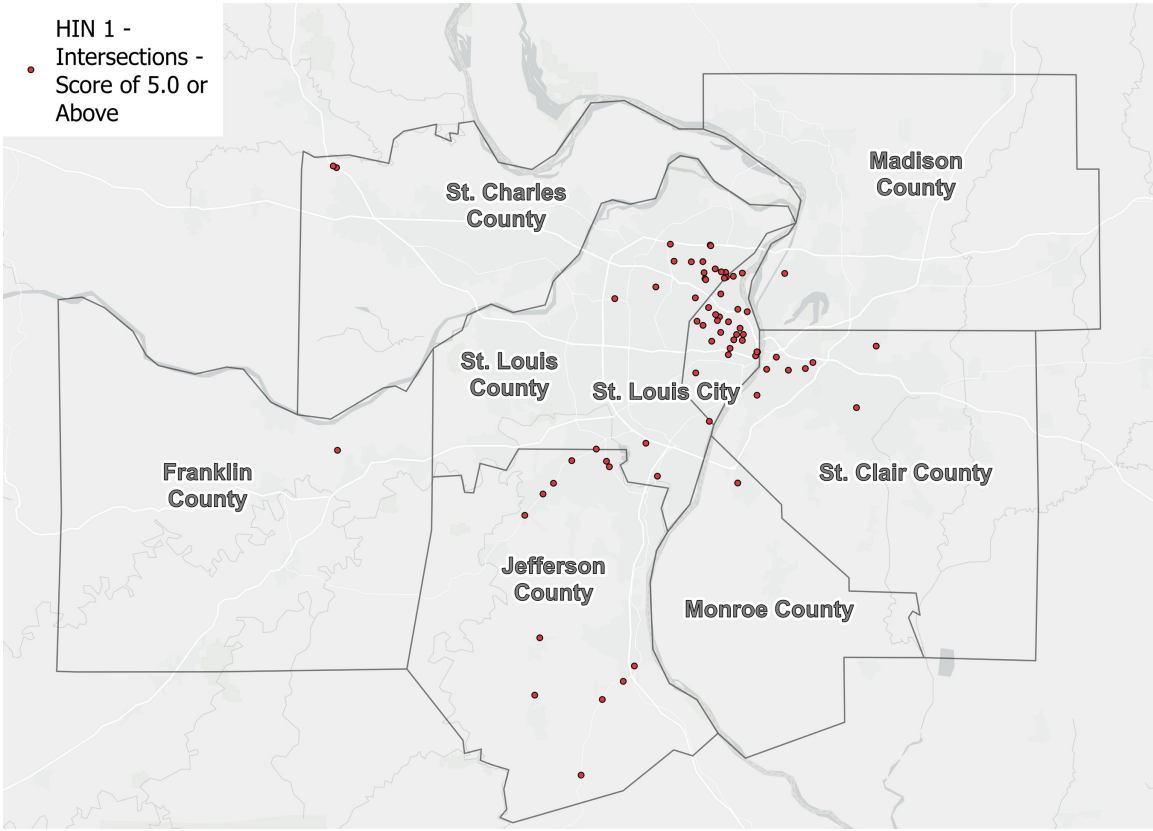


Figure 72. Regional Priority Intersections

Priority List Color Coding Legend	
	City of St. Louis
	Franklin County
	Jefferson County
	Madison County
	Monroe County
	St. Charles County
	St. Clair County
	St. Louis County

	Wtd. KSI (#Fatal) [#SI]	Intersection	Traffic Control	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
Tier 1 (7.0+)	12 (4) [6]	MO 367 (Lewis and Clark Blvd) @ Jennings Station Rd	Signal	St. Louis County	Bellefontaine Neighbors	MoDOT/St. Louis Co. Safety Design Build 2 (Also Ongoing RSA)	Underserved, Speeding, Fail to Yield, Alcohol/Drug
	10.5 (1) [9]	Kingshighway Blvd @ St Louis Ave	Side Street STOP	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Underserved, Speeding
	9 (0) [9]	IL 157 @ Mississippi Ave	Signal with Backplates	St. Clair	Cahokia	Southbound Dual Left-Turns (FY25)	Underserved, Speeding, Fail to Yield
	9 (0) [9]	IL 15 (Missouri Ave) @ 26th St	Signal with Backplates	St. Clair	East St. Louis		Underserved, Speeding
	9 (0) [9]	MO A (Veterans Memorial Blvd) @ Mill St	Signal	Jefferson	Festus	I-55 Design Build	Fail to Yield
	8 (0) [8]	West Florissant Ave @ Chambers Rd	Signal	St. Louis County	Dellwood	West Florissant Great Streets (WFGS)	Underserved, Speeding, Fail to Yield
	8 (4) [2]	Grand Blvd @ Montgomery St	Side Street STOP	City of St. Louis	St. Louis	RAISE GRANT	Pedestrian, Underserved, Speeding, Fail to Yield
	8 (2) [5]	MO 115 (Natural Bridge Rd) @ Union Blvd	Signal with Backplates	City of St. Louis	St. Louis	City of STL ARPA resurfacing and safety	Pedestrian, Underserved, Fail to Yield
	7.5 (1) [6]	MO 231 (Broadway St) @ River City Casino Blvd	Signal	City of St. Louis	St. Louis	City of STL CMAQ	Underserved
	7.5 (1) [6]	MO D (Page Ave) @ Grand Blvd	Signal	City of St. Louis	St. Louis	MoDOT resurfacing & Safety & HotSpot	Pedestrian, Underserved, Speeding, Fail to Yield
	7.5 (1) [6]	St Louis Ave @ Parnell St	Signal	City of St. Louis	St. Louis	City of STL BUILD & CMAQ & STP	Underserved
	7.5 (1) [6]	Broadway @ Taylor Ave	Signal	City of St. Louis	St. Louis	City of STL CMAQ	Underserved, Speeding
	7.5 (3) [3]	US 61 @ Route W (Country Estates Ct)	Unsignalized Divided Highway	St. Charles	Unincorporated	MoDOT TS&O Project Underway	Fail to Yield, Improper Lane Use, Alcohol/Drug
	7.5 (1) [6]	IL 3 (Admiral Pkwy) @ North Main/ Sand Bank Rd	Signal with Backplates	Monroe	Columbia	New Offset Lefts (2022)	Speeding, Fail to Yield
	7.5 (3) [3]	MO 67 @ Montauk Dr	Unsignalized Divided Highway	Jefferson	Unincorporated		Fail to Yield
	7 (0) [7]	MO U (Lucas and Hunt Rd) @ West Florissant Ave	Signal	St. Louis County	Country Club Hills	West Florissant Great Streets	Underserved, Speeding
	7 (0) [7]	Halls Ferry Rd @ Jennings Station Rd	Signal	St. Louis County	Jennings	Signal Replacement- Jennings Station Rd North Project	Underserved, Speeding

	Wtd. KSI (#Fatal) [#SI]	Intersection	Traffic Control	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
Tier 1 (7.0+)	7 (2) [4]	MO 367 @ St Cyr Rd	Signal	St. Louis County	Moline Acres	MoDOT/St. Louis Co. Safety Design Build 2 (Also Ongoing RSA)	Underserved, Fail to Yield
	7 (2) [4]	Halls Ferry Rd @ St Cyr Rd	Side Street STOP	St. Louis County	Jennings	MoDOT/St. Louis Co. Safety Design Build 2	Underserved, Speeding, Improper Lane Use
	7 (0) [7]	MO 115 (Natural Bridge Rd) @ Grand Blvd	Signal with Backplates	City of St. Louis	St. Louis	Recent Safety Improvements (Offset LT, backplates, FYA)	Underserved, Speeding
	7 (0) [7]	MO 115 (Natural Bridge Rd) @ Newstead Ave	Signal with Backplates	City of St. Louis	St. Louis	Recent Safety Improvements (Offset LT, backplates, FYA)	Underserved
	7 (0) [7]	Kingshighway Blvd @ St Clair Ave	Signal with Backplates	St. Clair	Washington Park		Underserved
	7 (0) [7]	MO 21 @ MO 110	Side Street STOP	Jefferson	Unincorporated	New Signal (2022)	Underserved, Fail to Yield
	7 (0) [7]	MO 30 @ Little Brennan Rd	Signal with Backplates (Divided Highway)	Jefferson	Murphy		Fail to Yield, Alcohol/Drug
	7 (2) [4]	MO 100 @ MO T/MO V	Unsignalized Divided Highway	Franklin	Unincorporated		Fail to Yield
Tier 2 (6.0-6.9)	6.5 (1) [5]	Washington Ave @ 4th St	Signal	City of St. Louis	St. Louis	City of STL ARPA & TAP (Traffic Calming & Cycletrack)	
	6.5 (1) [5]	MO 115 (Natural Bridge Rd) @ Kingshighway Blvd	Signal with Backplates	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Underserved, Speeding
	6.5 (1) [5]	IL 161 @ Frank Scott Pkwy	Signal with Backplates	St. Clair	Belleville		Pedestrian
	6.5 (1) [5]	IL 3 @ 8th St/Port of East St Louis	Signal with Backplates	St. Clair	East St. Louis		Underserved, Improper Lane Use
	6.5 (1) [5]	IL 159 (North Illinois St) @ Bethel Mine Rd/Hollywood Heights Rd	Signal with Backplates	St. Clair	Unincorporated		Pedestrian, Fail to Yield
	6.5 (1) [5]	IL 3 @ West Pontoon Rd	Signal with Backplates (Divided Highway)	Madison	Granite City	Intersection Relocated as part of IL 3 Relocation Project (25-30 MYP)	Fail to Yield
	6.5 (1) [5]	MO 30 @ Northwest Blvd	Signal with Backplates (Divided Highway)	Jefferson	Murphy		Distraction
	6 (0) [6]	MO D (Page Ave) @ Schuetz Rd	Signal with Backplates (Divided Highway)	St. Louis County	Maryland Heights	MoDOT/St. Louis Co. Safety Design Build 2	
	6 (0) [6]	MO 180 (St. Charles Rock Rd) @ Woodson Rd	Signal	St. Louis County	Breckenridge Hills		Speeding
	6 (0) [6]	West Florissant Ave @ Ferguson Ave	Signal	St. Louis County	Ferguson	West Florissant Great Streets	Underserved, Fail to Yield
	6 (0) [6]	Lucas and Hunt Rd @ Jacobi Ave	Side Street STOP	St. Louis County	Unincorporated		Underserved, Fail to Yield

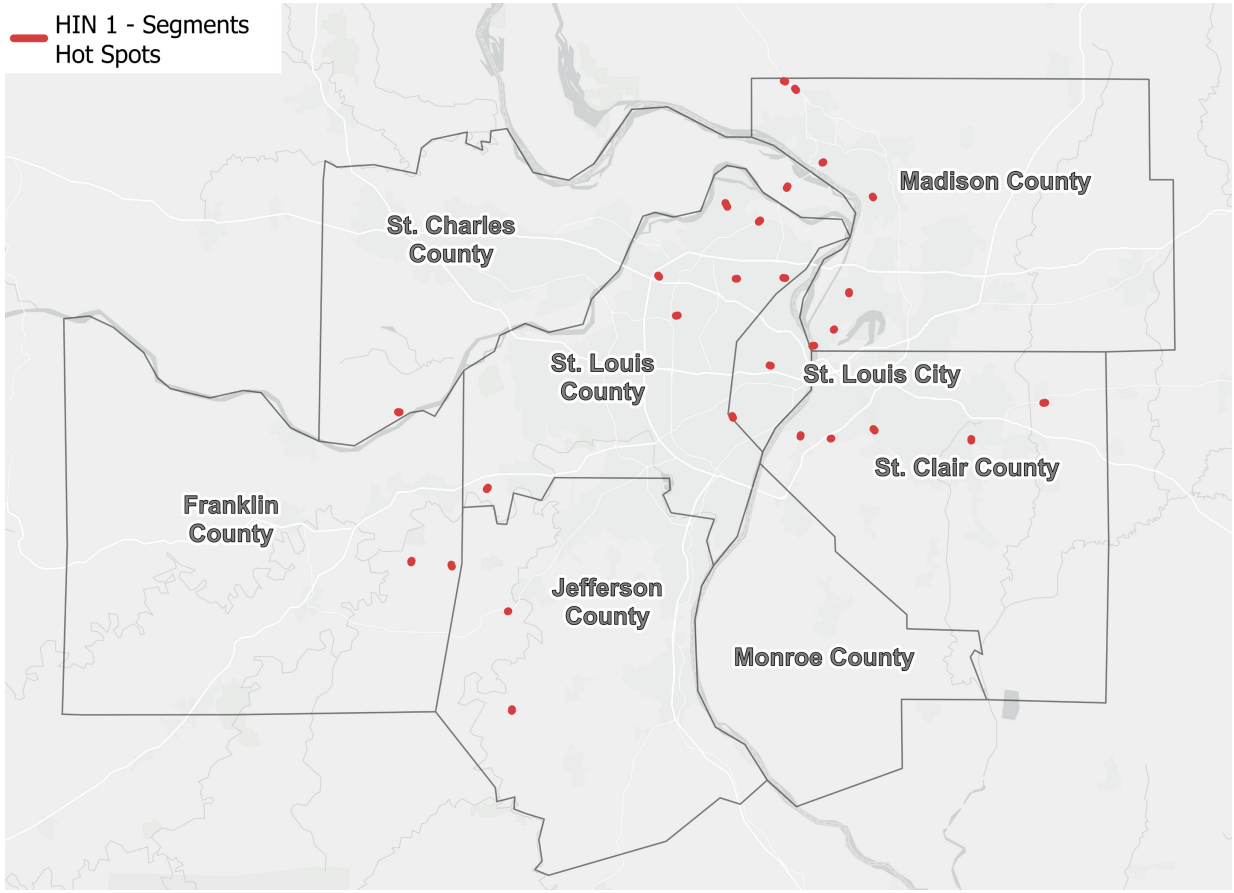
	Wtd. KSI (#Fatal) [#SI]	Intersection	Traffic Control	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
Tier 2 (6.0-6.9)	6 (2) [3]	Elizabeth Ave @ Hereford Ave/ Chambers Rd	Signal	St. Louis County	Ferguson	Roundabout desired with road diet. Needs Funding	Speeding
	6 (0) [6]	MO 100/Chouteau Ave @ Grand Blvd	Signal	City of St. Louis	St. Louis	MODOT Resurfacing & Safety & HotSpot (Also Ongoing RSA)	Underserved
	6 (0) [6]	MO D (Page Ave) @ Taylor Ave	Signal	City of St. Louis	St. Louis	MoDOT resurfacing & Safety	Underserved, Speeding
	6 (0) [6]	MO D (Page Ave) @ Skinker Pkwy/ Kienlen Ave	Signal	City of St. Louis	St. Louis	MoDOT resurfacing & Safety	Underserved, Speeding
	6 (0) [6]	Adelaide Ave/MO H @ Hall St	Signal	City of St. Louis	St. Louis	MODOT roadway reconstruction & MSD stormwater infrastructure	Underserved, Speeding
	6 (2) [3]	Goodfellow Blvd @ Lincoln Way/ Dressell Ave	Side Street STOP	City of St. Louis	St. Louis	MODOT resurfacing & safety	Underserved
	6 (2) [3]	MO 367 (Riverview Blvd) @ West Florissant Ave	Signal	City of St. Louis	St. Louis	MODOT resurfacing & safety (Also Ongoing RSA)	Underserved, Speeding
	6 (0) [6]	MO A @ Old Hwy 21/Business 21	Signal	Jefferson	Hillsboro		Fail to Yield
	6 (0) [6]	MO 30 @ Route W/Route MM	Signal with Backplates (Divided Highway)	Jefferson	Byrnes Mill	Safety Design Build 2 (Dynamic Signal Warning Flasher)	
	6 (2) [3]	MO 30 @ Gravois Rd/Old Gravois	Signal with Backplates (Divided Highway)	Jefferson	Byrnes Mill		
	6 (0) [6]	MO 141 @ Springdale Ln/13th St	Signal with Backplates (Divided Highway)	Jefferson	Unincorporated		
Tier 3 (5.0-5.9)	5.5 (1) [4]	US 61/67/Lemay Ferry Rd @ Meramec Bottom Rd/Baumgartner Rd	Signal with Backplates	St. Louis County	Oakville	Backplates 2022	Fail to Yield
	5.5 (1) [4]	Bellefontaine Rd @ Jennings Station Rd/Chain Of Rocks Rd	Signal	St. Louis County	Bellefontaine Neighbors	Jennings Station Road Improvements Project (Road Diet)	Underserved, Speeding
	5.5 (1) [4]	North Hanley Rd @ Santa Bella Dr	Signal	St. Louis County	Hazelwood		Pedestrian, Speeding
	5.5 (1) [4]	Pershall @ New Halls Ferry Rd	Signal	St. Louis County	Ferguson	I-270 North Design Build (complete 2024)	Underserved, Speeding, Fail to Yield
	5.5 (1) [4]	Cass Ave @ Jefferson Ave	Signal	City of St. Louis	St. Louis	City of STL BUILD & CMAQ & STP	Underserved
	5.5 (1) [4]	MO D (Page Ave) @ Clara Ave	Signal	City of St. Louis	St. Louis	MoDOT resurfacing & Safety	Underserved, Speeding
	5.5 (3) [1]	MO H (Riverview) @ Scranton Ave	Side Street STOP	City of St. Louis	St. Louis	Pavement Resurfacing FY 27	Underserved, Speeding
	5.5 (1) [4]	Walnut St @ Broadway	Signal	City of St. Louis	St. Louis	City of STL BUILD & CMAQ & STP	Pedestrian

	Wtd. KSI (#Fatal) [#SI]	Intersection	Traffic Control	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
Tier 3 (5.0-5.9)	5.5 (1) [4]	US 67 @ Route CC (Country Rd)	Signal with Backplates (Divided Highway)	Jefferson	Unincorporated	MoDOT resurfacing & Safety	
	5.5 (1) [4]	MO 30 @ MO PP (Rock Creek Rd)	Signal with Backplates (Divided Highway)	Jefferson	Unincorporated	Pavememt Resurfacing and guardrail upgrades (FY 27)	Distraction
	5 (0) [5]	MO 21 (Tesson Ferry Rd) @ Kennerly Rd	Signal	St. Louis County	Concord	Pavememt Resurfacing, ADA and ped facilities	
	5 (0) [5]	Mo 115 (Natural Bridge) @ MO U (Lucas and Hunt Rd)	Signal	St. Louis County	Northwoods	MoDOT/St. Louis Co. Safety Design Build 2	Underserved
	5 (0) [5]	West Florissant Ave @ Buzz Westfall Dr	Signal	St. Louis County	Jennings	West Florissant Great Streets	Underserved
	5 (2) [2]	Jefferson Ave @ Airport Rd	Side Street STOP	St. Louis County	Berkeley	Airport Rd Resurfacing Road Diet and Bike lanes	Pedestrian, Underserved
	5 (0) [5]	Dunn Rd @ MO AC (New Halls Ferry Rd)	Signal	St. Louis County	Unincorporated	I-270 North Design Build (complete 2024)	
	5 (2) [2]	Hampton Ave @ Fyler Ave	Signal	City of St. Louis	St. Louis		
	5 (0) [5]	Grand Blvd @ Laclede Ave	Signal	City of St. Louis	St. Louis	MoDOT resurfacing & Safety	Underserved, Speeding
	5 (2) [2]	Kingshighway Blvd @ Lindell Blvd	Signal	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Speeding
	5 (0) [5]	Broadway @ Washington Ave	Signal	City of St. Louis	St. Louis	City of STL ARPA & TAP (Traffic Calming & Cycletrack)	
	5 (0) [5]	State St @ 47th Street	Signal All Way STOP	St. Clair	East St. Louis		Underserved, Speeding
	5 (0) [5]	IL 15 (Missouri Ave) @ 9th St	Signal	St. Clair	East St. Louis		Underserved
	5 (2) [2]	US 61 @ North Point Prairie Rd/Farris Rd	Unsignalized Divided Highway	St. Charles	Unincorporated	MoDOT TS&O Project Underway	
	5 (2) [2]	US 67 @ Papin Rd	Unsignalized Divided Highway	Jefferson	Unincorporated		Fail to Yield
	5 (2) [2]	MO 141 @ Fiedler Ln	Signal with Backplates (Divided Highway)	Jefferson	Unincorporated	Backplates SB Only	Pedestrian

High-Injury Network Priority Lists (Cont.)

Region's Priority Hot Spot Locations

HIN 1 – All Modes – Segments was used to generate the hot spot priority list. Any of the segments that are already included on the priority list for the corridors were excluded from the hot spot priority list. Further, any of the segments where the crashes are focused at intersections that are on the intersections priority list were also excluded from the hot spot priority list. This hot spot priority list is intended to identify locations that are problematic due to segment-related issues. The resulting hot spot priority list includes segments less than one mile long and have a weighted crash value of 3.25 or more on the segment. The "ranking" of the hot spots is based on the weighted value of the fatal and serious injury crashes, shown in the second column of the table. Any projects that have been constructed or planned on the segments since 2018 are also shown in order to track progress that has been made since the crash data was obtained. Lastly, the table indicates if the segment also ranked in the top 10% of the other high-injury networks developed. The table is color-coded by county, see legend below. Figure 73 shows the locations of the regional priority hot spots.



Priority List Color Coding Legend	
	City of St. Louis
	Franklin County
	Jefferson County
	Madison County
	Monroe County
	St. Charles County
	St. Clair County
	St. Louis County

Figure 73. Regional Priority Hot Spots

Priority List: Regional Hot Spots

#	Wtd. KSI Crashes	Location	Extents	County	Municipality	Segment	Recent/Planned Projects	Other Top 10% High-Injury Network List
1	10.75	MO 94	S Curve West of Klondike Park Entrance	St. Charles	Unincorporated	Segment (curve)	High Friction Surface Treatment (2022)	Fail to Yield, Alcohol/Drug
2	7	Hereford Ave	West of Elizabeth to Nancy	St. Louis County	Ferguson	Segment	Road Diet Expected	Underserved, Fail to Yield
3	4.375	US 67	Curve North of Richard Drive	St. Charles	West Alton	Segment	West Alton J-Turns	
4	4.25	McKinley Bridge Approach	State Line to Main St/Bremen St (Madison Co.)	Madison	Venice	Segment		Underserved, Fail to Yield
5	6	IL 15	South of N Demazenod Dr	St. Clair	Belleville	Segment		Fail to Yield
6	4	Chambers Rd	Cabot Dr to Colonnade Meadows Dr	St. Louis County	Bellefontaine Neighbors	Segment		Underserved, Fail to Yield, Alcohol/Drug
7	4	US 50/W McAllister St	West of Madison St	St. Clair	Lebanon	Segment	Intersection Improvements at IL 4 (local project)	
8	4	New Halls Ferry Rd	Greenway Chase Dr	St. Louis County	Old Jamestown	Segment		Improper Lane Use
9	4	Brown St	Between Union St and Pearl St	Madison	Alton	Segment		Underserved, Alcohol/Drug
10	4	US 67	Robbins Mill Rd (East) to Daystar Church Entrance	St. Louis County	Old Jamestown	Segment	Pavement Resurfacing and ADA upgrades (FY 25)	Improper Lane Use
11	4	Edwardsville Rd	South of Thomas St	Madison	Roxana	Segment		Underserved, Fail to Yield
12	4	IL 203 (Nameoki Rd)	Amos Ave to Branding Drive	Madison	Granite City	2 Segment; Intersection 2		Fail to Yield
13	3.75	IL 157 (Camp Jackson)	Lynn St to Delano Dr	St. Clair	Cahokia	Segment		Underserved
14	3.75	Lindell Blvd	Between Boyle and Whittier	City of St. Louis	St. Louis	Segment - Ped Focus		Pedestrian, Improper Lane Use
15	3.75	Midland Blvd	Bruno Ave to Entity Ave	St. Louis County	Unincorporated	Segment	Pedestrian Upgrades Planned	Improper Lane Use
16	3.625	New Halls Ferry Rd	Old Halls Ferry/Shackelford Rd	St. Louis County	Old Jamestown	Segment		
17	3.5	North Green Mount Rd	North of Lebanon Ave to Church Entrance	St. Clair	Shiloh	Segment		Fail to Yield
18	3.5	Godfrey Rd	South of S. Branch Piasa Creek (Near 8002 Godfrey Rd)	Madison	Godfrey	Segment		Fail to Yield, Alcohol/Drug
19	3.5	Water St	South of Saint Gregory Drive	St. Clair	Cahokia	Segment		Underserved
20	3.5	MO HH	North of Misty Hollow	Franklin	Unincorporated	Segment (curve)		Fail to Yield, Distraction
21	3.5	MO Y	South of Ware Church Road	Jefferson	Unincorporated	Segment (curve)	Pavement preservation project	Fail to Yield, Distraction

Priority List: Regional Hot Spots (Cont.)

#	Wtd. KSI Crashes	Location	Extents	County	Municipality	Segment	Recent/Planned Projects	Other Top 10% High-Injury Network List
22	3.375	MO 30	Reichl Drive and Melody Hill Drive	Jefferson	Unincorporated	Segment (curve)	Pavement Resurfacing and ADA upgrades (FY 25)	Fail to Yield, Alcohol/Drug, Distraction
23	3.25	River Des Peres Blvd	Parkway Ln to Loughborough Ave	City of St. Louis	St. Louis	Segment		
24	3.25	IL 203	Edwards Road to Staunton St	Madison	Madison	Segment	Resurfacing and ADA (25-30 MYP)	Underserved
25	3.25	MO N	Woods Creek Rd to Autumn Leaf Ln	Franklin	Unincorporated	Segment (curve)	Pavement resurfacing, guardrail and signage upgrades	Fail to Yield
26	3.125	Business Loop 44/ US 66	Correctional Center Entrance to west of Doizer Crossing/Lost Hill Lane	St. Louis County	Pacific	Segment		
27	3.125	Godfrey Rd	Within 0.5 miles of Davis Lane	Madison	Godfrey	Segment		
28	3.25	MO 180	McKelvey Rd to west	St. Louis County	Bridgeton	Segment - 2 Fatal Peds	Signal optimization and ATSPM upgrades (FY 25) CMAQ	Pedestrian, Underserved, Distraction

High-Injury Network Priority Lists (Cont.)

Region's Priority Pedestrian Corridor

HIN 2 – VRU Pedestrians – Corridors was used to generate the pedestrian priority list. The pedestrian priority list includes all the pedestrian corridors in the top 10% pedestrian tier. The "ranking" of the pedestrian corridors is based on the number of fatal and serious injury pedestrian crashes per year per mile. The second column shows the weighted score. Any projects that have been constructed or planned along the corridors since 2018 are also shown in order to track progress that has been made since the crash data was obtained. In the last column, the table indicates if the corridor also ranked in the top 10% of the other high-injury networks developed. Many of the pedestrian priority corridors overlap with the regional priority corridors. Only eight corridors on the pedestrian priority list were not previously included on the regional corridor priority list. To differentiate, these eight corridors are **bolded** in the following tables. Additionally, the table is color-coded by county, see legend below. Figure 74 shows the locations of the regional priority pedestrian corridors.

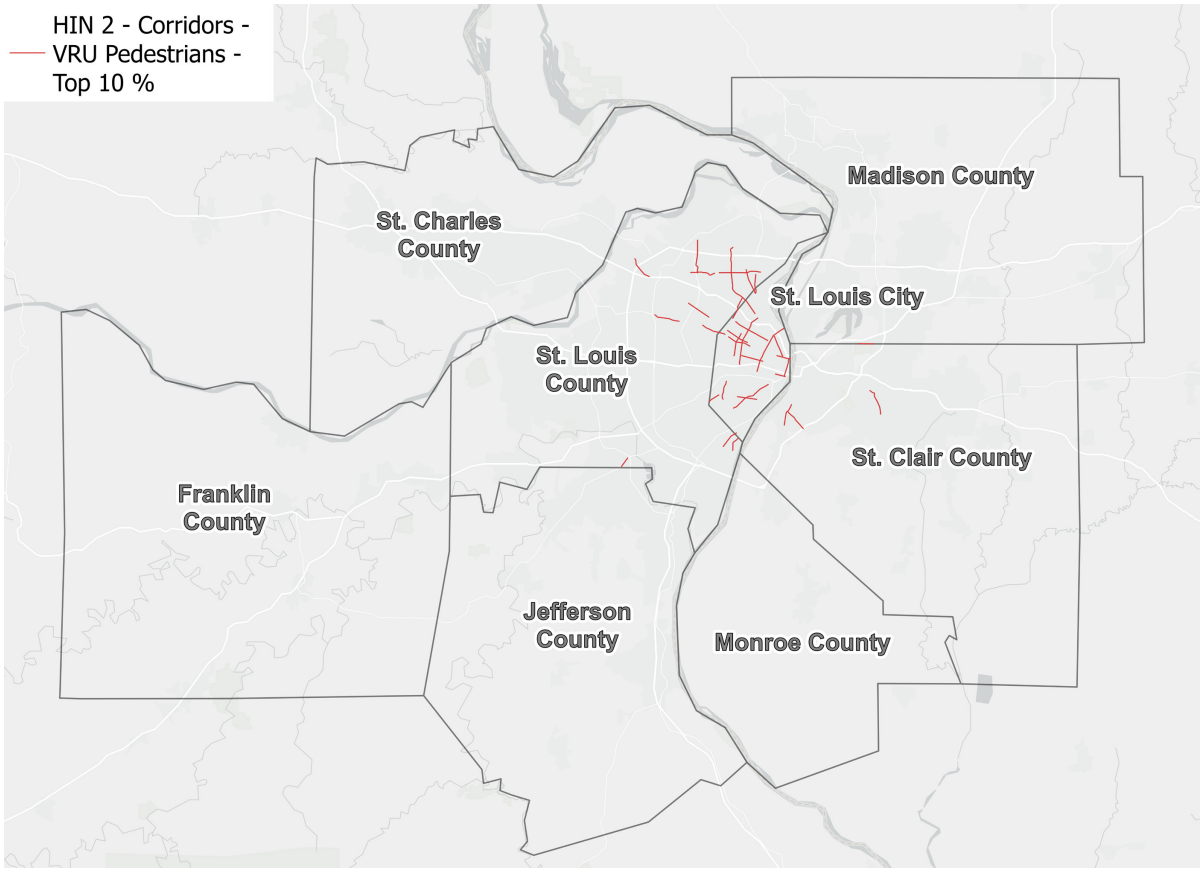


Figure 74. Regional Priority Pedestrian Corridors

Priority List Color Coding Legend	
	City of St. Louis
	Franklin County
	Jefferson County
	Madison County
	Monroe County
	St. Charles County
	St. Clair County
	St. Louis County

Priority List: Regional Pedestrian Corridors

#	Ped Wtd. KSI/Yr/Mi	Corridor Name	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
1	1.18	MO 115 (Natural Bridge)	Shreve Ave to Chevrolet Ave/ Hamilton Ave	2.21	City of St. Louis	St. Louis		Pedestrian, Underserved, Speeding, Fail to Yield
2	1.12	West Florissant Ave	Halls Ferry Rd to Thatcher Ave	2.50	St. Louis County	Unincorporated		Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use
3	1.11	Grand Blvd	Montgomery St to Hall St	2.99	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield
4	1.09	Grand Blvd	Montgomery St to Rutger St	2.84	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield
5	0.89	MO 115 (Natural Bridge)	Shreve Ave to Prairie Ave	2.01	City of St. Louis	St. Louis	Recent improvements between Shreve and Jefferson	Pedestrian, Underserved, Speeding, Improper Lane Use
6	0.85	Chambers Rd	Elizabeth Ave to Winkler Dr	2.45	St. Louis County	Dellwood	WFGS project includes improvements at Chambers including pedestrian and transit. Plan for road diet, buffered bike lanes and roundabout at Elizabeth to Forestwood. Needs funding for final design and construction.	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug
7	0.84	Airport Rd	James S McDonnell Blvd to Florissant Road	2.85	St. Louis County	Berkeley	Airport Rd Resurfacing (center turn lane, and buffered bike lanes on both sides of the roadway, pedestrian Improvements)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug, Distraction
8	0.83	Halls Ferry Rd	Halls Ferry Cir to Empire Dr	2.89	St. Louis County	Castle Point	MoDOT/St. Louis Co. Safety Design Build 2 (at St. Cyr)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug
9	0.79	MO 100 (Chouteau Ave)	3rd St to 18th St	1.14	City of St. Louis	St. Louis	MODOT RSA underway	Pedestrian, Underserved
10	0.78	West Florissant Ave	Thatcher Ave to Solway Ave	2.19	St. Louis County	Dellwood	West Florissant Great Streets Project (WFGS)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug
11	0.74	Union Blvd	West Florissant Ave to Northland Ave	2.73	City of St. Louis	St. Louis	STL ARPA resurfacing and safety	Underserved, Speeding, Fail to Yield
12	0.72	Florissant Ave	Grand Blvd to Blair Ave	2.77	City of St. Louis	St. Louis		Pedestrian, Underserved
13	0.72	MO 367 (Lewis and Clark Blvd)	Northumberland Dr to City/ County Line	2.09	St. Louis County	St. Louis	MoDOT RSA from I-270 to Halls Ferry Circle (FY 2026)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug, Distraction
14	0.72	Chambers Rd	Green Valley Dr to Fonda Dr	2.24	St. Louis County	Bellefontaine Neighbors		Pedestrian, Underserved, Speeding, Fail to Yield, Distraction

Priority List: Regional Pedestrian Corridors (Cont.)

#	Ped Wtd. KSI/Yr/Mi	Corridor Name	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
15	0.69	MO D (Page Ave)	Kratky Rd to Burns Ave	2.89	St. Louis County	Overland	MoDOT/St. Louis Co. Safety Design Build 2 (at Dielman, Ashby and curve improvements)	Pedestrian, Speeding, Fail to Yield, Alcohol/Drug
16	0.67	West Florissant Ave	Acme Ave to Emerson Ave	1.80	City of St. Louis	St. Louis		Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use
17	0.66	MO 30 (Gravois Rd)	Charless St to Bamberger Ave	2.42	City of St. Louis	St. Louis		Pedestrian, Underserved, Speeding, Fail to Yield
18	0.60	North Hanley Rd	I-270 to Airport Rd	2.49	St. Louis County	Berkeley		Pedestrian, Speeding, Fail to Yield, Alcohol/Drug
19	0.59	Graham Blvd	Reeb Ln to I-270	1.35	St. Louis County	Florissant		Pedestrian, Fail to Yield
20	0.54	MO 180 (St. Charles Rock Rd)	Normandy Dr to Brown Rd	2.78	St. Louis County	Bel-Nor	Road Diet and RRFB east of Hanley planned	Pedestrian, Underserved, Fail to Yield, Improper Lane Use, Alcohol/Drug
21	0.53	MO 30 (Gravois Rd)	S Spring Ave to Dahlia Ave	2.43	City of St. Louis	St. Louis		Pedestrian, Underserved, Fail to Yield
22	0.53	Jennings Station Rd	West Florissant Ave to MO 115	2.65	St. Louis County	Jennings	MoDOT/St. Louis Co. Safety Design Build 2 (at Stratford)	Pedestrian, Underserved, Speeding, Fail to Yield, Improper Lane Use, Alcohol/Drug, Distraction
23	0.52	Kingshighway Blvd	West Florissant Ave to Cote Brilliante Ave	2.90	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield
24	0.50	West Florissant Ave	Woodstock Rd to Acme Ave	2.18	St. Louis County	St. Louis	2 separate projects that will include ped equipment upgrades at existing signals and bus pad upgrades.	Pedestrian, Underserved, Speeding, Fail to Yield
25	**0.5**	**MO 30**	**STL County/Jefferson Co. Limits to MO 141**	**1.19**	**St. Louis County**	**Fenton**	**Pavement Resurfacing and upgrade guardrail (FY 27)**	**Speeding, Alcohol/Drug**
26	**0.49**	**Dr. Martin Luthr King Dr**	**STL City/County Limits to Marcus Ave**	**2.63**	**City of St. Louis**	**St. Louis**		**Speeding**
27	**0.49**	**Lindell Blvd**	**N Euclid Ave to Olive St**	**2.46**	**City of St. Louis**	**St. Louis**		
28	**0.47**	**MO D (Page Ave)**	**Skinker Pkwy to N Hanley Rd**	**2.75**	**St. Louis County**	**Pagedale**	**MoDOT/St. Louis Co. Safety Design Build 2 (Pedestrian Push button Upgrade at Hanley)**	**Speeding**
29	0.45	Cass Ave	1st St to 20th St	1.57	City of St. Louis	St. Louis	RAISE Grant Application Submitted (not funded)	Pedestrian, Underserved, Speeding, Distraction
30	0.45	MO 366 (Chippewa St)	Childress Ave to City/County Line	1.35	City of St. Louis	St. Louis	City of STL ARPA-Chippewa Safety	Pedestrian, Fail to Yield

Priority List: Regional Pedestrian Corridors (Cont.)

#	Ped Wtd. KSI/Yr/Mi	Corridor Name	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects	Other Top 10% High-Injury Network List
31	**0.44**	**180 (St. Charles Rock Road)**	**I-70 WB Ramps to Taussig Rd**	**2.73**	**St. Louis County**	**Bridgeton**	**Also on Hot Spot List**	**Fail to Yield**
32	0.44	Broadway	Cass Ave to MO 100 (Chouteau Ave)	2.07	City of St. Louis	St. Louis	STL ARPA & TAP-Downtown Traffic Calming	Pedestrian
33	0.43	IL 3 (Mississippi Ave)	Jerome Ln to St. Monica Dr/ Ruby St	2.54	St. Clair	Cahokia		Pedestrian, Underserved, Speeding, Fail to Yield
34	0.41	MO 366 (Chippewa St)	Ridgewood Ave to Compton Ave	2.20	City of St. Louis	St. Louis		Pedestrian
35	0.41	Collinsville Rd	Black Ln/Fairmont Ave to Sand Prairie Rd	1.71	Madison/Nameoki Township	Collinsville/ Nameoki Township		Pedestrian, Speeding, Fail to Yield, Alcohol/Drug
36	**0.38**	**W State Route 161**	**IL 157 to Dutch Hollow Rd**	**3.12**	**St. Clair**	**Fairview Heights**		
37	**0.37**	**Hampton Ave**	**Watson Rd to Murdoch Ave**	**2.14**	**City of St. Louis**	**St. Louis**		
38	0.37	IL 157 (Camp Jackson Rd)	IL 3/Mississippi Ave to I-255	2.67	St. Clair	Cahokia	Resurfacing and ADA (25-30 MYP)	Pedestrian, Bikes, Underserved, Fail to Yield
39	**0.37**	**231 (Telegraph/ Broadway)**	**STL City/County Limits to S Broadway/Grant Road**	**1.60**	**St. Louis County**	**Lemay**	**Recent Road Diet Telegraph to W Ripa Ave**	**Speeding**
40	0.37	MO 267 (Lemay Ferry Rd)	River City Casino Blvd to Dumont Pl	2.15	St. Louis County	Lemay	Pavement Resurfacing and ADA FY25	Pedestrian, Speeding
41	0.37	Kingshighway Blvd	Cote Brilliante Ave to I-64 WB Ramps	2.99	City of St. Louis	St. Louis	City of STL ARPA resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield, Distraction
42	0.36	MO D (Page Blvd)	Laurel St to Taylor Ave	2.77	City of St. Louis	St. Louis	MODOT resurfacing & safety	Pedestrian, Underserved, Speeding, Fail to Yield

High-Injury Network Priority Lists (Cont.)

Region's Priority Interstate Corridor

HIN 5 – Interstates – Corridors was used as a base to generate the interstate priority list. The interstate priority list includes corridors that are one to three miles long and have at least 1.15 crashes per year per mile. These 23 corridors on the priority list represent the top 30% of the Region's corridors. The "ranking" of the interstates on the list is based on the number of fatal and serious crashes per year per mile. The second column shows the weighted score, the total number of fatal crashes along the corridor in parentheses, and the total number of serious injury crashes along the corridor in brackets. Any projects that have been constructed or planned along the corridors since 2018 are also shown in order to track progress that has been made since the crash data was obtained. Additionally, the table is color-coded by county, see legend below. Figure 75 shows the locations of the regional priority interstate corridors.

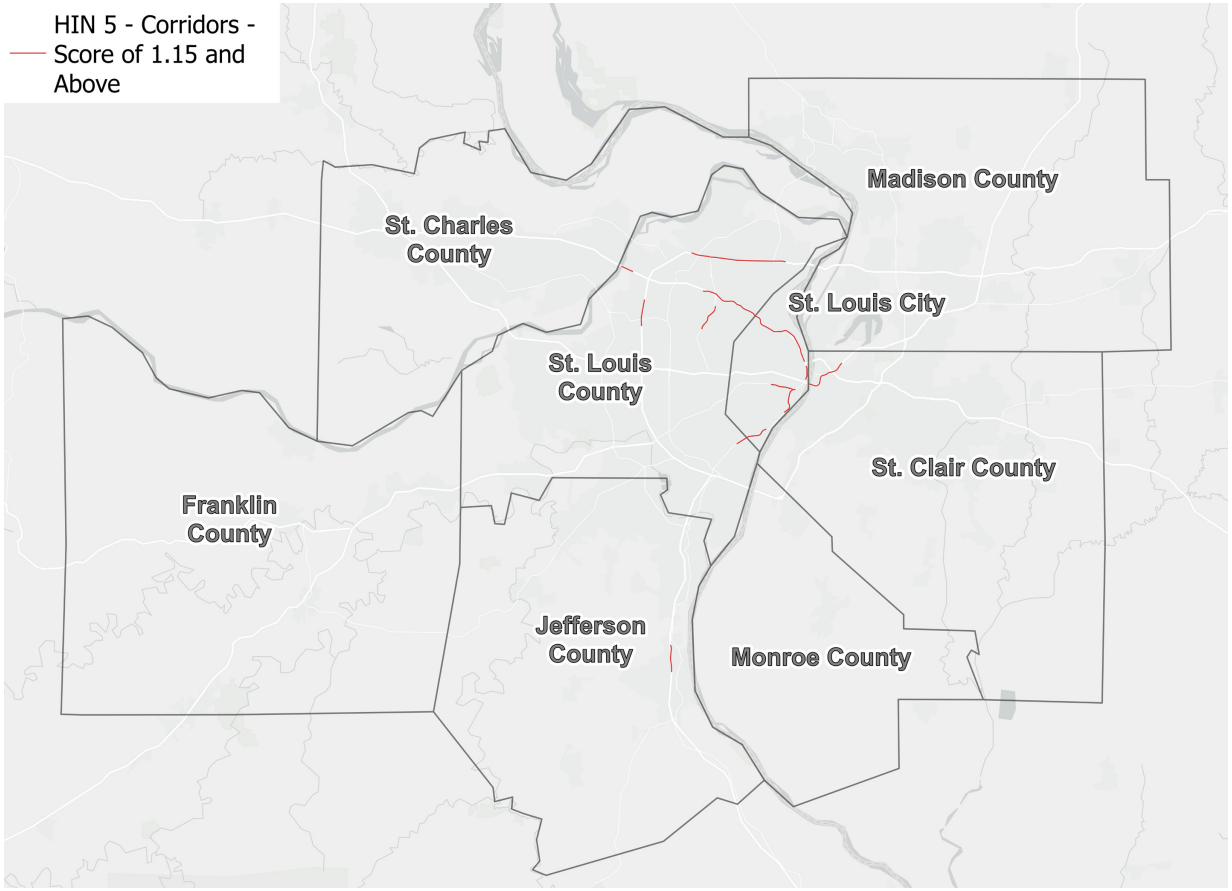


Figure 75. Regional Priority Interstate Corridors

Priority List Color Coding Legend	
	City of St. Louis
	Franklin County
	Jefferson County
	Madison County
	Monroe County
	St. Charles County
	St. Clair County
	St. Louis County

Priority List: Regional Interstate Corridors

#	Wtd. KSI/Yr/Mi (#Fatal) [#SI]	Interstate	Extents	Length (Mile)	County	Municipality	Recent/Planned Projects
1	4.93 (6) [22]	I-70	Union Blvd to Goodfellow	1.26	City of St. Louis	St. Louis	Striping Upgrades (FY 26)
2	3.88 (5) [21]	I-44	Walnut to Stan Musial Bridge	1.47	City of St. Louis	St. Louis	Striping upgrades and ADA
3	3.75 (10) [28]	I-70	Stan Musial Bridge to Grand Blvd	2.29	City of St. Louis	St. Louis	Striping Upgrades (FY 26)
4	2.8 (4) [13]	I-70	MO 141 (Maryland Heights Expy) to Blanchette Bridge	1.36	St. Louis County	Maryland Heights	I-70 Planning study Blanchette to Hanley Rd
5	2.38 (4) [24]	I-270	Washington/Elizabeth to Old Halls Ferry Road	2.52	St. Louis County	Unincorporated	I-270 North Design Build (Complete 2024)
6	2.33 (6) [17]	I-70	Grand Blvd to W Florissant Ave	2.23	City of St. Louis	St. Louis	Striping Upgrades (FY 26)
7	2.12 (1) [27]	I-70	Lucas and Hunt Rd to N Hanley Road	2.68	St. Louis County	Norwood Court	Striping Upgrades (FY 26)
8	2.11 (2) [23]	I-55/I-70 & I-55/I-64	Martin Luther King Bridge Split to IL 203	2.46	St. Clair	East St. Louis	Reconstruction/Resurfacing (25-30 MYP)
9	2.08 (4) [9]	I-55	W. of Bayless Ave to STL City/County Line	1.44	St. Louis County	Lemay	Structural Sign Replacement (FY 25) and Resurfacing and ADA Project
10	2.04 (1) [13]	I-70	Goodfellow to Lucas and Hunt	1.42	St. Louis County	Jennings	Striping Upgrades (FY 26)
11	1.73 (5) [12]	I-55	STL City/County Line to Virginia Ave/Michigan Ave	2.25	City of St. Louis	St. Louis	Structural Sign Replacement (FY 25) and Resurfacing and ADA Project
12	1.7 (5) [16]	I-70	N Hanley Road to MO 115 (Natural Bridge Rd)	2.76	St. Louis County	Berkeley	I-70 Planning study Blanchette to Hanley Rd
13	1.54 (2) [19]	I-55	Gasconade St to I-55/44 Merge	2.85	City of St. Louis	St. Louis	Structural Sign Replacement (FY 25) and Resurfacing and ADA Project
14	1.54 (2) [19]	I-270	S. of MO Route D (Page Ave) to N. of Dorsett Road	2.86	St. Louis County	Maryland Heights	MO 364 Bridge over I-270 Rehab project (FY 27)
15	1.53 (3) [15]	I-270	Old Halls Ferry Road to Bellefontaine	2.55	St. Louis County	Bellefontaine Neighbors	I-270 North Design Build (Complete 2024)
16	1.51 (4) [11]	I-70	W Florissant Ave to Union Blvd	2.25	City of St. Louis	St. Louis	Striping Upgrades (FY 26)
17	1.47 (4) [14]	I-270	Lindbergh Blvd to North Hanley/Graham	2.72	St. Louis County	Hazelwood	I-270 North Design Build (Complete 2024)
18	1.46 (2) [16]	I-270	North Hanley/Graham to Washington/Elizabeth	2.61	St. Louis County	Florissant	I-270 North Design Build (Complete 2024)
19	1.45 (1) [20]	I-170	MO 115 (Natural Bridge Rd) to MO Route D (Page Ave)	2.97	St. Louis County	Overland	Structural Sign Replacement (FY 26)
20	1.37 (1) [15]	I-55/I-64	IL/MO State Line to Martin Luther King Bridge Split	2.41	St. Clair	East St. Louis	Reconstruction (25-30 MYP)
21	1.37 (3) [14]	I-44	I-44/I-55 Merge to Grand Blvd	2.71	City of St. Louis	St. Louis	Striping Upgrades
22	1.2 (3) [13]	I-55	Route Z to Rotue A	2.92	Jefferson	Herculaneum	I-55 Design Build
23	1.15 (3) [12]	I-270	Marshall Road to North of Dougherty Ferry Road	2.88	St. Louis County	Kirkwood	

Safety Treatments

Based on the crash risk assessment performed for the EWG Region, there are three main risk areas for all roadways in the EWG Region. The deadliest factor is vehicles leaving their lane and/or leaving the roadway (**roadway departure**), which represents 47% of the fatal and serious injury crashes. The second riskiest category is **intersection-related** crashes, which represent 36% of fatalities and serious injuries. The third riskiest crash is **vulnerable road users** (pedestrians or bicyclists) being struck by a vehicle, which comprises 12% of the Region's fatal and serious injury crashes. By focusing on the three categories, approximately 95% of the non-interstate crashes would be considered. The following treatments should be considered to achieve significant reductions in fatal and serious injury crashes.

Roadway Departure Crashes

Addressing roadway departure crashes will help address the largest crash types in the EWG Region. Based on the fatal and serious injury crash data in the EWG Region from 2018 to 2022, roadway departure crashes represent 47% of all fatal and serious injury crashes. A roadway departure crash occurs when a vehicle crosses an edge line, centerline, or otherwise leaves the travelway. Roadway departure crashes include the following crash types: fixed object, head on, overturned, parked vehicle, and sideswipe crashes.

There are three main considerations for reducing roadway departure crashes[12]:

1. Keep vehicles on the roadway;
2. Provide safe recovery areas; and
3. Reduce crash severity.

The fatal and serious injury crash data for the EWG Region indicates approximately 62% of the rural crashes are roadway departure related. In the EWG Region, these crashes most often involve a single motor vehicle that leaves the roadway and strikes a fixed object.

FHWA reports an average of over 19,000 fatalities resulted from roadway departures from 2016 to 2018, making up over half of all traffic fatalities in the United States. As a result, FHWA has developed a list of countermeasures called "Proven Safety Countermeasures" with the intent to address roadway departure crashes. These, along with other safety countermeasures that have been used nationally, are summarized in the following pages. Provided is a description of the countermeasure, the types of crashes the countermeasure is intended to mitigate, typical application locations, and additional considerations for decision making.

Resources:

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

12 https://highways.dot.gov/safety/RwD

Enhanced Delineation for Horizontal Curves (Advance Warning Signs, Chevrons, Pavement Markings)

Enhanced delineation alerts drivers of upcoming curves, the direction of the curve, and the speed at which to travel. Several strategies can be implemented including pavement markings, chevron signs, advance warning signs, dynamic flashing warning systems, and more.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Roadway departure crashes	Any horizontal curve locations with high crashes. Specific signage and/or pavement markings may be more applicable to particular corridor types or geographic locations, but the general countermeasure is applicable across the roadway system.	Recommended to be applied systemically (e.g., target all locations with smaller curve radii, where intersections are along or adjacent to the curve, etc.) An incremental approach to countermeasures is often beneficial to avoid excessive costs.

Rumble Stripes

Rumble strips are milled elements on the pavement to alert drivers, through sound and vibration, that they have left the travel lane. Pavement markings can be painted over the strips to make them more visible. Rumble strips are called rumble stripes when pavement markings are painted over the rumbles, and are generally the preferred method in the EWG Region.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Roadway departure crashes	Most commonly used on higher-speed two-lane roadways, particularly in lower-density/rural areas.	Generally, not recommended in higher-density residential areas because of the noise they generate. FHWA asserts that there is no evidence to support that rumble strips deteriorate pavement more quickly or that ice/snow/rain buildup has caused issues.

Median Barriers

Median barriers are longitudinal barriers that separate opposing traffic to prevent collisions into opposing traffic when vehicles swerve into the median. Median barriers can be cable barriers, metal-beam guardrails, or concrete barriers.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Roadway departure, particularly head-on crashes	Moderate-to-high-speed divided highways. Typically used on higher-volume highways but can be effective on any highway where cross-median crashes occur. Raised median barriers can minimize fixed object strikes in suburban/urban areas.	Cable barriers work well in locations with adequate median width. Metal-beam guardrails or concrete barriers can be used where median space is more limited.

Roadside Design Improvements at Curves

Roadside design treatments can be used to target the high risk of roadway departure along the outside of horizontal curves, including added or widened shoulders, a widened clear zone to provide the opportunity to regain control of a vehicle, or flattened side slopes.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Roadway departure crashes	Any horizontal curve location with high crashes, particularly in locations with higher speeds and fixed objects along the edge of the roadway, or where there is a drastic change in elevation.	Not all roadside hazards can be eliminated through design improvements and expanding recovery zones, so installing barriers could still be the preferred solution for areas where fixed objects or steep embankments exist.

SafetyEdge℠

SafetyEdge℠ reduces the risk of edge drop-offs by shaping the edge of the pavement with a 30-degree angle to provide a gentle slope, preventing a vehicle from becoming unstable.

Crash Type	*Typical Locations*: **Rural Areas**	*Additional Considerations*
Roadway departure crashes	Roadways without curbs and guardrails. These are typically prioritized on rural routes and higher-speed roadways but universally recommended on uncurbed roads.	SafetyEdge℠ will wear over time due to erosion, settling, and tire wear, but still will provide a gentler slope for when roadway departures occur.

Wider Edge Lines

Wider edge lines are increased from a normal width of 4 inches to a maximum normal width of 6 inches to improve the visibility of the edge of the road.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Roadway departure crashes	All conditions: freeways, divided and undivided multi-lane highways, and two-lane highways. Have been proven most effective on rural two-lane highways. Can be especially useful on roads with narrow shoulders.	Wider edge lines may also provide better guidance for automated and connected vehicle sensors as those technologies advance.

Speed Feedback Signs

Speed feedback signs provide a visual display of the speed of a vehicle compared to the speed limit. They bring driver awareness to the difference in operating and posted speed and can be effective in influencing driver behavior to reduce speeding.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Roadway departure crashes	Horizontal or vertical curves, and locations where studies indicate speeding is an issue.	Speed reductions from speed feedback signs are maintained only through short distances and therefore should not be considered a speed enforcement solution at a corridor level.

In-Lane Curve Markings

In-lane curve markings provide essential information directly related to drivers' safe negotiation of curves. The marking supplements the curve warning sign with advisory speed plaque, by providing the same information in the driver's direct line of sight, emphasizing the message to the driver. They are a supplement to signing and edge line striping.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Roadway departure crashes	More appropriate for higher speed roads where the curve advisory speed is significantly lower than the posted speed, curves where crash reports or studies indicate speed-related issues.	NCHRP Report 600 contains design guidelines as to which markings are effective in reducing speeds at horizontal curves and which markings are not as effective.

Retroreflective Post Strips/Markers

Retroreflective post strips and markers provide additional delineation for signposts to increase visibility and awareness. They can contribute to a safer driving environment, particularly under low-light conditions.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Fixed object crashes	Any location where signs are being struck repetitively at night.	Be sure to coordinate with owners of the fixed object.

Wet Reflective Pavement Markings

Wet reflective pavement markings contain reflective beading that improves visibility and awareness of lanes under wet and dark conditions, conditions under which vehicles are more susceptible to crashes.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Roadway departure & wet crashes	Any location that pavement markings are difficult to see during wet and night conditions.	The maintenance of the pavement marking should be considered since the wet-reflective material is more expensive than standard paint. They are generally milled into the pavement to increase durability.

Recessed Pavement Markers

Recessed pavement markers enhance driver safety by providing nighttime retroreflectivity, especially during wet weather conditions. They sit below the pavement surface to avoid snow plows. They pair well with wet reflective pavement markings.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Roadway departure & wet crashes	Any location that pavement markings are difficult to see during wet and night conditions.	Grind a groove into the road that tapers down at an angle allowing for reflection. The marker is then put into the groove with epoxy.

Safety Treatments (Cont.)

Intersection Crashes

Intersecting roadways are necessary to connect people driving, walking, and bicycling from one route to another. However, where roads intersect and paths cross, the resulting conflict points create circumstances where crashes can occur. In fact, each year roughly one–quarter of traffic fatalities and about one–half of all traffic injuries in the United States are attributed to intersections.[13] That is why intersections are a national, state, and local road safety priority, and a program focus area for FHWA.

The EWG Region generally follows the national trend with intersection related crashes representing the second highest crash type that resulted in death and serious injury crashes. Based on the crash data in the EWG Region from 2018 to 2022, the intersection related crashes represent approximately 38% of all the total fatal and serious injury crashes. Intersection related crash types include turning, angle, and rear end crashes.

A Safe System Approach to intersection design can include strategies such as:

1. Minimizing and modifying conflict points
2. Reducing speed of vehicles
3. Improving visibility at intersections
4. Providing space and protection for pedestrians and bicyclists

FHWA Proven Safety Countermeasures for intersections, along with other safety countermeasures that have been used nationally, are summarized in the following pages. Provided is a description of the countermeasure, the types of crashes the countermeasure is intended to mitigate, typical application locations, and additional considerations for decision making.

Resources:

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

FHWA Signalized and Unsignalized Intersection Strategies (https://safety.fhwa.dot.gov/intersection/stop/fhwasa15085.pdf)

13 https://highways.dot.gov/safety/intersection-safety/about

Signal Backplates with Retroreflective Borders

A backplate with a retroreflective border makes a traffic signal head more visible to drivers, especially those drivers who are older or deficient in color vision.

Crash Type

All signalized intersection crash types

Typical Locations: **Rural and Urban Areas**

Any signalized intersection. FHWA recommends making this a standard treatment for all signals within a jurisdiction.

Additional Considerations

This can also be useful by improving an intersection's conspicuity during power outages and in night-time or dark driving conditions. Agencies should consider the existing signal support system to ensure its design is sufficient to support the additional wind load.

Corridor Access Management

Access management is a set of techniques to manage entry and exit points along a roadway. It improves safety for all users, reduces conflict points, reduces congestion, minimizes traffic delay, and facilitates bicycle and pedestrian movements.

Crash Type

Various crashes caused by vehicles entering and exiting the dominant roadway

Typical Locations: **Rural and Urban Areas**

An important consideration for most locations, but particularly on suburban corridors with significant commercial development and a high number of ingress/egress points. Should especially be considered on multi-lane arterial roadways.

Additional Considerations

Successful access management must balance the overall safety and mobility of all users with the needs of adjacent land uses.

Dedicated Turn and Acceleration Lanes at Intersections

Dedicated turn and acceleration lanes at intersections separate turning traffic from through traffic, reduce crashes, and improve traffic flow. Left and right turning lanes can also store vehicles that are stopped and waiting to turn.

Crash Type

Intersection-related crashes, particularly side-impact, angle, and rear-end crashes

Typical Locations: **Rural and Urban Areas**

Most locations where significant turning volume exists and where there is a history of turn-related crashes. Offset turn lanes are particularly effective on higher-speed, high-volume corridors.

Additional Considerations

The safety and convenience of pedestrians and bicyclists should be considered. Additional turning lanes, especially offset turning lanes, will lengthen crossing distances for these users.

Reduced Left-Turn Conflict Intersections (J-Turns, Superstreets)

J-turns or superstreets restrict minor road traffic to making a right turn on a high-speed or high-volume corridor, followed by a U-turn at a designated location. The designated location for the U-turn can be signalized or unsignalized.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Head-on and angle crashes	High-volume arterial corridors. Most commonly used on higher-speed suburban and rural multi-lane corridors but has been shown to be effective even on some urban applications and corridors with multimodal usage.	Studies have demonstrated that there are often measurable travel time improvements where this is applied. They can create more crossing opportunities for bicyclists and pedestrians. They also can be an effective and less-expensive alternative to constructing an interchange.

Roundabouts

The modern roundabout is an intersection with a circular configuration that safely and efficiently moves traffic. Roundabouts feature channelized, curved approaches that reduce vehicle speed. The one-direction counterclockwise flow around a central island minimizes conflict points and crash severity. The net result of lower speeds and reduced conflicts at roundabouts is an environment where crashes that cause injury or fatality are substantially reduced.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
All crash types, particularly angle and turning crashes	Applicable in both urban and rural areas under a wide range of traffic conditions, but the typical footprint of a roundabout is larger than standard intersection.	Roundabouts can replace two-way stop controls, all-way stop controls and sometimes traffic signals. They are an effective option for managing speed and transitioning traffic from high-speed to low-speed environments.

Yellow Change Intervals

The yellow change interval is the time between a green light and a red light at a signalized intersection. It warns drivers that the green light is ending, and a red light will follow soon.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
All crash types, particularly rear-end crashes	Optimized systemically at all signalized intersections.	The appropriate yellow change interval considers factors like approaching vehicle speed, driver reaction time, vehicle deceleration rates, and intersection geometry. Transportation agencies can utilize Automated Traffic Signal Performance Measures (ATSPMs) for continuous monitoring and data-driven adjustments.

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

Signage upgrades include double-up, oversized advance warning signs with street names for approaching drivers, and oversized stop signs. Additionally, all signs and posts should be outfitted with retroreflective sheeting to enhance nighttime visibility. Pavement markings measures like enhanced lane delineation on the through approach to clearly define lanes, properly placed stop bars to indicate the stopping position, and the removal of sight obstructions that might impede driver visibility. Double arrow warning signs can be optionally installed at T-intersections for added clarity.

Crash Type

All crash types, particularly, nighttime crashes, and high severity crashes.

Typical Locations: **Rural and Urban Areas**

Any stop-controlled intersection.

Additional Considerations

A systemic application is recommended to strategically deploy a combination of inexpensive signage and pavement marking upgrades at a large number of stop-controlled intersections within a jurisdiction. The goal is to enhance driver awareness and recognition of these intersections and potential conflicts that might arise.

Modified Right-Turn Lane Design (a.k.a. "Australian Right")

Modified right-turn lane design improves the line of sight for vehicles turning right at signalized and unsignalized intersections.

Crash Type

Right-turn crashes

Typical Locations: **Rural and Urban Areas**

Intersection with channelized right-turn lanes and head-turn angles greater than 140 degrees. Reducing the head turn angle to 115 degrees by modifying the channelized island improves site lines for conflicting traffic and pedestrians.

Additional Considerations

The design should ensure that large vehicles can track through the intersection. Verify that the modified island is large enough to accommodate pedestrians.

Flashing Beacon Stop Sign

Flashing beacon stop signs are a safety treatment that utilizes red flashing lights to draw attention to stop signs, particularly at intersections with a history of crashes.

Crash Type

Turning and angle crashes

Typical Locations: **Rural and Urban Areas**

Stop-controlled intersections with a history of angle crashes. Also, agencies may use flashing beacon stop signs in intersections with poor sight distances due to obstructions, curves, or other factors.

Additional Considerations

Flashing beacon stop signs should comply with the MUTCD for placement, light color, flash pattern, and other specifications. Overhead beacons are mounted on a structure above the intersection, making them ideal for locations with poor visibility or complex layouts.

Flashing LED Stop Sign

Flashing LED stop signs are a technology that incorporates light emitting diodes (LEDs) around the perimeter of a stop sign or its lettering. These LEDs significantly enhance the sign's conspicuity, making it more noticeable to drivers, day, or night. The flashing pattern can be constant or triggered by sensors detecting approaching vehicles.

Crash Type

Turning and angle crashes

Typical Locations: **Rural and Urban Areas**

This can be used at intersections with limited sight distances (due to obstructions, curves, etc.), intersections with a history of crashes higher-than-average. Also, intersections with nighttime traffic, especially for older drivers.

Additional Considerations

Flashing LED stop signs should comply with the MUTCD for size, color, flash pattern, and other specifications. Agencies can consider locations where a stop sign is not expected or where there are documented problems of failure to recognize an intersection.

Intersection Conflict Warning System (ICWS)

Intersection Conflict Warning Systems (ICWS) use signs and flashing lights to warn drivers of approaching traffic at side-street stop-controlled intersections. The ICWS uses vehicle detectors, signing, and flashing lights to notify drivers when there is an approaching or waiting vehicle.

Crash Type

Turning, angle, sideswipe, and overturn crashes

Typical Locations: **Rural Areas**

This is applicable in rural two-way stop-controlled intersections with a history of crashes.

Additional Considerations

The effectiveness of ICWS relies on proper sensor placement and clear, understandable signage. Agencies should refer to the Manual on Uniform Traffic Control Devices (MUTCD) for installation and signage guidelines.

Install Traffic Signal (if warranted)

Installing a traffic signal at an unsignalized intersection can improve the safety by providing adequate gaps for vehicles on the side street.

Crash Type

Turning and angle crashes

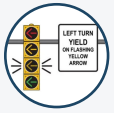
Typical Locations: **Rural and Urban Areas**

Unsignalized intersections experiencing a large number of angle and turning crashes when other countermeasures have failed.

Additional Considerations

An engineering study should be performed to verify that a traffic signal is the correct solution. Agencies should refer to the MUTCD Signal Warrants (Chapter 4C) to determine if a traffic signal is warranted.

Flashing Yellow Arrow Left-Turn Phasing



Flashing yellow arrow left-turn signals are a type of traffic light featuring a flashing yellow arrow in addition to the standard red, yellow, and green indications. This arrow allows drivers to make left turns after yielding to oncoming traffic and pedestrians.

Crash Type

Left-turn crashes

Typical Locations: **Rural and Urban Areas**

Agencies can use flashing yellow arrows at locations where traditional "yield-on-green" signals cause confusion or hesitation for left-turning drivers.

Additional Considerations

While flashing yellow arrows can be used at nearly any intersection, they are most effective at lower-speed locations where yielding left-turns are permitted. Adequate sight distance is a requirement for flashing yellow arrows.

Protected Only Left-Turn Phasing

During protected left-turn phasing (steady green arrow) turning vehicles have the right of way. Conflicting drivers, cyclists and pedestrians are stopped. Once the steady green arrow ends, left turns are not permitted. Drivers must stop and wait until the steady green arrow re-activates.

Crash Type

Left-turn crashes

Typical Locations: **Rural and Urban Areas**

Locations for protected only phasing can be selected and prioritized for this safety improvement based on the frequency of fatal and severe left turn crashes.

Additional Considerations

Capacity and operations should also be checked to ensure that the phasing does not lead to unintended safety issues due to vehicle queues extending out of storage bays and creating rear-end problems.

Additional Signal Head for Improved Visibility

Additional signal heads may be beneficial at certain locations where the road curves before an intersection or where obstructions block standard signal head locations.

Crash Type

All crash types

Typical Locations: **Rural and Urban Areas**

Any location where it is difficult to see the signal heads approaching the intersection.

Additional Considerations

Agencies should refer to the MUTCD for installation guidelines.

Dynamic Signal Warning Flashers (DSWF)

DSWF are traffic safety devices connected to the traffic signal system that activate flashing lights, typically "be prepared to stop," in advance of the intersection to alert drivers the upcoming signal is about to change from green to yellow to red.

Crash Type

All crash types, particularly rear-end and angle crashes

Typical Locations: **Rural and Suburban Areas**

Intersections where a traffic signal may not be expected.

Additional Considerations

DSWF should be properly timed based on factors like approach speed, sight distances, and driver reaction times. They are most effective when used in conjunction with other safety measures like high-visibility signal heads and proper pavement markings.

Red Light Running Cameras

Red light running cameras can be used as an effective and reliable technology to supplement more traditional methods of enforcement, engineering measures, and education to decrease red light running. Red light running cameras capture photographic or video evidence of vehicles that are violating red time at a signalized intersection.

Crash Type

All crash types, particularly angle crashes

Typical Locations: **Rural and Urban Areas**

Intersections that have problems with angle crashes.

Additional Considerations

Public trust is essential. With proper controls in place, they can offer fair and equitable enforcement. Agencies should conduct a legal assessment and policy review to determine if they are authorized within a jurisdiction and how the authorization and other traffic laws will affect a red light camera program. It is critical to ensure that proper traffic signal change intervals (yellow and all red time) are in place to avoid creating conditions where it is difficult for motorists to stop in time before a light turns red.

Traffic Detection

Traffic signal detection allows traffic signal timing to be responsive to traffic demands. The traffic signal detector notifies the traffic signal controller of waiting/ approaching vehicles so that the signal can serve waiting vehicles and avoid long wait times when conflicting traffic is not present.

Crash Type

All crash types

Typical Locations: **Rural and Urban Areas**

Signalized intersections that are a part of an actuated or traffic responsive traffic signal control system.

Additional Considerations

Traffic detectors must be maintained to be effective. Traffic detection that is not maintained can cause long delays and erode the driver's respect for the traffic signal control.

Safety Treatments (Cont.)

Vulnerable Road Users (VRU) Crashes

Addressing pedestrian and bicycle crashes will help address the third largest crash type in the EWG Region. Pedestrians and bicyclists are the most vulnerable road users since they are not protected by a vehicle. Based on the fatal and serious injury crash data in the EWG Region from 2018 to 2022, pedestrian and bicyclist crashes represent approximately 19% of all fatal crashes and 14% of all fatal and serious injury crashes. The data also shows that nearly 65% of fatal and serious injury pedestrian-involved crashes occur during dark conditions.

Based on this staggering number, attempting to make pedestrians more visible should be a priority. These statistics highlight the urgent need for measures that improve safety for pedestrians and bicyclist visibility, particularly during dark conditions. Strategies may include improved street lighting in high-crash corridors, encouraging the use of reflective gear by pedestrians and cyclists, and implementing crosswalk lighting with better pedestrian visibility features. While improving visibility is crucial, a comprehensive approach is necessary to address pedestrian and bicycle safety. This may involve infrastructure improvements like dedicated bike lanes, pedestrian walkways, and traffic signal optimization for better pedestrian crossing times. By implementing various countermeasures recommended by FHWA to improve pedestrian and bicycle safety, the EWG Region can work towards creating safer roads for all.

The primary resource for addressing pedestrian and bicycle crashes involves adhering to the guidelines outlined in the Safe Transportation for Every Pedestrian (STEP) initiative. These guidelines assist in determining suitable crossing types and safety countermeasures, which should be considered based on the characteristics of the specific roadway.

FHWA Proven Safety Countermeasures for vulnerable road users, along with other safety countermeasures that have been used nationally, are summarized in the following pages. Provided is a description of the countermeasure, the types of crashes the countermeasure is intended to mitigate, typical application locations, and additional considerations for decision making.

Resources:

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

FHWA STEP Initiative (https://highways.dot.gov/safety/pedestrian-bicyclist/step)

PedBikeInfo (https://www.pedbikeinfo.org/)

Tools to Diagnose and Solve the Pedestrian/Bike Safety Problem (https://highways.dot.gov/safety/pedestrian-bicyclist/safety-tools/tools-diagnose-and-solve-problem)

PedSafeCountermeasures (http://www.pedbikesafe.org/pedsafe/countermeasures.cfm)

BikeSafeCountermeasures (http://www.pedbikesafe.org/BIKESAFE/countermeasures.cfm)

Crosswalk Visibility Enhancements

Crosswalk visibility enhancements include enhanced striping, signage, and lighting to improve pedestrian crossing safety. They include high-visibility crosswalk markings, in-street signing, and advanced warning signage to make drivers more aware of pedestrians.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Pedestrian involved crashes	Enhanced crosswalks and lighting can be implemented anywhere pedestrian traffic exists or could exist. Multi-lane arterials typically demand more robust enhancements. Signage within the street is most effective on lower-speed roads.	Agencies can implement these features as standalone or combination enhancements to indicate the preferred location for users to cross. See FHWA's STEP for guidance.

Bicycle Lanes

Bicycle lanes are designated portions of the roadway marked with pavement markings and signage for the exclusive use of bicyclists.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Bicyclist involved crashes	Recommended on a large variety of road locations and functional classifications where bicycle traffic is already high or where cycling is encouraged.	Lanes separated from roadway using a lateral offset and buffer provide added effectiveness. Generally, the more removed bicycles are from the travel lanes, the better. Rumble strips can negatively affect bike lanes.

Leading Pedestrian Interval

A leading pedestrian interval is an adjustment to signal timing that gives crosswalk users three to seven seconds to enter the crosswalk before vehicles are given a green light. This time allows pedestrians to enter the crosswalk and removes confusion as to whether the pedestrian or motorist has the right-of way.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Pedestrian/turning vehicle crashes	Intersections with high pedestrian traffic. Can be especially effective for older adults and persons with disabilities who require more time to cross.	This countermeasure can be employed at a low cost.

Medians and Pedestrian Refuge Islands

Medians and pedestrian refuge islands provide a defined area between opposing lanes of traffic to separate motorized and non-motorized users. A pedestrian refuge island is intended to protect non-motorized road users while they are crossing the roadway.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Pedestrian involved crashes	Roadways with a significant mix of pedestrian and vehicle traffic, traffic volumes over 9,000 vehicles per day, and travel speeds 35 mph or greater.	The width of refuge islands must be at least 4 feet, but 8 feet or wider is optimal for pedestrian comfort. Refuge islands can be defined simply through pavement markings, but raised medians or islands allow for increased pedestrian buffering from vehicular traffic.

Pedestrian Hybrid Beacons (a.k.a. HAWK Signals)

Pedestrian hybrid beacons are used at midblock crossings, or intersections without signals. With two red lights above a yellow light, it is activated by a pedestrian to stop vehicular traffic and allow the pedestrian the right-of-way.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Pedestrian involved crashes	Locations where it is difficult for pedestrians to cross a roadway, such as when gaps in traffic are not sufficient or speed limits exceeding 35 mph. They are effective on multi-lane arterials and where daily traffic volumes exceed 9,000 vehicles.	Agencies should refer to the MUTCD for Pedestrian Hybrid Beacon warrants, design, and operations. Agencies should conduct education and outreach before installation in areas where this concept is unfamiliar.

Rectangular Rapid Flashing Beacons (RRFBs)

Rectangular rapid flashing beacons (RRFBs) have two rectangular-shaped yellow lights that, when activated, flash to warn drivers of crossing pedestrians.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Pedestrian involved crashes	Applicable in many areas with high pedestrian volumes, but particularly effective on roadways with speed limits of 40 mph or lower.	It can be activated through pushbuttons or passive (e.g., video, infrared) pedestrian detection. RRFBs can be effective at increasing motorist yield rates.

Road Diets (Roadway Reconfiguration)

Road diets (roadway reconfiguration) is the restriping of a road to reduce the number of dedicated through vehicle lanes. Restriping slows travel speeds and allows for the addition of facilities for alternative purposes, such as a center turn lane, bicycle lanes, on-street parking, transit stops, and pedestrian refuge islands.

Crash Type

Pedestrian involved, rear-end, left-turn, and right-angle crashes

Typical Locations: **Rural and Urban Areas**

Multi-lane roadways, typically in urban or suburban areas where pedestrian and/or bicycle traffic exists or could exist. Traffic studies are required to ensure that the reconfigured roadway has the capacity for anticipated travel volumes.

Additional Considerations

A road diet can be a low-cost safety solution when planned in conjunction with a simple pavement overlay, and the reconfiguration can be accomplished at little to no additional cost.

Walkways

Walkways are any defined path meant to be used by pedestrians, including sidewalks, shared-use paths, and roadway shoulders.

Crash Type

Pedestrian involved crashes

Typical Locations: **Rural and Urban Areas**

Any non-freeway roadway location.

Additional Considerations

Complete and well-maintained walkway systems are needed to provide for the mobility needs of pedestrians. Poorly maintained walkways and gaps in the walkway system can cause particular challenges for pedestrians. Pedestrian scale lighting should be considered, especially in areas without ambient lighting from adjacent development.

Curb Extensions (a.k.a. Bulb Outs)

Curb extensions, or bulb outs, provide a refuge area for pedestrians adjacent to the curb, providing a shorter crossing distance for pedestrians and improved visibility between motorists and pedestrians.

Crash Type

Pedestrian involved crashes

Typical Locations: **Rural and Urban Areas**

Commonly installed in high pedestrian areas and locations with on-street parking.

Additional Considerations

Drainage is usually the most significant determinant of costs.

Raised Crosswalks or Intersections

A raised crosswalk or a raised intersection creates a safe, slow vehicle crossing. The raised pavement reinforces slow speeds and encourages motorists to yield to pedestrians at the crosswalk.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Pedestrian involved crashes	Areas with low traffic speeds and a high number of pedestrian crossings.	Coordinate design with emergency services to minimize potential disruptions. Ensure that stormwater management is accommodated in design.

Pedestrian Countdown Timers

Pedestrian countdown timers improve safety by informing pedestrians how much time they have before their green phase ends.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
Pedestrian involved crashes	Signalized intersections with pedestrian facilities.	Updated and/or additional signal equipment may be needed to accommodate the countdown timers.

Hardened Centerline

Hardened centerlines discourage high-speed turns by extending a low median island with rumble strips into the intersection, helping to guide traffic. This helps to reduce vehicle turning speed and increase vehicle yielding to pedestrians.

Crash Type	*Typical Locations*: **Urban Areas**	*Additional Considerations*
Pedestrian involved, and left-turn crashes	Can be considered at intersections with a history of pedestrian crashes, and locations without dedicated left-turn phases.	The turning paths of the design vehicle (trucks/buses) as well as roadway maintenance activities like snow removal and street sweeping must be considered when designing this in-street infrastructure.

Safety Treatments (Cont.)

Strategies for Multiple Focus Areas

There are also countermeasures that cross over into multiple focus areas that are consistent with the Safe System Approach. FHWA refers to these as "crosscutting." These countermeasures attempt to address several focus areas with the same treatment and can be applied to numerous conditions. Additionally, speed was identified as the most significant contributing factor in the fatal and serious injury crashes in the EWG Region. FHWA has also identified some proven safety countermeasures to control speeds and reduce the severity of crashes.

FHWA Proven Safety Countermeasures for "crosscutting" and speed management are summarized in the following pages. Provided is a description of the countermeasure, the types of crashes the countermeasure is intended to mitigate, typical application locations, and additional considerations for decision making.

Resources:

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

It should be noted that not every countermeasure or treatment can be included in the recommendations included herein, but FHWA does maintain the **Crash Modification Factors Clearinghouse** (https://www.cmfclearinghouse.org/), which provides a searchable database of Crash Modifications Factors (CMFs) along with guidance and resources on using CMF in road safety practice. This database is continually updated and is considered the most up-to-date location to find information on the latest safety treatments. Agencies can use the website to expand the list of applicable treatments to address their specific safety issues or concerns

Lighting

Lighting plays a critical role in reducing roadway crashes at night. Proper lighting on roadways and intersections significantly improves the visibility for pedestrians, cyclists, and obstacles to drivers.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
All nighttime crashes	Agencies should consider providing lighting based on factors such as a history of nighttime crashes, traffic volume, the volume of non-motorized users, and/or the presence of crosswalks and transit stops.	Agencies can improve nighttime visibility through strategic placement of lighting. Lighting installations should have breakaway features, be shielded, or placed far enough from the roadway to reduce the probability and/or severity of fixed-object crashes.

Pavement Friction Treatments (High-Friction Surface Treatment, Diamond Grinding, Grooving)

Measuring, monitoring, and maintaining pavement friction can prevent many roadway departure, intersection, and pedestrian related crashes. High Friction Surface Treatment (HFST) is a very effective example of improving pavement friction.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
All crash types, particularly wet crashes	Most commonly used in curves, but also effective on interchange ramps, intersection approaches, steep grades, crosswalk approaches, and locations with a history of rear-end, failure to yield, wet-weather, or red-light-running crashes.	Installation cost can be reduced when bundling installations at multiple locations. If the underlying pavement structure is unstable, then the HFST life cycle may be shortened, resulting in pre-mature failure.

Road Safety Audits

Road safety audits (RSAs) are performed by a multidisciplinary team independent of the project. RSAs consider all road users, account for human factors and road user capabilities, are documented in a formal report, and require a formal response from the road owner.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
All crash types	RSAs can be performed in any phase of project development, from planning to construction. However, agencies are encouraged to conduct an RSA at the earliest stage possible, as all roadway design options and alternatives are being explored.	High crash corridors and intersections are great locations to perform RSA to get a full understanding of the relevant issues and potential safety countermeasures.

Local Road Safety Plan

A local road safety plan (LRSP) provides a framework for identifying, analyzing, and prioritizing roadway safety improvements on local roads. The LRSP development process and content are tailored to local issues and needs.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
All crash types	Developing an LRSP is an effective strategy to improve local road safety for all road users and support the goals of a State's overall Strategic Highway Safety Plan (SHSP).	Local road agencies should consider developing an LRSP to be used as a tool for reducing roadway fatalities, injuries, and crashes. LRSPs can help agencies create a prioritized list of improvements. The plan should be viewed as a living document that can be updated to reflect changing local needs and priorities.

Appropriate Speed Limits for All Road Users

Establishing safe speed limits is a crucial strategy to reduce crashes, especially those involving vulnerable road users like pedestrians and bicyclists. Speeding is a major contributing factor in fatal and serious injury crash.

Crash Type	*Typical Locations*: **Rural and Urban Areas**	*Additional Considerations*
All crash types	All Roadways with a focus on areas with high pedestrian and bicycle activity, history of crashes, closely spaced intersections, and complex road geometry.	Agencies should consider a range of factors when setting speed limits such as: pedestrian and bicyclist activity, crash history, land use context, intersection spacing, driveway density, roadway geometry, roadside conditions, roadway functional classification, traffic volume, and observed speeds. Other speed management strategies should also be considered, such as: self-enforcing roadway design, traffic calming measures, speed safety cameras.

Speed Safety Cameras

Speed Safety Cameras (SSCs) can be used as an effective and reliable technology to supplement more traditional methods of enforcement, engineering measures, and education to alter the social norms of speeding. SSCs use speed measurement devices to detect speeding and capture photographic or video evidence of vehicles that are violating a set speed threshold.

Crash Type

All crash types, particularly speeding related crashes

Typical Locations: **Rural and Urban Areas**

Agencies should conduct a network analysis of speeding-related crashes to identify locations to implement SSCs. The analysis can include scope (e.g., widespread, localized), location types (e.g., urban/suburban/rural, work zones, residential, school zones), roadway types (e.g., freeways, arterials, local streets), times of day, and road users most affected by speed-related crashes (e.g., pedestrians, bicyclists).

Additional Considerations

Public trust is essential. With proper controls in place, SSCs can offer fair and equitable enforcement for any type of enforcement. Agencies should conduct a legal assessment and policy review to determine if SSCs are authorized within a jurisdiction and how the authorization and other traffic laws will affect a SSC program. Agencies should develop an SSC program plan with consideration of the USDOT SSC guidelines for planning, public involvement, stakeholder coordination, implementation, maintenance, evaluation, etc.

Safety Treatment Implementation

This section describes how to use the data from the safety analysis to guide your project development process. Four main steps were identified:

1 Project Identification → **2 Safety Analysis** → **3 Countermeasure Selection** → **4 Funding**

Project Identification	Safety Analysis	Countermeasure Selection	Funding
Use the high-injury network results to identify sites. Start by focusing on the top 10% tier for corridors, intersections, and segments.	Obtain and analyze crash data. Do a field visit and/ or RSA and engage with stakeholders to understand the safety issues.	Review proven countermeasures to address safety issues. Develop planning level costs and benefit to cost ratios. Determine a preferred solution(s).	Depending on the cost and need for additional funding, apply for funding. Many different safety funding sources are available.

1 Project Identification

Agencies should use the high-injury networks as the first step of identifying locations that are experiencing the highest number of fatal and serious injury crashes. The high-injury networks can help prioritize locations for more detailed investigation. The top 10% tier, designated as red in the map shown in Figure 76, identifies the corridors, segments, and intersections that would most benefit from additional safety investigations. Agencies should focus on the top 10% first, then the top 25%, etc. While these high-injury networks represent opportunities for improvements to high severity locations, agencies should go to the next step to further understand the issues and then to select appropriate countermeasures.

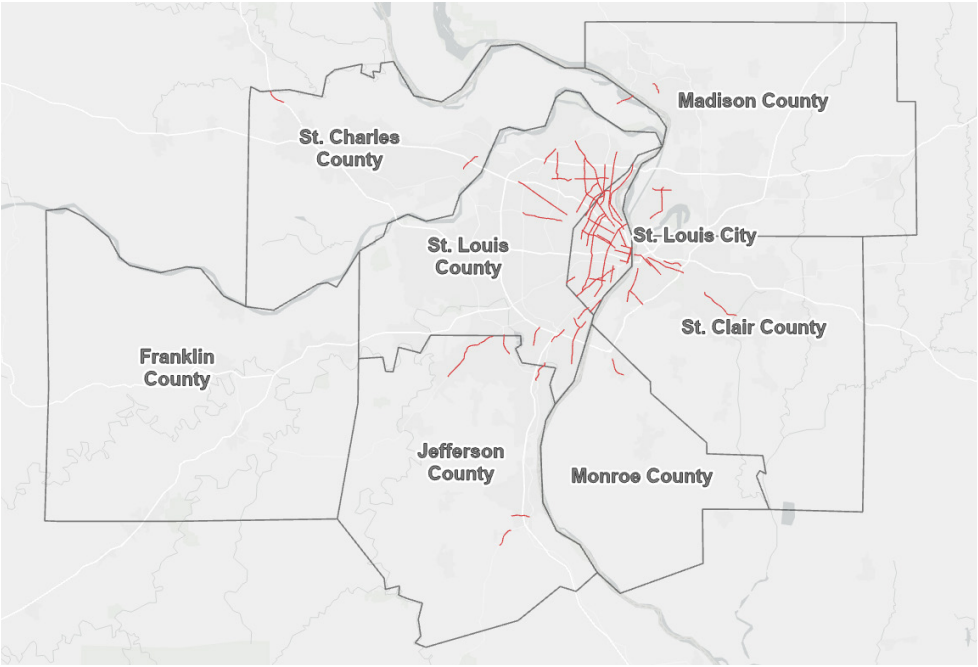


Figure 76. Top 10% Corridors of HIN 1 - All Modes

To view the maps visit: www.ewgateway.org/gtsr.

2 Safety Analysis

Agencies should next gather and review crash reports for the high-injury network study area. Crash reports can be obtained from either IDOT[14] or MoDOT[15], even if on a local roadway. The crash reports help to diagnose why crashes are happening, which is important in selecting countermeasures. Agencies can best target appropriate countermeasures once they understand why crashes are happening at a particular location. Additionally, safety funding typically requires a detailed diagnosis of the crashes, severe and fatal crashes at a minimum, as well as contributing factors.

When reviewing crash data, confirm each crash by reviewing its attributes and location. Then develop crash summaries to identify crash patterns and contributing factors. Common summaries include the number and percent of crashes by collision type, crash severity, time of day, day of week, weather condition, and light condition. Collision diagrams can also be generated to help identify crash patterns. An example collision diagram is shown in Figure 77. Also, gather documents such as construction plans and design criteria, maintenance logs, weather patterns, and recent traffic studies, if available. Involve local stakeholders to obtain additional perspectives on crash history and site conditions. A Road Safety Audit can be conducted to analyze corridors by an independent multi-disciplinary team of experts, see the "Safety Treatments" section.

14 IDOT crash data information can be obtained from IDOT via the Illinois roadway crash data website: https://idot.illinois.gov/transportation-system/transportation-safety/roadway-safety/illinois-roadway-crash-data.html IDOT crash reports can be requested via email at DOT.DTS.DataRequests@illinois.gov

15 MoDOT crash data information can be viewed through the Missouri State Highway Patrol (MSHP) website https://www.mshp.dps.missouri.gov/TR15Map/index.jsp MoDOT crash reports can also be requested through the MSHP website https://www.mshp.dps.mo.gov/MSHPWeb/PatrolDivisions/PRD/TrafficCrashReports/PRDCrashReports.html

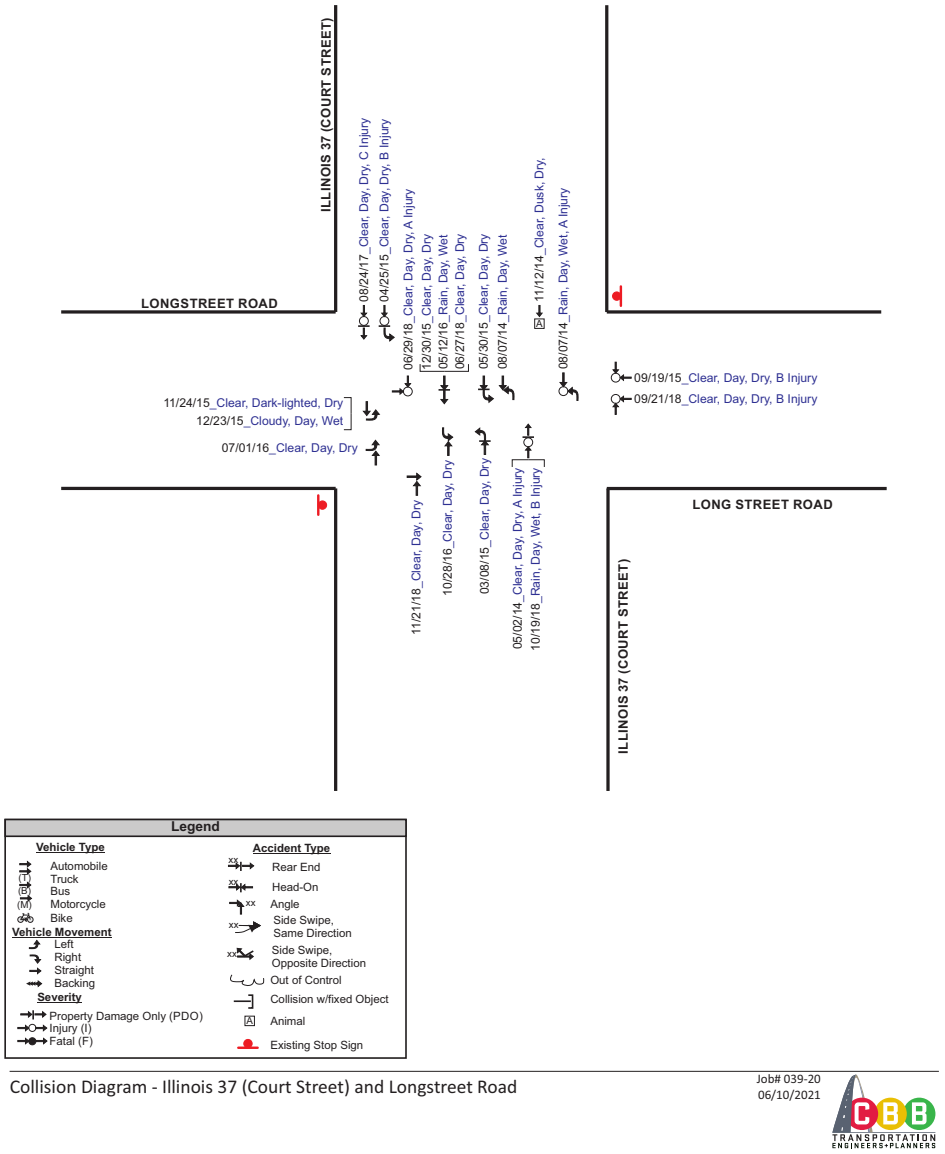


Figure 77. Example Collision Diagram

3 Countermeasure Selection

Once the crash patterns and contributing factors are understood, local agencies can identify, assess, and select appropriate countermeasures to improve safety. The countermeasures should target the specific crash issues and reflect Safe System Approach principles.

Local agencies should refer back to the "Safety Treatments" section as a starting point when considering potential countermeasures depending on their specific issues. Other resources such as NCHRP Report 500 series (https://www.trb.org/Main/Blurbs/152868.aspx), and NHTSA's Countermeasures that Work (https://www.nhtsa.gov/book/countermeasures/countermeasures-that-work) are also available to help address or mitigate crash issues. Local agencies can also use these resources to develop a shortlist of potential countermeasures.

Once countermeasures are identified, it is also important to estimate the safety benefit as well as the estimated project cost, including construction and maintenance costs so that agencies can pare down the list of feasible and preferred alternatives. Agencies can consider planning-level costs at this point. Agencies can use CMFs to quickly compare the potential safety effectiveness of alternatives. CMFs can be used to perform preliminary benefit-cost analysis with the planning level cost. The CMF Clearinghouse (https://www.cmfclearinghouse.org/) provides guidance on how to select and apply CMFs. Once a countermeasure or combination of countermeasures are selected, a more detailed project-level cost analysis should be performed. Optimally, a benefit-to-cost ratio of 1.0 of higher is achieved.

4 Funding

Depending on the safety issues and preferred solution(s), agencies may desire to have some funding assistance to reduce the cost to the agency. There are several potential funding sources available for local agencies. Generally, these are competitive so not all projects will be selected.

Safe Streets and Roads for All (SS4A) Grant Program (https://www.transportation.gov/grants/SS4A)

East-West Gateway Transportation Improvement Program (TIP) (https://www.ewgateway.org/transportation-planning/transportation-improvement-program/)

IDOT Highway Safety Improvement Program (HSIP) (https://idot.illinois.gov/transportation-system/local-transportation-partners/county-engineers-and-local-public-agencies/funding-programs/hsip.html)

Illinois Safe Routes to School Program (SRTS) (https://idot.illinois.gov/transportation-system/local-transportation-partners/county-engineers-and-local-public-agencies/funding-programs/safe-routes-to-school.html)

Missouri Highway Safety Grants (https://www.modot.org/highway-safety-grants)

MoDOT Traffic Engineering Assistance Program (TEAP) (https://www.modot.org/node/23455)

Guiding Safety Concepts & Resources

When conducting a policy review, being aware of national best practices and strategic highway safety plans is essential. The concepts and resources presented in this section should be guiding principles for local plans, policies, and programs. Recurring themes in these guiding safety concepts and resources include an emphasis on pedestrian and bicycle safety and the notion that the journey to safer roadways requires a comprehensive approach and involvement from all, from individuals and families up to elected officials and decision-makers.

Safe System Approach

Adopted by U.S. DOT in 2022

The Safe System Approach is centered around eliminating fatal and serious injury crashes through five layers of protection: safe road users, safe vehicles, safe speeds, safe roads, and post-crash care. The approach is guided by six core ideas: deaths and serious injuries are unacceptable, humans make mistakes, humans are vulnerable, responsibility is shared, safety is proactive, and redundancy is crucial. FHWA provides resources including outreach materials, case studies, a roadway design hierarchy, speed management tactics, and special considerations for pedestrians and bicyclists.

https://www.transportation.gov/NRSS/SafeSystem

Safe Transportation for Every Pedestrian Initiative (STEP)

Founded by FHWA in 2017

To combat rising pedestrian fatalities, the Safe Transportation for Every Pedestrian (STEP) initiative was formed. STEP promotes proven countermeasures to reduce pedestrian crashes like pedestrian hybrid beacons, pedestrian refuge islands, raised crosswalks, and crosswalk visibility enhancements. FHWA provides technical sheets for construction and maintenance of countermeasures, education materials, and a decision support tool.

https://highways.dot.gov/safety/pedestrian-bicyclist/step

Vision Zero Network

First Launched in 2015

Vision Zero aims to eliminate fatal crashes and severe injuries and advocates that all traffic deaths are preventable. It offers a network for collaboration among transportation officials, public health officials, engineers, and community members. The Vision Zero city network includes over 45 communities, including the City of Columbia in Missouri and Chicago in Illinois. Vision Zero offers resources for creating a Vision Zero action plan, making data-driven decisions, incorporating equity into your planning efforts, and more.

https://visionzeronetwork.org/

Toward Zero Deaths: National Strategy on Highway Safety

Published in June 2014

Toward Zero Deaths offers a national safety strategy to unite safety efforts across the country using a multidisciplinary approach. The key focus areas of the strategy are safer drivers and passengers, safer vulnerable users, safer vehicles, enhanced emergency medical services, and improved safety management. The plan offers safety countermeasures, assessment tools to gauge stakeholder involvement, a communication plan towards creating a traffic safety culture, and webinars teaching strategies for implementing safety and engaging the public or elected officials.

https://www.towardzerodeaths.org/

National Safety Council and Road to Zero Coalition

First Launched in October 2016

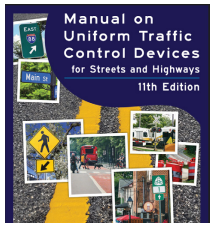
The National Safety Council formed the Road to Zero Coalition which established a goal to reach zero roadway deaths by 2050 and developed a comprehensive report with strategies to make that goal a reality. The report focuses on three approaches: instituting evidence-based policies and laws, supporting new technologies and safety strategies, and prioritizing safety above all else using a Safe System Approach. The National Safety Council offers Community Traffic Safety Grants to implement the strategies from the Road to Zero plan.

https://www.nsc.org/roadtozero

Manual on Uniform Traffic Control Devices for Streets & Highways, 11th Edition

11th Edition Published in December 2023

The 11th edition of the Manual on Uniform Traffic Control Devices (MUTCD) has introduced improved traffic control standards for vulnerable road users. The new update includes more comprehensive pedestrian treatments such as the formal approval of rectangular rapid flashing beacons, aesthetic crosswalk treatments, and guidelines for pedestrian access through work zones. Additionally, the new version expanded the bicycle facilities section by 250% and includes more options for bicycle specific signals, pavement markings and colors, and signage.



https://mutcd.fhwa.dot.gov/kno_11th_Edition.htm

MoDOT Strategic Highway Safety Plan (SHSP)

Updated in September 2022

"Show-Me Zero" is Missouri's SHSP for 2021 through 2025. The plan identifies four emphasis areas that are contributing to injuries and fatalities on Missouri roads: distracted driving, speeding/aggressive driving, impaired driving, and the failure to use protective equipment, like seatbelts, helmets, and car seats. Emphasis was also placed on certain road users that are overrepresented in fatal and serious injury crashes: teen drivers, older drivers (aged 65+), and vulnerable road users. Lists of strategies to reduce crashes are presented for every member of the community including families, state officials, schools, employers, and public agencies.

https://www.modot.org/sites/default/files/documents/SHSP%20Blueprint%202023.pdf

IDOT Strategic Highway Safety Plan (SHSP)

Published July 2022

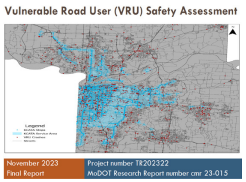
The 2022 to 2026 Illinois Strategic Highway Safety Plan sets a goal to eliminate fatalities and serious injuries by 2% each year across Illinois. Based on crash data, IDOT's three emphasis areas are speeding and aggressive driving, pedestrian safety, and roadway departures. The plan provides strategies to reduce crashes categorized by safe behavior, safe road users and vehicles, and safe roads and covers topics such as speeding, unbelted occupants, vulnerable road users, older and younger drivers, roadway departures, and work zones.

https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/manuals-guides-and-handbooks/safety/strategic-highway-safety-plan-2022.pdf

MoDOT Vulnerable Road Users Safety Assessment

Published in November 2023

As required by the Bipartisan Infrastructure Law, MoDOT conducted a Vulnerable Road Users Safety Assessment. The report identified an increased risk for pedestrian and bicycle fatalities and serious injuries at urbanized three-legged and four-legged intersections, on rural two-lane undivided highways, and on urbanized roadway corridors. Additionally, disadvantaged communities and dark lighting conditions were overrepresented in the vulnerable road user crash data, highlighting a particular need for safety in low-income areas and treatments for dark conditions.



https://spexternal.modot.mo.gov/sites/cm/CORDT/cmr23-015.pdf

IDOT Vulnerable Road Users Safety Assessment

Published November 2023

In Illinois's Vulnerable Road User Safety Assessment, a particular emphasis was placed on equity. The analysis identified that 52% of the high-risk areas for vulnerable road users are within disadvantaged communities and prioritizes investments made in these areas. The report noted a 22% increase in vulnerable road user fatalities since 2018 and that darkness and low visibility were the highest contributing factors to vulnerable road user crashes. High-injury networks and systemic safety analysis were developed for pedestrian and bike crashes across Illinois.

https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/manuals-guides-and-handbooks/safety/il-dot-vru-2023-11142023-final-spreads.pdf

Policy & Programming Strengths in the EWG Region

In conducting the policy review and in discussions with the stakeholder and Task Force groups, there are a multitude of ongoing commitments and advances in roadway safety through policies, plans, and programs in the EWG Region. Positive examples that have been accomplished or are under development by agencies within the EWG Region are given for the following areas:

- Laws, Regulation, & Enforcement
- Complete Streets
- Safety-Centered Design Guidelines
- Safety Action Plans
- Safety Funding
- Advocacy & Education Programs
- Capacity Building
- Emergency Response
- Transportation Equity
- Work Zone Safety

These policies and programs are making a difference in reducing roadway fatalities through improved laws, roadway designs, advocacy, and education for all. They cover many elements of the Safe System Approach, including safe road users, safe roads, safe speeds, safe vehicles, and post-crash care. This section of the report highlights positive examples of policies and programs so that these efforts can be leveraged and expanded upon throughout the entire EWG Region to further advance roadway safety.

Laws, Regulation, & Enforcement

The EWG Region is making strides to reduce fatalities by addressing distracted driving, speeding, and unbelted drivers through improved laws, ordinances, and enhanced enforcement practices. Illinois enacted a ban on texting while driving in 2010 and upgraded to hands-free law in 2014. Missouri passed a hands-free law in 2023, becoming the 28th state to pass a hands-free law and the 49th state to institute a texting-while-driving ban.

Graduated driver licensing laws have significantly reduced teen driver crashes since its introduction in the Region. Additionally, automated enforcement like safety cameras are being used by IDOT to improve driver behavior.

Hands-Free Law (Missouri & Illinois)- Illinois and Missouri both have instituted a hands-free law that prohibits drivers from using any communication device to type, read, watch, or hold during a phone call when operating a vehicle.

Graduated Driver Licensing Laws (Missouri & Illinois)- Prior to the federal incentive grants introduced in 2011, Missouri and Illinois led the charge to protect teen drivers since 2001 and 2003 respectively. A three-step licensing process requires new teen drivers to engage in safe practices with restrictions and further tests as they gain experience on the roads.

Speed Enforcement Cameras (IDOT Work Zones, Parks, or School Zones)- Since 2004, Illinois law allowed speed measurement devices to record any vehicles that exceed the speed limit when passing by active construction zones, parks, or schools in session to provide automated security and enforcement for vulnerable workers and pedestrians.

Primary Seatbelt Laws

With primary seatbelt laws, all drivers and passengers inside vehicles are required to wear seatbelts or be in a child restraint system, and officers are allowed to stop motorists based solely on this observed violation. Illinois has set a statewide primary seatbelt law and, while Missouri has not, several local municipalities have taken it upon themselves to carry a primary seatbelt ordinance. Working with the Missouri Coalition for Roadway Safety, advocacy groups have presented data, partnered with local law enforcement, and collaborated with City administrators to justify the need for their city to adopt a primary seatbelt ordinance.

Counties and municipalities in the EWG Region that have adopted a primary seatbelt law or ordinance include: Illinois Statewide, St. Louis County, Florissant, Hazelwood, Calverton Park, Edmundson, St. John, Bel-Ridge, Charlack, Olivette, Creve Coeur, Brentwood, Webster Groves, Glendale, Kirkwood, Town and Country, Manchester, Ballwin, Chesterfield, Clarkson Valley, Wildwood, Pacific, Weldon Spring, Cottleville, Lake St. Louis, Wentzville, New Melle, Foristell, Pevely, and Herculaneum.

Red Light Safety Cameras (IDOT St. Clair and Madison Counties, IL)- To eliminate angle and turning crashes at intersections, St. Clair and Madison County have been permitted to use red light running camera enforcement systems after gaining support by local enforcement, highway authorities, and documenting the safety issues with red-light running.

Complete Streets

Principles of the Complete Streets movement have been embraced and adopted into the policies and practices of many municipalities within the EWG Region. By adopting these principles, road owners are allowing their streets to become much more than just places for cars. Streets can be a place for walking, biking, rolling, and gathering. They can also be a place for art, greenery, and economic activity. The Complete Streets movement seeks to make streets safe places for people of all ages and abilities. The movement also seeks to make travelways dynamic places where people want to spend time. Expanding the potential of streets and improving safety, accessibility, and convenience for non-motorized roadway users is largely what the Complete Streets movement is about.

To advance complete street practices, agencies within the EWG Region have also developed plans and programs to promote the implementation of non-motorized user facilities along streets, including St. Louis County's Action Plan for Walking and Biking and EWG's Great Streets Program.

Complete Streets Policies (Various Municipalities)- Complete Streets is a transportation policy and design approach that promotes the safety and accessibility of all road users, particularly the accommodation of non-motorized users. Municipalities and counties within the EWG Region that have complete streets policies include Clayton, Crystal City, DeSoto, Glen Carbon, Herculaneum, Pagedale, Pevely, Ferguson, Festus, Florissant, City of St. Louis, St. Louis County, and University City.

St. Louis County Action Plan for Walking and Biking

The St. Louis County Action Plan for Walking and Biking was created to make walking and biking safe in St. Louis County. The plan proposes a connected pedestrian and bike network throughout the county and includes an interactive map. The plan also stresses the importance of making programs and policies that support active modes of transportation. An extensive public engagement process was led during the plan's development. Public meetings, online surveys, and community advisory committees were utilized to identify significant barriers to walking and biking and to decide on priority improvements. The plan also seeks to promote health, equity, an increased quality of life for people of all ages and abilities, and the health of the environment. Elements of the plan are implemented when roadway or development projects occur on County streets.

Great Streets Program (EWG Region)- The St. Louis Great Streets Initiative was launched in 2006 by EWG to improve upon local roadways and make them "great streets," or streets that are attractive, allow for a variety of modes of transportation, and contribute to economic vitality. The initiative provides a multi-disciplinary team to create a plan for chosen corridors to revitalize it as a "great street".

Safety-Centered Design Guidelines

Many agencies in the EWG Region are updating or creating new design guidelines that support roadway safety for all. EWG and the City of St. Louis are creating design policies centered around roadway safety and emphasize the importance of pedestrian and bicyclist safety on all corridors. Also, many agencies have strong access management and impact study guidelines which help to advance and maintain safe roads in the EWG Region. Having safety-centered design guidelines in place is essential for supporting the safe roads component of the Safe System Approach.

East-West Gateway Arterial Study (MoDOT St. Louis District)- MoDOT and EWG staff are facilitating a study to develop design considerations and tools for arterial roadways in the St. Louis Region. The end product will help regional roadway planners and designers to more holistically scope, plan, and design these roadways in urbanized areas than what MoDOT's current Engineering Policy Guide (EPG) currently addresses. The new document will be an optional enhancement of the existing EPG that emphasizes safety and local collaboration for use in MoDOT's St. Louis District. It is intended for use by MoDOT, municipal, and County roadway staff and includes a training curriculum explaining its utilization. The study will be completed in June 2024.

Access Management Guidelines (Various Local Public Agencies)- Access management reduces vehicle conflicts, improves traffic flow, and reduces crashes. The Transportation Research Board (TRB) has develop a strong access management manual . Access management policies are important to ensure consistency of practice and preserve the functionality of their roadway systems. One example of a strong local access management policy is provided in MoDOT's EPG. Many local public agencies in the EWG Region, such as St. Louis County, Jefferson County, and the City of Wentzville have Access Management Guidelines that are specific to their transportation systems.

City of St. Louis Traffic Calming Guidelines

The City of St. Louis adopted Traffic Calming Guidelines in December of 2023 to increase the consistency and effectiveness of traffic calming projects on City streets. The guidelines establish design criteria and specifications for traffic calming devices to be used by city and consulting staff for design and construction. An accompanying guide was developed to educate the public on traffic calming features, outlining where and how they can be used and the process of requesting traffic calming on your street. The public-facing document describes what traffic calming tools are available, their benefits, and their limitations in approachable terms for community members and leaders. These guidelines will ensure the success of traffic calming projects to enhance safety, improve accessibility, elevate livability, and create positive economic impacts across the City of St. Louis.

Impact Study Guidelines (Various Local Public Agencies)- Transportation impact studies identify the changes to the transportation system that are needed to accommodate expected travel demands from proposed developments. Traffic impact study guidelines are important to provide a consistent process for conducting these studies. It is important that transportation impact study guidelines consider all modes of travel. The Institute of Transportation Engineers (ITE) has developed a strong multimodal Transportation Impact Study Guidelines Recommended Practice. An example of strong local transportation impact study guidelines is provided in MoDOT's EPG. Many local public agencies in the EWG Region, have transportation impact study guidelines codified as a part of their development code.

Safety Action Plans

Across Missouri and Illinois, many have challenged their communities to resolve traffic fatalities and serious injury crashes by adopting their own safety action plans and identifying points of concern. Recognizing the need to support all modes of transportation, countermeasures to safety issues are more often including benefits for pedestrians and bicyclists. The results of the safety action plans provide a focus on streets that need improvements and demonstrate the strengths of collaboration between vulnerable road users, city officials, and local agencies.

Kirkwood Vision Zero Action Plan (Kirkwood, MO)- In March of 2022, Kirkwood adopted its Vision Zero Action Plan which focused on enhancing the bike and pedestrian experience, lowering speeds, and reducing traffic lanes in favor of complete streets.

Webster Groves Action Plan and Demonstration Activities (Webster Groves, MO)- The City of Webster Groves received SS4A funding in 2023 to develop a comprehensive safety action plan and conduct demonstration activities to test variable speed signs, speed humps, and pedestrian hybrid beacons. The plan and demonstration activities are currently in development.

City of East St. Louis Action Plan (City of East St. Louis, IL)- The City of East St. Louis is also currently developing a comprehensive safety action plan with SS4A funding received in 2023.

City Transportation & Mobility Plan (City of St. Louis, MO)- The City of St. Louis is currently developing a citywide mobility plan that will develop a consensus of values and vision for the future of mobility in the City. The project will bring together major transportation projects, while also establishing priorities for a safer, better-maintained transportation network. The guiding planning principles for the process are: choice, safety, equity and place. Plan elements include robust and inclusive community engagement, a City of St. Louis Safety Plan, asset management tools for public sharing, policy and ordinance review, and a street typology design guide. The plan will be completed in August 2025.

St. Charles County Strategic Highway Safety Plan

St. Charles County is committed to providing a safe transportation system for all modes, aiming to reduce all fatal and serious injury crashes by 50% by 2030 and reach zero by 2050. The plan included an in-depth crash risk assessment, high-injury network development, and community engagement. Crash trends in both urban and rural areas were identified with low and high-cost countermeasures to provide greater opportunities for change. In rural areas, roadway departure crashes, and speed-related factors posed the biggest risks. In urban areas, the greatest trends were with turning movement and roadway departure crashes. A list of countermeasures was provided to address rural, urban, and vulnerable road user crashes. A decision-support matrix is included to understand the conditions where individual countermeasures work best. As part of the final action plan, a list of streets with the highest fatalities and serious injury crashes are prioritized for improvement projects. The last section in St. Charles County's Strategic Highway Safety Plan outlines their action steps and time frames to implement engineering, policy, and programmatic strategies to reach zero roadway fatalities and serious injuries by 2050.

County Strategic Highway Safety Plans (EWG Region)- From 2013 to 2015, strategic highway safety plans were developed for each county in the EWG Region to support the national Moving Ahead for Progress in the 21st Century Act (MAP-21) and Missouri and Illinois's state strategic highway safety plans. These plans served to fill in the gap between the state's goals with local and county site-specific analyses and recommendations.

Jefferson County Road Safety Plan (Jefferson County, MO)- In 2022, Jefferson County's Road Safety Plan identified high crash areas and common crash types, like fixed object crashes and roadway departures, and aligned them with site-specific low-cost countermeasures for planned implementation.

Safety Funding

In Missouri and Illinois, several programs exist to support transportation projects related to safety. As funding is limited, these funding programs are often competitive, and only award funding to projects that display a strong vision or a true need. Funding programs allow for visions of safer roadways to become a reality.

Surface Transportation Block Grant Program (EWG Region)- Safety-specific roadway improvement projects can be funded through this grant program (locally known as STP-S). These funds were authorized through the Infrastructure Investment and Jobs Act (IIJA) and are distributed through EWG. Projects involving systemic safety improvements or active transportation facilities are eligible for funding.

Transportation Alternatives Program (EWG Region)- TAP, distributed through EWG and IDOT, provides federal funding for projects that seek to support more diverse modes of transportation/non-drivers. Funding is available for projects that provide infrastructure for alternative modes of transportation or make alternative modes more attractive, like a Safe Routes to School program, community improvement projects, and projects related to the natural environment.

IDOT Highway Safety Improvement Program (Illinois)- This IDOT program provides funding for projects related to improving safety and reducing fatalities and injuries on public roads in Illinois. Funding may be used for any phase of eligible improvement projects that enhance safety for drivers and/or pedestrians.

MoDOT Cost Share Program (Missouri)- The MoDOT Cost Share Program provides up to 50% of the total funding necessary for public road and bridge projects that address a need in relation to transportation, including safety projects. Funding for the project comes entirely from MoDOT funds. If the project has an economic development lens, MoDOT may cover up to 100% of project costs through the Governor's Cost-Share Program.

MoDOT Safety Design-Build

In 2023, MoDOT commissioned a $52 million design-build project to implement safety treatments at hundreds of intersections and corridors across St. Louis County, Jefferson County, and City of St. Louis. Based on a history of overrepresentation of fatalities for vulnerable road users and disadvantaged communities, MoDOT placed a particular emphasis on pedestrian safety and equitable distribution of resources. The project will address 416 locations that exhibited a vehicular or pedestrian crash history. A variety of safety countermeasures will be constructed including centerline rumble stripes, high-friction surface treatment, guardrail, traffic calming devices, enhanced pedestrian facilities, and small geometric modifications. Based on the predictive safety analysis, the project is expected to reduce fatal and serious injury crashes by 170 over a ten-year period. It is currently under construction and will be completed in the summer of 2026.

This safety design-build project is the second of MoDOT's safety-specific design-build projects for the St. Louis Region. MoDOT completed the first safety design-build project addressing St. Charles County and Franklin County in 2019 with a program budget of $24 million. While MoDOT often incorporates safety enhancements into many roadway projects, these safety specific design-build projects show their commitment and investment in improving roadway safety in the St. Louis Region.

MoDOT Highway Safety Grant Program (Missouri)- This MoDOT program provides funding to support projects aimed at reducing fatalities and injuries associated with traffic crashes in Missouri. Education projects, enforcement projects, and data collection projects all qualify for the funding.

Advocacy & Education Programs

Groups across Missouri and Illinois have positively impacted their communities by informing the public, offering education, and inspiring others to drive safely. With advocacy efforts from various organizations, city officials and local agencies can deliver more safety improvements on their roadways. Collaborative efforts spent bringing awareness of the risks to teen drivers, stopping distracted driving, and protecting yourself by buckling up all work to build a traffic safety culture.

American Automobile Association Teen Driver Education Programs (Missouri & Illinois)- AAA offers online courses for teen drivers in Missouri and Illinois that discuss the essentials of safe driving habits in an interactive format. The courses are self-paced, incorporate the parents of student drivers, and bring awareness to the highest risks and trends leading to traffic crashes.

First Impact (Missouri)- First Impact offers a free 90-minute in-person education session to parents. During the session, the major risks associated with teen drivers are presented, Missouri's Graduated Driver License Law is explained, and the importance of enforcing the law at home is stressed.

Buckle Up/Phone Down (Missouri)- Buckle Up Phone Down was launched in 2017 by MoDOT to motivate anyone riding in a vehicle to both buckle up and stop driving distracted. Participation has become widespread, with commitment from over 5,000 people and 400 businesses and organizations. The movement has even inspired other states to create their own campaign.

Trailnet's Bike Month (EWG Region in Missouri)- With the month of May being national bike month, Trailnet and Bi-State Development/Metro Transit host events to educate and engage the public on biking, walking, and taking public transit across St. Louis.

KMA Foundation (Keeping Memories Alive/Kaela Marie Archambault)

In remembrance of Kaela Marie Archambault and others who have lost their lives in traffic crashes, the KMA Foundation actively works to prevent further roadway casualties through advocacy, education, and community outreach. The three key focuses of the organization is "All About H.E.R.," honoring loved ones, educating driver awareness, and advocating for roadway improvements. Through the KMA Foundation, 11 public schools across Missouri have safe driving awareness programs partnering with Save a Life Tour to educate teen drivers on the consequences of driving distracted or under the influence. The program also includes students making a pledge to be a safe driver and awards scholarships to high school seniors who promise to drive safely and inspire those around them. One Curve At A Time (OCAAT) is another initiative created by the KMA Foundation that advocates for safety improvements of roadways and has been presented at several state, regional, and local highway safety meetings. OCAAT's efforts were critical towards improving Highway FF and they continue to expand their support for safe roadways one curve at a time.

Metro East Teen Driver Safety Days (Collinsville, IL)- Every year since 2018, the Collinsville Police Department, Illinois State Police, and the CMC Rotary Foundation host the Metro East Teen Driver Safety Days for high school students. Throughout the day, students are given a range of interactive safe driving presentations covering work zone safety, motorcycle safety, impaired driving, the no-zone around trucks, and the results of being unbelted in a roll-over crash.

Capacity Building

Traffic safety is an ever-evolving field, so it is essential that those who make decisions about it constantly learn and adapt. There are multiple programs and conferences offered in the EWG Region that aim to create a space for those involved or interested in traffic safety to gather and share knowledge and ideas. Attendees range from students seeking to learn more about the world of traffic safety to traffic safety professionals seeking to expand their network or gain new insights. These programs in the EWG Region stand out as leaders in capacity building.

The Missouri Highway Safety and Traffic Conference (Missouri)- Hosted by Missouri Coalition for Roadway Safety, the Missouri Highway Safety and Traffic Conference, previously called the Blueprint Conference, brings together people interested in various aspects of traffic safety, from engineering and education to enforcement and emergency response. The conference allows professionals involved in traffic safety to exchange knowledge, gain inspiration, and stay on top of relevant trends and recent initiatives related to traffic safety.

Illinois Traffic Engineering and Safety Conference (Illinois)- The TES Conference is an annual conference that began in Illinois 73 years ago. The conference provides an opportunity for transportation safety professionals to meet with other professionals, share knowledge, network, and gain inspiration relevant to their professions. Students, clients, and elected officials are also often in attendance.

Missouri Coalition for Roadway Safety

The Missouri Coalition for Roadway Safety (MCRS) was founded in 2004 and works to prevent traffic-related injuries and fatalities on Missouri roadways. The Coalition is made up of individuals from a variety of fields, from law enforcement personnel to government officials. Additionally, the Coalition is broken up into smaller regional coalitions and into issue-specific subcommittees. Since 2004, they have developed and worked to implement several strategic highway safety plans for the state. These plans lay out the areas of concern related to roadway safety in Missouri and provide mitigation recommendations and strategies. The Coalition then works at both state and local levels to promote the implementation of these recommendations- including hosting workshops for teens on safe driving, like the "Traction" program, conducting education campaigns, like "Change Your Speed. Change the Ending.", and advocating for new laws and policies. The Coalition's ultimate goal is to eliminate traffic fatalities and they plan to work until this goal is achieved.

Emergency Response

Effective and timely emergency response is a key element of the Safe System Approach to prevent roadway fatalities. The Safe System Approach emphasizes the need to prevent crashes, but when a crash does occur, effective emergency response can prevent the crash from becoming a fatality. How quickly a crash is identified, how a crash is cleared from the roadway, and how crash victims and emergency response personnel are protected from nearby traffic are essential for mitigating the outcome of a crash. In the EWG Region, MoDOT and IDOT have programs for incident response training and utilize transportation management centers to manage and improve these key elements.

MoDOT and IDOT Transportation Management Centers (Missouri & Illinois)- MoDOT and IDOT have TMCs in the St. Louis Region, which monitor roadways across the Region using closed-circuit television (CCTV) cameras. TMC staff utilize the cameras to observe roadway conditions, spot crashes when they occur, advise emergency response personnel, and employ crash diversion routes and real-time signal timing changes.

MoDOT Motorist Assist Program (Missouri)- Motorist Assist is a service provided by MoDOT that sends emergency response operators to address any disturbances on roadways. Motorist Assist operators aid drivers experiencing car troubles, support emergency responders during traffic crashes, and ensure that road conditions are safe.

MoDOT and IDOT Traffic Incident Management Responder Training Programs

Traffic Incident Management (TIM) Responder Training Program seeks to make the traffic incident response process safer for all including those involved in the crash, responding to the crash, and driving by the crash. TIM is a free training program provided by MoDOT and IDOT for professionals involved in traffic incident management. The goal of the program is to teach responders methods for safely clearing traffic crashes and to make the traffic incident response as quick and reliable as possible. By improving the speed and the reliability of the traffic incident response, those involved in a traffic incident can receive needed medical attention faster, which potentially saves lives. A quick and reliable response also allows the roadway on which a traffic incident occurs to return to its normal flow more quickly, minimizing delays and preventing any additional crashes that could occur as a result of a primary traffic incident.

Transportation Equity

Equity and transportation are strongly linked. When transportation systems ignore equity intentionally or unintentionally, discrimination against disadvantaged groups deepens. This has been seen in many cities nationwide, especially in St. Louis's history. Going forward, it is essential that past inequality decisions that transportation systems have perpetuated be considered so that history does not repeat itself. It is also essential that all decisions made regarding transportation consider potential inequitable effects. The following programs and projects from the EWG Region have recognized the links between transportation and equity and have made significant efforts toward creating equitable transportation systems that consider all people.

Thriving Communities Program (St. Louis County, MO)- The Thriving Communities Program is a federal program that fully funds infrastructure projects in disadvantaged communities, including transportation projects. In 2022, St. Louis County secured funding from the Thriving Communities Program to improve coordination within the Region, help address inequity, and create a sustainable transportation network.

Transform 314 (City of St. Louis, MO)- Transform 314 is an organization that empowers Black St. Louisans to get involved in local government and its decision-making process. The organization meets monthly to discuss concerns, identify solutions, and learn how to share feedback with elected officials. Transportation-related topics are often at the forefront of discussions, especially issues related to transportation safety.

Illinois Transportation Enhancement Program

The Illinois Transportation Enhancement Program (ITEP) provides funding for surface transportation projects in Illinois that promote safe multimodal travel options, have cultural or historic significance, or improve the overall well-being of communities. What is unique about ITEP is that the program may not require matching funds if the sponsoring community is in a high-need area. Matching funds can be a barrier to communities that have less funding and resources to implement projects, and often these are the communities where the need for projects is the greatest. ITEP combats this issue for these communities and ensures a more equitable distribution of funding. The sponsor's matching funding amount depends on the project community's size, median income, and property tax base. If the project community is in high need, state supplemental funding would be used to meet some or all of the funding match requirements. Twenty-five percent of Illinois Transportation Enhancement Funding is reserved explicitly for high-need communities.

East-West Gateway Transportation Equity Assessment (EWG Region)- EWG's Equity Assessment report examines the history of transportation in the Region and how it affects the Region today. The report identifies past and existing inequities and disparities in transportation in the EWG Region and provides recommendations for repairing the harm that prior transportation decisions have caused.

Work Zone Safety

Advancements in work zone safety are continuously being made, many of which are being tested in the EWG Region, including smart work zone technology, mobile navigation app alerts, and autonomous trailer-mounted attenuator trucks. Other efforts towards improving work zone safety in the EWG Region include the University of Missouri's research group, the national Work Zone Safety Awareness Week promoted by MoDOT and IDOT, and IDOT's advanced traffic control standards and specifications with speed feedback signs and enforcement cameras.

Smart Work Zones (Missouri & Illinois)- MoDOT and IDOT have incorporated smart work zones into major freeway projects. Smart work zones utilize intelligent transportation systems to detect queue back-ups and warn drivers in advance of increased travel times and low speeds ahead.

HAAS Alert (Missouri)- MoDOT has been using HAAS alert technology on work trucks. When approaching active work zones, motorists using navigational apps like Waze will be notified of the active work truck's presence in advance to encourage slower speeds and enhanced awareness.

iCone Technology (Missouri & Illinois)- iCone technology is being used by MoDOT and IDOT on lane closure arrow boards. It alerts drivers through navigation apps of the lane closure far in advance. iCone also allows MoDOT and IDOT staff to remotely check the status and locations of all arrow boards.

Predictive Analytics for Traffic Management on I-270 (North St. Louis County, MO)- During the construction of the I-270 project, MoDOT researched the use of new technology to improve traffic management and roadway safety by predicting the potential of crashes, predicting road surface conditions during snow events, and detecting incidents faster through advanced video analytics. The predictions showed potential to be used to deploy enforcement and emergency response personnel in advance to reduce the likelihood of a crash and incident response times and develop more effective plowing and salting schedules.

IDOT Speed Enforcement in Work Zones

IDOT's work zone traffic control standards and specifications go above and beyond MUTCD requirements to enhance safety for workers and the traveling public. When lane closures on freeways occur, IDOT requires the use of speed feedback signs and automated speed cameras. The speed feedback signs detect and display drivers' speeds, encouraging them to meet the work zone speed limit. The automated speed cameras fine drivers exceeding the speed limit when workers are present through photo enforcement and are highly effective for reducing speeds through work zones. By incorporating these countermeasures into IDOT standards, work zone safety for both workers and the traveling public is greatly improved during critical conditions.

Autonomous Trailer Mounted Attenuators (Missouri)- MoDOT work zones in Kansas City and in southwestern Missouri districts have deployed autonomous vehicles equipped with TMAs to make conditions even safer for road work crews. With autonomous vehicles, drivers do not need to be present in the TMA-equipped truck that shields the crew.

Missouri Work Zone Safety Center of Excellence (Missouri)- Together with MoDOT and the University of Missouri, the Missouri Work Zone Safety Center of Excellence researches new technologies, creating new sources of data and analysis tools for use in St. Louis and across Missouri to protect workers and vulnerable road users.

Work Zone Safety Awareness Week (Missouri & Illinois)- During the national Work Zone Safety Awareness Week, MoDOT and IDOT host events, such as 5Ks and speaker events, publicize statistics on work zone crashes and fatalities, and promote best practices for work zone safety.

Policy & Programming Needs and Opportunities in the EWG Region

Through a review of the EWG Regional crash data and discussions with stakeholders, nine areas to reduce traffic fatalities and serious injuries through changes in local and regional policy as well as implementation and expansion of local programs were identified. The nine areas include:

These nine areas contribute to the majority of fatal and serious injury crashes in the EWG Region. Policy and programming changes in each of these areas can influence driver behavior and affect changes in road safety culture in the EWG Region where they are needed most. Following is a discussion about the importance of each of these issue areas.

Speeding

Speeding is a critical issue on the EWG Region's roadways. Within the EWG Region, speeding was attributed to 2,851 (30%) of all fatal and serious injury crashes between 2018 and 2022. It was the top contributing factor to fatal and serious injury crashes in the Region. The Missouri EWG Regional counties (Franklin, Jefferson, St. Charles, and St. Louis County and City of St. Louis) saw 2,018 of these speeding-related crashes or 71% of the total, while the Illinois EWG Regional counties (Madison, Monroe, and St. Clair) saw 833 of these crashes, or 29% of the total.

Speeding is a behavioral issue that can be influenced through education/outreach, enforcement, and geometric design. The characteristics of a roadway (e.g., design of horizontal and vertical curves, number and width of lanes, presence of medians, and other traffic control measures) have a direct impact on travel speeds. Both Illinois and Missouri have longstanding efforts to control speeding involved crashes. Both states use enhanced enforcement campaigns and Illinois uses automated speed enforcement in IDOT work zones. The Action Plan's recommendations seek to expand upon these efforts and to improve/update design practices toward the goal of slowing travel speeds.

Seatbelt Use

Seatbelts are extremely effective in preventing serious injury and death when a roadway crash does occur. While most Americans (92%) wear a seatbelt when in a car, some still do not. When vehicle occupants do not wear a seatbelt, the consequences are deadly. Out of all the traffic fatalities that occur in the US, 50% of fatalities are an unbelted vehicle occupant. In Missouri, an even larger percentage of all traffic fatalities are unbelted vehicle occupants, with almost two-thirds of traffic fatalities being someone who was unbuckled. With the indisputable evidence that seatbelts are effective, it is surprising that Missouri does not have a primary seatbelt law. Illinois does have a primary seatbelt law, and only 25% of traffic fatalities in Illinois 2021 were not wearing seatbelts. **If Missourians were to use seatbelts more readily, it is estimated by the Missouri Coalition for Roadway Safety that 250 lives would be saved every year.**

Policies can make a difference and having a primary seatbelt law and a culture that is more supportive of safety can save lives. Illinois has a statewide primary seatbelt law requiring that all drivers and passengers wear safety belts. As a primary seatbelt law, law enforcement can pull over a driver if they or their passengers are not wearing a safety belt. Missouri does not have a primary seatbelt law. In Missouri, only front-seat passengers are required to wear seatbelts, except for passengers ages 8-15, who must wear a seatbelt in all seating positions. However, because it is not a primary seatbelt law, there must be a primary traffic offense committed for law enforcement to pull a vehicle over and write a ticket.

There are several longstanding outreach campaigns in both Missouri and Illinois to encourage people to buckle up, such as the Buckle-up/Phone-down campaign. Moreover, Missouri municipalities are allowed to enact primary seatbelt laws and many municipalities within the Missouri counties in the EWG Region have elected to do so. The Action Plan's recommendations seek to leverage and expand upon these programs and encourage the Missouri state legislature to pass a primary seatbelt law.

Helmet Use

Helmets are a primary safety mechanism for motorcyclists. Illinois is one of only three states that lacks helmet laws. From 1967 up until recently, Missouri had a motorcycle helmet law that required all motorcycle operators and passengers to wear a helmet. However, in 2020, Missouri relaxed its helmet law. The law now states that only motorcycle operators and passengers under 26 or with an instruction permit must wear a helmet. Since this law is not a primary law, motorcyclists cannot be pulled over by law enforcement solely for not wearing a helmet. Since the Missouri law changed in 2020, the state has seen a significant increase in motorcycle fatalities. **The annual Missouri statewide average number of crashes involving a motorcycle fatality for the six years before the law changed (2014-2019) was 106 per year. The preliminary annual Missouri statewide average for the three years after the law changed (2021-2023) was 157 per year, an increase of 48%,** as shown in Figure 78. According to NHTSA, in 2021, 51% of Missouri motorcycle fatalities and 62% of Illinois motorcycle fatalities were users without helmets. These are higher than the national average of 38%. The Action Plan's recommendations seek to increase helmet usage by raising awareness of the importance of wearing a helmet and encouraging the state legislatures in Illinois and Missouri to strengthen motorcycle helmet laws.

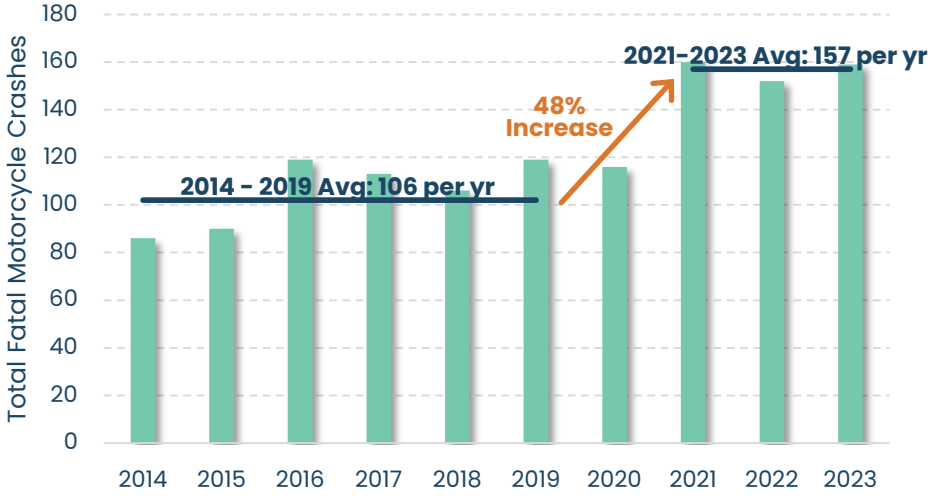


Figure 78. Fatal Motorcycle Crashes Missouri Statewide (2014 - 2023)

Distracted Driving

Distracted driving is one of the top five contributing factors to fatal and serious injury crashes in the EWG Region. It was cited as a contributing factor in 826 (9%) fatal and serious injury crashes that occurred in the EWG Region between 2018 and 2022. **Notably, Missouri counties accounted for 700 (85%), and Illinois counties reported 126 (15%) of those crashes.**

In 2023, Missouri became the 49th state to enact a hands-free law, the Siddens Bening Hands-Free Law. Drivers are prohibited from physically holding or supporting a cell phone with any part of their body and interacting with it in most ways unless the vehicle is stopped or parked. However, it is not a primary violation, so a driver must be doing something that is a primary violation to be cited for violating the hands-free law. Furthermore, no citations can be issued until 2025 under this law. The impact on distracted driving remains to be seen.

Illinois also has a hands-free law, and drivers in crashes resulting from distracted driving can face criminal penalties. However, unlike Missouri's law, Illinois's hands-free law is a primary law. Unfortunately, distracted driving continues to be a problem in Illinois.

As with seatbelt use, there are several outreach campaigns in Missouri and Illinois to reduce distracted driving. The Action Plan's recommendations seek to leverage and expand upon these efforts and encourage the Missouri state legislature to strengthen distracted driving laws.

Impaired Driving

Missouri and Illinois have driver impairment laws and outreach efforts on par with other states and have seen significant reductions in driver impairment crashes over the past several decades. However, driver impairment is still an issue in the EWG Region as it is across the country. Alcohol and/or drugs are one of the top contributing factors to fatal and serious injury crashes, resulting in 1,069 (11%) fatal and serious injury crashes between 2018 and 2022. The five Missouri counties of the EWG Region saw 839 (78%) of these crashes, while the three Illinois counties of the EWG Region saw 230 (22%) of these crashes. Both Missouri and Illinois set the standard blood alcohol content (BAC) limit for driving under the influence at 0.08%, aligning with most other states. However, Missouri applies a stricter BAC threshold of 0.04% for commercial vehicle operators.

The reduction of impaired driving has been a major focus of education, outreach, and enforcement efforts over many years, including the strengthening of driver impairment laws across the country. Impaired driving accounts for 20.5% (310) of the fatal crashes in the EWG Region. It is remarkable that impaired driving accounts accounted for over 40% of national traffic fatalities as recent as the 1980s. While significant gains have been made in this area, further improvement requires consistent attention and effort. The Action Plan's recommendations seek to leverage and strengthen the ongoing efforts to reduce fatal and serious injury road crashes due to impaired driving.

Red Light and Stop Sign Running

Between 2018 and 2022, the EWG Region experienced 855 (9% of total) serious injury and fatal crashes linked to disregarding traffic control, including red lights, stop signs, and yield signs. This was identified as the fifth most common contributing factor in fatal and serious injury crashes in the Region. Of these crashes, 68% occurred in the Missouri EWG Region counties and 32% took place in the Illinois EWG Region counties. The highest number of such crashes were recorded in four primary counties: City of St. Louis with 242 crashes, St. Louis County with 209, St. Clair County with 136, and Madison County with 129.

In the late 2000s, the City of St. Louis installed red-light cameras to address the issue of red-light running crashes. There was a 63% reduction in red-light running crashes where those cameras were installed. However, in 2015, the Missouri Supreme Court ruled that the City of St. Louis's red light camera ordinance is constitutionally invalid because it shifts the burden of proof onto the defendant that they were not driving the car rather than the state to prove that they were. Because of the 2015 Missouri Supreme Court decision, all Missouri communities abandoned their red-light cameras except for one, Hannibal, which as of 2023, maintains four active red-light cameras. However, the City of St. Louis is considering implementing red-light cameras again to reduce fatal crashes. This time, the proposed legislation aims to ensure constitutional compliance by requiring cameras to capture pictures and videos of incidents, including the driver's face.

The Illinois Vehicle Code allows eight counties – as well as municipalities within those counties – to implement red light running enforcement systems like red light cameras. Two of these counties, Madison and St. Clair, are in the EWG Region. However, only one red light camera is currently operational in the Metro East. That camera is in Granite City at the intersection of 27th Street and Madison Avenue.

The incidence of red light running is influenced by many factors, such as enforcement as well as the design, operations, and maintenance of traffic signals. Improperly placed or aligned traffic heads can make traffic signals harder to see, improper yellow and all-red clearance times can create a "dilemma zone" making it difficult for drivers to stop for the red indication, and poorly maintained traffic detection equipment can erode driver's respect for red lights. The Action Plan's recommendations seek to improve red light and stop sign compliance through education and outreach; improving traffic control design, operations, and maintenance; and the use of technology such as red light safety cameras.

Vulnerable Road User (VRU) Safety

Between 2018 and 2022, VRUs accounted for only about 1% of all crashes in the EWG Region. However, they constituted a disproportionate share of severe outcomes, with pedestrians involved in 1,057 (11%) and bicyclists in 152 (1.6%) of all fatal and serious injury crashes, highlighting their vulnerability. There is an ongoing upward trend in pedestrian-involved crashes in the EWG Region. From 2018 to 2022, pedestrian-related fatal and serious injury crashes increased from 172 to 236. Additionally, the overrepresentation of pedestrian-involved crashes is even more significant when reviewing fatal crashes independently. Pedestrians were involved in 19% of fatal crashes alone, in the EWG Region.

Many of the crashes occurred in underserved communities, as identified by CEJST, underscoring a significant equity issue. In the Region, nearly half (48%) of pedestrian-involved crashes causing fatalities or serious injuries occurred in underserved areas designated by CEJST, despite these areas only containing 18% of the regional population. Significantly, the following counties had a very high percentage of pedestrian-involved fatal and serious injury crashes occurring in underserved communities: City of St. Louis at 70%, St. Clair County at 55%, and St. Louis County at 47%. The lower rates of car ownership in these CEJST-designated underserved areas correlate with a heightened risk of pedestrians from these areas being killed or seriously injured in traffic-related crashes. To achieve more equitable outcomes in road safety, investments for safety improvements, particularly bicycle and pedestrian infrastructure, should be prioritized in these communities.

A staggering 78% of pedestrian-involved fatal crashes in the EWG Region happened after dark, commonly around sunset, regardless of the season. The reduced visibility during and after twilight contributes to the risk of these crashes. This data highlights the need for countermeasures and education campaigns geared toward pedestrian visibility and safety after sundown.

Many communities have embraced Complete Streets, and several government agencies in the EWG Region have adopted Complete Streets ordinances or resolutions. However, there is still a lot that needs to be done in building out the regional pedestrian and bicycle networks. It is also important to keep in mind that all system users have a role to play in reducing VRU fatalities and serious injuries. Drivers have a critical role to play in being aware of the other roadway users around them, being courteous to others, and driving at safe speeds with no distractions. Pedestrians and bicyclists can also play a role by doing what they can to make themselves visible to drivers. Being aware of traffic, using crosswalks, crossing intersections during pedestrian phases at traffic signals, and using lights and/or reflectors at night are some things VRUs can do to make themselves more visible on the roadway. The Action Plan's recommendations seek to improve safety for pedestrians and bicyclists through both road design improvements and education/outreach efforts.

Unlicensed Drivers

The problem of unlicensed drivers in Missouri was raised in stakeholder meetings as an area of concern. It is unlikely that unlicensed drivers received driver education and may not have the proper training on how to drive safely and responsibly. The state of Missouri does not require high schools to provide driver training to their students, and as a result, driver training is not typically taught in Missouri high schools. New drivers in Missouri obtain driving instruction from a parent, legal guardian, grandparent, or a qualified driving instructor. Young drivers who do not go through the licensing process miss opportunities to learn how to interact with new/different types of infrastructure (e.g., roundabouts, HAWK traffic signals, RRFB, cycle tracks, etc.) and learn safe driving habits (e.g., safe speeds, driving without distractions, courtesy to other road users, seatbelt use, etc.). In comparison, all public school districts in Illinois with high school grades must offer a driver education course.

Young drivers can be supported by improving access to driver training programs. Not having driver training in school is a barrier for many young drivers attaining their license. Missouri Department of Motor Vehicles (DMV) hours vary, but often these hours make it challenging for high schoolers to take their driver's test. In some cases, students would have to miss time in school so that a parent can take them to the DMV. This can be more challenging for students in underserved areas where it might be more difficult for a parent with a vehicle to take off work so the child can take the driving exam.

The impact of fatal and serious injury crashes, as well as the legal issues associated with unlicensed driving, disproportionately impact underserved communities. There is a need to provide driver training programs for young future drivers within high schools, especially in Missouri's underserved communities. Adding driver training programs as part of a high school curriculum will afford students a better chance at passing their road test and becoming safer licensed drivers. Offering these programs on weekends to both teen and adult drivers would further support an increase in the number of legally licensed drivers. Due to the reasons mentioned earlier, offering these driver training programs in high schools will inherently support more equitable safety outcomes on roadways. The Action Plan's recommendations are simply to find ways to provide high school driver's training to Missouri students, particularly in underserved areas.

Roadway Departure

Roadway departure crashes (which occur when a driver leaves their lane or the travelway) are a major issue on roadways in the EWG Region. Roadway departures account for approximately 4680 (49%) of the fatal and serious injury crashes in the EWG Region. Roadway departures include crash types such as fixed objects, head-on, sideswipe, overturned, and parked vehicle crashes, the most common of which are fixed objects. The top fixed objects hit were trees (36%), ditches/embankments (27%), and utility poles (10%). Observing these trends highlights the need for roadway design treatments such as adequate clear zones, high visibility traffic control devices, and speed control. Fixed object crashes are particularly dangerous under high-speed conditions.

Roadway departure crashes are more prevalent in rural areas. Around 63% of the fatal and serious injury crashes that occurred in the rural areas in the EWG Region were related to roadway departures. Roadway departure crashes are a greater concern on rural roadways due to topography (e.g., winding roads), narrow shoulders, and higher speeds that often lead to more severe crash outcomes.

Roadway departure crashes can be reduced in many cases by the application of safety countermeasures and improved geometric design, such as adding shoulders, providing rumble stripes, enhancing signing, and using pavement high-friction surface treatments. This Action Plan provides recommendations to improve/update design practices toward the goal of reducing roadway departure fatal and serious injury crashes. To have a major impact on severe and fatal crashes in the EWG Region, it is imperative to incorporate design elements that help keep vehicles on the roadway and provide safe recovery areas.

Policy & Programming Recommendations

The following recommendations are guided by the Safe System Approach put forward by FHWA, a comprehensive strategy for achieving zero fatalities and serious injuries on the roadways. The Safe System Approach emphasizes shared responsibility among all stakeholders, from government agencies to advocacy groups and individual road users. Proactive measures are crucial to identify and address safety concerns before crashes occur, and a multi-layered approach with built-in redundancies is essential to ensure the safety of all road users. Based on these principles, recommendations are provided in four major focus areas: safe road users, safe roads, safe vehicles, and enforcement. Through reviewing national best practices and in discussions with stakeholders through the engagement process, the following sixteen recommendations were developed to address each of the nine issue areas:

	Speeding	*Seatbelt Use*	*Helmet Use*	*Distracted Driving*	*Impaired Driving*	*Red Light/ Stop Sign Running*	*Vulnerable Road User Safety*	*Unlicensed Drivers*	*Roadway Departure*
1. High School Road Safety Campaigns	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. High School Driver License Training	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Public Roadway Safety Campaigns	✓	✓	✓	✓	✓	✓	✓	✓	✓
4. Employer Safe Driver Programs	✓	✓	✓	✓	✓	✓	✓	✓	✓
5. Roadway Safety Laws in IL and MO		✓	✓	✓					
6. Promote MO Local Seatbelt Laws		✓							
7. Local Roadway Policies	✓					✓	✓		✓
8. Transportation Technology	✓					✓	✓		✓
9. Maintenance and Operations	✓					✓	✓		✓
10. Mobility for Seniors & Persons with Disabilities							✓		
11. Fleet Telematics	✓	✓		✓					
12. Safety Devices for Traffic Offenders	✓				✓				
13. Traffic Safety Devices for Families	✓	✓		✓	✓				
14. Public Agency Fleet Vehicle Size							✓		
15. Automated Enforcement	✓					✓			
16. Enhanced Enforcement	✓	✓		✓	✓	✓			

Safe Road Users Policy & Programming Recommendations

Prioritizing safe behavior by users of the roadway network reduces the occurrence of crashes that result in serious injuries and fatalities. All road users should be able to get to where they are going safely, regardless of what mode they use to get there. At the same time, road users have a responsibility to move about responsibly on the transportation system. Everyone shares the road system and the responsibility for maintaining safety. As much as drivers should be looking out for pedestrians and cyclists who may be in their path, pedestrians and bicyclists should make sure they can be seen. Education and training on safe road behaviors is paramount to building safe road users. This inclusivity is especially important for underserved communities. Prioritizing safety creates a positive culture where road users look out for one another.

1. High School Road Safety Campaigns

High school-based outreach and education campaigns are effective in influencing safe driving behavior and attitudes of young drivers. These programs teach safe driving habits and can be expanded to teach safe roadway skills for all users (e.g., bicyclists, pedestrians, and scooters). High school-based road safety campaigns are very versatile and can address all nine of the areas to improve safety: speeding, seatbelt use, distracted driving, helmet use, driver impairment, red light and stop sign running, VRU safety, unlicensed drivers, and roadway departure.

Recommendation:
County transportation, public works, police, and/or health departments should work together with local high schools to develop/support road safety education and outreach for young drivers. Existing programs can be supported, expanded upon, and/or used as models for new programming. These programs should focus on safe driving issues/practices (e.g., seatbelt use, distracted driving, impaired driving, safe speeds, defensive driving, and courteous driving) as well as safe practices for VRUs, motorcycles, and scooters.

Implementation Partners:

1. Local public and private high schools.
2. County transportation, public works, police, and/or health departments, Missouri Highway Patrol, Illinois State Police, MoDOT.
3. AAA, KMA Foundation, SADD, CMC Rotary Club (Metro East Teen Driver Safety Event).

Examples:
Several high school-based safe driver outreach and education campaigns in the EWG Region can be supported, expanded, and used as models for new programs in areas that currently lack them.

AAA Programs - https://www.ace.aaa.com/automotive/driver-education/teen-programs.html

KMA - https://kmafoundation.org

SADD – https://www.sadd.org

Metro East Teen Driver Safety Event

Seatbelt Convincer – Missouri: https://www.mshp.dps.missouri.gov/MSHPWeb/Publications/Brochures/documents/SHP-740.pdf

Illinois: https://isp.illinois.gov/StaticFiles/docs/TrafficResources/SEOBrochure.pdf

Traction – https://motraction.com

1. High School Road Safety Campaigns (Cont.)

SS4A Grant Application Ideas:

1. SS4A Planning and Demonstration activities could include planning for an educational campaign, small-scale pilot program, or testing out messaging.
2. SS4A Implementation activities could include funding for a Safety Outreach Campaign.

Equity Implication
Offering this education in schools, particularly in underserved communities, would support safer driving practices for all students while providing this crucial information to those who need it most.

2. High School Driver License Training

Unlicensed drivers are a safety concern. Driver training is not typically taught in Missouri high schools, missing an opportunity to license new drivers and teach new drivers safe driving habits. The absence of driver training in most Missouri high schools creates a double safety concern. Not only does it create a barrier for some to obtain a license, but it also misses a crucial window to instill safe driving habits in teen drivers. Driver/motorcycle license training in Missouri high schools has the power to address all nine of the areas to improve safety: speeding, seatbelt use, distracted driving, helmet use, driver impairment, red light and stop sign running, VRU safety, unlicensed drivers, and roadway departure.

Recommendation:
Offer a driver/motorcycle training program in regional high schools for their students to teach them responsible driving habits and help them obtain their driver's licenses.

Implementation Partners:
The Missouri Department of Elementary and Secondary Education provides resources that could help schools develop driver's training programs. (https://dese.mo.gov/college-career-readiness/curriculum/drivers-education)

SS4A Grant Application Ideas:

1. SS4A Planning and Demonstration activities could include planning for a training program, conducting a small-scale pilot program, or testing out messaging.
2. SS4A Implementation activities could include funding to implement a training program.

Equity Implication
Thinking in a generational context, children whose parents are licensed drivers are more likely to receive driver safety education at home than children whose parents are not licensed drivers. It is imperative that resources for these programs be prioritized for schools that would not otherwise have the resources to provide this training. Providing this training to schools in underserved areas would better support reducing the number of unlicensed drivers.

3. Public Road Safety Campaigns

Outreach and education campaigns are effective in influencing safe driving behavior and attitudes. These programs can teach safe driving habits for all users (e.g., drivers, bicyclists, pedestrians, motorcyclists, and users of micro-mobility). Outreach campaigns are very versatile and can address all nine of the areas to improve safety: speeding, seatbelt use, distracted driving, helmet use, driver impairment, red light and stop sign running, VRU safety, unlicensed drivers, and roadway departure.

Recommendation:
There are several effective driver education and outreach programs in the EWG Region. County transportation, public works, police, and/or health departments and local municipal governments should work with IDOT, MoDOT, and EWG and other partners to develop and support road safety education and outreach programs in their communities. Existing programs can be supported, expanded upon, and/or used as models for new programming. Programs can be media based (e.g., television, radio, and social media) and/or in-person/hands-on (e.g., booths at community events, bicycle motorcycle safe riding events, bicycle helmet giveaways, nighttime pedestrian visibility device handouts, and child seat installation inspections). These programs should focus on safe driving issues/practices (e.g., seatbelt/child seat use, distracted driving, impaired driving, safe speeds, defensive driving, and courteous driving) as well as safe practices for vulnerable users (e.g., pedestrian night-time visibility or safe bicycling training).

Examples:
Drive Sober or Get Pulled Over – This is a national campaign aimed at preventing drunk driving. This campaign is typically run by law enforcement agencies, governmental organizations, and advocacy groups focused on reducing the incidence of impaired driving. The message is straightforward: if you drive under the influence of alcohol or drugs, you are putting yourself and others at risk of injury or death, and you are likely to face legal consequences. The campaign often involves increased law enforcement presence on the roads during times when alcohol-related incidents are more common, such as holidays and weekends. The goal of "Drive Sober or Get Pulled Over" is to deter individuals from driving while impaired by raising awareness of the dangers and potential consequences of doing so. It also aims to encourage responsible behavior, such as designating a sober driver, using ride-sharing services, or arranging for alternative transportation if one plans to consume alcohol.

MADD (Mothers Against Drunk Driving) - MADD is a non-profit organization in the United States and Canada that aims to stop drunk driving, support victims in crashes involving drunk drivers, and prevent underage drinking. Since its inception, MADD has been instrumental in advocating for stricter drunk driving laws, raising public awareness about the dangers of impaired driving, supporting victims and survivors, and promoting technology and policies to prevent drunk driving incidents. MADD's efforts have had a significant impact on reducing drunk driving fatalities and changing societal attitudes towards drunk driving. MADD has over 600 state organizations, chapters, and community action teams including in Missouri and Illinois.

3. Public Road Safety Campaigns (Cont.)

Implementation Partners:

1. County transportation, public works, police, and/or health departments; MoDOT/IDOT; EWG; and local municipalities.
2. Not-for-profit and private partners such as the Missouri Coalition for Roadway Safety.

SS4A Grant Application Ideas:

1. SS4A Planning and Demonstration activities could include planning an educational campaign, conducting a small-scale pilot program, or testing messaging.
2. SS4A Implementation activities could include funding for a Roadway Safety Outreach Campaign.

Equity Implication
There is a heightened need for pedestrian-centered safety outreach due to the high frequency of fatal and serious injury crashes involving pedestrians in underserved areas, especially at night. Outreach should be focused both on drivers (slow down and watch for pedestrians) and pedestrians (be visible, especially at night). Handouts of items such as wearable reflectors/LED lights might prove effective in helping pedestrians be seen at night.

Examples (Cont.):

SGF Yields - The SGF Yields campaign was launched in Springfield, Missouri to initiate a cultural shift in Springfield to become more friendly to pedestrians, particularly for drivers. The campaign utilizes two key strategies – education and awareness. The education component of SGF Yields is focused on highlighting the growing trend in pedestrian-involved crashes in the Springfield area and what can be done by educators, organizations, and individuals to reverse that trend. That campaign component provides materials like infographics and videos. The awareness component of SGF Yields is aimed at placing messaging around the Springfield community where pedestrians and motorists often converge. Messaging includes sidewalk decals, vehicle magnets and stickers, heart shaped crosswalk signage, and what is perhaps the most well-known of this campaign, Mr. Walker statue installations, which is a statue modeled after the representation of a pedestrian on US road signs.

Zero in on Red – The National Coalition for Safer Road's (NCSR) "Zero in on Red" is a safety campaign that focuses on reducing the number of red light violations at intersections through a pledge and driver education. NCSR's mission is to connect and empower survivor advocates of traffic-related tragedies with the tools and resources needed to take actions supporting an end to road violence. The solution often involves utilizing technologies such as red-light cameras supplemental to bring awareness to the issue.

Change Your Speed. Change the Ending. – This is a campaign that is part of the Missouri Coalition for Roadway Safety's desire to remind drivers that posted speed limits are for the safety of all road users. Since speed is a significant contributor to fatalities, this campaign includes a statewide enforcement effort where law enforcement actively enforces Missouri's speed limit laws and to remind drivers of the increased risks with high speeds.

4. Employer Safe Driver Programs

Employers have a compelling interest in the safe driving habits of their employees. Employers incur costs for injuries caused by traffic crashes through medical care, lost productivity, property damage, motor vehicle liability, and wage premiums . Employer-based safe driver education programs can be effective in influencing safe driving behavior and attitudes of their employees. These programs teach safe driving habits and can be expanded to teach and discuss safe roadway skills for all users (e.g., bicyclists, pedestrians, and users of micro-mobility). Employer-based safe driver training programs have the power to address all nine of the areas to improve safety: speeding, seatbelt use, distracted driving, helmet use, driver impairment, red light and stop sign running, VRU safety, unlicensed drivers, and roadway departure.

Recommendation:
Many employers have effective safe/defensive driving programs for their organization. County transportation, public works, police, and/or health departments should work together with local employers to promote employer-based safety education programs. Local agencies can promote these programs and support employers by providing publicly available safe/defensive driving resources. These programs should focus on safe driving issues/practices (e.g., seatbelt use, distracted driving, impaired driving, safe speeds, defensive driving, and courteous driving) as well as safe practices for VRUs and motorcyclists.

Implementation Partners:

1. County transportation, public works, police, and/or health departments.
2. Local Employers.

SS4A Grant Application Ideas:

1. SS4A Planning and Demonstration activities could include planning an educational campaign, conducting a small-scale pilot program, or testing messaging.
2. SS4A Implementation activities could include funding for a Safety Outreach Campaign.

Examples:

City of St. Louis Defensive Driving – City of St. Louis requires that all employees who will be driving as a part of their job take a defensive driving course offered by the City. The course involves a four-hour class designed to teach drivers advanced techniques and strategies to minimize risks and avoid crashes on the road, specifically related to the type of vehicles they will be driving.

Jacobs Engineering – Jacobs is a large engineering company with a presence in the St. Louis area and how has come to understand that one of the most hazardous tasks that it asks its employees to do is to drive as a part of project duties. They feel they have a legal and moral duty to manage the risk involved with that driving. They maintain a driver safety management program that includes general driver training as well as driver specific training with components that include hazard perception (which is done online) and/or in car driving. One year into the program's integration and the company saw a 34% drop in motor vehicle crashes. The result was safer drivers and a lower-risk profile for Jacobs' insurance.

5. Roadway Safety Laws in Missouri and Illinois

Laws that govern the use of safety equipment and behaviors while driving are effective and can be used to encourage safe roadway usage practices. It is prudent to ensure that these laws are strong enough to be effective without being overbearing. Many current safety laws in Illinois and particularly Missouri are currently not strong enough to be effective or are absent altogether. Strengthening roadway safety laws in Illinois and Missouri can help address several of the areas to improve safety, including seatbelt use, distracted driving, and helmet use. Below are some of the laws that could be strengthened:

Missouri Primary Seatbelt Law - Missouri is one of sixteen states that does not have a primary seatbelt law. Seatbelt usage saves lives. It is estimated that 250 lives would be saved every year if all drivers and passengers on Missouri's roadways buckled up.[16] A primary seatbelt law in Missouri would increase seatbelt use in Missouri and reduce fatalities.

Missouri Primary Distracted Driving Law - Between 2018 and 2022, 700 fatal and serious injury crashes occurred due to distracted driving in the five Missouri counties in the EWG Region. While Missouri does have a hands-free law, the Siddens Bening Hands-Free Law, that prohibits drivers from physically holding or supporting a cell phone, it is not a primary violation. Not being a primary law places significant limitations on its effectiveness.

Missouri and Illinois Motorcycle Helmet Laws - Illinois does not currently have a motorcycle helmet law and Missouri's law was recently relaxed so that anyone over the age of 26 or who has graduated from an instructional permit does not need to wear one.

Recommendation:
County transportation, public works, police, health departments, and municipal leaders should promote the strengthening of roadway safety laws in Missouri and Illinois to be sufficiently effective.

Implementation Partners:

1. County and municipal transportation departments, police/sheriff, and/or health departments and municipal government.
2. Not-for-profit and private partners like the Missouri Coalition for Roadway Safety.

Equity Implication
Fines, points on a license, and possible jail time for repeated offenses can further exacerbate other inequities faced by underserved communities. Offering alternatives to these penalties, such as driver training courses, support safer driving practices while mitigating potential negative longer-term impacts. Both Missouri and Illinois law allow for courts to order traffic offenders to attend drivers training courses in lieu of assessing other penalties. A program in Cook County, Illinois provides driver training as an option to other penalties and can be used as a model for other communities.

16 www.savemolives.com/mcrs/occupant-protection

6. Promote Local Missouri Seatbelt Laws

Primary seatbelt laws exist in Illinois statewide and in several Missouri municipalities. Many people are not aware of the local municipal laws in Missouri. There is an opportunity to promote seatbelt use by promoting these laws and encouraging county and municipal governments in Missouri to pass primary seatbelt laws. Promoting existing seatbelt laws and encouraging local governments in Missouri to pass primary seatbelt laws in their jurisdiction has the power to significantly increase Missouri motorist seatbelt use, one of the nine areas to improve safety.

Recommendation:
Encourage county and municipal governments in Missouri to pass primary seatbelt laws. Also, increase seatbelt awareness by promoting existing primary seatbelt laws in the EWG Region as a part of other traffic safety awareness campaigns.

Implementation Partners:

1. County and municipal transportation departments, police/sheriff, and/or health departments and municipal governments.
2. Not-for-profit/private partners like the Missouri Coalition for Roadway Safety.

SS4A Grant Application Ideas:

1. SS4A Planning and Demonstration activities could include planning for an educational campaign, conducting a small-scale pilot program, or testing out messaging.
2. SS4A Implementation activities could include funding for a Safety Outreach Campaign.

Examples:
Missouri counties and municipalities in the EWG Region that have adopted a primary seatbelt law or ordinance include:

- Ballwin
- Bel-Ridge
- Brentwood
- Calverton Park
- Charlack
- Chesterfield
- Clarkson Valley
- Cottleville
- Creve Coeur
- Edmundson
- Florissant
- Foristell
- Glendale
- Hazelwood
- Herculaneum
- Kirkwood
- Lake St. Louis
- Manchester
- New Melle
- Olivette
- Pacific
- Pevely
- St. John
- St. Louis County
- Town and Country
- Webster Groves
- Weldon Spring
- Wentzville
- Wildwood

For more information, visit: https://www.savemolives.com/mcrs/occupant-protection

While roads are designed with safety in mind, humans still make mistakes. Transportation infrastructure to accommodate human mistakes can reduce the number of crashes that occur as well as their severity when they do happen. Implementing safety countermeasures, as well as keeping up with maintenance and operations, have significant benefits in terms of reducing fatalities and serious injuries. This is particularly true with vulnerable road users, persons with disabilities, and older drivers. These users can be protected in a number of ways such as designing roadways for speeds that are appropriate for all users, providing lighting to increase visibility, and building and maintaining sufficiently sized bicycle and pedestrian facilities that are appropriately separated from vehicle traffic.

7. Local Roadway Policies

Local public agencies (county and municipal governments) maintain planning, engineering, and development guidelines, standards, and codes. Developing, reviewing, and/or revising local engineering, planning, and development policies can address several of the nine areas to improve safety, including speeding, red light and stop sign running, VRU safety, and roadway departure. Typical guidelines, standards, and codes maintained by local governments include:

1. *Comprehensive Transportation Plans (including specialty plans such as ADA Transition Plans, Road Safety Plans, Rail At-Grade Removal Plans, Major Thoroughfare Plans, Bicycle/Pedestrian Plans, and Freight Plans).*
2. *Roadway Engineering Standards (e.g., MoDOT EPG and IDOT Bureau of Design and Environment (BDE) Manual).*
3. *Various guide documents for topics such as Traffic Impact Study, Access Management, and Traffic Calming.*

Recommendation:
Develop, review, and/or revise local agency planning, engineering, and development guidelines, standards, and codes to ensure that they include a strong and proactive approach to road safety for all users.

1. The project development process should integrate principles and procedures from the Highway Safety Manual (HSM) and seek to deploy countermeasures from the Crash Modification Factors (CMF) Clearinghouse.
2. Create design policies aimed at achieving target speeds appropriate for the local context, using tools such as traffic calming and context-appropriate lane widths.
3. Projects should integrate policies that support VRU safety. Highlight the items below:
    - Using elements in FHWA's Safe Transportation for Every Pedestrian (STEP) program.
    - Filling gaps in the sidewalk system.
    - Cooperative efforts, such as the EWG Arterial Study.
    - Require developers to consider multimodal needs through development codes and the traffic impact study process.
    - Adopting/expanding complete streets policies and prioritizing the adoption of complete streets projects, particularly around parks, schools, and walkable commercial zones where pedestrians and bicyclists are likely to be.
    - Updating street lighting policies in pedestrian/bicyclist areas.

7. Local Roadway Policies (Cont.)

Implementation Partners:
MoDOT, IDOT, local municipalities, Trailnet, Great Rivers Greenway, Bi-State Development/Metro Transit, other local advocacy groups, local municipalities, county sheriffs, and municipal police departments.

SS4A Grant Application Ideas:

1. SS4A Planning and Demonstration activities could include road safety audits, traffic calming plans, and feasibility studies for permanent projects that include temporary improvements.
2. SS4A Implementation activities could include complete street safety improvements like separated bike lanes, daylight activities, lighting, sidewalks, HFST, rumble stripes, RRFB, and traffic calming devices.

Equity Implication
Guidelines and standards should always consider the context of those communities in greatest need of safety improvements. Car-centric policies and standards inherently minimize the safety of other road users (bicycle/pedestrian/transit). Conversely, policies and standards that emphasize and support the needs of individuals who do not use a personal vehicle are more likely to support safer roadway outcomes, particularly in communities with a higher population of zero-vehicle households.

8. Transportation Technology

The innovative use of technology can be used to address several of the nine areas to improve safety, including speeding, red light and stop sign running, VRU safety, and roadway departure. Additionally, it was discussed during the stakeholder meetings that there is a problem with vehicles hitting law enforcement responding to roadside emergencies. Innovative technology can be used to enhance driver awareness and attentiveness to presence of workers and emergency responders.

Recommendation:
Work towards greater adoption of innovative technologies to promote safety and protect vulnerable road users in high-traffic areas where commercial motor vehicles, pedestrians, and bicyclists interact.

Implementation Partners:
Municipal public works departments, county public works departments, MoDOT, and IDOT.

SS4A Application Ideas:
SS4A Planning and Demonstration activities could include piloting new transportation technologies.

Examples:
Intelligent Transportation Systems (ITS) Examples of ITS elements and programs include Traffic Management Centers, CCTV cameras, Dynamic Message Boards, and Roadway Assist Programs. Several regional agencies have ITS programs, including MoDOT, IDOT, St. Louis County, St. Charles County, the City of St. Louis, and the City of Clayton. However, additional ITS deployments could provide a safety benefit.

Traffic Signal Emergency Preemption and **Traffic Signal Priority** are technologies that are being used to a limited extent in the EWG Region. Expanding the use of this technology could provide a safety benefit.

Technology such as **HAAS Alert** and **iCONE** are being used by the construction industry to push alerts on apps such as Waze for enhanced awareness of the presence of workers and emergency responders.

9. Maintenance and Operations

Often funding is available for the construction of projects, and it can be challenging to fund the long-term maintenance and operations of transportation assets. However, transportation facilities are only effective in the long run if they are maintained and operated. Poor maintenance and operation of transportation infrastructure can lead to undesirable driving behavior. For example, inoperable traffic signal detection can lead to an increase in red light running. Improving maintenance and operations of transportation assets can address several of the nine areas to improve safety, including speeding, red light and stop sign running, VRU safety, and roadway departure. Examples of transportation facilities that often lack proper maintenance and operations include:

- *Signing and striping*
- *Signing visibility due to trees or vegetation*
- *Traffic signal timing and clearance intervals*
- *Traffic signal visibility such as signal heads, reflective back-plates, and signing/striping*
- *Traffic signal detection*
- *Street lighting in pedestrian/bicyclist areas*

Recommendation:
Strengthen programs, policies, and/or funding for improved maintenance and operation.

Implementation Partners:
Municipal public works departments, county public works departments, MoDOT, and IDOT.

SS4A Application Ideas:
Maintenance activities for an existing roadway primarily to maintain a state of good repair do NOT qualify for SS4A funding.

Equity Implication
Maintenance and operations on transportation features should be prioritized in underserved communities. As these are areas previously identified to have a higher incidence of severe crashes, ensuring proper maintenance and upkeep of these transportation assets is more likely to create a safer environment for all road users.

10. Mobility for Seniors and Persons with Disabilities

Older adults and persons with disabilities are road user groups that require special consideration. The number of older adults has increased rapidly in recent years and is expected to continue. Life expectancy continues to increase as well, meaning that there will be more older people living longer. According to the Center for Disease Control and Prevention (CDC) website:

- *One in four Americans who are now 65 years old will live into their 90s.*
- *Planning for mobility changes in the years to come is important for older adults and persons with disabilities who want to stay independent in their own homes and communities.*
- *Falls and motor vehicle crashes, which are related to mobility, are leading causes of injury and injury death in older adults (age 65+).*
- *When older adults stop driving or fall, they often experience reductions in their health, social interactions, and the ability to get around.*

Supporting mobility for older adults and those with disabilities and can address VRU safety, which is one of the nine areas to improve safety.

Recommendation:
Develop mobility plans for older adults and those with disabilities that consider transportation options that provide mobility without detriment to health and social wellbeing. These plans should include considerations for a wide range of safe and comfortable transportation options, including paratransit and human services transportation as well as pedestrian networks and accessible transit. Special transportation infrastructure design needs should be considered where older adults and those with disabilities may concentrate such as senior and community centers. The use of high-visibility treatments (e.g., RRFBs, high-visibility crosswalks, lighting), longer walk times at traffic signals, and leading pedestrian intervals at traffic signals should be prioritized in areas where there are concentrations of seniors and persons with disabilities.

Implementation Partners:

1. Local transportation, public works, and health departments.
2. Not-for-profit and private partners such as CMT and AARP.

SS4A Application Ideas:
SS4A Planning and Demonstration activities could include the development of mobility plans for older adults.

Equity Implication
Older adults are more likely to have health factors that may impact their ability to drive, particularly at night. Offering the proper support to ensure their safe travel between destinations not only increases their safety but also the safety of those around them on the road. Having a senior mobility service may alleviate the need for older adults to get behind the wheel themselves, but they will likely only use this service if they have been engaged first in a meaningful way. This is particularly important in the rural context, as these individuals are more likely to live further from their destinations. Considering they are less likely to own or use the full features of a smartphone, more appropriate means of communication will also be necessary.

Safe Vehicles Policy & Programming Recommendations

Safe vehicles play a critical role in enhancing road safety. Their ability to reduce fatalities and injuries for both the driver and any occupants, pedestrians, or bicyclists involved in a crash is significant. Crash avoidance and occupant protection measures are key components. Many modern vehicles come equipped with standard safety features that were once considered luxury options. These features can include forward collision warning, automatic emergency braking, pedestrian detection, lane-departure warning, lane-keep assist, adaptive cruise control, blind-spot monitoring, rear cross-traffic alert, rear view and 360-degree cameras, front and rear parking sensors, and rain-sensing windshield wipers.

After-market devices can ensure that vehicle operators are making sound decisions before and while operating a vehicle, posing less of a risk to themselves or other road users. Monitoring devices are a key type of these devices and can monitor everything from seatbelt usage to distracted driving and report back to one's employer. These sorts of devices are also handy for keeping teen drivers safe by making sure they do not speed, have too many passengers, or drive impaired.

11. Fleet Telematics

Cost-effective technology exists for employers to monitor the operation of their fleets. Employers have a compelling interest in the safe operation of their vehicles. Employers incur costs for injuries caused by traffic crashes through medical care, lost productivity, property damage, motor vehicle liability, and wage premiums . Telematics for fleet operators can address three of the nine areas to improve safety, including speeding, seatbelt use, and distracted driving.

Recommendation:
Local public and private agencies can adopt these systems on their fleets to promote safe driving issues/practices (e.g., seatbelt use, distracted driving, and safe speeds).

Implementation Partners:
Public and private fleet operators.

SS4A Application Ideas:

1. SS4A Planning and Demonstration activities could include funding for a small-scale pilot program on public fleets.
2. SS4A Implementation activities could include the adoption of innovative technologies and strategies to promote the safe operation of public fleets.

Examples:
St. Louis County is starting to implement **Samsara** (https://www.samsara.com/) on County vehicles. This program provides telematics for connected vehicles, including vehicle maintenance status, speed, and seatbelt use. Relatedly, all employees go through defensive driving courses as part of their training. These programs lower vehicle maintenance and insurance costs. This could be an idea for other EWG Regional agencies.

12. Safety Devices for Traffic Offenders

Cost-effective technology exists to monitor offenders of certain traffic safety laws (e.g., driving under the influence and repeated speeding offenses). Illinois law requires first-time DUI offenders to have a Breath Alcohol Ignition Interlock Device installed on their vehicle. Missouri law requires those guilty of a second or subsequent intoxication-related traffic offense to install an ignition interlock device on any vehicle they operate. As with ignition interlock devices, Intelligent Speed Assistance (ISA) devices are available that could reduce speed violation recidivism. These systems use in-vehicle GPS based technologies, digital mapping, and vehicle-based speed limit sign recognition to determine if vehicles are exceeding the speed limit. ISA system response can vary from warning of a speed violation to automatically limiting the maximum speed of the vehicle. Mandatory traffic safety devices for offenders can address two of the nine areas to improve safety, including speeding and driver impairment.

Recommendation:
County transportation, public works, police, health departments, and municipal leaders should promote the state legislature exploring the use of ISA in Illinois and Missouri for repeat speed offenders.

Implementation Partners:
1. County and municipal transportation departments, police/sheriff, and/or health departments and municipal government.
2. Not-for-profit and private partners like the Missouri Coalition for Roadway Safety.

13. Traffic Safety Devices for Families

Cost-effective technologies, like smartphone apps, exist to help parents supervise the driving of their teenage children. There are a number of smartphone apps and ignition interlock devices that can be used by families to hold family members accountable for responsible and safe driving. They can be used to address four of the nine areas to improve safety, including speeding, seatbelt use, distracted driving, and driver impairment. The use of these tools can be better promoted to make families more aware of their availability.

Recommendation:
Local agencies can provide awareness of the availability of in-vehicle traffic safety technologies as part of larger traffic safety programs. Promotion of these tools could be done in conjunction with outreach campaigns or high school drivers licensing programs.

Implementation Partners:
1. County and municipal transportation departments, public works, police, and/or health departments.
2. Families in the EWG Region.

Examples:

Life360 smartphone app not only allows family members to track their locations, but also has a Driver Safety feature that detect crashes, miles traveled, hard braking, high speeds, rapid acclerations, and phone use while driving.

SAFE 2 SAVE is a free smartphone app allows teens to accrue points for safe driving for rewards at businesses like Starbucks and McDonald's.

Ignition Interlock Devices is a breathalyzer device installed in a vehicle that prevents a driver to operate the vehicle if they exceed to blood-alcohol limit. They can be purchased and used proactively by individuals with known concerns before an incident occurs. More information can be found here: https://www.modot.org/ignition-interlock

14. Public Agency Fleet Vehicle Size

Regarding public agencies' common thoughts on vehicle size, bigger often seems better. Primarily because bigger vehicles can haul more things and people. However, bigger vehicles are disproportionately responsible for fatalities and serious injuries on US roadways. Tall vehicles or vehicles with a blunt front profile are more likely to cause a pedestrian fatality and serious injury in the event of a crash[17]. Additionally, large vehicles often have blind spots that make it difficult for drivers to see pedestrians, bicyclists, or occasionally other, smaller vehicles in front or beside them. Often in older urban areas such as the City of St. Louis or the downtown areas of other communities in the EWG Region, the streets and buildings were not built to accommodate larger vehicles. They were built during a time when no such vehicle existed. Conversely, larger vehicles are rarely designed for tight, urban spaces in mind. Right-sizing vehicles could improve safety by mitigating some of the side effects of larger vehicles. It can also help address VRU safety, one of the nine areas to improve safety.

Recommendation:
Consider where public agency vehicles will be traveling, account for their size compared to the level of difficulty it will be to maneuver safely in tight urban areas, and purchase vehicles accordingly rather than attempting to design or renovate urban areas around larger vehicles. Consider the size of your fleet and how they may impact vulnerable road user safety.

Implementation Partners:
County and municipal transportation departments, public works, police, and/or health departments.

SS4A Application Ideas:
SS4A Planning and Demonstration activities could include the review and development of recommendations for fleet vehicle size.

17 https://www.iihs.org/news/detail/vehicles-with-higher-more-vertical-front-ends-pose-greater-risk-to-pedestrians

Enforcement Policy & Programming Recommendations

Law enforcement that is conducted fairly and equitably is important to transportation safety. By supporting user compliance with state and local laws, law enforcement can prevent fatal and serious injury crashes. Law enforcement does not necessarily mean police officers. It can also include technology to enforce traffic laws that create safer experiences for every road user. Law enforcement officers also serve as educators to remind road users to use the transportation system safely.

15. Automated Enforcement

Automated enforcement impacts driver behavior by providing consistent enforcement without the need to tie up critical law enforcement resources. It can address speeding and red light running, two of the nine areas to improve road safety. Automated enforcement can be implemented through the use of safety cameras that capture vehicle speeds or red light running.

Recommendation:
Seek opportunities to expand upon safety camera deployments. Coordinate between transportation safety professionals and law enforcement to help focus efforts on the high-injury network where speeding or red light running is a significant contributing factor for crashes involving fatalities and serious injuries.

Implementation Partners:
Municipal governments and law enforcement.

SS4A Application Ideas:

1. Piloting or testing the deployment of new safety cameras on a small-scale is an eligible SS4A Demonstration activity.
2. Strategically installing speed safety cameras or red light running cameras is an eligible SS4A Implementation Grant activity.
3. Promoting the adoption of innovative technologies and strategies to promote safety and protect vulnerable road users in high-traffic areas where commercial motor vehicles, pedestrians, bicyclists, and motorcyclists interact are eligible SS4A Implementation Grant activities.

Examples:
Automated enforcement using speed safety cameras is widely used throughout **Iowa**. Iowa law allows for the vehicle to be ticketed, so these citations result in civil fines and do not result in moving violation points. In an interview, the Des Moines Police Department stated "Automated traffic enforcement, when administered the right way and for the right reasons, is a highly effective traffic safety tool. Data driven implementation with the goal of reducing crashes at our most dangerous intersections, and/or addressing dangerous speeds in areas that are difficult to enforce by traditional means, can certainly reduce the likelihood of serious injury and fatality accidents."[18]

A few local examples, discussed previously, include red light cameras being used in **Hannibal** and **Granite City** and speed safety cameras being used in **Illinois work zones**.

Equity Implication
While traffic enforcement is needed to mitigate the negative impacts from speeding and red light running, traffic stops for these infractions can lead to issues related to biased enforcement. It is important that enforcement for these issues be unbiased and not overly burdening those living in already disadvantaged communities. Automated enforcement through speed and red-light safety cameras can ensure that enforcement is applied in an equitable, needs based, and data driven way.

18 https://www.weareiowa.com/article/news/local/iowa-speed-cameras-automated-traffic-enforcement-ate-legislation-money/524-0c38d2ed-b2e6-4949-9274-9f41e6044ba9

16. Enhanced Enforcement

Enhanced enforcement campaigns impact driver behavior on a temporary basis for individual events but can help to change the driving culture if done consistently. They have the power to address five of the nine areas to improve safety, including speeding, seatbelt use, distracted driving, driver impairment, and red light and stop sign running.

Recommendation:
Seek opportunities to expand upon enhanced enforcement activities. Coordinate between transportation safety professionals and law enforcement to help focus efforts on the high-injury network at times and locations where speeding, driver impairment, and red light running is a significant contributing factor for crashes involving fatalities and serious injuries.

Implementation Partners:
Municipal governments and law enforcement.

SS4A Application Ideas:
Addressing unsafe driver behavior along key corridors through education, enforcement activities, and outreach are eligible SS4A Implementation Grant activities.

Example:
Between 2020 and 2023, the Hazelwood Police Department partnered with the Missouri State Highway Patrol, St. Louis County Highway Safety Unit, Florissant Police Department, MoDOT, the Missouri Coalition for Roadway Safety, and Millstone Weber to reduce speeding and aggressive driving in the **I-270 North** construction zone. Hazelwood Police Department conducted multiple enhanced enforcement operations, issuing citations for speeds as high as 120 mph through the 50 mph work zone.

Equity Implication
As discussed in the "Automated Enforcement" section, traffic enforcement is needed to minimize the negative impact of aggressive and irresponsible driving. It is imperative that enhanced enforcement efforts be planned and implemented in an equitable and needs based way to avoid bias. As further discussed in the "Strengthen Roadway Safety Laws in Missouri and Illinois" section, offering driver training courses as alternatives to penalties such as fines and points can support safer driving practices while not overburdening already disadvantaged communities.

How to Reach the Goal

The ultimate aim of this plan is to eliminate all roadway fatal and serious injury crashes. Roadway fatalities and serious injuries are preventable and thus unacceptable. **As a first step towards this goal, the Action Plan sets a target to reduce the number of fatalities and serious injuries resulting from roadway crashes in the EWG Region by 50% by 2050.** Under the federal requirements for Safety Performance Management Measure, EWG has been tracking the number of fatalities and serious injuries using a five-year rolling average. These five-year rolling averages since 2015 are shown in Figure 7. As shown, the trend has been moving in the wrong direction. The number of fatalities and serious injuries has been increasing since 2015, showing a significant need for increased efforts to improve roadway safety in the EWG Region. Based on the 2022 five-year rolling average (i.e. 2018-2022), the "Fifty by Fifty" goal is for the 2050 five year rolling average (i.e. 2045-2050) to be less than 155.8 fatalities and 967.5 serious injuries, which equates to the need for a 2.5% annual reduction. While ambitious, this target is achievable through a concentrated, coordinated, and sustained effort.

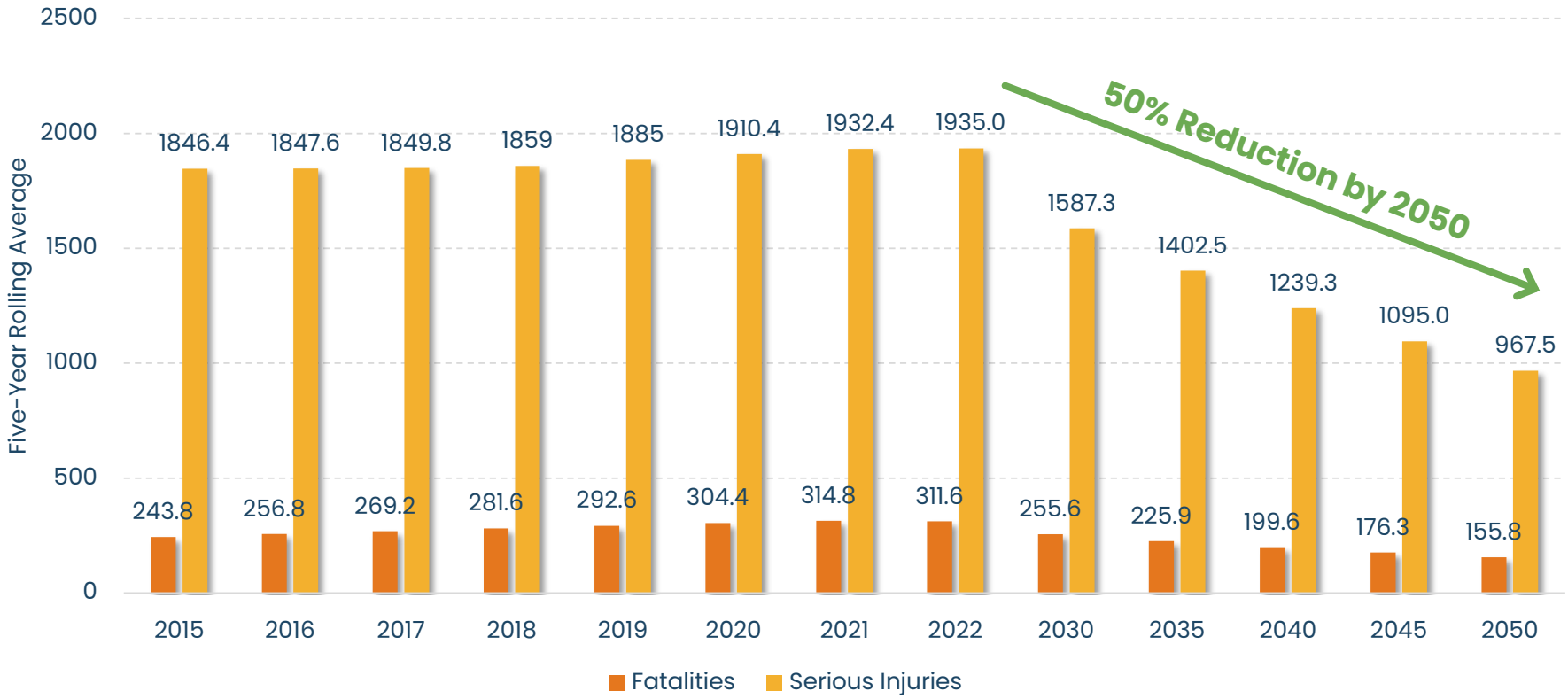


Figure 79. Fifty by Fifty Goal

Achieving a 50% reduction in fatal and serious injury crashes in the EWG Region by 2050 will be accomplished by: 1) implementing safety projects on the high-injury network, 2) applying safety treatments systemically across the EWG Region, and 3) adopting and implementing policy and programming recommendations.

1. Implement High-Injury Network Safety Projects

To mitigate the most severe crashes in the EWG Region, implement safety projects on all corridors, intersections, and segments shown on the top 25% lists on the following high-injury networks: *HIN 1 – All Modes, HIN 2 – VRU Pedestrians and Bicyclists*, and *HIN 5 – Interstate*. These corridors, intersections, and segments account for more than 50% of all fatal and serious injury crashes throughout the EWG Region. Reducing the number of fatal and serious injury crashes on these routes by an average of 60% will alone reduce the number of fatal and serious injury crashes in the EWG Region by 30%.

2. Implement Systemic Safety Treatments

Implement relevant systemic safety improvements throughout the EWG Region to address crash risks holistically. While attacking the problems on the high-injury network will address concentrated problem areas, many fatal and serious injury crashes occur in a more dispersed pattern. These fatal and serious injury crashes can be addressed through systemic treatments that address infrastructure with higher-risk characteristics. For example, curves on rural highways are known to have a higher incidence of roadway departure crashes. Applying low-cost treatments such as high-friction pavement, wet reflective pavement markings, and high visibility chevrons can reduce the incidence of fatal and serious injury crashes on these curves. As another example, urban arterials with high speeds, high traffic volumes, and high volumes of pedestrians experience more occurrences of pedestrian fatalities. The application of pedestrian infrastructure, such as provided in FHWA's STEP program and Proven Safety Countermeasures, can help to reduce the incidence of fatal and serious injury pedestrian crashes in these areas. The application of systemic safety improvements throughout the EWG Region can reduce the number of fatal and serious injury crashes in the EWG Region further by 10%.

3. Implement Policy and Programming Recommendations

Finally, human error plays a critical role in many fatal and serious injury crashes. Drivers who are speeding, distracted, or impaired with drugs or alcohol contribute to many of the EWG Region's fatal and serious injury crashes. Data shows that these issues contribute to well over half of fatal and serious injury crashes in the EWG Region. There is a need to change the transportation safety culture in the Region. The adoption and implementation of appropriate and relevant policy and program recommendations can help to change driver behavior and reduce fatal and serious injury crashes in the EWG Region by another 10%.

The following timeline has been established to achieve a 50% reduction in traffic-related fatalities and serious injuries by 2050. Progress will be tracked every year to assess the effectiveness of the efforts made. More information about tracking progress is included in Appendix C.

2025 — **2030** — **2035** — 2040 — 2045 — **2050** — 2055

By 2030

1. Local agencies should implement safety projects on the High-Injury Network Priority Lists provided in the "Safety Analysis" section. Many of these areas have projects that are already programmed and undergoing design, so the EWG Region is well on its way to meeting this milestone.
2. Local agencies should pilot two to four new systemic treatments in their jurisdiction. Many of the local agencies have already been exploring new systemic treatments to pilot on the roads that they maintain so the EWG Region is well underway in meeting this milestone.
3. Kick-start two to four priority policy or programming recommendations. There was active discussion about policy and program ideas during the development of the Action Plan and wide support was expressed for many of the 16 different policy and program recommendations. There is a challenge in that many of these recommendations require partnerships, but the EWG regional community is determined to build the partnerships required to make this happen.

By 2035

1. Fully implement safety projects on the top 10% of the following high-injury networks: *HIN 1 – All Modes, HIN 2 – VRU Pedestrians and Bicyclists,* and *HIN 5 – Interstate.*
2. Fully implement the systemic treatments piloted in years 2024-2030 and pilot two to four new systemic treatments.
3. Fully implement the policy or programming recommendations piloted in years 2024-2030 and kick-start two to four other policy or programming recommendations.

By 2050

1. Implement safety projects on the top 25% of the following high-injury networks: *HIN 1 – All Modes, HIN 2 – VRU Pedestrians and Bicyclists,* and *HIN 5 – Interstate.*
2. Implement all relevant systemic treatments.
3. Implement all relevant policy and program recommendations.

This Action Plan is the gateway to achieving safer roadways for all in the bi-state St. Louis Region. It provides the strategies and tools that will make the goal a reality, but it takes everyone to do their part within their own area of influence, from individuals and families up to elected officials. The plan is a call to action and following this blueprint will save more than 2,300 lives and prevent more than 14,000 serious injuries in the EWG Region between now and 2050.

GATEWAY TO SAFER ROADWAYS