WAMPO Comprehensive Safety Action Plan

Approved by the TPB on December 12, 2023

Revisions pending approval by the TPB on May 13, 2025

Comprehensive Safety Action Plan Policy Statement

The Wichita Area Metropolitan Planning Organization (WAMPO) places safety at the forefront of its transportation planning and implementation. With the understanding that safe roads and safe speeds are critical elements in the provision of a safe transportation system, WAMPO employs safety as an important criterion in the evaluation and selection of roadway, traffic management, bicycle, and pedestrian projects for funding. Proposed initiatives undergo a comprehensive evaluation, with the potential to address noted safety problems or improve overall safety metrics influencing their overall score and thereby their likelihood of being selected for funding. This unwavering focus on safety underscores WAMPO's commitment to cultivate a transportation environment where safety is intrinsic, ensuring each journey concludes as intended.

Table of Contents

Figures

Tables

EXECUTIVE SUMMARY

Planning Process

This plan follows the Safe System Approach, acknowledging that severe crash outcomes are preventable, despite the inevitability of human error, and integrates this mindset in the pursuit of zero fatalities and serious injuries on WAMPO-area roads.

Vision, Goals, and Targets

WAMPO envisions a path towards zero road deaths through innovative infrastructure, comprehensive education, and community-wide collaboration, underpinned by the principles of the Safe System Approach. The goals and targets set within this plan support this vision, and the document uses this vision as guidance throughout the planning process.

State of Practice and Data Review

This plan builds on the work of previous safety studies including the Kansas Strategic Highway Safety Plan and the Local Road Safety Plan for Butler County. Other relevant transportation plans were also studied to develop a holistic view of the transportation system.

Public and Stakeholder Engagement

A variety of tactics were used to ensure that stakeholders and the public were involved in the planning process. WAMPO formed two committees, the Transportation Safety Technical Advisors (TSTA) and the Transportation Safety Committee, which transitioned from the existing Safety and Health Committee in 2023, to provide insight, guidance, and feedback throughout the planning process. In addition to three TSTA meetings, a public open house meeting was held, and a public survey was created to gather feedback from area residents about traffic safety perceptions and the proposed plan.

Existing Conditions Analysis

Crash data from 2012 through 2021 were studied to provide a complete and thorough review of the transportation system in the WAMPO region. These data were analyzed through a variety of aspects, including maintaining authority, contributing factors, equivalent property damage, and more. Heat maps were created to illustrate and determine crash hot spots for different crash types and factors.

Countermeasures Toolbox

An engineering countermeasures toolbox was developed using Federal Highway Administration (FHWA) Proven Safety Countermeasures and focused on the emphasis areas of Speed, Vulnerable Road Users, and Intersections.

Implementation Plan and Programs

The implementation plan provides guidance for the implementation of the proposed countermeasures. It builds off best practices and determines policies and programs that need to be considered to make the plan successful and implementable.

Next Steps: Progress and Transparency

The plan concludes by describing what steps need to be taken to successfully implement this plan and maintain the document over time.

INTRODUCTION

Over 100,000 crashes occurred in the Wichita area during 2012-2021. In these years, 564 people did not return home and 1,733 had their lives permanently altered in a serious injury crash. This plan strives for Vision Zero: eliminating all fatalities and serious injuries on WAMPO-area roads and aims to improve safety, health outcomes, and equity for all.

The Wichita Area Metropolitan Planning Organization (WAMPO) Comprehensive Safety Action Plan (CSAP) was developed using the Safe System Approach. The inclusion of this approach supports ongoing transportation and safety practices, while also implementing a framework from which stakeholder conversation, data, and analysis are utilized to identify specific solutions to address safety issues.

PLANNING PROCESS

The Safe System Approach

The U.S. Department of Transportation's (USDOT's) Safe System Approach is a comprehensive and proactive framework to reduce the number of fatalities and serious injuries on roadways. The Safe System Approach is based on the fundamental concept that fatal and serious injury traffic crash outcomes are preventable. Instead of blaming road users for crashes, this approach recognizes that the responsibility for road safety lies with multiple stakeholders, including road designers, vehicle manufacturers, law enforcement, and policymakers. By designing a forgiving road system that accommodates human error, the Safe System Approach aims to prevent fatal crashes and minimize the severity of injuries.

Figure 1: Safe System Approach (FHWA)

The Safe System Approach has five key elements, as seen in Figure 1. Layering these together creates redundancy so that if one component fails, the others are still in place to prevent severe outcomes. Metropolitan Planning Organizations, such as WAMPO, have limited ability to influence Safe Vehicles or Post-Crash Care, so this plan focuses on the other three SSA elements: Safe Roads, Safe Speeds, and Safe Road Users.

- **Safe Roads:** The design and maintenance of roads play a crucial role in road safety. WAMPO's CSAP includes proven safety countermeasures that create safer roadways.

- **Safe Speeds:** Speed is a significant factor in the severity of crashes. WAMPO recognizes this and chose to focus on this as an emphasis area in the plan. This plan will include countermeasures that encourage setting appropriate speed limits and implementing measures to ensure drivers comply with them.
- **Safe Road Users:** Education, awareness campaigns, and training help promote safer behavior among road users, reducing the likelihood of crashes caused by risky behaviors. WAMPO recognizes that the focus of this plan should broaden to not only drivers, but those who are not protected by the outer shell of a vehicle. Vulnerable road users are an emphasis area in this plan, and countermeasures will focus on a holistic approach to making roads safer for all users.

VISION, GOALS, AND TARGETS

The Vision and Goals, rooted in Vision Zero and the Safe System Approach principles, played a pivotal role in guiding the plan development process, emphasizing a commitment to safety at every step. This approach ensures that the resulting plan is not only comprehensive but also firmly centered on enhancing safety outcomes, with the eventual goal of zero deaths on WAMPO-area roads.

Vision

The WAMPO Region envisions a path towards zero road deaths through innovative infrastructure, comprehensive education, and community-wide collaboration, underpinned by the principles of the Safe System Approach.

Goals

- Reduce conflicts at intersections.
- Create safer roads for all road users.
- Employ a variety of tactics to reduce vehicle speeds.



Targets

Loss of life on the road is unacceptable. In 2021, there were 65 fatalities and 221 serious injuries. Building on these figures, achieving the annual targets below will eliminate regional serious injuries and fatal crashes within 25 years.

	Annual Target
Total Fatalities	Reduce Fatalities by - 7.5% or by - 2 Fatalities Whichever is greater
Total Serious Injuries	Reduce Serious Injuries by - 7.5% or by - 6 Serious Injuries Whichever is greater

STATE OF PRACTICE AND DATA REVIEW

This plan draws upon the foundation laid by prior safety plans and studies, notably the WAMPO Vision Zero Plan, Kansas Strategic Highway Safety Plan and the Local Road Safety Plan for Butler County. Additionally, a comprehensive assessment of relevant local and regional transportation plans has been undertaken to create a holistic understanding of the transportation network. Building on these insights, this plan aims to address both historical challenges and emerging needs, ensuring a safer and more efficient transportation system for the community's future.

Previous Safety Studies and Projects

Title	*Year*	*Goals*	*Strategies*	*Application to WAMPO CSAP*
Kansas Strategic Highway Safety Plan KDOT	2020-2024	• Achieve a fatal and injury crash rate of less than 35 crashes per 100-million vehicle-miles travel by 2024 • Targeted goals for identified emphasis areas	• Strategies were identified for each emphasis area. • Intersections: strategic enforcement, systemic low-cost countermeasures at traffic signal and stop sign-controlled intersections, reduce number of conflict points, educational materials • Pedestrians and Cyclists: data collection, promote best planning practices, improve network connectivity, public awareness	• Incorporates similar emphasis areas into the CSAP • Incorporates similar infrastructure and behavioral countermeasures into the CSAP • Utilize SHSP strategies and action items for the WAMPO region • Outlines specific funding sources for safety projects

Title	*Year*	*Goals*	*Strategies*	*Application to WAMPO CSAP*
Kansas Active Transportation Plan KDOT	2022	• Provide support for more transportation options that are safe, connected, and convenient for people of all abilities, ages, and backgrounds • Reduce the frequency and severity of crashes involving pedestrians, cyclists, and other active transportation users	• Utilize design and speed management strategies to improve roadway safety for all users • Adopt policies, guidance, and laws that focus on the safety of active transportation users • Improve data collection and utilize a Systemic Safety Analysis Approach	• Provides active transportation safety strategies that can be incorporated into the CSAP • Provides Wichita region public feedback on active transportation • Outlines possible funding sources for bicycle and pedestrian safety projects • Provides an example of a vulnerable road user systemic analysis
Local Road Safety Plan – Butler County Butler County	2018	• Reduce fatalities and serious injuries on local roadways • Select and prioritize projects that will have the biggest impact on safety based on the crash types and high-risk roadway characteristics in their jurisdiction	• Utilized a crash tree diagram to determine the roadway features most associated with crashes • Identified locations where systemic improvements can be implemented • Prioritized segments in the county	• Data source for crash data in Butler County • Provides feedback from Butler County local agencies on safety issues in the county • Systemic countermeasures identified can be accounted for in the CSAP
WAMPO Regional Health and	2021	• Identify health and safety needs in the WAMPO region	• Health data analysis • Study of the transportation systems and their impact on health outcomes	• Provides the daily vehicle miles traveled for the three-county region in 2019 and 2020 and urban vs rural roadways

Title	Year	Goals	Strategies	Application to WAMPO CSAP
Transportation Report WAMPO				• Provides the percentage of adults who bike and walk to work and the number of bike/ped users per year in the WAMPO region
Vision Zero Plan WAMPO	2021	• Eliminate traffic deaths and serious injuries in the WAMPO transportation system	• Develop a regional high injury network • Develop crash profiles, behavior profiles, and countermeasures • Community engagement • Traffic calming	• Provides crash data that can be used in the CSAP • Provides commute method data for WAMPO road users • Highlights Vision Zero strategies for the WAMPO region • Provides 6 main countermeasures for the WAMPO region to prioritize
KDOT Long Range Transportation Plan KDOT	2021	• Enhance the safety and security of the transportation system for all users and workers • Reduce fatalities, serious injuries, and nonmotorized related fatalities and serious injuries	• Use education, enforcement, and engineering to reduce the severity of crashes and reduce the number of travel-related deaths towards zero • Explore and invest in existing and emerging technology to improve the safety of the transportation system • Adopt a systemic approach to safety	• Provides information about KDOT's Strategic Safety Initiative • Provides an overview of KDOT's priorities and processes related to safety

Title	*Year*	*Goals*	*Strategies*	*Application to WAMPO CSAP*
WAMPO MTP 2050 (Safety Appendix) WAMPO	2020	• Increase the safety of the transportation system for motorized and nonmotorized users	• Adopt Vision Zero strategy • Conduct detailed intersection safety analysis and countermeasure prioritization • Develop teen and elderly safe driving program • Enhance data collection • Consider Integrated Corridor Management Strategies	• Details how safety projects would be able to get WAMPO funding • Provides a review of similar MPOs and their best safety practices • Provides a list of planned projects in the area, including safety-related projects • Outlines the current bicycle and pedestrian system in the WAMPO region
Wichita: Places for People Walkable Development Book City of Wichita	2018	• Establish walkable networks in Wichita	• Maintain or improve connections and check the Bicycle Plan for planned improvements in the area • Identify slow streets and areas where traffic calming may be needed • Define safe bike and pedestrian facilities • Apply appropriate Street Typologies • Create an investment strategy for necessary design changes to improve safety and connectivity	• Provides a walkability assessment in the Established Central Area of Wichita • Provides traffic calming recommendations to reduce speeds • Provides safety strategies to improve walkability in the Wichita Region

PUBLIC AND STAKEHOLDER ENGAGEMENT

Transportation Safety Technical Advisors (TSTA)

The TSTA was established to offer feedback on the formation of the plan and provide guidance and recommendations throughout the process, ultimately ensuring the successful development of the plan. This group of transportation safety professionals in the WAMPO region was invited to share insight, feedback, and solutions. Members of the TSTA include:

- Jack Brown, University of Kansas School of Medicine
- Lizeth Ortega, City of Wichita
- Mike Armour, City of Wichita
- Raven Alexander, City of Wichita Transit
- Daniel Schrant, Sedgwick County
- Jessica Warren, Coordinated Transit District (CTD) 9
- Dan Squires, City of Derby
- Georgie Carter, City of Haysville
- Sarah Oldridge, Derby Police
- Tom Hein, KDOT
- Tia Raamot, City of Wichita
- Jason Stephens, Wichita Police
- Chad Parasa, WAMPO

TSTA Engagement

Three TSTA meetings took place to help inform plan development. Over the course of the meetings, advisors were given relevant data and informational materials to identify the safety challenges and needs within the area. These advisors played an integral role in identifying safety opportunities, challenges, and problems, directly leading to plan focus and formation. Meetings ensured the strategies and implementation efforts aligned with the vision and goals of the region. Presentations were given to provide context and resources for the planning process.

TSTA Meeting #1

The purpose of TSTA Meeting #1 was to introduce the concept of the WAMPO Comprehensive Safety Action Plan, highlight transportation safety successes in the region to build upon, and identify challenges to overcome. Meeting participants discussed the safety efforts in progress in the region to understand what effective solutions are already being implemented to address Safe System priorities. This meeting also introduced the Safe System Approach and Vision Zero concepts.

TSTA Meeting #2

The purpose of TSTA Meeting #2 was to identify the priority safety challenges to address in the Comprehensive Safety Action Plan (CSAP) and initiate a discussion on solutions. This meeting included a discussion on communications outreach efforts, benchmarking priority actions, identifying emphasis areas, data review, and preliminary safety solutions.

Attendees prioritized the top three areas to address in the CSAP:

- Intersections
- Speed
- Vulnerable Road Users

TSTA Meeting #3

The purpose of TSTA Meeting #3 was to discuss the high crash locations in the WAMPO region and identify countermeasures, including systemic countermeasures, that could be effective in mitigating crashes in the WAMPO region.

Additionally, stakeholders conducted a field review of the following high-crash intersections:

- Main Street & 3rd Street
- Market Street & 3rd Street
- Market Street & Central Avenue
- Broadway Avenue & Central Avenue
- Broadway Avenue & Pine Street

Analysis of these intersections identified deficiencies and potential countermeasures which are reflected in the Engineering Toolbox which can potentially be applied to other intersections.

Public Survey

An online public survey was conducted to understand current safety attitudes and concerns. Questions were asked about behaviors of different road users, vulnerable road user protection, enforcement, equity, and top investment priorities. The survey was shared through the WAMPO website, social media, and community-based organizations and collected 209 responses in January through March 2023.

A majority of survey respondents felt that motorist behavior is somewhat unsafe when driving, but most indicated that they agree that they feel safe driving by car.

For pedestrian behavior, more than a third of respondents indicated they feel safe walking (35%), however 23% indicated they feel unsafe walking. Similarly, 28% of respondents indicated they feel unsafe biking. As seen in Figure 3: Survey Results: VRU Accommodation

respondents believe that the streets do not have safe accommodations for vulnerable road users (VRUs) such as bicycle riders and pedestrians. Figure 3 shows that many respondents believe that vehicles do not tend to travel at safe speeds.

As seen in Figure 5, survey respondents indicated their top investment priorities are:

- Intersection improvements
- Improvements to bike facilities
- Improvements to pedestrian and/or ADA facilities

An interactive map portion of the survey allowed participants to place a point on the

map of the location of their greatest safety concern, what type of concern it is, and a description. The results of that mapping portion are shown in Figure 6.

Full charts from the public survey can be viewed in Appendix B.

Public Meeting

During the planning process, a Transportation Safety Committee meeting was held as a public open house to provide an overview of the planning effort, including the schedule, existing conditions summary, survey results, and potential safety countermeasures. During this meeting, exhibits and interactive tools were used to gather feedback about missing strategies and what people felt were the most important elements of the planning effort.

A dot exercise was conducted for participants to interact and choose which countermeasures were their top five in the categories of safe roads, safe speeds, and safe road users.

The top countermeasures for safe roads and safe speeds were:

- Bicycle lanes
- Traffic calming (e.g., speed humps, lane narrowing)
- Crosswalk visibility enhancements

The top countermeasures for safe road users were:

- Improved public awareness of nonmotorized users
- Distracted driving education campaigns
- Targeted distracted driving enforcement

Participants had the opportunity to provide more feedback through comment forms and flip charts, which were used to note meeting participants' ideas about needs and significant improvements along with other comments.

The full results of the dot exercise and comments can be viewed in Appendix B.

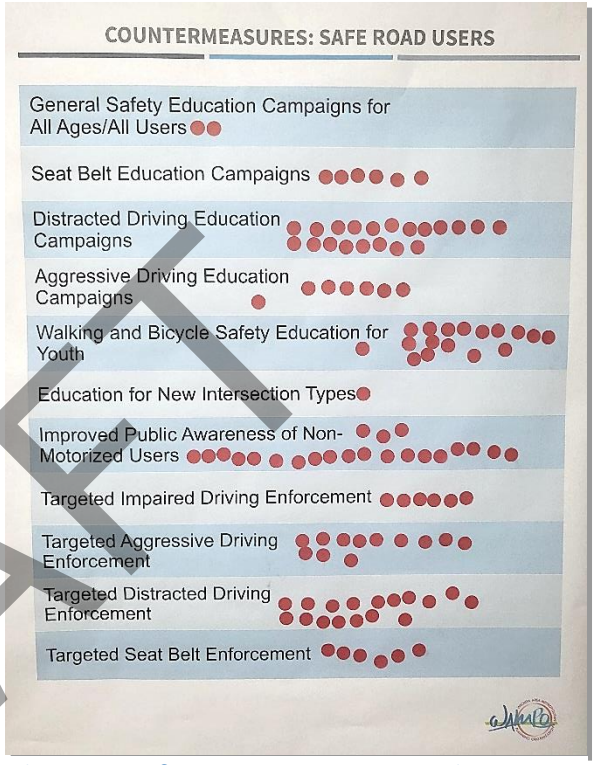


Figure 2: Safe Road Users Dot Exercise

Figure 3: Survey Results: VRU Accommodation

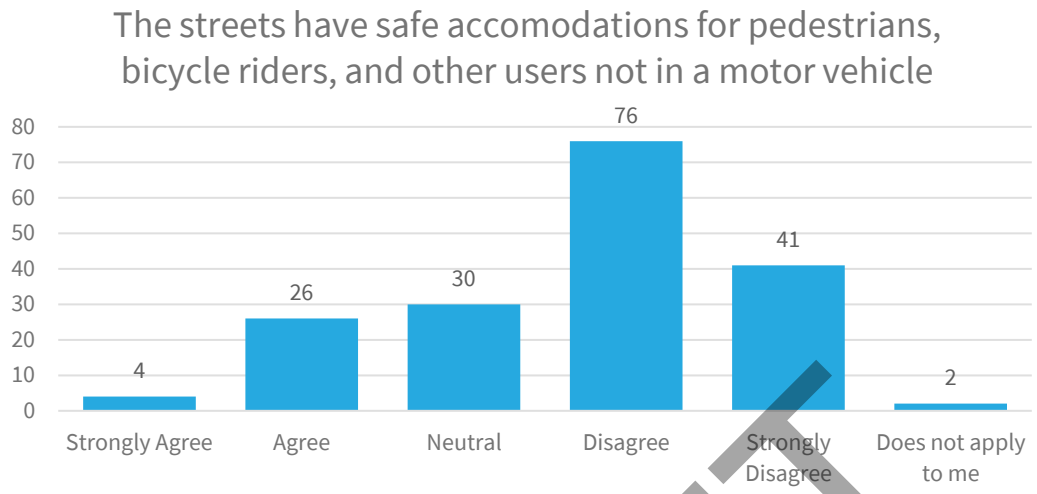


Figure 4: Survey Results: Vehicle Speeds

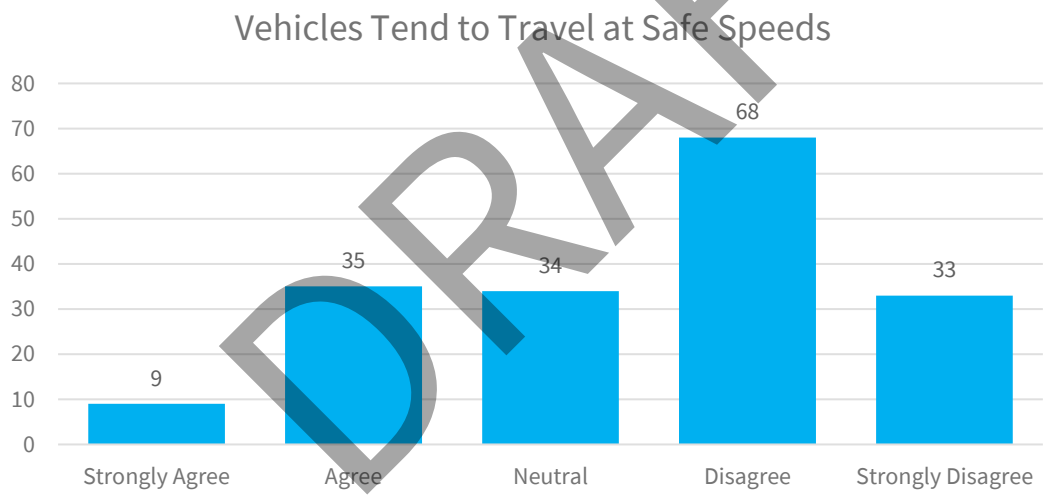


Figure 5: Survey Results: Top Investment Priorities

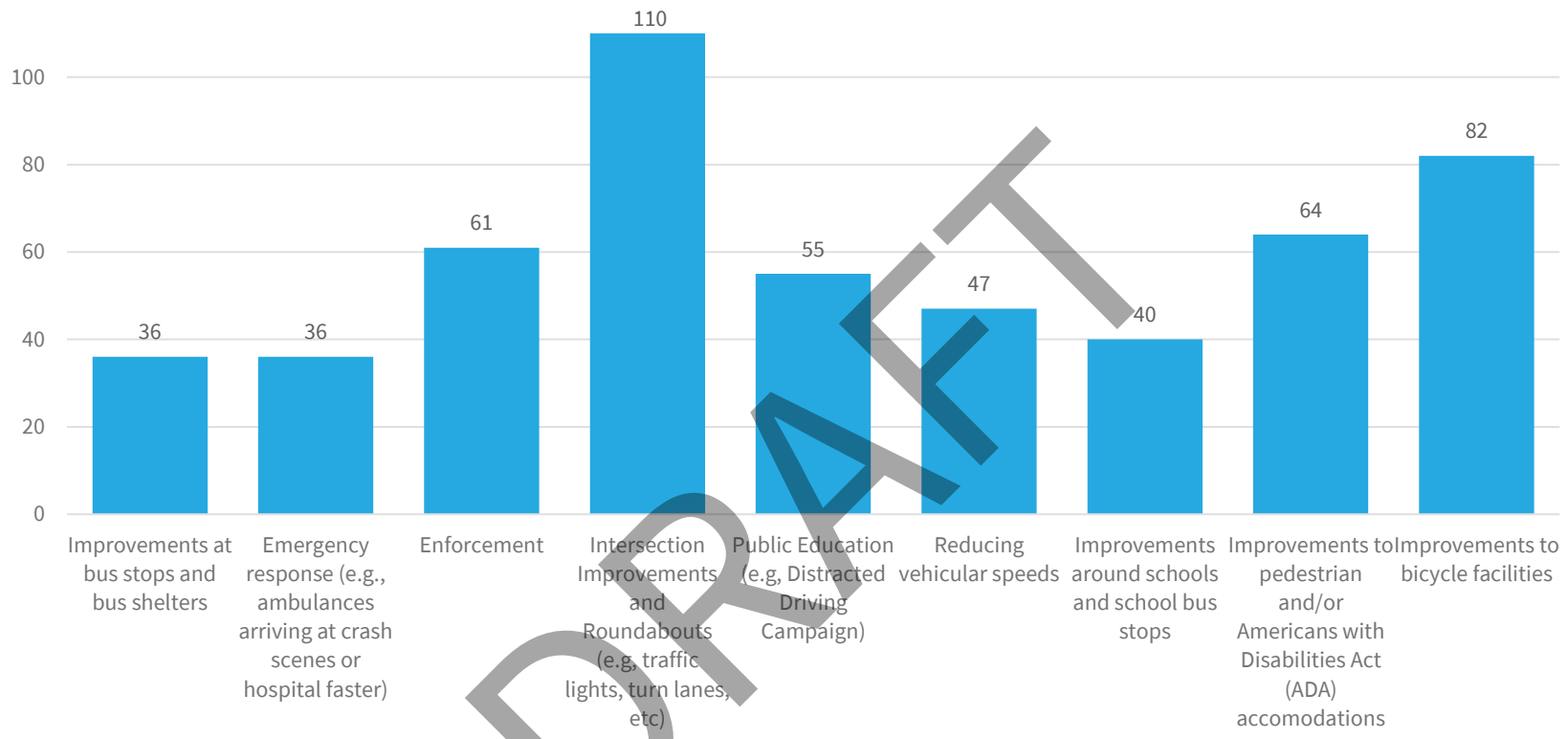
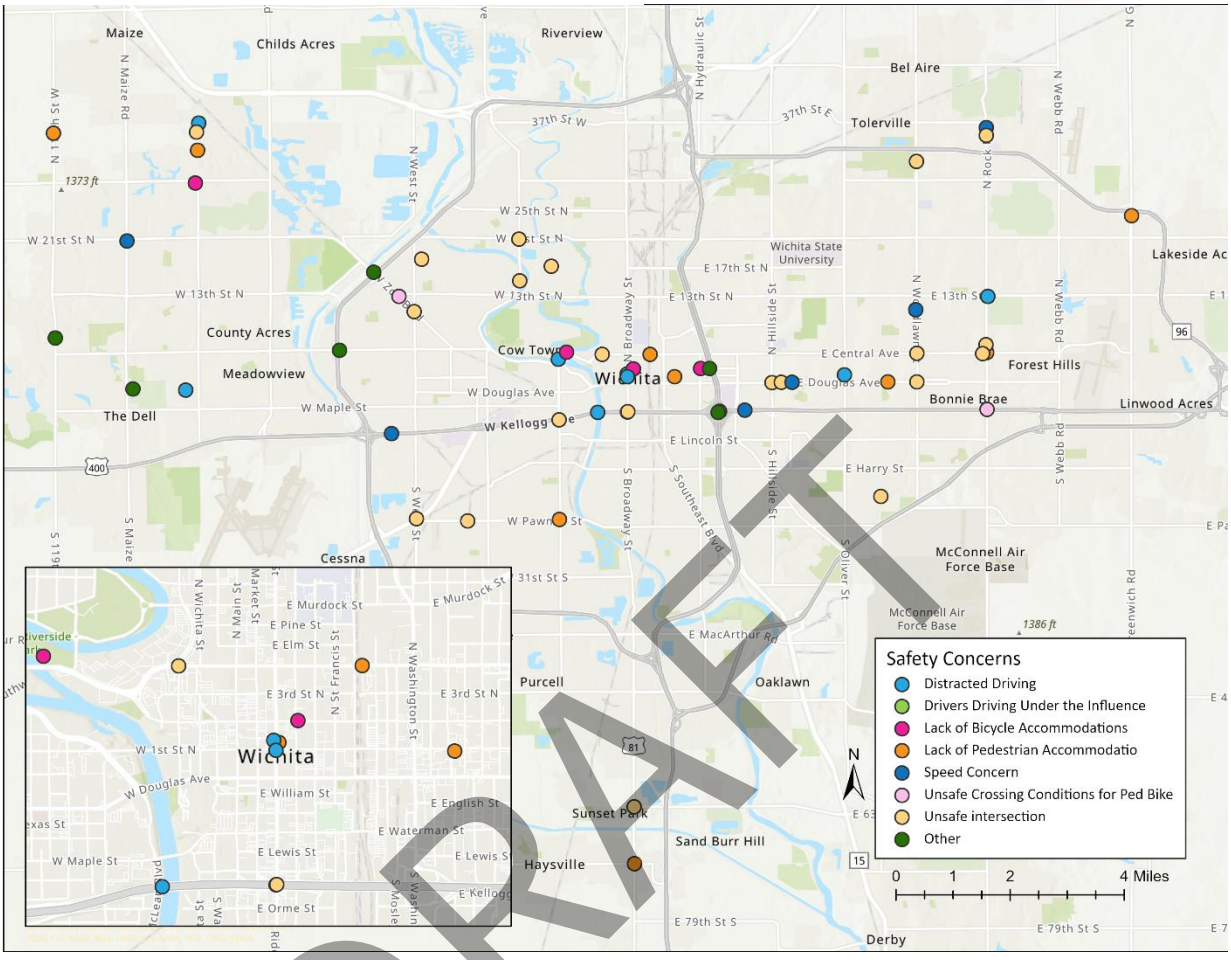


Figure 6: Survey Results: Safety Concerns



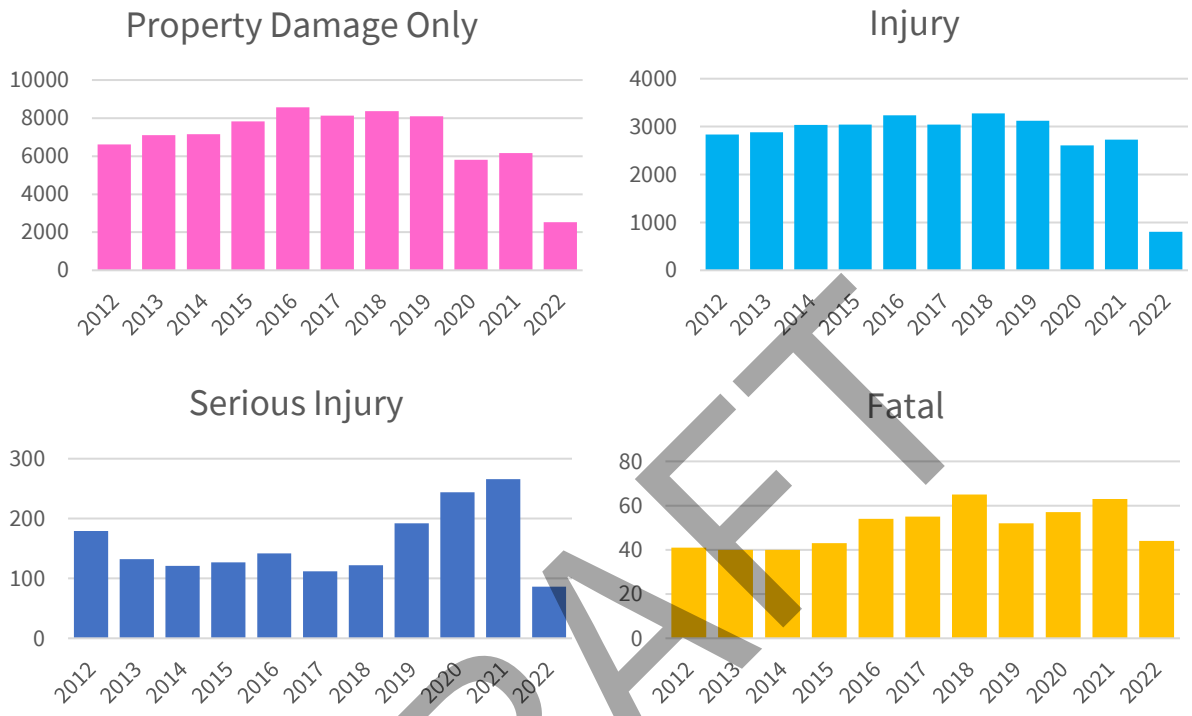
EXISTING CONDITIONS ANALYSIS

Background

As part of the CSAP, the study team conducted a review of crashes in the WAMPO area. To achieve a large sample size for meaningful conclusions to be obtained, a 10-year review (2012-2021, plus partial data for 2022) was chosen for the dataset. There were a number of differences in crashes and severity noted in 2019 through 2022, stemming from a number of factors. In 2019, the FHWA required KDOT to change their serious injury definition, which resulted in higher serious injury crashes; this is also somewhat contrasted against the changes in travel patterns during the COVID-19 pandemic, as well as changes in the City of Wichita crash reporting software, which appears to currently underreport crashes. With much of the recent crash data having various anomalies, the longer analysis period was confirmed as an appropriate measure to help avoid data bias. This dataset is approximately 109,000 crashes. Some miscoded crashes have been discovered in the dataset. Many of these, such as ones without geolocation, were removed; however, there still may be minor variations between the datasets. These typically affect less than 0.1% of the sample and should not skew results. A basic breakdown of crashes/year by crash severity is shown in Figure 7.

Figure 7: WAMPO Area 10-Year Crash Totals

Ten years of crash data from KDOT supplied crash reports for the WAMPO region including all of Sedgwick as well as portions of Butler and Sumner counties.



Crash Trends Analysis

Crashes by Maintaining Authority

Nearly 80% of all crashes in the WAMPO planning area occur on non-state-system roadways. It is incumbent on the local jurisdictions to determine what and where the biggest safety issues lie and have programs to combat these issues.

Table 1: Crashes by Jurisdiction

	All Crashes			Non-State System			State System		
	Total	Fatal	Serious Injury	Total	Fatal	Serious Injury	Total	Fatal	Serious Injury
Wichita	86,198	380	1,282	68,991	296	1,046	17,207	84	236
Sedgwick County	9,995	120	224	6,507	86	168	3,488	34	56
Derby	3,021	16	56	2,704	16	54	317	-	2
Andover	2,009	2	17	1,591	2	12	418	-	5
Park City	1,559	7	20	975	5	16	584	2	4
Haysville	895	1	19	726	1	18	169	-	1
Goddard	868	6	15	452	4	8	416	2	7
Maize	819	2	19	706	2	18	113	-	1
Bel Aire	655	-	12	628	-	12	27	-	-
Butler County	525	7	15	377	5	11	148	2	4
Valley Center	517	4	5	476	4	4	41	-	1
Mulvane	430	3	5	331	2	3	99	1	2
Sumner County	390	5	16	113	1	5	277	4	11
Rose Hill	289	-	6	289	-	6	-	-	-
Kechi	222	3	4	91	1	3	131	2	1
Clearwater	152	1	4	142	1	4	10	-	-
Mount Hope	125	4	3	37	-	1	88	4	2
Cheney	112	1	2	93	-	-	19	1	2
Eastborough	105	-	1	105	-	1	-	-	-
Colwich	95	-	3	56	-	2	39	-	1
Garden Plain	57	-	3	36	-	3	21	-	-
Sedgwick	48	2	1	33	2	1	15	-	-
Viola	46	-	-	18	-	-	28	-	-
Andale	39	-	-	36	-	-	3	-	-
Bentley	16	-	1	16	-	1	-	-	-

In the WAMPO region, city crashes comprise approximately 60% of all fatal and serious injury crashes, and approximately 70% of the total number of crashes. Twenty percent of total crashes occur on state-maintained roadways, and about 20% of all fatal and serious injury crashes occur on state-owned facilities. County crashes are about 6% of the total crashes and 12% of fatal and serious injury crashes.

Table 2: Crash Statistics by Government Unit Maintaining Authority

	Fatal	Serious Injury	Injury	Non Injury (PDO)	Total
State System Crashes	136	336	5,271	17,915	23,658
County Crashes	92	184	1,732	4,989	6,997
City Crashes	336	1,213	23,560	53,423	78,532
	564	**1,733**	**30,563**	**76,327**	**109,187**

Crash Types

Crash type (e.g., Collision with Other Motor Vehicle, Fixed Object, Pedestrian) analysis is a common method to categorize crashes to understand key concerns and develop effective countermeasure solutions. The following outlines the results of an analysis of specific crash types in the WAMPO region. The three most prevalent crash types in the dataset include Collision with Other Motor Vehicle, Fixed Object, and Parked Motor Vehicle. There were 109,202 total crashes (excluding "None" and "Unknown"). Among those, there were 77,457 Other Motor Vehicle, 15,338 Fixed Object and 5,650 Parked Motor Vehicle crashes. Parked Motor vehicles were the smallest subset of fatal and serious injury crashes. Pedestrian, Pedalcycle (Bike), and Train crashes had the highest percentage resulting in fatalities and serious injuries (FSI). Both crash frequency and percentage that are fatal and serious injury crashes can be used to identify applicable improvement strategies for Vision Zero.

Table 3: WAMPO Area Crash Types

	All Crashes	Fatal Crashes	Serious Injury Crashes	FSI
Other Motor Vehicle	77,457	246	806	1.36%
Fixed Object	15,338	120	376	3.23%
Parked Motor Vehicle	5,650	10	20	0.53%
Animal	4,044	-	7	0.17%
Overturned	2,985	78	241	10.69%
Pedestrian	1,028	81	159	23.35%
Pedalcycle (bike)	1,012	14	88	10.08%
Other Object	816	4	7	1.35%
Other-Non-Collision	734	6	26	4.36%
Unknown	96	1	1	2.08%
Railway Train	42	4	2	14.29%

KDOT crash reporting separates Collisions with Other Vehicles into further breakdowns of type (e.g., Angle-Side Impact, Head-On). These data indicate that Angle-Side Impact, Rear End, and Sideswipe - Same Direction are the most common crashes. Angle-Side Impact, Head-On, and Sideswipe Opposite Direction have the highest percentage of fatalities and serious injuries.

Table 4: Collision with Another Vehicle Type Additional Breakdown

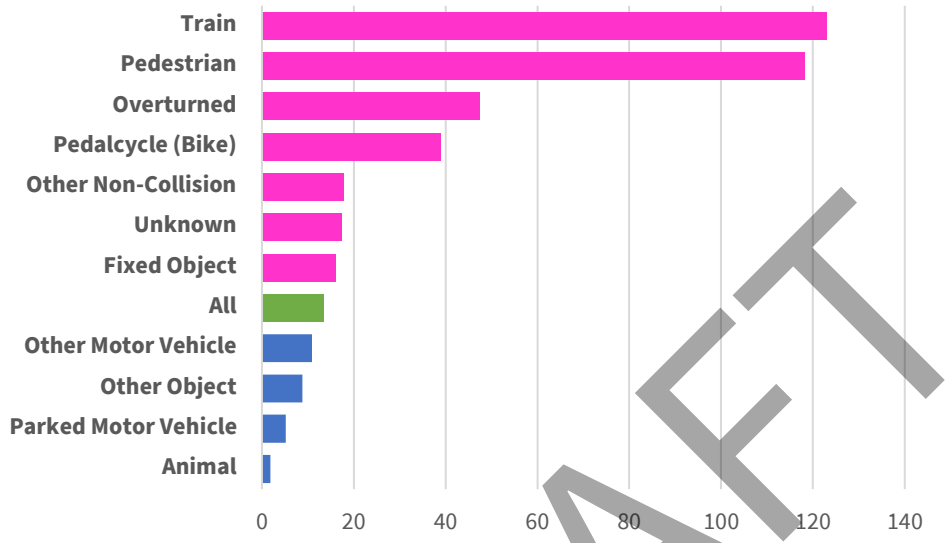
	All Crashes	Fatal Crashes	Serious Injury Crashes	FSI
Angle - Side Impact	34,107	154	513	1.96%
Rear End	31,015	28	164	0.62%
Sideswipe: Same Direction	7,510	5	20	0.33%
Head-On	2,136	53	90	6.69%
Sideswipe: Opposite Direction	1,137	2	12	1.23%
Backed Into	1,019	1	1	0.20%
Unknown	337	1	6	2.08%
Other	221	2	0	0.90%

Equivalent Property Damage Only Crashes

The equivalent property damage only (EPDO) crash frequency calculates the relative severity of the crashes occurring at a specific location. The EPDO crash frequency relates all crashes in terms of

property damage only (no injury) crashes. To calculate the EPDO, KDOT-provided economic crash costs by severity were used to develop equivalency factors for each crash type. Train and Pedestrian crashes had the highest EPDO severity. Other key values higher than the combined EPDO rate are shown in blue below.

Figure 8: EPDO Crash Frequency for Major Crash Types



Crash Types by Jurisdiction

Collisions with Other Motor Vehicles, Fixed Object, Parked, Overturned, Pedestrian, and Pedalcycle (Bike) were the top crash types. These were broken out by jurisdiction to show where the different crash types were over- or underrepresented against the average. In Table 5, the shaded pink values are where the jurisdiction is over the county average; the non-shaded values are where they are below the county average values. Animal crashes were another high crash type but were low in severity and are often more random in nature, thus harder to mitigate so further breakdowns of these crashes are not included.

Table 5: Crash Types by Jurisdiction Table

	Vehicle Crash with:						
	Other Motor Vehicle	Fixed Object	Parked Vehicle	Overturned Vehicle	Pedestrian	Pedalcycle (Bike)	Train
Wichita	75.19%	13.28%	5.29%	2.00%	1.04%	1.05%	0.03%
Sedgwick County	45.78%	20.58%	1.64%	8.06%	0.43%	0.25%	0.15%
Derby	74.78%	8.08%	8.34%	1.95%	0.83%	1.16%	0.10%
Andover	75.21%	10.80%	4.93%	1.24%	0.35%	0.25%	0.00%
Park City	52.92%	17.45%	6.54%	3.72%	0.38%	0.38%	0.06%
Haysville	62.91%	14.64%	10.50%	3.13%	1.45%	0.78%	0.00%
Goddard	70.97%	12.67%	3.57%	3.80%	0.23%	0.12%	0.00%
Maize	60.07%	16.00%	5.01%	5.37%	0.49%	0.24%	0.00%
Bel Aire	67.02%	10.53%	9.31%	3.05%	0.15%	0.76%	0.00%
Butler County	30.10%	28.00%	1.52%	10.86%	0.19%	0.57%	0.00%
Valley Center	47.20%	18.96%	11.99%	3.68%	0.77%	0.39%	0.00%
Mulvane	52.33%	15.81%	18.37%	3.49%	1.16%	1.40%	0.00%
Sumner County	36.41%	23.33%	0.51%	7.69%	1.03%	0.00%	0.00%
Rose Hill	65.05%	10.03%	12.80%	2.08%	1.73%	1.04%	0.00%
Kechi	26.58%	29.73%	3.15%	4.05%	0.90%	0.00%	0.00%
Clearwater	40.79%	22.37%	8.55%	9.21%	2.63%	0.66%	0.00%
Mount Hope	32.00%	21.60%	3.20%	8.80%	0.00%	0.80%	0.00%
Cheney	33.93%	19.64%	7.14%	5.36%	0.89%	0.89%	0.00%
Eastborough	81.90%	11.43%	1.90%	0.95%	0.00%	0.95%	0.00%
Colwich	43.16%	15.79%	9.47%	9.47%	0.00%	0.00%	0.00%
Garden Plain	31.58%	22.81%	7.02%	5.26%	0.00%	0.00%	0.00%
Sedgwick	50.00%	20.83%	2.08%	6.25%	0.00%	0.00%	0.00%
Viola	30.43%	17.39%	4.35%	2.17%	0.00%	2.17%	0.00%
Andale	48.72%	20.51%	2.56%	2.56%	5.13%	0.00%	0.00%
Bentley	18.75%	37.50%	6.25%	12.50%	0.00%	0.00%	0.00%

Most crashes occur on city-maintained roadways for each high crash type. Pedestrian and Bike crashes are all more represented within the city network. Train crashes are exclusively off the state system in the WAMPO area.

Table 6: Crash Types for Severe Crashes by Maintaining Agency

	Vehicle Crash with:						
	Other Motor Vehicle	Fixed Object	Parked Vehicle	Overturned Vehicle	Pedestrian	Pedalcycle (Bike)	Train
State System Crashes	14,520	5,302	175	977	45	19	-
County Crashes	2,993	1,579	140	673	39	27	15
City Crashes	60,025	8,452	5,249	1,350	926	966	27
	77,538	**15,333**	**5,564**	**3,000**	**1,010**	**1,012**	**42**

Equity Analysis

The vision for this plan and the vision for the nation are safe streets and roads for all. A focus on equity is vital to identify and rectify disparities in safety outcomes among different communities, ensuring that resources and interventions are distributed fairly and effectively, ultimately promoting safer road environments for all.

To conduct this equity analysis, crash data were sorted by the WAMPO Environmental Justice (EJ) boundaries for minority and low-income populations, sorted by crash type and also heat-mapped. These crashes made up approximately 37,000 crashes (approximately one-third of the total crash set). When reviewing the type of crashes, the main focal points stayed the same; however, Pedestrian crashes joined Collisions with Other Motor Vehicle and Fixed Object in the top three highest fatality and serious injury combination and, from a rate perspective, it is significantly higher than the entire WAMPO area crash set. In the Collisions with Other Motor Vehicles, Head-On crashes also joined in at number two for total fatalities and the highest FSI ranking. Angle-Side Impact remained the number one type of crash.

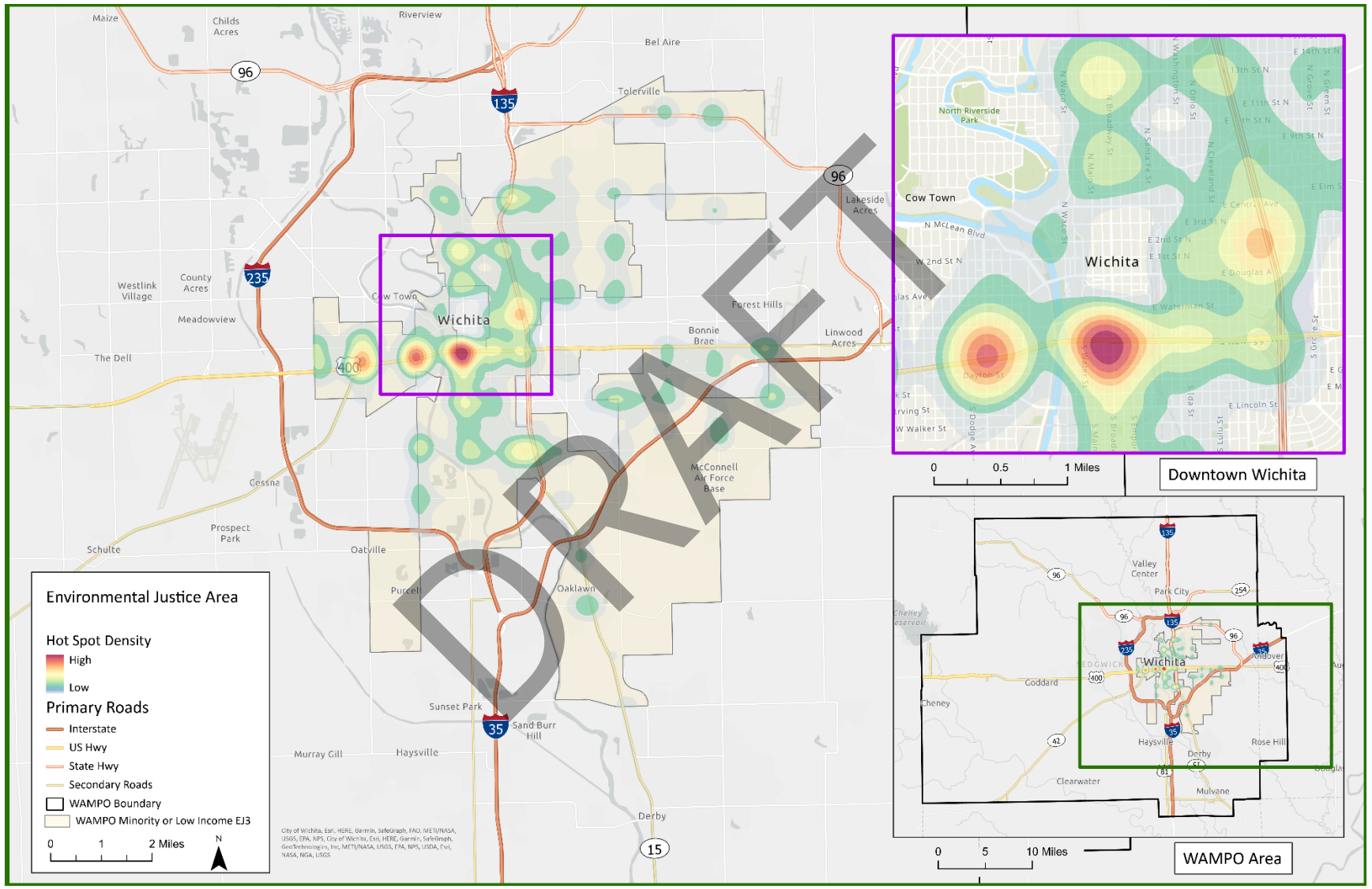
Table 7: WAMPO EJ Areas Breakdown by Crash Type

	All Crashes	Fatal Crashes	Serious Injury Crashes	FSI
Other Motor Vehicles	27,257	61	256	1.16%
Fixed Object	5,006	35	149	3.68%
Parked Motor Vehicle	2,441	7	10	0.70%
Overturned	705	21	70	12.91%
Pedalcycle (bike)	463	5	40	9.72%
Pedestrian	462	31	78	23.59%
Animal	250	-	1	0.40%
Other Object	236	1	4	2.12%
Other-Non-Collision	174	-	8	4.60%
Unknown	23	-	-	0.00%
Railway Train	21	2	1	14.29%

Table 8: WAMPO EJ Areas Collision with Other Vehicles Additional Breakdown

	All Crashes	Fatal Crashes	Serious Injury Crashes	FSI
Angle - Side Impact	12,851	46	172	1.70%
Rear End	10,274	4	50	0.53%
Sideswipe: Same Direction	2,544	3	7	0.39%
Head-On	659	8	20	4.25%
Sideswipe: Opposite Direction	375	-	5	1.33%
Backed Into	363	-	-	0.00%
Unknown	136	-	2	1.47%
Other	64	-	-	0.00%

Figure 9: WAMPO EJ Fatal and Serious Injury Crash Map



Systemic Analysis

The most prevalent types of crashes in the WAMPO area, from a crash-total or fatal-index perspective are: Collisions with Other Vehicles, Fixed Objects, and Pedestrians. These types of crashes are either over-represented by count or rates (e.g., FSI or EPDO). A further analysis of these crashes was performed. It should be noted that Train crashes also rank high from an EPDO and FSI ranking; however, with only six total fatal and serious injury crashes, there were not enough data to draw trend information.

Collisions with Other Motor Vehicles

Most fatal and serious injury Collisions with Other Motor Vehicles occur on the city-maintained system at uncontrolled intersections (i.e., only markings present) and are right-angle crashes. Signalized and stop-control intersection crashes are slightly behind uncontrolled intersections. There were 1,052 total fatality or serious injury vehicle crashes, with the majority occurring on locally maintained roadways.

Angle crashes that result in an injury or fatality generally occur throughout the day although they tend to be heaviest during 1:00-6:00 pm.

Two maps are provided in Figure 12 Figure 13, referencing the WAMPO region crash hot spots. The first shows all Collisions with Other Motor Vehicles and the second is specific to the angle crashes within the WAMPO region. Hotspots for all collisions include many interchanges and most of the I-135 corridor. Angle collisions are clustered near downtown Wichita and near the 21st Street and Maize Road area.

Figure 10: Collision with Other Motor Vehicles Crash Tree Diagram

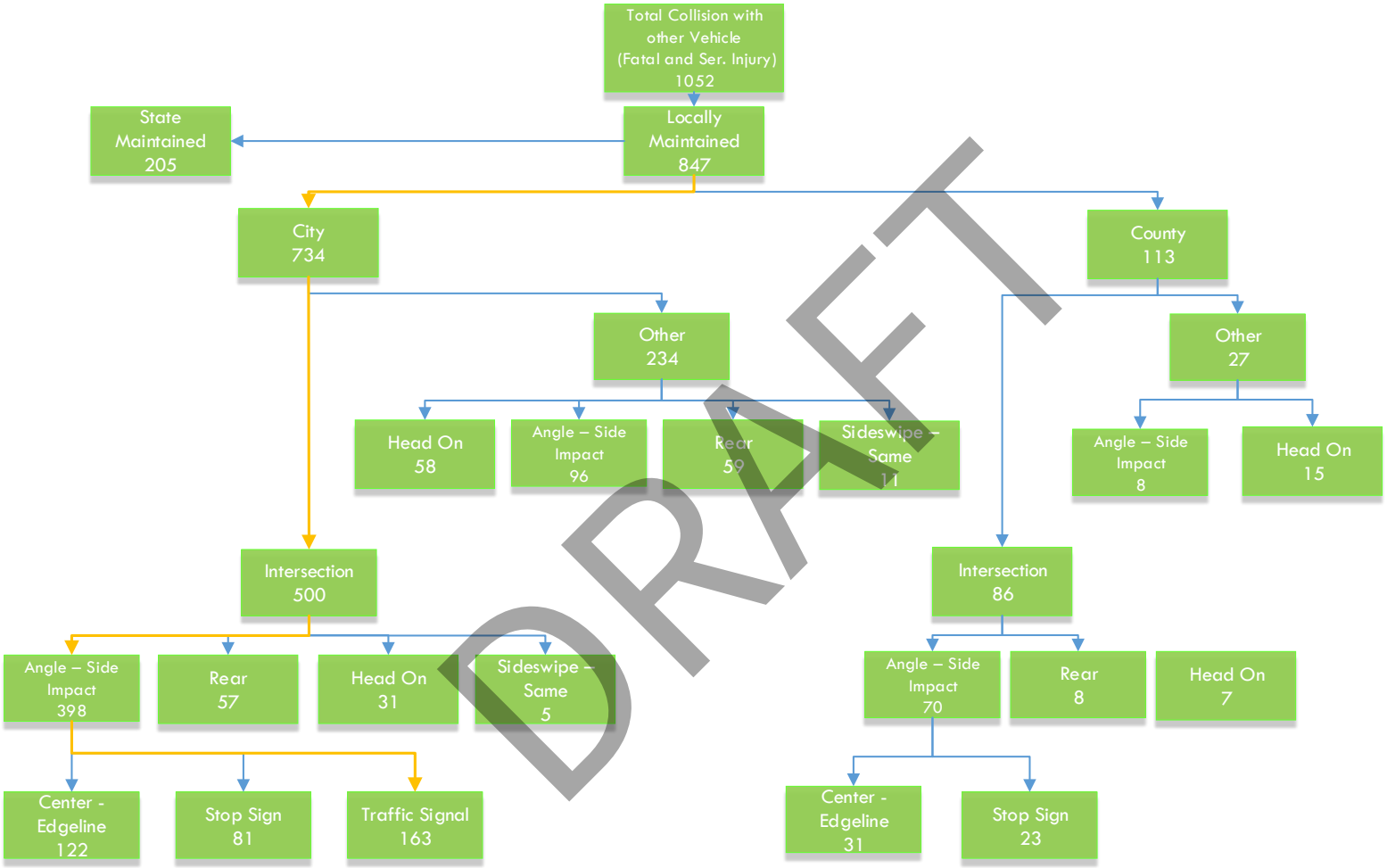


Figure 11: Angle Related FSI Crashes - Time of Day Chart

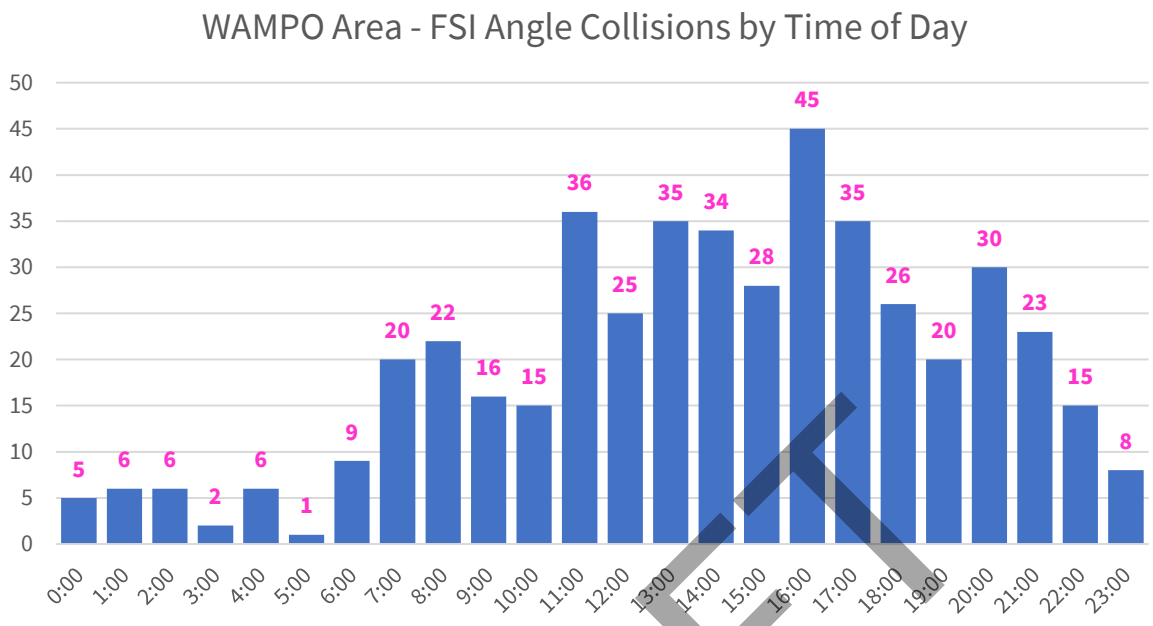


Figure 12: Heatmap of All Collisions with Other Motor Vehicle Fatal and Injury Crashes

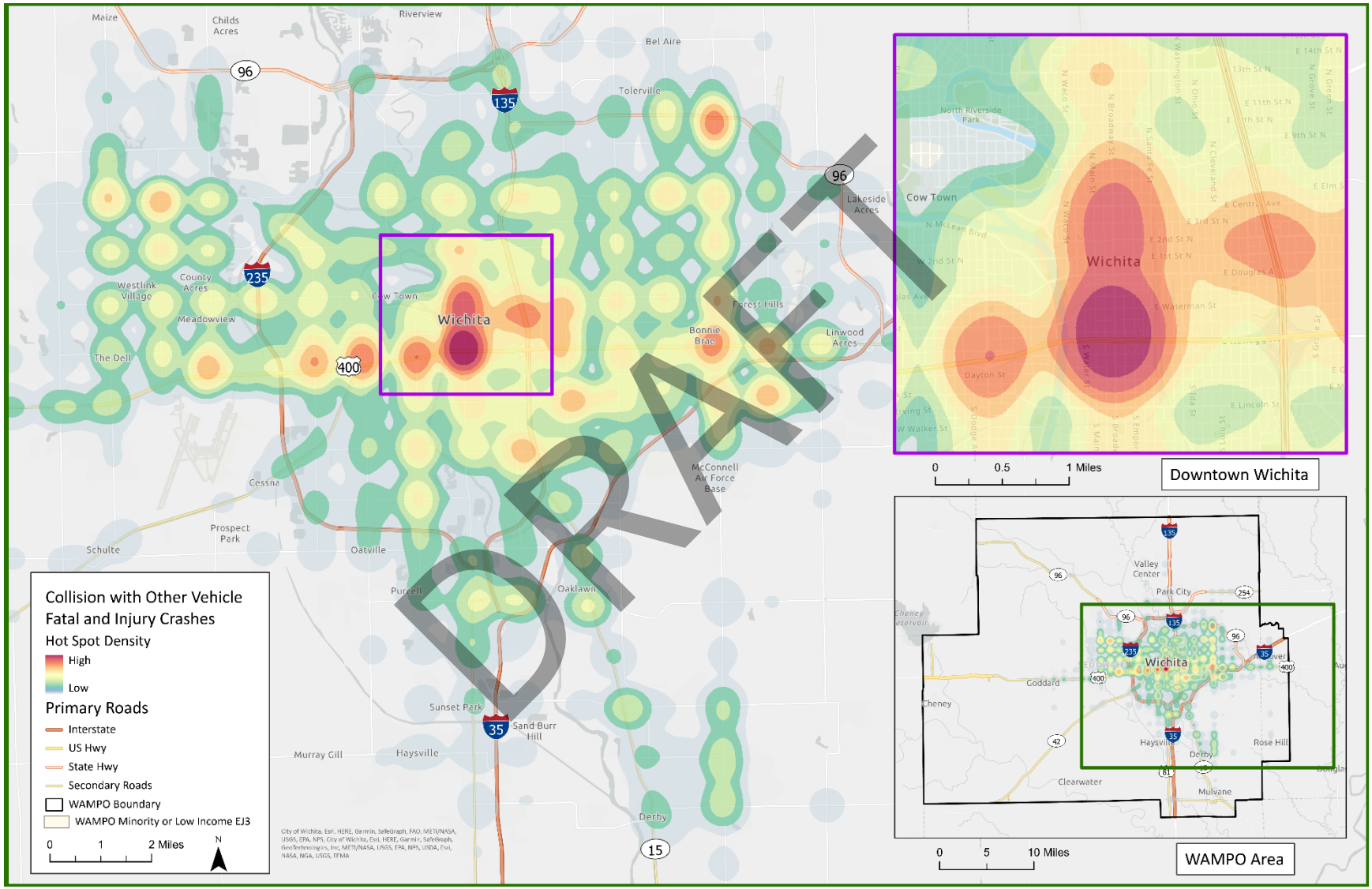
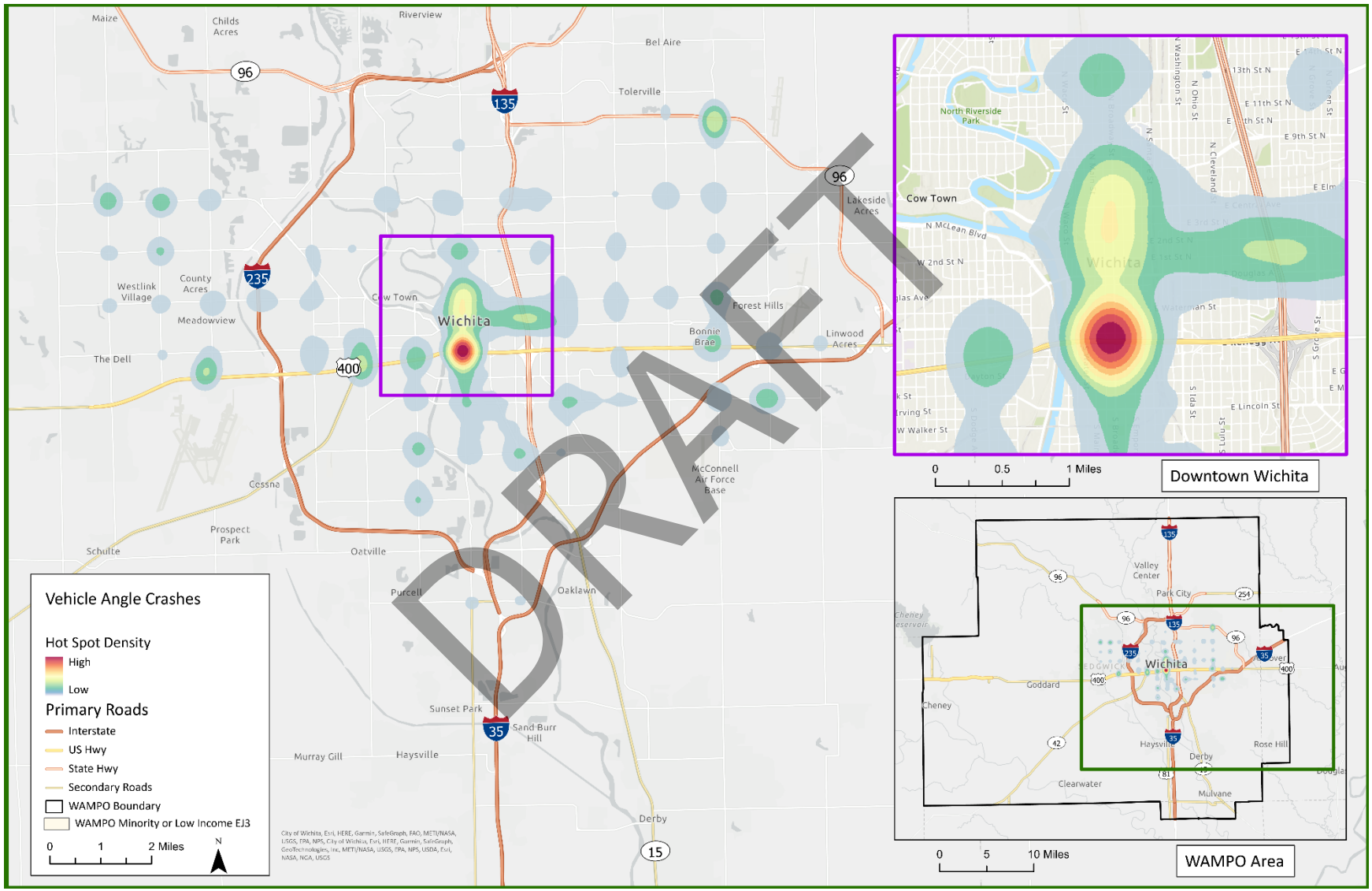


Figure 13: Heatmap of Angle Crashes



Fixed Object Collisions

There were 496 total fatal and serious injury Fixed Object crashes in the WAMPO area during the study period. Fixed Object crashes occur when a vehicle leaves the roadway and collides with a stationary object such as a tree, utility pole, or mailbox. Trees, utility devices, and median barriers were the three greatest objects struck. 134 fixed object crashes (27%) were alcohol- or drug-related. As shown in Figure 15, the worst period for fixed-object crashes is the overnight hours.

Figure 14: Fixed Object Related Fatal and Serious Injury Crashes by Object Struck

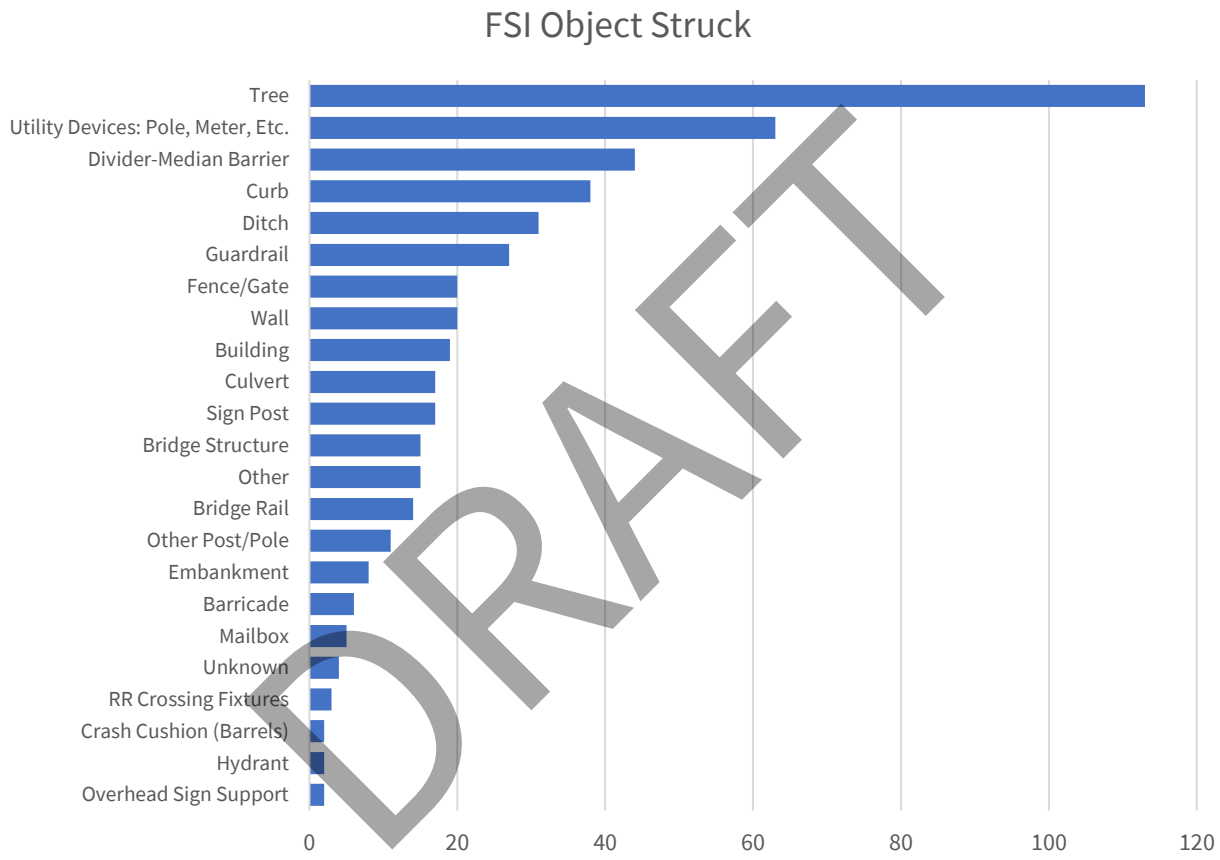


Figure 15: Fixed Object Injury and Fatality Crashes by Time of Day

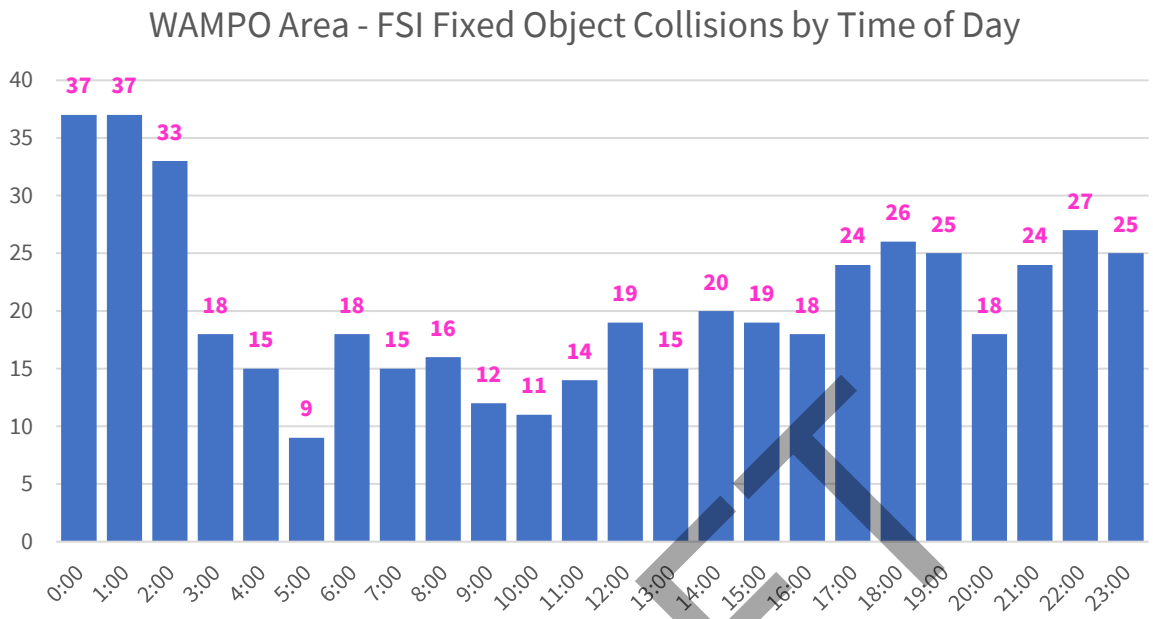


Figure 16: Fixed Object Fatal and Serious Injury Crash Tree Diagram

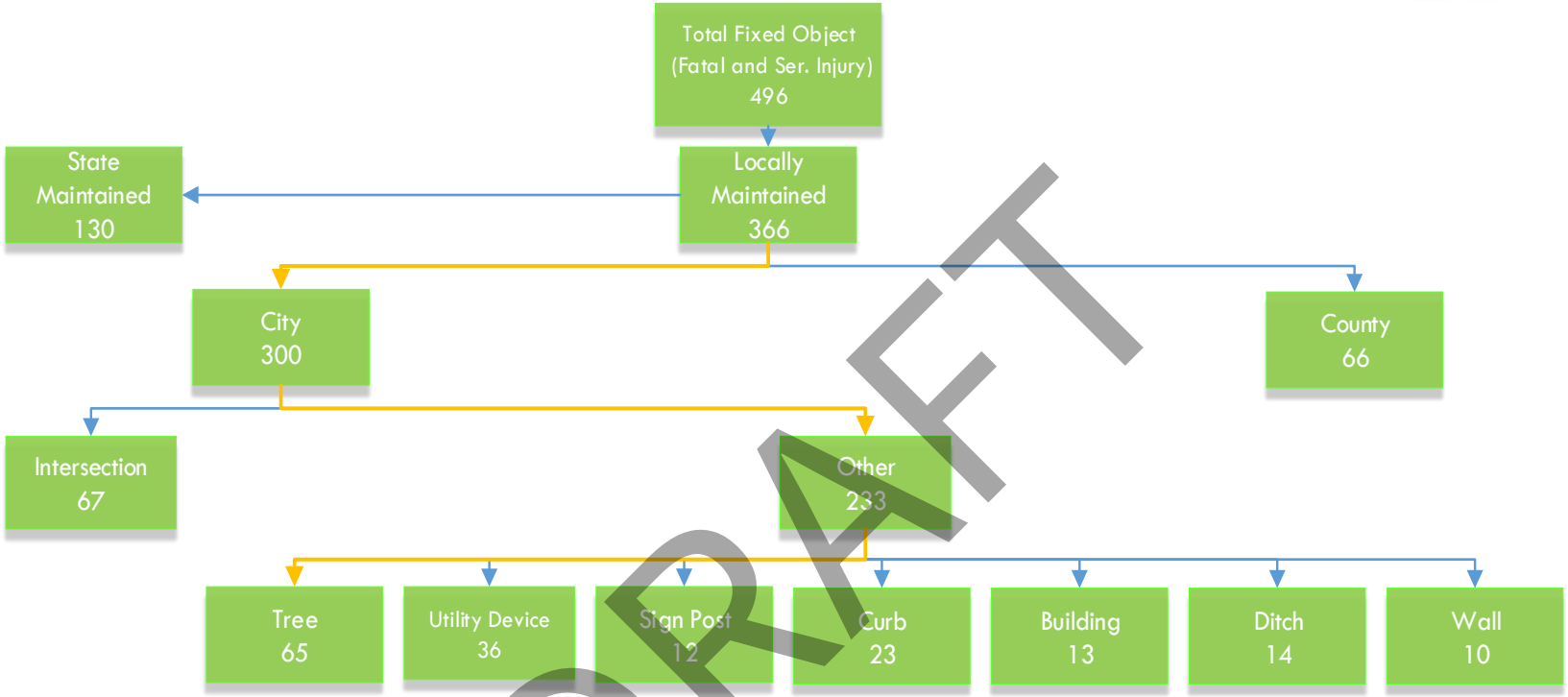


Figure 17: Fixed Object Fatal and Serious Injury Crash Heatmap

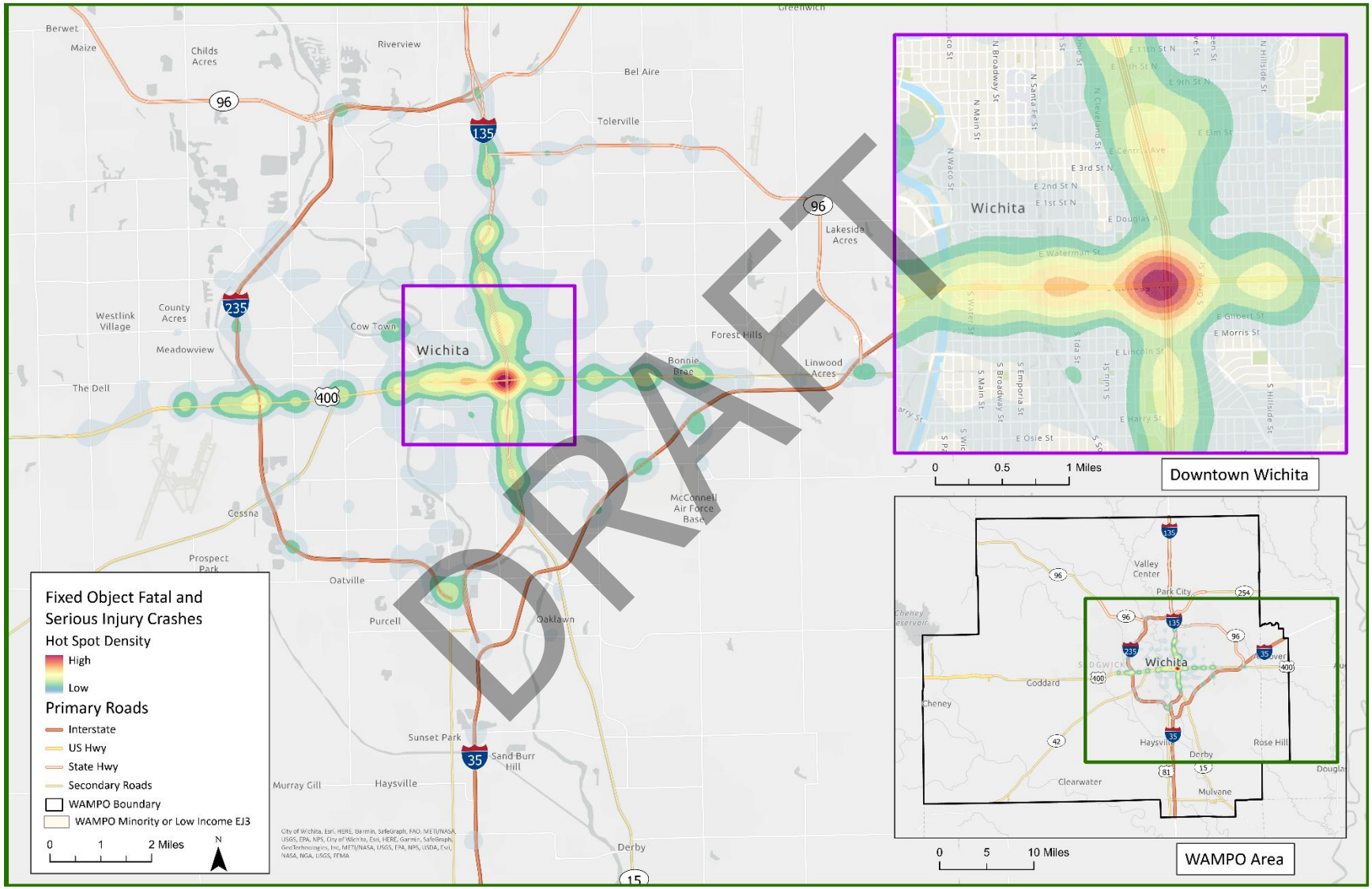
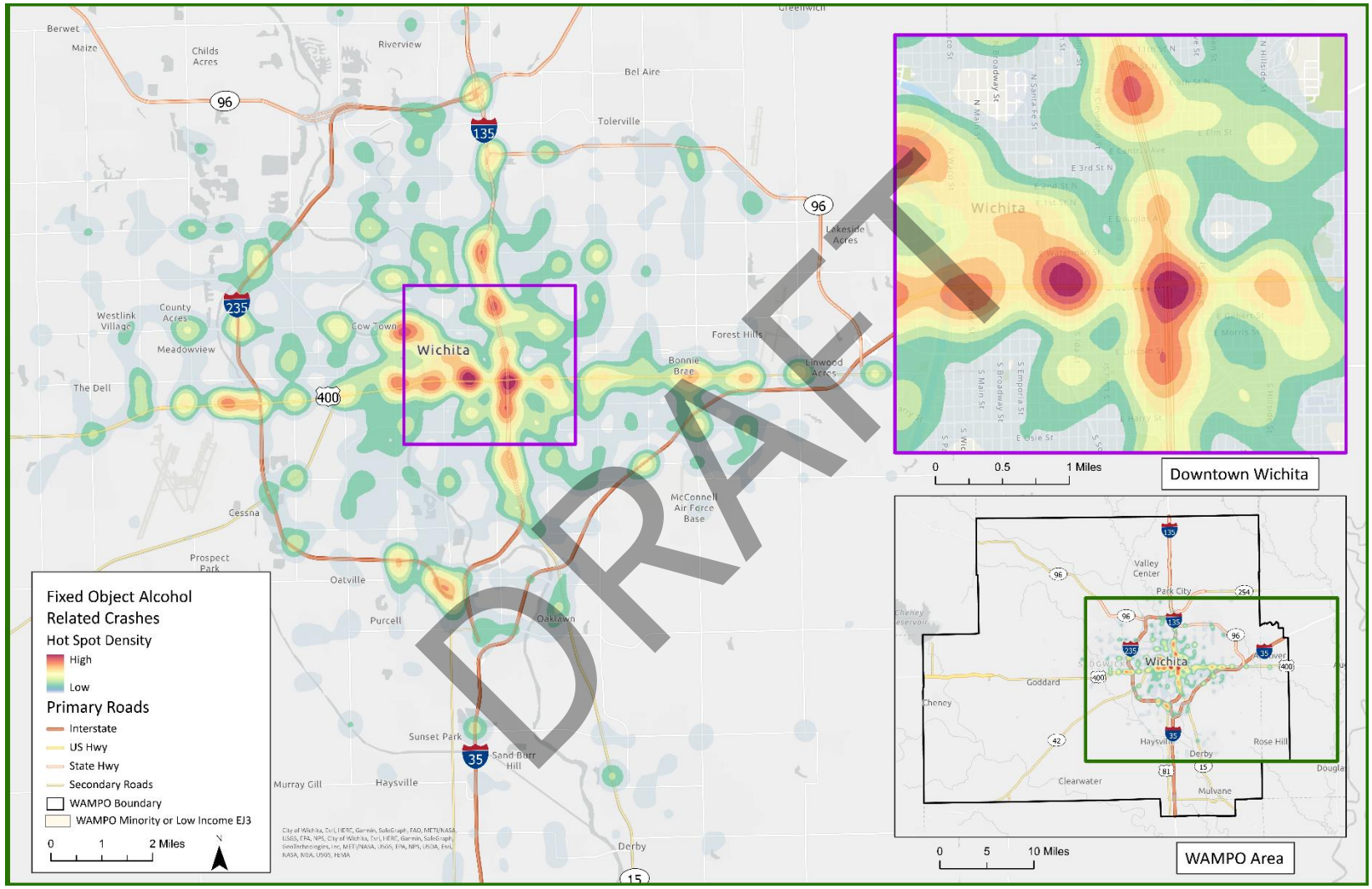


Figure 18: Alcohol Related Fixed Object Fatality and Injury Crash Heatmap



Pedestrian

Pedestrians are particularly vulnerable to crashes, as shown in the EPDO section. There were 240 fatal or serious-injury crashes involving pedestrians in the WAMPO region that were further analyzed. Most crashes occur outside intersections with only lane markings or no traffic control features present, such as at mid-block crossings. Most pedestrian crashes occur from 4:00 pm to midnight. The greatest concentrations of crashes occur near downtown and Oliver and the KTA, as well as north of Central on Ridge Road.

Figure 19: Pedestrian Crash Tree for Fatal and Serious Injury Crashes

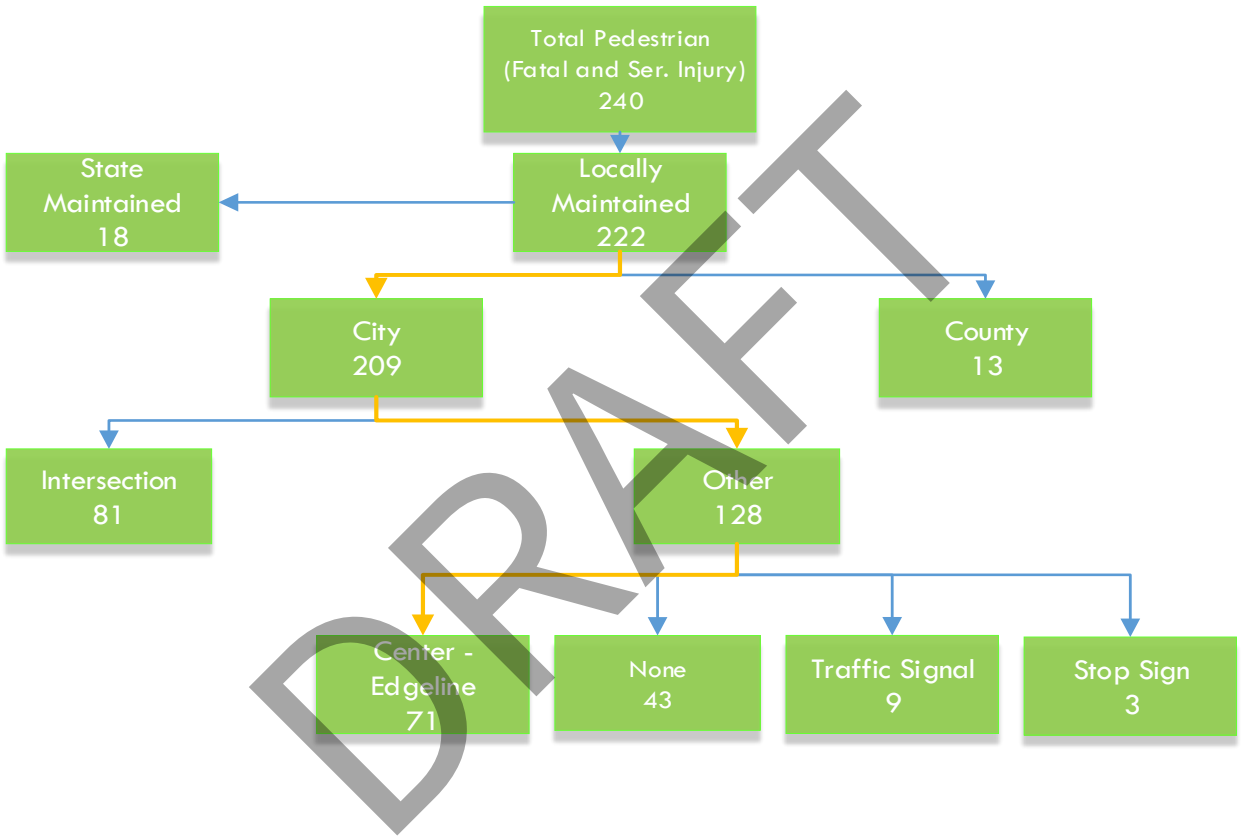


Figure 20: Pedestrian Crashes by Time of Day

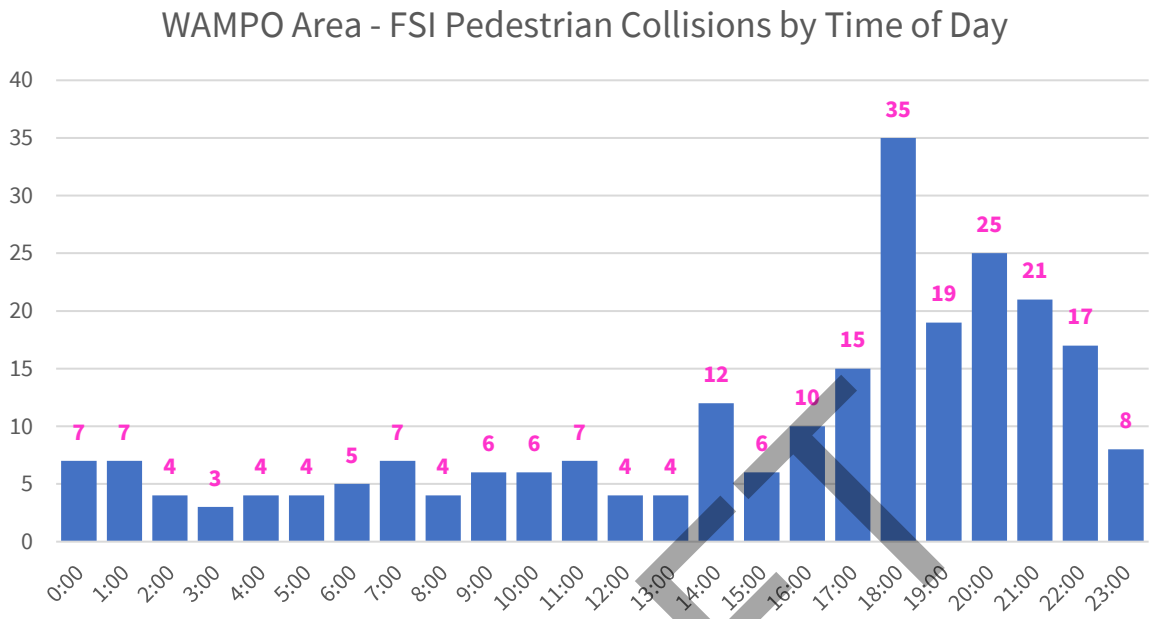
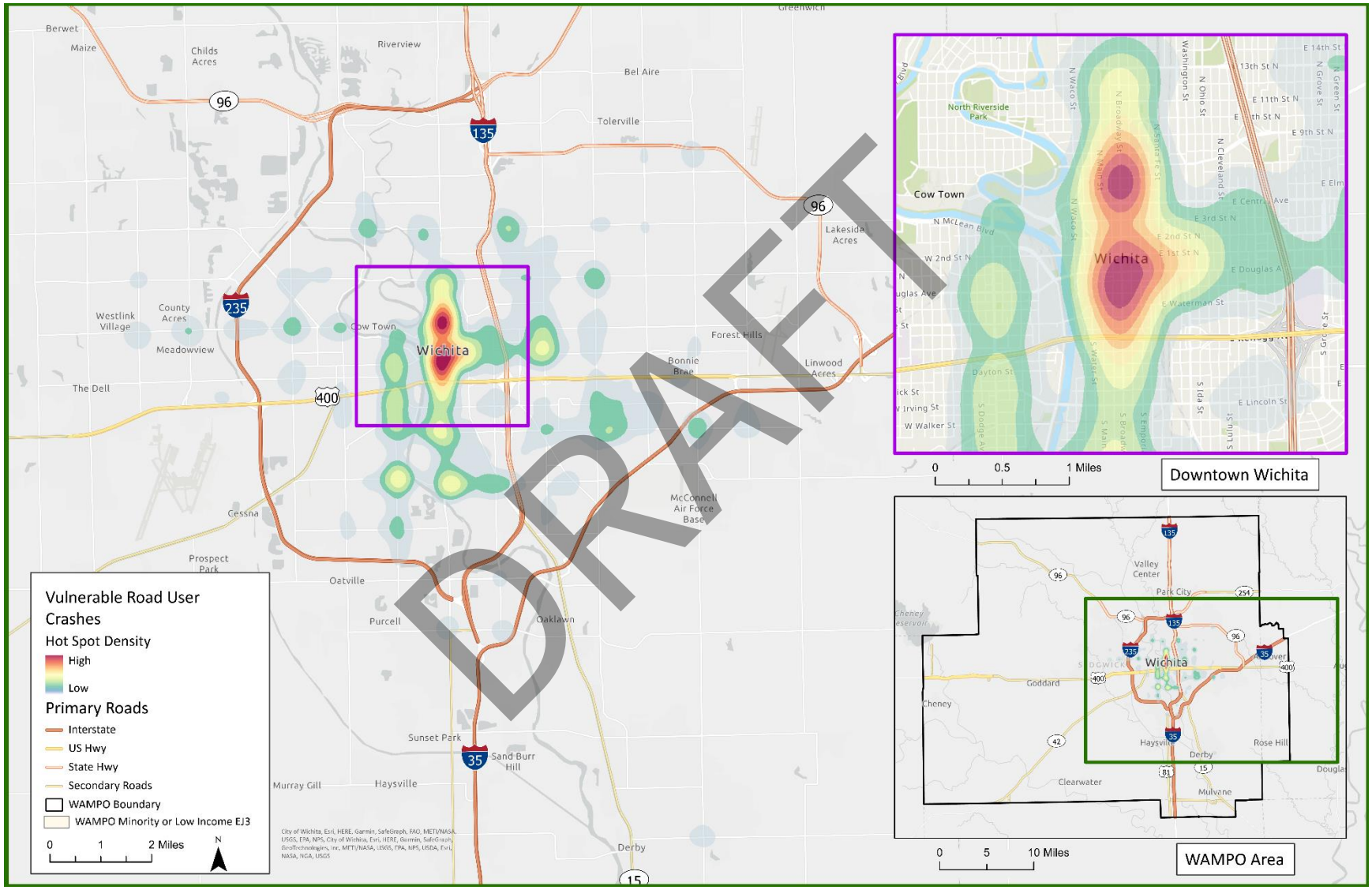


Figure 21: Pedestrian and Pedalcycle (Bike) Heatmap



Overturn

There were 319 total fatal and serious injury Overturn crashes in the WAMPO area during the study period. Overturn crashes occur when a vehicle overturns, generally either by striking something such as a curb at a higher speed or dropping a wheel over the edge of the pavement. These crashes tend to be severe in nature. Trees, utility devices, and median barriers were the three types of objects struck most often.

The time periods that see the highest number of Overturn crashes are in the afternoon and overnight, specifically 2:00 pm through 1:00 am. The heatmap in
Figure 22 illustrates a few hot spots that are generally located outside of the metro area.

Figure 22: Overturn Crash Tree

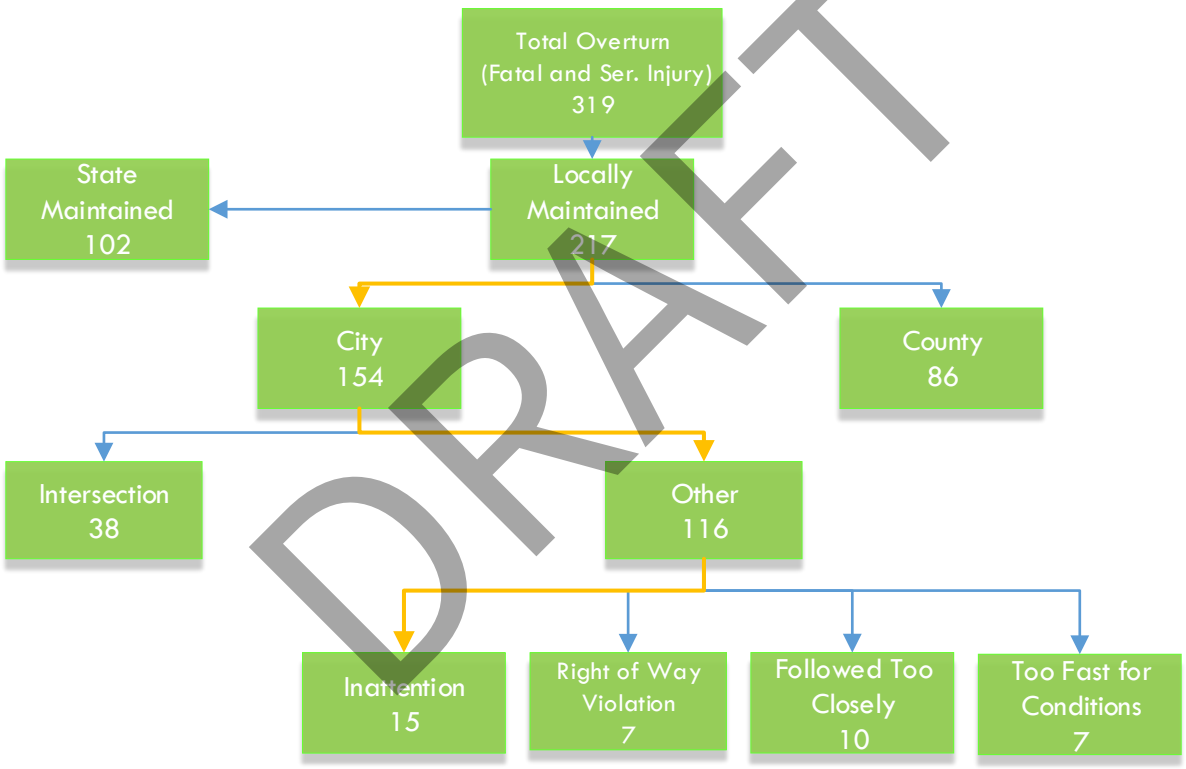


Figure 23: Overturn Crashes by Time of Day

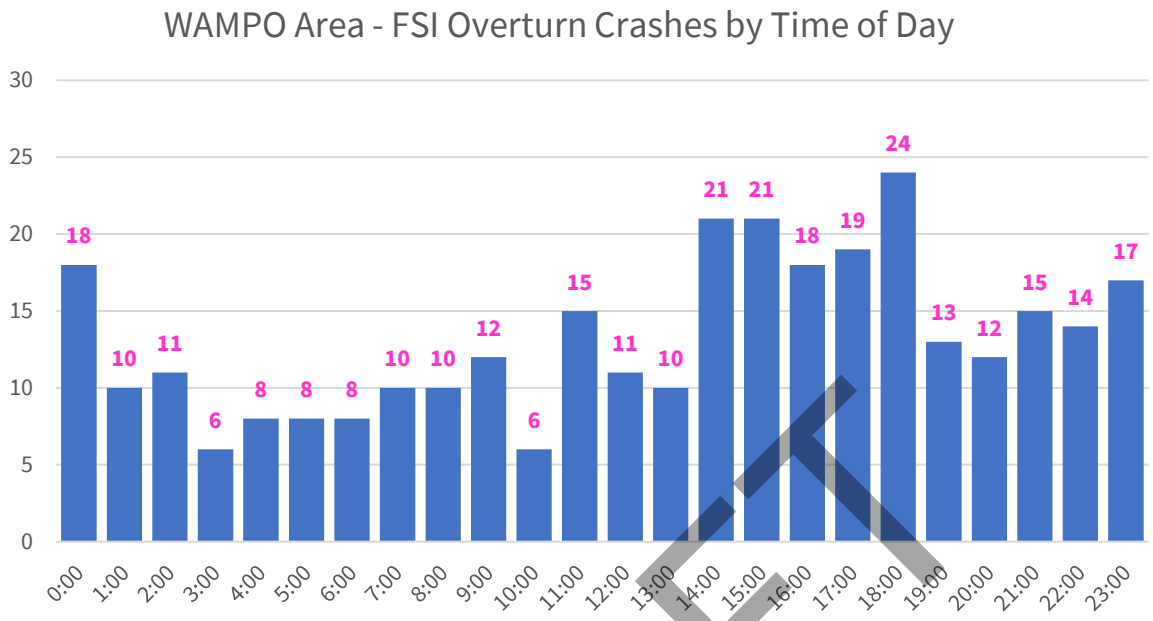
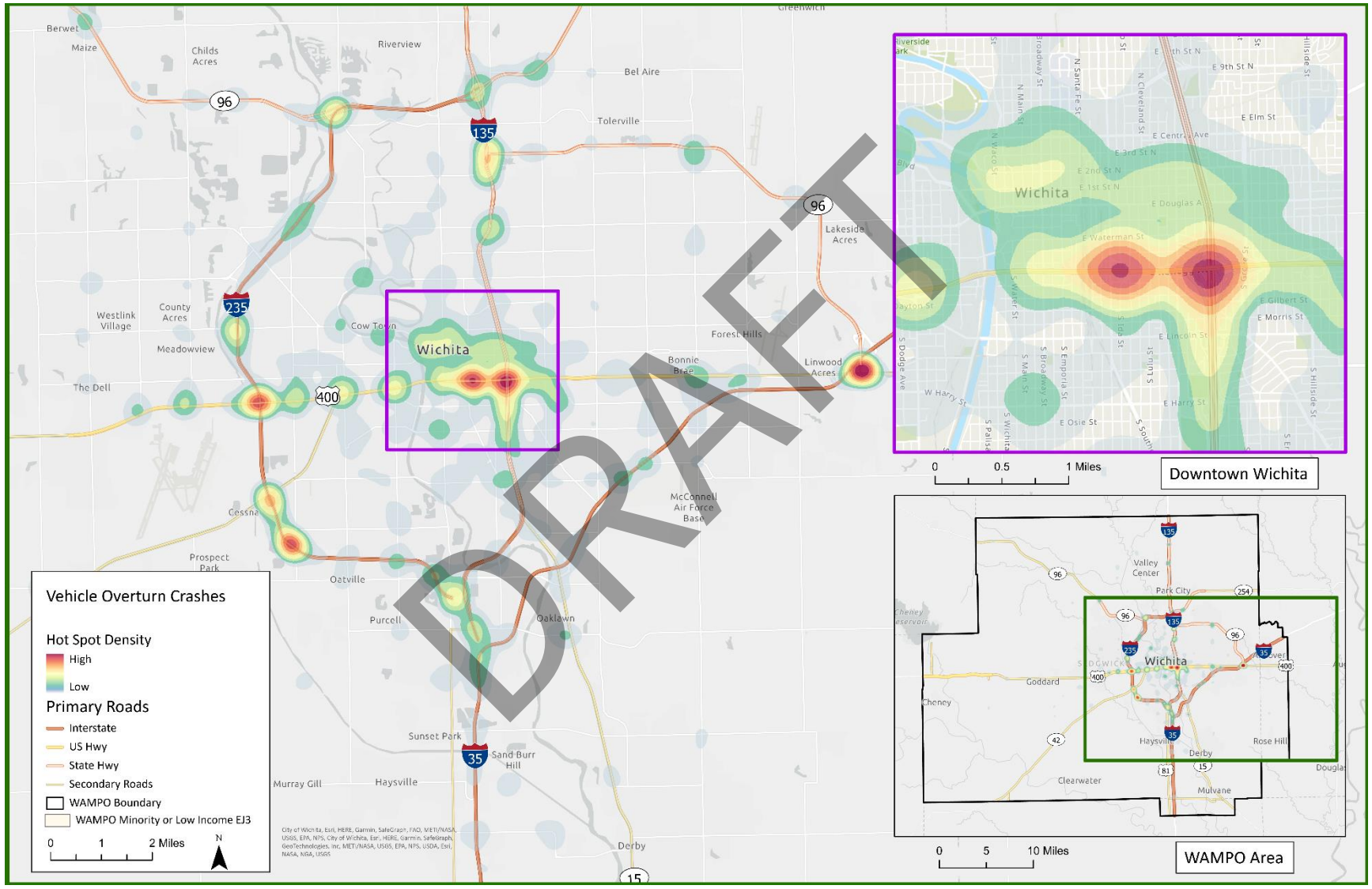


Figure 24: Heatmap of WAMPO Area Overturn Crashes



Driver Behavior Contributing Circumstances

Contributing circumstances related to driver behavior are subject to testimonials from either those involved in the crash and/or from witnesses. While this information is often under-reported, the data available still provide information regarding the behaviors that trend most often. This information can help direct efforts toward behavior change. For both intersection and non-intersection crashes, when indicated on the crash report, some form of Distraction or Driver Inattention was the most frequently indicated contributing factor.

*Even though not listed as an intersection, 339 crashes were coded as Ran Red Light; if these are moved into the intersection list, Ran Red Light would be around 6% and be number 6 on the Intersection list.

Figure 25: Driver Behavior Contributing Circumstances Table

	Intersection		Non-Intersection		Combined
	Crashes	Percentage	Crashes	Percentage	Percentage
Right of Way Violation	1,653	15.91%	2,095	15.54%	15.70%
Inattention - General	1,374	13.22%	1,765	13.09%	13.15%
Followed Too Closely	942	9.07%	1,191	8.83%	8.93%
Unknown	658	6.33%	877	6.50%	6.43%
Too Fast for Conditions	539	5.19%	769	5.70%	5.48%
Improper Lane Change	396	3.81%	489	3.63%	3.71%
Ran Red Light	339	3.26%	**459***	**3.40%**	3.34%
Right of Way Violation | Inattention - General	188	1.81%	243	1.80%	1.81%
Other Distraction In or On Vehicle	146	1.41%	191	1.42%	1.41%
Improper Backing	142	1.37%	162	1.20%	1.27%
Inattention - General | Too Fast for Conditions	134	1.29%	145	1.08%	1.17%
Avoidance or Evasive Action	133	1.28%	185	1.37%	1.33%
Followed Too Closely | Inattention - General	127	1.22%	309	2.29%	1.83%
Improper Turn	127	1.22%	145	1.08%	1.14%
Disregarded Signs - Signals - Markings	118	1.14%	183	1.36%	1.26%
Inattention - General | Followed Too Closely	115	1.11%			0.48%
Under Influence of Alcohol	115	1.11%	161	1.19%	1.16%
Inattention - General | Improper Lane Change	108	1.04%			0.45%
Careless or Reckless Driving	96	0.92%	130	0.96%	0.95%
Ill or Medical Condition	85	0.82%	87	0.65%	0.72%
Distraction Not In or On Vehicle	80	0.77%	89	0.66%	0.71%
Fell Asleep or Fatigued	66	0.64%	107	0.79%	0.72%
Oversteering - Overcorrection	57	0.55%	83	0.62%	0.59%
Mobile Phone			60	0.45%	0.25%
Under Influence of Alcohol | Careless or Reckless Drivir	51	0.49%	56	0.42%	0.45%
Other	44	0.42%	44	0.33%	0.37%

Emphasis Areas

Emphasis areas help prioritize resources and efforts toward specific areas with the highest risk and potential for improvement. By focusing on these areas, decision-makers can address the most pressing issues, such as intersections with high crash rates or sections of roads with frequent speeding violations, leading to a more effective and targeted safety strategy. Additionally, emphasis areas provide a clear framework for measuring the success of road safety initiatives, allowing for data-driven decision-making and continuous improvement in crash prevention.

At the second TSTA meeting, the top ten safety issue areas were identified based on the crash trend data analysis, and the members of the group voted on which the top three they believed would make the biggest impact to study further as emphasis areas. The TSTA chose to prioritize **Intersections**, **Speed**, and **Vulnerable Road Users (VRUs)**, with Intersections receiving the majority of votes.

Possible Emphasis Areas were cross-referenced to review crashes that may overlap with other emphasis areas. Intersection related crashes overlap the most with other influence areas, which was one of the determining factors of why it was chosen. Figure 29 illustrates these overlaps further.

Some emphasis areas cater to more engineering/design-related solutions (location or systemic-based crashes), while others rely on changing the behaviors associated with the crash using enforcement, education and emergency response (or combinations of all). Proven safety countermeasures will be recommended for each emphasis area based on the National Highway Traffic Safety Administration's Countermeasures (most are behavior-based programs), and the FHWA's Crash Modification Factors clearinghouse (most are project-based solutions).

Figure 26: Emphasis Areas - All Crashes

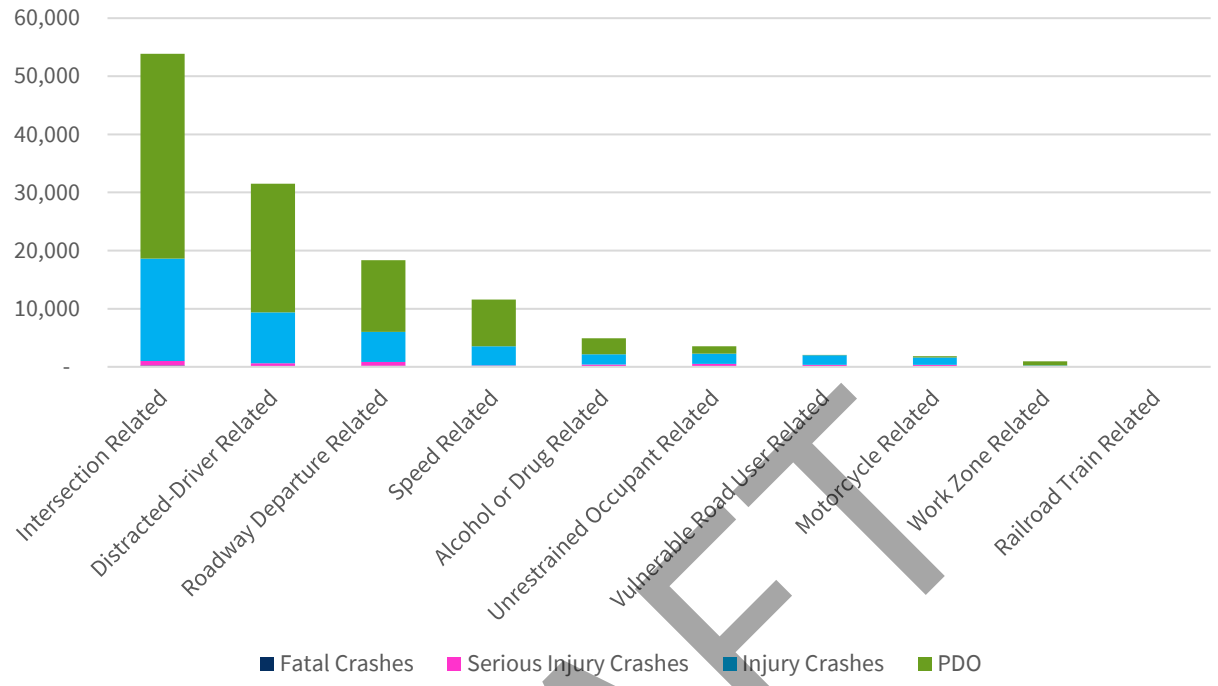


Figure 27: Emphasis Areas - Fatal and Serious Injury Crashes.

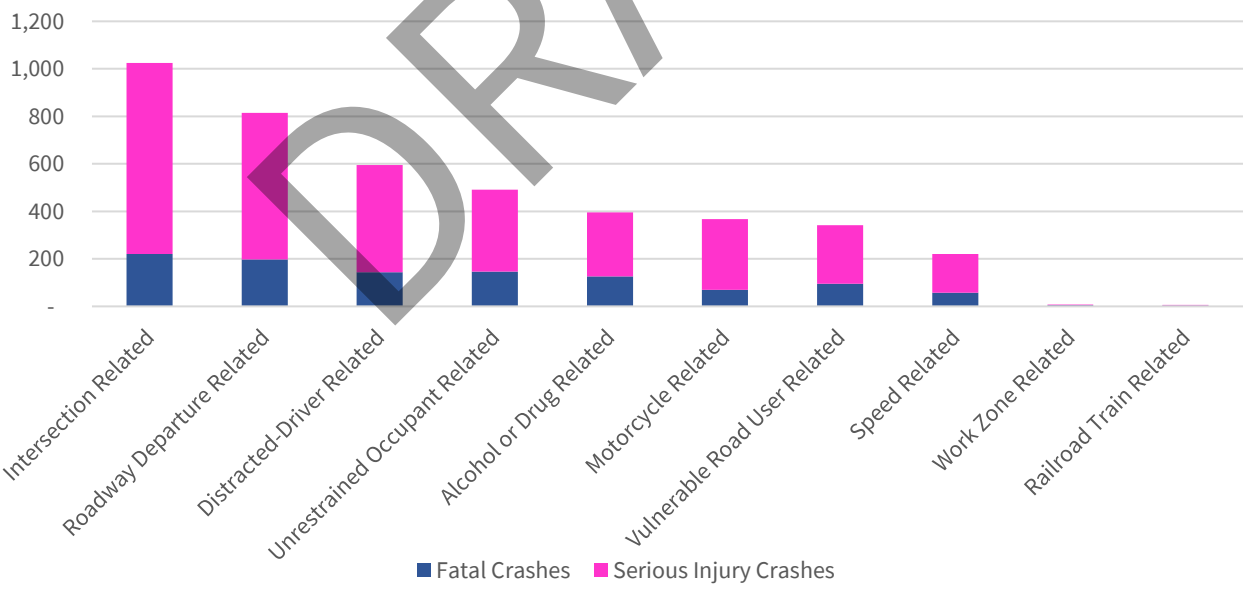


Figure 28: EPDO Emphasis Area

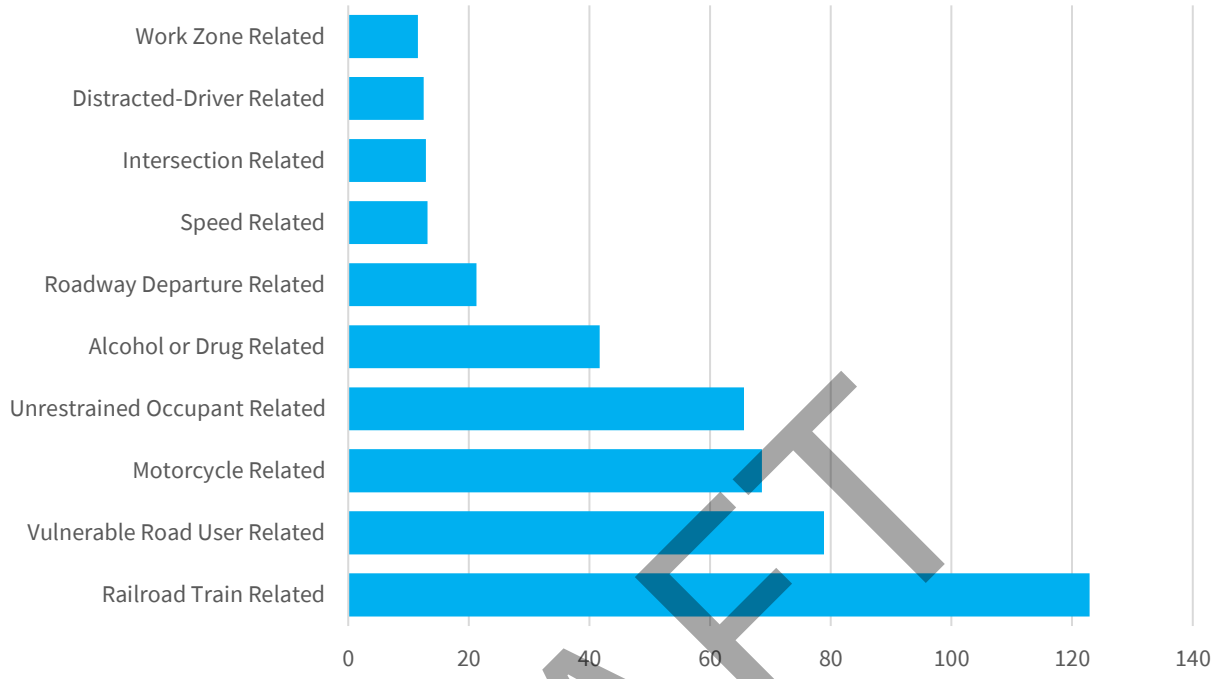


Figure 29: Emphasis Area Overlaps

Step 1: Select Emphasis Area

Step 2: Evaluate Overlapping Emphasis Areas	Roadway Departure	Vulnerable Road User	Intersection	Speed	Distracted Driver	Unrestrained Occupant	Alcohol or Drugs	Work Zone	Motorcycle	Railroad/Train
Roadway Departure		0.0%	8.4%	16.0%	16.6%	32.1%	50.9%	13.9%	7.1%	0.0%
Vulnerable Road User	0.0%		2.1%	1.9%	1.8%	1.0%	0.6%	0.3%	0.7%	0.0%
Intersection	24.6%	56.7%		50.8%	49.4%	45.8%	36.9%	41.7%	41.7%	11.9%
Speed	10.1%	10.9%	10.9%		8.7%	10.2%	10.6%	7.5%	10.5%	14.3%
Distracted Driver	28.5%	27.1%	28.9%	23.7%		30.2%	28.5%	19.0%	29.8%	28.6%
Unrestrained Occupant	6.2%	1.7%	3.0%	3.1%	3.4%		9.5%	2.8%	26.0%	23.8%
Alcohol or Drugs	13.6%	1.5%	3.4%	4.5%	4.4%	13.3%		3.2%	8.9%	16.7%
Work Zone	0.7%	0.1%	0.7%	0.6%	0.6%	0.7%	0.6%		0.4%	0.0%
Motorcycle	5.3%	0.6%	1.7%	1.7%	1.8%	13.6%	3.3%	0.7%		0.0%
Railroad/Train	0.0%	0.0%	0.1%	0.1%	0.0%	0.3%	0.1%	0.0%	0.0%	

Figure 30: Top 100 Speed Related Crash Locations

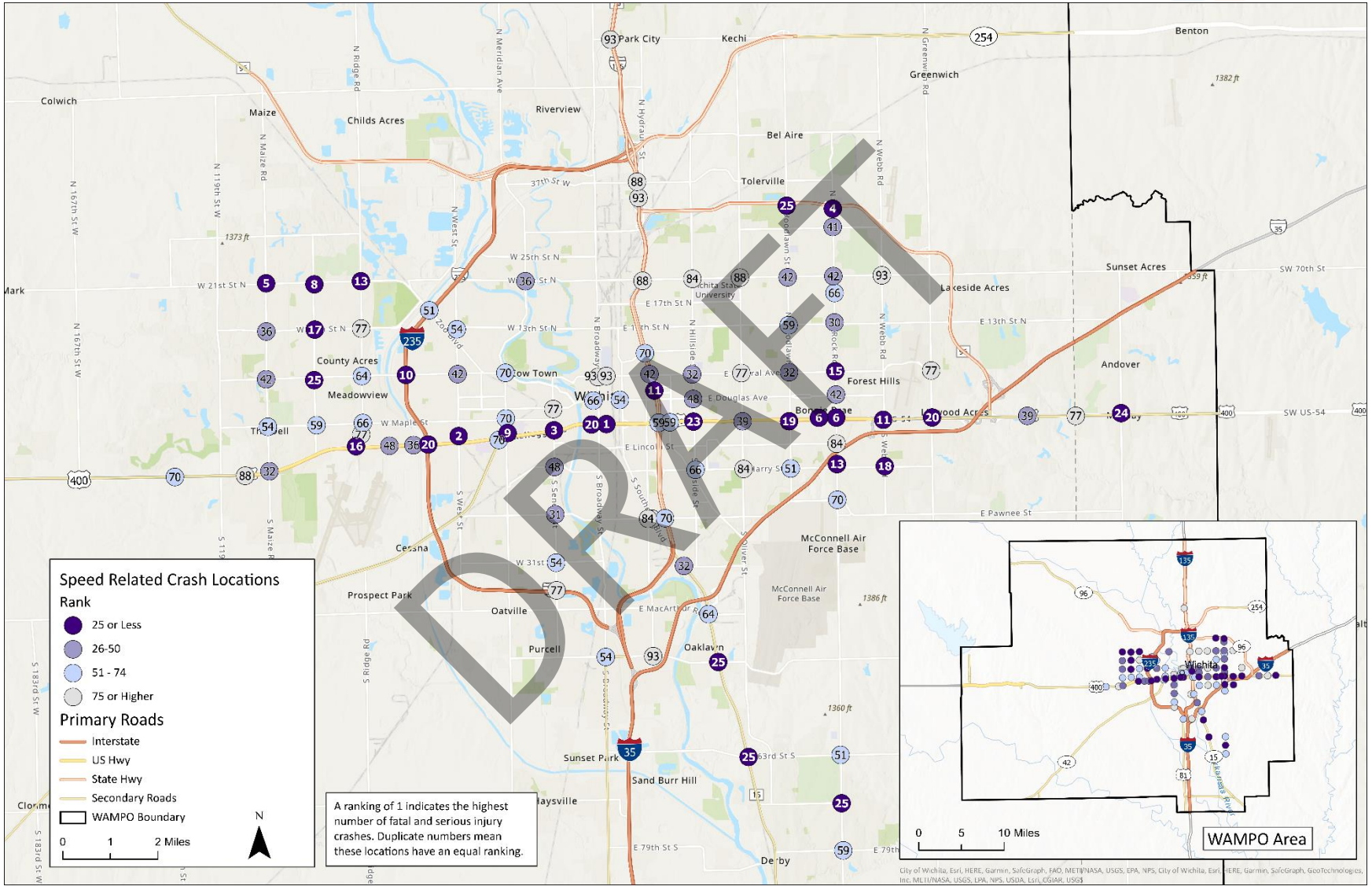


Figure 31: Top 100 Unsignalized Intersection Crashes

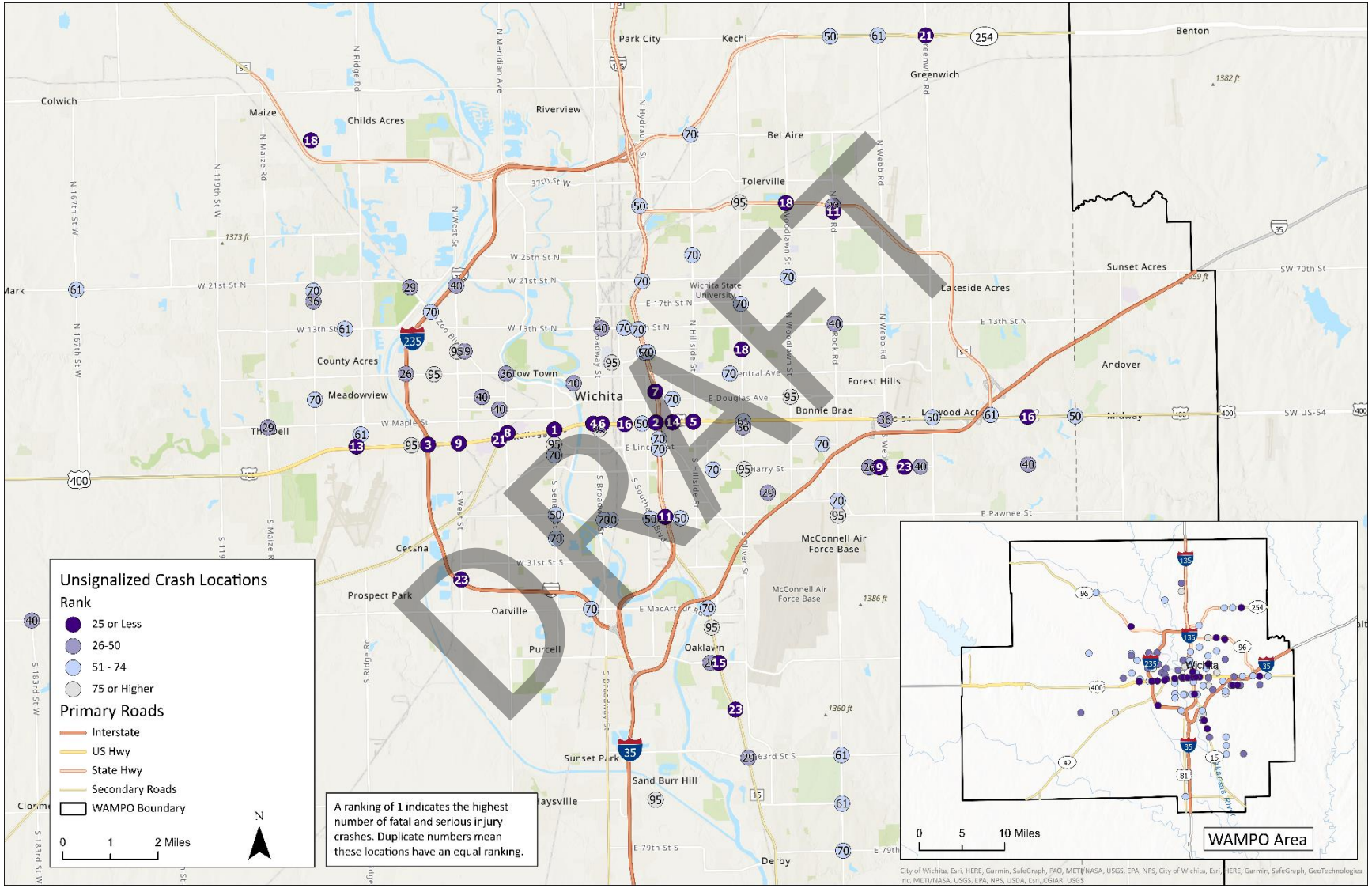


Figure 32: Top 100 Signalized Crash Locations

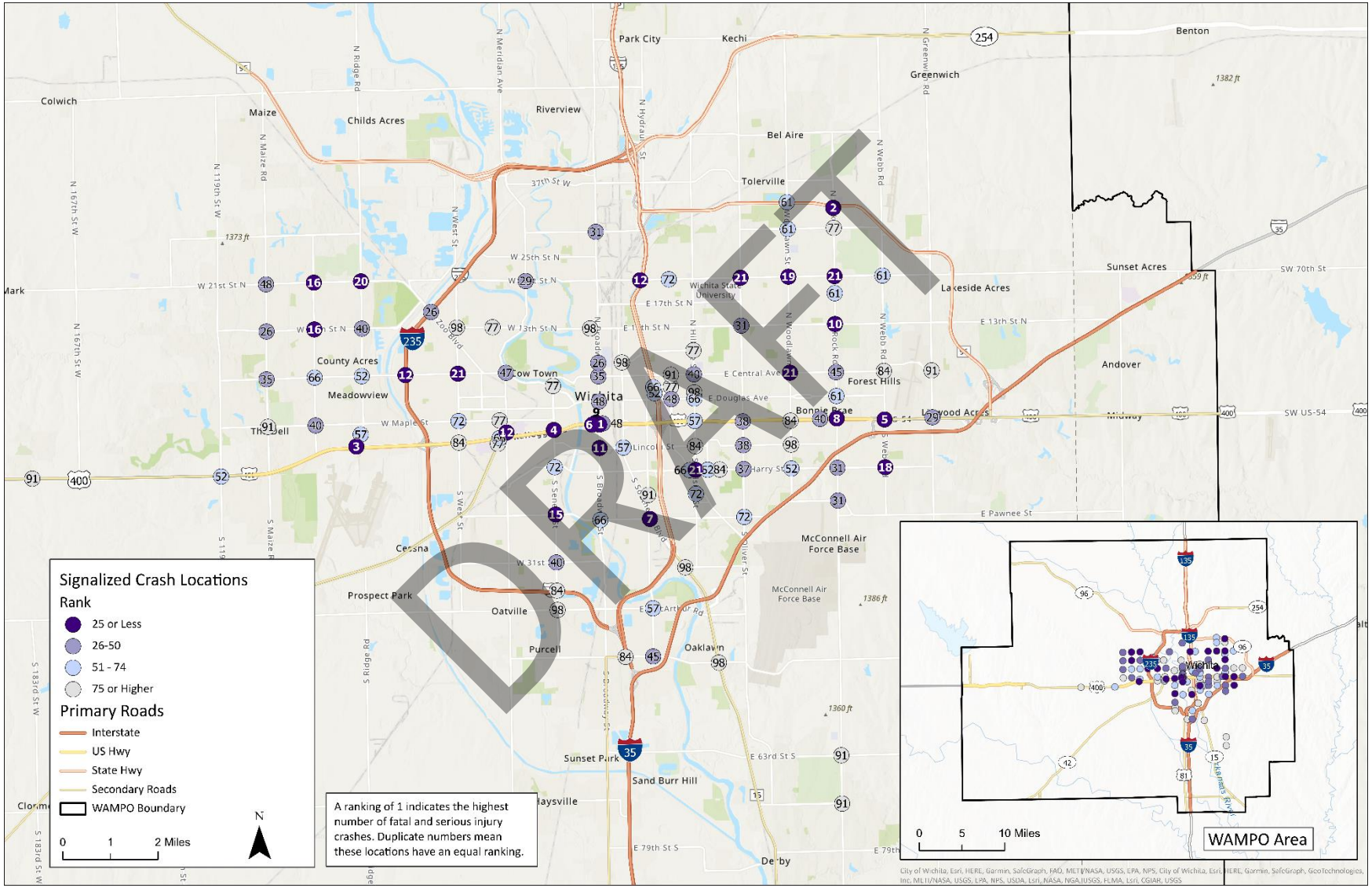
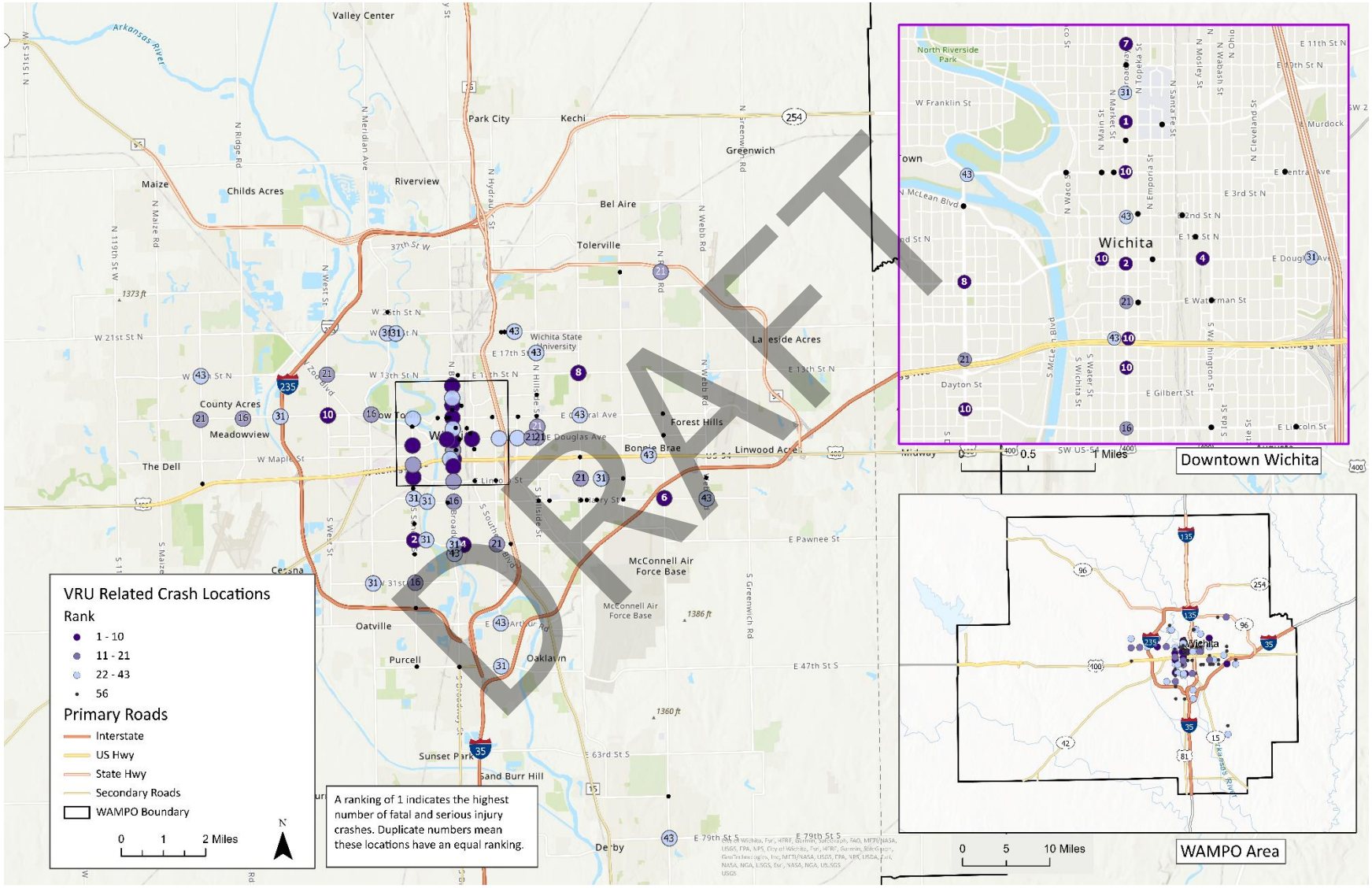


Figure 33: Top Vulnerable Road User Crash Locations



IMPLEMENTATION PLAN

The Implementation Plan identifies strategies to reduce severe crashes for the selected emphasis areas of Intersections, Speed, and Vulnerable Road Users. The strategies included in this plan address the Safe System Approach (SSA) elements of Safe Roads and Safe Road Users. The Implementation Plan is organized by SSA element and for each strategy shows the outcome, responsible party, timeframe for commencement, and emphasis areas addressed, and it includes crosscutting solutions to address engineering, enforcement, and education needs on the regional transportation network, on the portion of the regional network identified as the high-injury network, and at key locations. The Implementation Plan is intended to be actively utilized and updated by the responsible parties identified.

Safe Roads: *Design to accommodate human mistakes and injury tolerance to reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.*

				Emphasis Areas Addressed		
Strategy	**Outcome**	**Responsible Party**	**Timeframe for Starting**	**Intersections**	**Speed**	**Vulnerable Road Users**
Identify proven safety countermeasures at priority intersections to reduce crashes (e.g., flashing solar-powered beacons, street lighting, advance intersection identification signing, improved geometry).	List of priority intersections and recommended safety countermeasures.	WAMPO	2025 – Q4	X	X	X

Safe Roads: *Design to accommodate human mistakes and injury tolerance to reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.*

				Emphasis Areas Addressed		
Strategy	**Outcome**	**Responsible Party**	**Timeframe for Starting**	**Intersections**	**Speed**	**Vulnerable Road Users**
Identify proven countermeasures at priority locations to improve safety for pedestrians (e.g., pedestrian refuge islands, sidewalks, pedestrian crossing signals, curb extensions, enhanced signing and pavement markings).	List of priority locations and recommended pedestrian safety countermeasures.	WAMPO, KDOT, and local governments	2025 – Q4	X	X	X
Identify proven countermeasures on priority corridors to improve safety for bicycle riders (e.g., bike lanes, off-street bike facilities, road diets).	List of priority corridors for application of bicycle safety countermeasures and recommended countermeasures.	WAMPO, KDOT, and local governments	2025 – Q4	X	X	X
Conduct Road Safety Audits at priority high-crash locations.	A detailed study to identify location-specific countermeasures for at least two locations per year.	WAMPO and local governments	Ongoing	X	X	X

Safe Roads: *Design to accommodate human mistakes and injury tolerance to reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.*

				Emphasis Areas Addressed		
Strategy	**Outcome**	**Responsible Party**	**Timeframe for Starting**	**Intersections**	**Speed**	**Vulnerable Road Users**
Identify proven safety countermeasures along priority corridors and at priority intersections to reduce crashes related to speed (e.g., road reconfigurations, enhanced signing and striping, roundabouts).	List of targeted roadway corridors and intersections, with recommended improvements.	WAMPO	2025 – Q4	X	X	
Develop a Countermeasure Toolbox that identifies spot, systemic, and emphasis area countermeasures.	Identify proven countermeasure options, estimate costs and safety benefits by improvement type, and prioritize solutions that address more than one safety issue.	WAMPO	2023 – Q4	X	X	X

Safe Roads: *Design to accommodate human mistakes and injury tolerance to reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.*						
				Emphasis Areas Addressed		
Strategy	**Outcome**	**Responsible Party**	**Timeframe for Starting**	**Intersections**	**Speed**	**Vulnerable Road Users**
Develop a Complete Streets Toolkit and a Vision Zero Toolkit for the region.	Educate and inform local governments on transportation safety. Provide tools that local governments can use to communicate about, plan for, and implement safety initiatives.	WAMPO	2023 – Q4	X	X	X
Incorporate goals and recommendations of the WAMPO Comprehensive Safety Action Plan (CSAP) into the Metropolitan Transportation Plan 2050 (MTP 2050).	The goals and recommendations of the CSAP will be reflected in the MTP.	WAMPO	2025 – Q2	X	X	X

Safe Roads: *Design to accommodate human mistakes and injury tolerance to reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.*

				Emphasis Areas Addressed		
Strategy	**Outcome**	**Responsible Party**	**Timeframe for Starting**	**Intersections**	**Speed**	**Vulnerable Road Users**
Explore the development of a fatal crash review committee that includes representatives from each jurisdiction within the WAMPO planning area.	An analysis of how the committee could be structured, including procedures and resources needed. Upon such a committee being formed, produce annual regional reports documenting the results of the committee's discussions and analysis of fatal crashes. Present analysis results annually to the public.	WAMPO, local governments, and local law enforcement	2025 – Q2	X	X	X
Coordinate a Safe Routes to School (SRTS) Planning Assistance program to develop SRTS plans throughout the WAMPO region.	Development of SRTS plans in collaboration with schools and local governments. Development of an SRTS Stakeholder Committee.	WAMPO, local governments, and local schools	2024 – Q3	X	X	X

Safe Roads: *Design to accommodate human mistakes and injury tolerance to reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.*

				Emphasis Areas Addressed		
Strategy	**Outcome**	**Responsible Party**	**Timeframe for Starting**	**Intersections**	**Speed**	**Vulnerable Road Users**
Coordinate with local governments to install and evaluate demonstration safety-improvement projects to assess their effectiveness.	A report for each demonstration project, highlighting the project's evaluation results.	WAMPO and local governments	2025 – Q4	X	X	X

Safe Road Users: *Address the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes, by providing education on transportation safety and enforcement of related rules.*

				Emphasis Areas Addressed		
Strategy	**Outcome**	**Responsible Party**	**Timeframe**	**Intersections**	**Speed**	**Vulnerable Road Users**
Conduct high-visibility law enforcement campaigns to deter aggressive driving/speeding on high-crash corridors.	Reduced speeding and aggressive driving.	Local law enforcement	Ongoing		X	X
Perform targeted enforcement of speed limits for motorists in school zones.	Reduce speeding and increase motorists' awareness of vulnerable road users.	Local law enforcement	Ongoing		X	X
Perform targeted education and enforcement in locations where yielding to pedestrians in crosswalks is an issue.	List priority locations for implementation, identify education opportunities, and enforce traffic laws.	WAMPO, local governments, KDOT, and local law enforcement	2025 – Q2	X		X
Coordinate with KDOT to administer annual safety grants funded by the state that are targeted at behavioral safety projects.	Education campaigns that promote being a safe road user. Up to $50,000will be distributed annually to conduct education campaigns that promote being a safe road user within the WAMPO region.	WAMPO, KDOT, local schools, and local organizations	Ongoing	X	X	X

Safe Road Users: *Address the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes, by providing education on transportation safety and enforcement of related rules.*						
				Emphasis Areas Addressed		
Strategy	**Outcome**	**Responsible Party**	**Timeframe**	**Intersections**	**Speed**	**Vulnerable Road Users**
Identify and apply for funding for education/enforcement programs.	Identify potential funding sources and apply for funding for traffic safety education and enforcement. Implement education/enforcement programs.	WAMPO, local governments, KDOT, and local law enforcement	Ongoing	X	X	X
Conduct education campaigns that target factors in speed-related and roadway departure crashes.	Identify target factors and improve public understanding of contributing factors to crashes.	WAMPO and local law enforcement	Ongoing		X	X
Collaborate with state and local partners to promote seatbelt use through education programs.	Education campaigns on the importance of seatbelt usage, leading to increased compliance with related regulations.	WAMPO, local governments, KDOT, and local law enforcement	Ongoing		X	

Safe Road Users: *Address the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes, by providing education on transportation safety and enforcement of related rules.*						
				Emphasis Areas Addressed		
Strategy	**Outcome**	**Responsible Party**	**Timeframe**	**Intersections**	**Speed**	**Vulnerable Road Users**
Provide educational opportunities to staff, consultants, and project sponsors that reflect best practices and policies in active transportation design.	Conduct/sponsor workshops or training on best practices for active transportation design and safety.	WAMPO	Ongoing	X	X	X
Form and facilitate a regional safety coalition to promote transportation safety.	Regional safety coalition roster and meeting schedule followed by calendar of planned transportation safety education and awareness campaigns identified by the coalition.	WAMPO	2023 – Q4	X	X	X

PROJECT LIST

To support the CSAP vision of eliminating fatalities and serious injuries from crashes, and to address the safety emphasis areas identified by the WAMPO Transportation Safety Technical Advisors (TSTA), a regional list of projects was developed in collaboration with jurisdictions across the WAMPO region. These projects incorporate input from local governments, CSAP findings, and TSTA review. Each project addresses at least one emphasis area and is organized by jurisdiction, timeframe, and crash incidence data from the CSAP analysis. Projects are categorized as either short-term (1–5 years) or long-term (5+ years). Final implementation will depend on local priorities and the availability of funding, which may affect the timing, advancement, or execution of each project.

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Andover - 100	Andover city limits	Conduct a comprehensive safety study using, but not limited to, historical crash data, roadway characteristics, and traffic patterns, to identify high-risk locations and recommend improvements across the city's transportation network.	Intersections VRU Speed	Short (1-5 Years)	• Contains location(s) with regionally high incidence of fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for speed-related crashes • Contains intersection(s) ranked in top 50 for fatal and serious-injury crashes
Andover - 101	US-54/400 from Frey Rd. to Allen St. and from Andover Rd. to Yorktown Rd.	Construction of backage roads, including pedestrian infrastructure, enabling safer pedestrian traffic away from a high-traffic corridor, and in support of Phase 2 of the US-54/400 expansion.	VRU	Short (1-5 Years)	• Regionally high incidence of motorized fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for speed-related crashes
Andover - 102	Trail network within Andover city limits	Strategic placement of signage, maps, and wayfinding elements to enhance pedestrian safety and improve navigation.	VRU	Short (1-5 Years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Andover - 103	Harry St. from Andover Rd. to 1.5 miles east, including Harry Nature Trail Park	Construction of a multiuse path, enabling safer pedestrian traffic away from busier city arterials.	VRU	Short (1-5 Years)	
Andover - 104	Redbud Trail crossings at Andover Rd. and at 159th St.	Construction of HAWK crossing signals.	VRU	Short (1-5 Years)	
Andover - 105	Andover Rd. from Central Ave. to Redbud Trail	Multiuse path that facilitates safe pedestrian passage to a highly trafficked recreational trail.	VRU	Short (1-5 Years)	
Bel Aire - 100	Just south of the intersection of 53rd St. & Woodlawn Blvd.	Installation of either an RRFB or HAWK pedestrian crossing.	VRU	Short (1-5 Years)	
Bel Aire - 101	On Oliver Ave., between E Eagles Landing St. and E Willow Point Rd.	Installation of crossing signal.	VRU	Short (1-5 Years)	
Bel Aire - 102	From dead end of E Willow Point Rd. west to Broadview Cir.	Sidewalk extension linking Stucky Middle School, on Broadview Cir., to the broader residential network	VRU	Short (1-5 Years)	
Bel Aire - 103	Rock Rd. from Union Pacific Railroad to 53rd St.	Reconstruct to a 3-lane, curb-and-gutter section with a 10-foot-wide multiuse path and 6-foot-wide sidewalk.	VRU	Short (1-5 Years)	
Bel Aire - 104	Woodlawn Blvd. from 45th St. to 53rd St.	Reconstruct to a 3-lane, curb-and-gutter section with a 10-foot-wide multiuse path, 6-foot-wide sidewalk, and intersection improvements at 53rd St. and at Woodlawn Blvd.	Intersections VRU	Short (1-5 Years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Bel Aire - 105	Oliver Ave. from 37th St. to 45th St.	Reconstruct to a 3-lane, curb-and-gutter section with a 10-foot-wide multiuse path and 6-foot-wide sidewalk.	VRU	Short (1-5 Years)	
Bel Aire - 106	Oliver Ave. from 45th St. to 53rd St.	Reconstruct to a 3-lane, curb-and-gutter section with a 10-foot-wide multiuse path and 6-foot-wide sidewalk.	VRU	Long (> 5 years)	
Bel Aire - 107	Intersection of 53rd St. and Lycee St.	Construct a pedestrian crossing.	VRU	Long (> 5 years)	
Bel Aire - 108	45th St. from Woodlawn Blvd. to Rock Rd.	Reconstruct to a 3-lane, curb-and-gutter section with a 10-foot-wide multiuse path and 6-foot-wide sidewalk.	VRU	Long (> 5 years)	
Derby - 100	Rock Rd. from E Osage Rd. to E 55th St. S	Study and implementation of improvements, including pedestrian safety features, improved signage, intersection geometry, speed signs, and signal timing at identified high-risk locations.	Intersections VRU Speed	Short (1-5 years)	• Contains intersection(s) ranked in top 25 for speed-related crashes • Contains intersection(s) ranked in top 75 for fatal and serious-injury crashes
Derby - 101	Intersection of Patriot Ave. and Triple Creek Dr.	Traffic signal/intersection improvements.	Intersections	Short (1-5 years)	
Derby - 102	Intersection of Madison Ave. and Oak Forest Ln.	Signal upgrade.	Intersections	Short (1-5 years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Goddard - 100	23rd St. from 167th St. to 215th St., including the intersections of 23rd St. with 167th St., with Amelia Earhart/Crowne Dr., with 183rd St., and with 199th St.	Expansion to a 3-lane section with flat-bottom, open ditches on both sides, a shared-use path and sidewalks, and roundabouts at the intersections of 23rd St. with 167th St., with Amelia Earhart/Crowne Dr., with 183rd St., and with 199th St.	Intersections VRU Speed	Short (1-5 Years)	• Contains intersection(s) ranked in top 100 for fatal and serious-injury crashes
Goddard - 101	West of the intersection of 199th St. and US-54/400 and various locations along 199th St.	A shared-use bicycle and pedestrian bridge over US-54/400 and approximately two miles of shared-use sidewalk connecting to the bridge.	Intersections VRU Speed	Short (1-5 Years)	
Goddard - 102	199th St. from US-54/400 to 23rd St., including the intersection of 199th St. and US-54/400	Realignment of the north and south frontage roads along US-54/400 at the intersection with 199th St. Expansion of 199th St. to a 3-lane urban section, including a sidewalk on the west side, a shared-use path on the east side, and underground stormwater infrastructure.	Intersections VRU Speed	Short (1-5 Years)	
Goddard - 103	Main St. from 2nd St. to Santa Fe St.	Traffic calming and speed reduction, with enhanced sidewalks for pedestrian safety, pedestrian crossings, bump-outs for speed reduction, reduced lanes, and visual appeal for natural traffic calming.	VRU Speed	Short (1-5 Years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Goddard - 104	Intersection of 183rd St. and Maple St.	Intersection improvement from a 2-way stop to a roundabout with pedestrian crossings and sidewalks for speed reduction, traffic calming, and pedestrian safety.	Intersections VRU Speed	Short (1-5 Years)	
Goddard - 105	1st St. from Walnut St. to Goddard Rd.	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 106	2nd St. from Walnut St. to Goddard Rd.	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 107	3rd St. from Walnut St. to Goddard Rd.	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 108	4th St. from Walnut St. to Goddard Rd.	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 109	Walnut St. from US-54/400 to the Prairie Sunset Trail	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 110	Spruce St. from 7th St. to Linear Park	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 111	Pine St. from Oak Street Elementary School to Linear Park	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 112	Oak St. from US-54/400 to Linear Park	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 113	Main St. from US-54/400 to 2nd St.	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 114	Cedar St. from US-54/400 to Santa Fe St.	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	
Goddard - 115	Elm St. from 4th St. to Santa Fe St.	Sidewalk improvements and pedestrian crossings.	VRU	Short (1-5 Years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Haysville - 100	Broadway/US-81 from south of M.S. Mitch Mitchell Floodway to Berlin St.	Construct an 8-foot-wide sidewalk connecting residential developments to businesses on Broadway and to the rest of the city's pathway system.	VRU	Short (1-5 Years)	
Haysville - 101	S Main St. from southern end of existing sidewalk to Timber Creek St.	Construct a 6-foot-wide sidewalk connecting the Timber Creek Estates Addition to the rest of the city's pathway system.	VRU	Short (1-5 Years)	
Haysville - 102	S Main St. from Timber Creek St. to River Birch St.	Construct a 6-foot-wide sidewalk to the southern entrance of the Timber Creek Estates Addition to connect with the rest of the city's pathway system.	VRU	Short (1-5 Years)	
Haysville - 103	On Meridian Ave., between Grand Ave. and 79th St. S	Install an RRFB/HAWK crossing system during Meridian Ave. widening project (which is prioritized in the WAMPO Transportation Improvement Program (TIP)) to improve student safety.	VRU	Short (1-5 Years)	
Haysville - 104	Meridian Ave. from Saddle Brooke St. to 79th St. and 79th St. from Meridian Ave. to Cattail Cir.	Extend sidewalk during Meridian Ave. widening project (which is prioritized in the WAMPO Transportation Improvement Program (TIP)) to connect residents on Cattail Cir. To the rest of the city's pathway system.	VRU	Short (1-5 Years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Haysville - 105	East side of Meridian Ave. from Chelsea St. to 79th St.	Extend sidewalk during Meridian Ave. widening project (which is prioritized in the WAMPO Transportation Improvement Program (TIP)) to connect to the new Lakefield Addition residential development.	VRU	Short (1-5 Years)	
Haysville - 106	63rd St. from Mabel St. to Broadway/US-81 and Broadway/US-81 from 63rd St. to M.S. Mitch Mitchell Floodway	Extend sidewalk to complete loop connecting sections of the city's pathway system.	VRU	Short (1-5 Years)	
Haysville - 107	Potential connection routes between Haysville and Wichita pathway systems, including Rails to Trails routes and other routes	Determine the best connection options to allow residents of Wichita and Haysville to access both cities' pathway systems.	VRU	Short (1- 5 years) and long (> 5 years)	
Haysville - 108	Grand Ave. from I-35 to Hydraulic Ave.	Extend sidewalk to Suncrest Addition residential development to connect residents with the rest of the city's pathway system.	VRU	Long (> 5 years)	
Haysville - 109	79th St. from Meridian Ave. to Broadway	Extend sidewalk to allow residents an alternate route to Dorner Park, with access off 79th St. S.	VRU	Long (> 5 years)	
Haysville - 110	Seneca St. from southern end of existing sidewalk to 79th St.	Extend sidewalk to 79th St. S.	VRU	Long (> 5 years)	
Haysville - 111	Along M.S. Mitch Mitchell Floodway	Provide scenic trails with minimal traffic interactions.	VRU	Long (> 5 years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Maize - 100	119th St. from 29th St. to Wilkinson St.	Add capacity. The roadway will be widened from a 2-lane to a 3-lane roadway, with a continuous 2-way left-turn lane. The project includes an upgrade to curb-and-gutter. There is a proposed 10-foot multiuse trail along the east and west sides of the roadway, as well as appropriate pedestrian crossings throughout the corridor.	Intersections VRU Speed	Short (1-5 years)	
Maize - 101	West side of Maize Rd. from Copper Creek Apartment Homes to Hampton Lakes subdivision	Construct a 6-foot-wide sidewalk on the west side of Maize Rd., connecting Copper Creek Apartment Homes to the Hampton Lakes subdivision. The new sidewalk would provide a critical pedestrian connection for Hampton Lakes residents, who currently have no safe access to arterial-street sidewalks, due to the lack of sidewalks or crosswalks at subdivision exits.	VRU	Short (1-5 years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Maize - 102	45th St. from 300 feet west of railroad tracks/K-96 to Tyler Rd.; Tyler Rd. from 45th St. to 450 feet south of 45th St.; and Tyler Rd. from 1500 feet south of 45th St. to Candlewood St.	Construction of a dual-lane roundabout at the intersection of 45th St. and Tyler Rd. The project segments along 45th St. will be widened from 2 lanes to 4 lanes. Two roadway bridges over K-96 (a 2-lane bridge upgrade on Tyler Rd. and a 4-lane bridge upgrade on 45th St.) will be replaced. 45th St. near the at-grade highway-rail crossing (DOT #445209B) will be improved. Sidewalks will be installed on both sides of the improved roadway segments, including the two bridges over K-96.	Intersections VRU Speed	Short (1- 5 years) and long (> 5 years)	
Mulvane - 100	2nd Ave./Rock Rd. from Main St. to K-15	Convert a 4-lane road to a 3-lane configuration, incorporating bump-outs at pedestrian crossings, adding multiuse paths, and introducing separation between existing sidewalks and the curb.	Intersections VRU Speed	Long (> 5 years)	
Park City - 100	Intersection of 85th St. and Broadway	Construct a single-lane roundabout.	Intersections Speed	Short (1-5 years)	
Park City - 101	Intersection of 77th St. and Wyandotte Way	Install traffic signalization.	Intersections VRU	Short (1-5 years)	
Park City - 102	Intersection of 61st St., I-135 southbound on/off ramps, and Air Cap Dr.	Construct a 5-leg roundabout connecting 61st St., Air Cap Dr., and I-135 southbound on/off ramps.	Intersections VRU	Long (> 5 years)	• Contains intersection(s) ranked in top 100 for speed-related crashes

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Park City - 103	Intersection of 61st St. and I-135 northbound on/off ramps	Construct a northbound right-turn lane.	Intersections	Long (> 5 years)	• Contains intersection(s) ranked in top 100 for speed-related crashes
Park City - 104	Interchange of 53rd St. and I-135	Construct a Diverging Diamond Interchange (DDI).	Intersections VRU	Long (> 5 years)	
Park City - 105	61st St. from Hydraulic Ave. to eastern city limits, including intersection of 61st St. and Hydraulic Ave.	Construct a single-lane roundabout at the intersection of 61st St. and Hydraulic Ave. and widen 61st St. to 3 lanes.	Intersections VRU	Long (> 5 years)	
Rose Hill - 100	E Showalter St. from S Rose Hill Rd. to Reyer St.; Reyer St. from E Showalter St. to Brownie St.; Brownie St. from Reyer St. to Main St.; and Main St. from Brownie St. to E School St.	Construction of a sidewalk providing a continuous route between nearby homes and Rose Hill Schools campus.	VRU	Short (1-5 Years)	
Rose Hill - 101	Intersection of S Rose Hill Rd. and E Showalter St.	Enhance intersection with the addition of a left turn lane.	Intersections	Short (1-5 Years)	
Sedgwick County - 100	Pawnee St. from 119th St. to 183rd St.	Installation of Dynamic Speed Feedback Signs at 119th St. and at 183rd St.	Intersections VRU Speed	Short (1-5 Years)	
Sedgwick County - 101	Ridge Rd. from 69th St. to 85th St.	Installation of Dynamic Speed Feedback Signs.	Intersections VRU Speed	Short (1-5 Years)	
Sedgwick County - 102	55th St. S from Meridian Ave. to Ridge Rd.	Installation of Dynamic Speed Feedback Signs at Meridian Ave. and at Ridge Rd.	Intersections VRU Speed	Short (1-5 Years)	
Sedgwick County - 103	47th St. S from Oliver Ave. to Rock Rd.	Installation of Dynamic Speed Feedback Signs at Oliver Ave. and at Rock Rd.	Intersections VRU Speed	Short (1-5 Years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Sedgwick County - 104	Intersection of Greenwich Rd. and 37th St., north of Circle Greenwich Elementary School	Installation of Dynamic Speed Feedback Signs.	Intersections VRU Speed	Short (1-5 Years)	
Sedgwick County - 105	On Rock Rd. near 95th St. S (near Decarsky Park)	Installation of Dynamic Speed Feedback Signs.	Intersections VRU Speed	Short (1-5 Years)	
Sedgwick County - 106	On Rock Rd. south of 39th St. S	Installation of Dynamic Speed Feedback Signs.	Intersections VRU Speed	Short (1-5 Years)	
Sedgwick County - 107	On W 61st St. N, east of 231st St. W (east of Andale)	Installation of Dynamic Speed Feedback Signs.	Intersections VRU Speed	Short (1-5 Years)	
Sedgwick County - 108	On Prairie Sunset Trail at 135th St., at 151st St., at 167th St., at 183rd St., at Goddard Rd./199th St., at 215th St., and at Viola Rd./263rd St.	Installation of Rapid Flashing Beacons for pedestrian crossings.	VRU	Short (1-5 Years)	
Sedgwick County - 109	Intersection of 63rd St. and Seneca St.	Upgrade pedestrian crossing with audible alert.	VRU	Short (1-5 Years)	
Sedgwick County - 110	Intersection of MacArthur Rd. and Oliver Ave.	Upgrade pedestrian crossing with audible alert.	VRU	Short (1-5 Years)	
Sedgwick County - 111	Intersection of Arnold Blvd. and Rock Rd.	Upgrade pedestrian crossing with audible alert.	VRU	Short (1-5 Years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Sedgwick County - 112	167th St. W from Maple St. to US-54/400	Construct a multiuse path that will eventually connect Goddard to west Wichita and the Eisenhower school complex.	Intersections VRU	Short (1-5 Years)	
Sedgwick County - 113	Pawnee St. from 135th St. to 151st St. and from 151st St. to 183rd St.	Reconstruct existing 2-lane cold-mix asphalt road to a 2-lane hot-mix asphalt road meeting current design standards and adding appropriate shoulders.	Intersections VRU	Short (1-5 Years)	
Sedgwick County - 114	63rd St. S from Lynnrae St. (eastern terminus of existing path, in the south right-of-way of 63rd St.) to Sedgwick/Butler County line	Construction of a 10-foot-wide multiuse path, street crossings, and drainage structures. Butler County is partnering with Sedgwick County to complete trail to Rose Hill Rd. in Butler County.	Intersections VRU	Short (1-5 Years)	
Sedgwick County - 115	Intersection of 167th St. and 21st St.	Intersection improvements.	Intersections VRU Speed	Short (1-5 Years)	
Sedgwick County - 116	Roadways without shoulders throughout Sedgwick County, including: 143rd St. E from Pawnee St. to 31st St.; Ridge Rd. from 69th St. N to 85th St. N; 135th St. W from 29th St. to 45th St.; 29th St. N from 119th St. to 135th St.; Webb Rd. from 95th St. to 103rd St.; and 151st St. from Maple St. to Central Ave.	Adding shoulders to enhance safety for motorists and VRUs.	VRU	Short (1-5 Years)	

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Valley Center - 100	Meridian Ave. from 7th St. to 93rd St.	Reconstruct to a 4-lane suburban standard, from a 2-lane county road with open ditches. Includes curb and gutter, multiuse path, three signalized pedestrian crossings, and construction of roundabouts at 7th St. and at Southwind Dr.	Intersections VRU Speed	Short (1-5 Years)	
Wichita - 100	Broadway from Pawnee St. to 21st St. N	Pedestrian safety features, traffic calming measures, traffic signal improvements, enhanced lighting, communications network (fiber) that can tie into previously installed infrastructure (fiber & Advanced Traffic Management System (ATMS)), transit improvements, and speed-reduction improvements to address both VRU and motor-vehicle crash trends.	Intersections VRU Speed	Short (1-5 Years)	• Regionally high incidence of fatal and serious-injury crashes • Regionally high incidence of VRU crashes • Contains intersection(s) ranked in top 25 for fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for VRU crashes • Contains intersection(s) ranked in top 25 for speed-related crashes
Wichita - 101	Douglas Ave. from Washington St. to Grove St.	Study and implementation of targeted intersection safety improvements, speed-management strategies, and VRU-focused treatments, such as enhanced crossings.	Intersections VRU Speed	Short (1-5 Years)	• Regionally high incidence of fatal and serious-injury crashes • Regionally high incidence of VRU crashes • Contains intersection(s) ranked in top 50 for fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for VRU crashes • Contains intersection(s) ranked in top 75 for speed-related crashes

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Wichita - 102	Seneca St. from Central Ave. to MacArthur Rd.	Study and implementation of pedestrian safety features, traffic calming measures, interchange improvements, intersection geometry improvements, enhanced lighting, and speed-reduction infrastructure to address both VRU and motor-vehicle crash trends.	Intersections VRU Speed	Long (> 5 years)	• Regionally high incidence of fatal and serious-injury crashes • Regionally high incidence of VRU crashes • Contains intersection(s) ranked in top 25 for fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for VRU crashes • Contains intersection(s) ranked in top 25 for speed-related crashes
Wichita - 103	Rock Rd. from Pawnee St. to 37th St.	Study and implementation of targeted intersection safety improvements, speed-management strategies, and VRU-focused treatments, such as enhanced crossings.	Intersections VRU Speed	Long (> 5 years)	• Regionally high incidence of fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for VRU crashes • Contains intersection(s) ranked in top 25 for speed-related crashes
Wichita - 104	Arterial crossings midway between mile-section-line roads	Pedestrian safety features (including medians/pedestrian refuge islands), improved connectivity between neighborhoods, traffic-calming measures, traffic-signal improvements, and enhanced lighting for VRUs.	VRU	Long (> 5 years)	• Contains locations with regionally high incidence of fatal and serious-injury crashes • Contains locations with regionally high incidence of VRU crashes • Contains locations with regionally high incidence of speed-related crashes

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Wichita - 105	Intersections (citywide)	Intersection and traffic-signal improvements for VRUs, including Americans with Disabilities Act (ADA) upgrades.	Intersections VRU	Long (> 5 years)	• Contains locations with regionally high incidence of fatal and serious-injury crashes • Contains locations with regionally high incidence of VRU crashes • Contains locations with regionally high incidence of speed-related crashes
Wichita – 106	13th St. N from McLean Blvd. to I-135	Study and implementation of targeted intersection safety improvements, speed-management strategies, and VRU-focused treatments, such as enhanced crossings.	Intersections VRU Speed	Long (> 5 years)	• Regionally high incidence of fatal and serious-injury crashes • Regionally high incidence of VRU crashes • Contains intersection(s) ranked in top 50 for fatal and serious-injury crashes • Contains intersection(s) ranked in top 100 for VRU crashes
Wichita – 107	Lincoln St. from McLean Blvd. to Grove St.	Study and implementation of targeted intersection safety improvements, speed-management strategies, and VRU-focused treatments, such as enhanced crossings.	Intersections VRU Speed	Long (> 5 years)	• Regionally high incidence of fatal and serious-injury crashes • Regionally high incidence of VRU crashes • Contains intersection(s) ranked in top 25 for fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for VRU crashes

CSAP Project ID	Project Limits	Project Overview	Emphasis Area(s)	Timeframe	Identified Areas/Intersections/ Corridors with High Fatal/Serious Injury Crashes or Emphasis Area Crash Types, per 2023 CSAP Analysis
Wichita – 108	Harry St. from McLean Blvd. to Oliver Ave.	Study and implementation of targeted intersection safety improvements, speed-management strategies, and VRU-focused treatments, such as enhanced crossings.	Intersections VRU Speed	Long (> 5 years)	• Regionally high incidence of fatal and serious-injury crashes • Regionally high incidence of VRU crashes • Contains intersection(s) ranked in top 25 for fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for VRU crashes • Contains intersection(s) ranked in top 75 for speed-related crashes
Wichita – 109	Maize Rd. from K-42 to 45th St. N	Study and implementation of targeted intersection safety improvements, speed-management strategies, and VRU-focused treatments, such as enhanced crossings.	Intersections VRU Speed	Long (> 5 years)	• Regionally high incidence of fatal and serious-injury crashes • Contains intersection(s) ranked in top 50 for fatal and serious-injury crashes • Contains intersection(s) ranked in top 25 for speed-related crashes
Wichita - 110	Maple St. from West St. to Sycamore St.	Study and implementation of targeted intersection safety improvements, speed-management strategies, and VRU-focused treatments, such as enhanced crossings.	Intersections VRU Speed	Long (> 5 years)	• Regionally high incidence of fatal and serious-injury crashes • Regionally high incidence of VRU crashes • Contains intersection(s) ranked in top 75 for fatal and serious-injury crashes • Contains intersection(s) ranked in top 75 for speed-related crashes

NEXT STEPS: PROGRESS AND TRANSPARENCY

The WAMPO CSAP is a dynamic document, intended to be used by stakeholders and partners to continually advance safety via the strategies and actions listed herein.

Plan Leadership

WAMPO assumes leadership of this plan and will support implementation. As part of this role, WAMPO has created a Regional Safety Coalition called ICT Safe: A Regional Transportation Coalition, whose responsibility will be to carry out updates to the document and implementation of the plan.

Implementation Meetings

WAMPO will convene stakeholders quarterly, either in-person or virtually, to discuss progress and associated challenges with implementing the Countermeasures Toolbox and Implementation Plan. The meeting will focus on the "outcomes" for each action. Upon conclusion of the meeting(s), progress will be documented, and the Implementation Plan updated, as needed.

Stakeholders/Champions

The key stakeholders for this plan reviewed the data, discussed other known challenges, and collectively agreed to the strategies found within. And while they each take responsibility for traffic safety in different ways, crashes occur for a multitude of reasons. So, they committed to implementing the policies, programs, and projects that pertain to them as well as supporting the efforts of others. They will do this by:

- Being champions for safety in job responsibilities and personal lives
- Participating in events and campaigns relevant to this plan
- Sharing information about transportation safety within our agencies and with our peers
- Coming together annually to share progress on safety activities

Annual Evaluation

When the previous year's crash data is available, WAMPO will evaluate progress toward this plan's goals by assessing region-wide fatalities, serious injuries, and crashes. Data will also be analyzed to see if the emphasis areas have been affected.

Other Planning Efforts

WAMPO will remain informed of current and new local and statewide safety programs, policies, plans, guidelines, and/or standards. Based on this information, WAMPO can continue to identify opportunities to build upon the current Implementation Plan.

Refreshing the Plan

From the date of adoption, the WAMPO CSAP will be refreshed or fully updated every five years. This will ensure the crash and other data are up to date and solutions are revised to meet evolving implementation of policies, programs, and projects.

Community Buy-In and Support

A toolbox for public awareness and engagement will serve as a way to encourage

the public to think about the pros and cons of safety countermeasures. The toolbox will help with understanding what the Safe System Approach is and how members of the public can help the WAMPO region achieve safety goals.

In addition, WAMPO will provide education and resources on the latest safety research and strategies to reduce serious injuries and fatalities from crashes. WAMPO will encourage local governments, schools, and other entities to adopt policies, guidelines, and/or standards that promote transportation safety.

SUMMARY/CONCLUSION

Like many communities in Kansas and around the country, the WAMPO region experiences severe injuries and fatalities as the result of traffic crashes. This plan provides a framework to address transportation safety in the region by fixing potential hazards on the region's transportation network, specifically addressing intersections, speed, and vulnerable road users. The WAMPO region will continue prioritizing safety on the transportation network for all people in the region by cooperatively working to implement and improve enforcement, education, emergency medical services, and engineering solutions that eliminate fatalities and serious injuries.

WAMPO Comprehensive Safety Action Plan

Appendix A

Safe Streets and Roads for All Grant Standards

As shown in the table below, this plan meets all planning requirements of the federal Safe Streets and Roads for All program, making WAMPO eligible to pursue federal funding to support implementation of the CSAP.

Table A-1 WAMPO SS4A Grant Standards

	COMPREHENSIVE SAFETY ACTION PLAN ELEMENT	WAMPO CSAP ELEMENTS
1	Governing body in the jurisdiction publicly committed to an eventual goal of zero roadway fatalities and serious injuries	WAMPO established the ICT Safe: A Regional Safety Coalition.
	Set targets to achieve significant declines in roadway fatalities and serious injuries	The Plan commits to work toward zero deaths and includes targets for fatalities, serious injuries, and non-motorized severe crashes to show how this will be achieved over the next 20 years. The stakeholder group agreed to the *Toward Zero Deaths* commitment.
2	To develop the Action Plan, a committee, task force, implementation group, or similar body established and charged with the plan's development, implementation, and monitoring	Transportation Safety Technical Advisors (TSTA) were convened for plan development and will implement the strategies and actions within.
3	Analysis of existing conditions and historical trends to baseline the level of crashes involving fatalities and serious injuries across a jurisdiction, locality, Tribe, or region	Documented in Existing Conditions section of Plan.
	Analysis of the location where there are crashes, the severity, as well as contributing factors and crash types	Documented in Existing Conditions and Emphasis Area sections of Plan.
	Analysis of systemic and specific safety needs is also performed, as needed (e.g., high risk road features, specific safety needs of relevant road users	Documented in Existing Conditions and Emphasis Area sections of Plan.

	A geospatial identification (geographic or locational data using maps) of higher risk locations	Documented in Existing Conditions section of the Plan.
4	Engagement with the public and relevant stakeholders, including the private sector and community groups	Documented in Public and Stakeholder Engagement section of Plan.
	Incorporation of information received from the engagement and collaboration into the plan	The Action Plan strategies and activities are a direct result of the stakeholder/ public input survey and TSTA meetings.
	Coordination that included inter- and intra-governmental cooperation and collaboration, as appropriate	The TSTA included traffic engineers from the cities and county, Kansas DOT, planners in the Wichita region, transit authority, police, and health experts.
5	Considerations of equity using inclusive and representative processes	Documented in the Existing Conditions section, environmental justice area was defined.
	The identification of underserved communities through data	Documented in the Equity Analysis section .
	Equity analysis, in collaboration with appropriate partners, focused on initial equity impact assessments of the proposed projects and strategies, and population characteristic	Documented in the Equity Analysis section.
6	The plan development included an assessment of current policies, plans, guidelines, and/or standards to identify opportunities to improve how processes prioritize safety	The TSTA included a cross-section of agencies implementing safety programs.
	The plan discusses implementation through the adoption of revised or new policies, guidelines, and/or standards.	Both existing and new safety programs/projects were identified through the planning process. The implementation of these efforts is documented in the Implementation Plan.
7	The plan identifies a comprehensive set of projects and strategies to address the safety problems in the Action Plan, time ranges when projects and strategies will be deployed, and explain project prioritization criteria	The results of the crash data analysis and stakeholder/public input helped identify locations and strategies to address WAMPO's top safety needs. The pre-amble to the Implementation Plan describes how projects and strategies were prioritized and the timeline for implementation.

8	A description of how progress will be measured over time that includes, at a minimum, outcome data.	Documented in Next Steps: Progress and Transparency section of Plan.
	The plan is posted publicly online	The Final Plan is posted the WAMPO website.
9	The plan was finalized and/or last updated between 2017 and 2022	Plan was finalized in 2023.

WAMPO Comprehensive Safety Action Plan

Appendix B

TSTA Meeting #1
January 25, 2023, 1:30-4:30PM
WAMPO Office – 271 West 3rd Street, Suite 203, Wichita, Kansas 67202

Attendees

Mike Armour, City of Wichita
Detective Rob Kempf, Wichita Police Department
Sergeant Brian Mock, Wichita Police Department
Raven Alexander, City of Wichita Transit
Jessica Warren, CTD 9
Dan Squires City of Derby
Georgie Carter, City of Haysville
Jolene Graham, City of Maize
Chad Parasa, WAMPO
Ashley Bryers, WAMPO
Alicia Hunter, WAMPO
Dora Gallo, WAMPO
Macee Crowell, TranSystems
Slade Engstrom, TranSystems
Nicole Waldheim, B&N
Erin Grushon, B&N
Triveece Penelton, Vireo

CSAP Overview and Outcomes

The purpose of TSTA Meeting #1 was to introduce the Wichita MPO Comprehensive Safety Action Plan (also known as the CSAP), highlight transportation safety successes in the region to build upon, and identify challenges to overcome. The agenda for the meeting included the following and a recording of the presentation is at www.wampo.org/safety.

- Welcome and Introductions
- An overview of the CSAP
- A description of the Safety Communications calendar to engage people in this plan
- A description of two common safety terms – safe system and vision zero
- A discussion on the region's current safety programs
- And an interactive session on opportunities to move the state of the safety practice forward to reduce severe crashes even further

Communications Calendar

A key feature of the CSAP is a communications calendar. It outlines safety outreach methods to be conducted over the course of the plan. The goal of the calendar is to have all partners share the same information at the same time to increase the reach of critical safety education. It was shared with transportation and safety partners as a handout and in a subsequent email.

Safe System Overview

WAMPO and its partners support a goal of vision zero, which is the notion that no-one should be killed or suffer lifelong injuries because of a roadway crash. The CSAP will build upon several existing safety efforts including the August 2021 WAMPO Vision Zero report. The Safe System Approach (SSA) provides a tool or a framework to help agencies get to zero by being more intentional about addressing safe roads, safe road users, safe speeds, post-crash care, and safe vehicles. The CSAP will integrate the SSA elements into the planning process to identify programs and projects eligible for future safety funding and grants.

Current Safety Program

Several safety efforts are in progress in the region. The purpose of this discussion was to understand what effective solutions are already being implemented to address Safe System priorities. These will be highlighted at TSTA Meeting #2, to determine their effectiveness, and where relevant, incorporated into the CSAP.

Safe Roads

Local agencies are making roads safer in several ways. This includes pilot testing effective solutions; implementing newer treatments; and addressing safety needs through routine road maintenance. Specific treatments being utilized are:

- Center left-turn lanes
- Policy updates (e.g., road diet guidance)
- Plastic posts
- Curb extensions
- HAWK signals
- Bike boxes
- Roundabouts
- Raised crosswalks
- High visibility crosswalks
- Center median refuge islands
- Pothole maintenance
- Pavement marking maintenance
- Access control policies

Safe Road Users

All road users should look out for themselves and each other. Agencies can help by prioritizing safety into transportation decisions, education, and enforcement. Specific solutions being utilized are:

- Roadway design considerations to prevent a severe crash
- Education campaigns on safe behavior
- Targeted enforcement
- Police department engagement at community meetings
- Variable message boards
- Use of safety crash statistics to target education and enforcement at high crash locations

Safe Speeds

The higher the speed, the less survivable the crash. Setting speed limits appropriate to context, slowing speeds through engineering improvements, and educating people on safe speeds and enforcing those are important solutions. Specific solutions being utilized are:

- Speed trailers
- A recently developed memorandum on setting speeds outside of the 85th percentile
- Targeted enforcement

Post-Crash Care

When crashes do happen, first responders need to get to crash site and to hospital as a priority, but accurate crash data also need to be collected and reported. The Kansas University School of Medicine is looking at data standards, as well as procedures for meaningful post-crash investigations.

Safe Vehicles

Vehicle technology can save lives. As transportation and safety professionals, we do not have a role in vehicle manufacturing but can provide support in other ways. Specific solutions being utilized are:

- Agencies are introducing vehicles with newer safety features into their fleets
- Training is occurring on the newer vehicles
- A Vehicle to Infrastructure pilot is occurring in the region

Safe System Benchmarks And Safety Program Next Steps

For WAMPO's safety program to be successful and move the needle on severe crashes, different topics need to be discussed, assessed, and solutions integrated into planning and programming. Six key areas were shared with stakeholders, including:

- **Culture**: Safety needs to be a priority for the traveling public, at transportation agencies, and in our individual job responsibilities
- **Leadership and Commitment**: Leaders need to be bought in and supportive of safety efforts
- **Planning**: Plans need to be developed using inputs and considerations of transportation safety
- **Data Analysis**: Crash and other data need to be available and utilized to make informed decisions
- **Project Delivery**: Projects should be executed with safety policies and countermeasures in mind
- **Safe System Framework**: The Safe System Approach should be used as a tool to guide decision-making

Tables 1-6 summarize stakeholder discussions for each of the six topics. They include:

- **Benchmarks**: The elements that go into successfully executing different pieces of a safety program
- **State of Practice**: An assessment of whether the benchmarks are not a current practice, occasional practice, and which are institutional
- **Opportunities**: Successful practices for the benchmarks
- **Challenges**: Roadblocks to achieving the benchmarks
- **Solutions**: Suggestions to address barriers preventing a successful safety program

Table 1. Culture				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Agency staff prioritize safety in their job responsibilities		■ Smaller cities promote safety to staff, hold trainings, etc.	■ Time in general – COVID-19 impacted timing for training; It is not in the “job description/culture.”	■ Strive to make "transportation safety" an explicit part of the vision for all municipalities in the region and extend it to the culture established in their public works departments.
Agencies in the region coordinate regularly on transportation safety priorities		■ Cities and the County are working together on projects; Coordinated Transit District (CTD) 9 regularly coordinates with agencies, service providers, and special populations.	■ Need a champion for safety.	■ WAMPO staff serve as the region's transportation safety champion(s). Staff should continue to convene agencies, service providers, and special populations to coordinate regularly on transportation safety priorities.
Agencies in the region have made clear their support of transportation safety		■ Example efforts include the WAMPO Comprehensive Safety Action Study, WAMPO Active Transportation Committee, and WAMPO Health and Safety Committee.	■ Only a priority among some people and communities; cities need someone to start championing it; agency support for transportation safety has been more of an assumption than an explicit effort.	■ WAMPO should communicate the final CSAP to area communities, advocacy organizations, targeted committees (Active Transportation and Health and Safety), and others. During the process, WAMPO should actively seek their endorsement and/or adoption of the plan.

Table 1. Culture Continued				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Agencies in the region have a dedicated safety champion		■ The TSTA has the potential to represent and create more champions.	■ Need a champion for the region.	■ Continue with regular TSTA meetings during WAMPO CSAP development and after.
Agency leadership regularly discusses transportation safety		■ The Regional Economic Area Partnership (REAP) helps advocate for projects, e.g., the North Junction Project. An example story map is here.	■ Concerned safety could be politicized or litigated; insurance has been the motivating factor.	■ WAMPO should establish a CSAP Implementation Commite e (or continue convening the TSTA) and then meet with them according to an established schedule. Agenda items may involve transportation safety policies, projects, funding, and more.
Agency leaders have committed to an eventual goal of zero		■ Wichita's Bike/Ped Board has discussed Vision Zero. ■ WAMPO has a Vision Zero report.	■ Staff are not aware of Vision Zero unless they have gote n education on it elsewhere; crash liability concerns.	■ WAMPO should continue communicating and sharing its Vision Zero Report (updated August 2021) and results of the CSAP with TSTA members and the rest of the region. During the process, WAMPO should actively seek 1) endorsement of vision zero, 2) commitment to adopting the Vision Zero philosophy, and 3) development of local safety action plans. WAMPO may also fund communities' local safety plans.

Table 1. Culture Continued				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Agency training on transportation safety is available to current and/or new employees		■ Defensive Driving Training is available for Wichita municipal workers.	■ Prioritizing training and centralizing it.	■ Develop a centralized hub for transportation safety training modules, including defensive driving for municipal workers and others.
Participation in safety trainings, events, workshops are encouraged for all employees	  INSTITUTIONAL	■ Employees have no choice and must do it; KDOT has served as an active champion.	■ Some agencies need to hold trainings more often - Differs agency to agency; Getting large groups to ate nd can be an issue.	■ Strategize with municipalities to hold at least two transportation safety training opportunities in their communities each year. Leverage existing resources, e.g., from KDOT or a centralized training hub, to accomplish them.
Agencies have implemented accountability measures for safe driving of fleet vehicles		■ Currently have accountability policies and Wichita has an Accident Review Board.	■ High turnover rates make fleet management difficult.	■ Continue utilizing accountability policies, measures, and review boards for safe driving of fleet vehicles. Review the policies, measures, and impacts with employees at least twice a year.

Table 2. Leadership and Commitment				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Key elected officials and leaders are champions for safety and have made a public commitment to the goal of eliminating severe crashes		■ WAMPO's Chair is a safety champion; Haysville has 2-3 City Councilmembers who are champions and have completed safety projects; and officials support technical staff.	■ Change is boto m up and is not happening even though staff is sharing information with people above them.	■ WAMPO should approach local municipalities with the idea of signing on to a "regional transportation safety compact" that outlines their commitment to eliminating severe crashes and leveraging the CSAP as part of the effort. Via the compact, each community could agree to implement at least one CSAP recommendation.
Key elected officials and leaders are made aware of regional safety efforts regularly		■ A WAMPO institutional practice already exists, and the agency usually distributes the information.	■ Elected officials change with election cycles.	■ Use briefings for public officials, WAMPO Transportation Policy Board and Safety and Health Commit ee Meetings, and/or other communication tools to ensure both established and newly elected officials throughout the region are made aware of and updated on safety efforts happening in the Wichita area.

Table 3. Planning				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Transportation and safety stakeholder committee is in place and meets regularly		■ WAMPO Health & Safety Commite e and WAMPO Bike/Ped Commit ee meet regularly. ■ The City of Wichita meet regularly with USD259 (Public School) and have weekly updates with WPD.	■ No one has pushed for it in the past. ■ People do not know about the commit ees.	■ Consider highlighting specific commite es or providing brief updates on all commite es in WAMPO communications like the quarterly newslete r.
Stakeholder committee is representative of the community		■ Bike and Ped Commit ee includes members of the bike community and general population.	■ In response to "success" noted, another stakeholder commented that the Bike and Ped Commit ee is not diverse or representative of the full community. ■ Can be challenging getting everyone up to speed. ■ Getting people engaged is difficult in general right now. ■ Identifying who to involve and reaching them.	■ Each commit ee conducts annual self-review of membership and participation to identify critical gaps in representation and develop outreach strategy to recruit new members.
Targets to achieve significant declines in severe crashes are set		■ MPO & DOT have targets.	■ MPO & DOT have targets, but the public is not aware. ■ Safety conflicts (example provided of a bike lane being suggested on a major arterial).	

Table 3. Planning Continued				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
The public is aware of/engaged in transportation safety efforts		■ City shares where/when targeted PD enforcement is happening. The City's bike/ped advisory board engages the public.	■ Reaching a broader audience. ■ Getting people to pay ate ntion to information and care.	■ Use infographics to communicate the safety story and consistently communicate with the public.
Plans reflect input from the public and stakeholders on safety needs	 	■ Plans consider public input (desires for separated bike facilities). ■ Wichita and Derby - plans document public input.	■ Not a lot of public participation in WAMPO plans. And very litl e input on Derby plans.	■ Identify and build relationships with community gatekeepers and work with them to reach a wider audience.
Plans assess current safety policies, guidelines, and standards		■ WAMPO plans do have these. They all must meet KDOT and federal requirements. ■ Road diet guidance is reflected in current policies.	■ Local road safety plans are not yet complete throughout region.	■ WAMPO look for more opportunities to share/communicate current policies, guidelines, and standards with local communities and the public.
Plans discuss safety implementation		■ Comment that this may be an institutionalized practice - always in plans. ■ Most plans give implementation options.	■ Some ate ndees questioned if implementation is really happening.	■ Conduct review of past plans' implementation items and assess what has and has not advanced. Identify challenges and ways to address them for items not advancing.
Plans identify a comprehensive set of projects and strategies, time ranges, and prioritization criteria			■ Not a lot of money targeted specifically at safety.	■ Ensure the CSAP and recommendations within consider all potential funding sources, including new funding opportunities through the IIJA/BIL.

Table 3. Planning Continued				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Plans describe how safety progress will be measured over time		■ MPO required to measure.	■ Communicating implementation and tracking metrics/data to locals.	■ Use infographics to communicate the safety story and consistently communicate with the public.
Safety data, trends, or other information are being routinely monitored and shared with the public		■ KU School of Medicine Study on crash analysis was presented to the public and TAC.	■ Local agencies could be utilizing regional information.	■ Use infographics to communicate the safety story and consistently communicate with the public.

Table 4. Data Collection and Analysis				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Crash data is collected regularly and used to inform safety decisions	INSTITUTIONAL	■ Wichita's High Accident Intersection Program. ■ KDOT System Database ■ Smaller cities all have similar programs to Wichita's High Accident Intersection Program. ■ WPD sharing maps on social media.	■ Collection details not always great. ■ Crash form fill-out is sometimes incomplete. ■ Officers sometimes complain about time it takes to fill out form. ■ Tough to inform safety decisions to public.	■ Look at additional training with officers showing why and how we use the data. ■ Review ways to encourage public consumption of the data.
Crash data is augmented with data from other sources, such as hospitals, roadway data, VMT, etc.	OCCASIONAL PRACTICE	■ Using Rates versus pure number of crashes to show statistical outliers.	■ Hospital data availability, e.g., reluctance due to HIPAA. ■ Variations in data by hospital.	■ Create a regional data subcommite e. ■ Engage in discussion regarding mainstreaming aggregated data but stripping out personal information.
Crash analyses are being used to identify existing crash concerns, locations, and safety improvements	INSTITUTIONAL	■ Rolling list of intersections with crash concerns.	■ Comments were like item 1.	■ CSAP analysis will identify high crash locations. This should be updated a minimum of every five years.

Table 4. Data Collection and Analysis Continued				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Crash analyses are being used to identify potential crash locations, risks, and safety improvements			■ Intersections typically focal area of analysis.	■ CSAP analysis will identify high risk locations for a single crash type. This should be updated a minimum of every five years. ■ Review other common risk areas, segments, curves, and possibly break intersections into signalized, roundabout and unsignalized.
Crash analysis are being mapped or visualized		■ GIS Crash layer on City of Wichita website. ■ KU study for pedestrian and bicycle crashes.		
Equity is considered in analysis and the decision-making for safety improvements		■ WAMPO has created recent reports and maps that identify vulnerable populations.	■ Data access and availability (e.g., address of drivers versus crash location). ■ Growth and Development drive most project funding. ■ Need dedicated safety funding to address some projects.	■ CSAP analysis will include equity considerations. ■ Dedicated Safety Funding, work on aggregated address data to preserve privacy.

Table 5. Project Delivery				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
MTP and/or TIP projects prioritize transportation safety		■ When selecting TIP & MTP projects, safety is a priority criterion.		■ Review levels of funding going toward safety improvements (standalone safety projects and where safety is incorporated into transportation projects).
CIP (Capital Improvement Program) projects prioritize transportation safety		■ Transportation projects selected for CIP funding still prioritize safety due standard policies and code requirements.	■ Transportation safety projects have to compete with all other types of projects and other transportation needs.	■ Prioritize safety criteria as the number one priority when selecting transportation projects for CIPs and TIP.
FHWA proven countermeasures are being implemented		■ Where safety measures have been implemented, agencies have seen improvements. Specific examples given were Roundabouts, bike lanes, & designated left & right turn lanes	■ Challenges with a lack of public acceptance of the proven safety measures being implemented (specifically, roundabouts). ■ Short of looking them up, many agencies are not aware of what the specific FHWA proven safety measures are.	■ Provide educational material to public about specific safety measures being constructed (hot to use, data behind it, reason for it, etc.) ■ Provide resources to local agencies to encourage implementation of proven solutions.
Other engineering countermeasures are being implemented		■ Specific safety measures mentioned are bulb-outs around on-street parking, and speed tables in heavy pedestrian areas		

Table 5. Project Delivery Continued				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
NHTSA proven countermeasures are being implemented		■ DMS Signs & holiday messages referring to seatbelts, drinking driving, distracted driving has been successful. ■ Seatbelt & DUI Checks.	■ Communication with law enforcement when problems could occur outside of the crash area (when traffic gets rerouted). ■ More ate ntion-grabbing DMS signs. ■ City of Wichita PD discussed being short staffed in the traffic department.	■ Continue using TMC and make improvements to communications between P.D. and TMC team. ■ Consider using DMS signs to promote seatbelt and DUI checks in area
Other education and enforcement countermeasures are being implemented (i.e., safe driving competitions, tactical urbanism		■ More frequent promotions about distracted driving available. For example, Maize High School handed out cash rewards to high schoolers wearing their seat belts to school.	■ Not a lot of material available to provide to the public about important safety measures being implemented.	■ When new safety measures are being implemented or constructed, agencies could provide public notices, diagrams, figures, data, etc. explaining the importance of that safety measure, how to operate the safety measure, etc.
Complete Streets or other safety design policies are available and followed		■ Complete Streets designs are becoming more prominent in new designs. Bike users & pedestrians safety is being considered & prioritized more frequently with city projects. ■ Bike/Ped plans are more prominent in master plans	■ Ped/bike is still not widely accepted as a mode of transportation. ■ Can be difficult to gauge the safety of pedestrians & bike users due to the vulnerability of users. ■ Complete Streets & other safety policies are broad. ■ Bike/ped plans not always carried out as intended or as timely as originally planned.	■ Continue to educate local agencies on complete streets policies and guidance. ■ Consider a walking tour on a street retrofit ed to complete street standards to educate people on its purpose.

Table 5. Project Delivery Continued				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Maintenance policies that integrate safety considerations are in place and followed		■ More funds available for Bike/Ped facilities.	■ Lack of funding to continue maintenance of safety measures.	■ Consider prioritizing low-maintenance safety measures.

Table 6. Safe System Framework				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Safer Vehicles are being addressed in the region		■ Safety training for company vehicles is largely required.	■ Gap in knowledge related to how transportation professionals can impact safe vehicles	■ As part of the CSAP, continue to discuss Safe Vehicles as a pillar of the SSA and identify strategies and actions
Post-Crash Care is being addressed in the region		■ The City of Maize is a good example of local agency and enforcement collaboration on crash data related questions.	■ Local law enforcement is interpreting and recording crash data different which makes it challenging to make regional comparisons.	■ As part of the CSAP, identify data gaps and develop strategies and actions to continue to address those.
Safe Speeds are being addressed in the region		■ Speed studies and speed enforcement campaigns help with ongoing monitoring of speed-related conditions and deterring unsafe speeds.		

Table 6. Safe System Framework Continued				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Safe Road Users are being addressed in the region		■ The City of Haysville has teen-related safety education and could be a good example of information to share regionally. ■ Anecdotally, drivers may be more aware of bicyclists (than say 10 years ago) because of increased numbers of bicyclists. ■ The City of Wichita Get Out and Walk campaign.	■ This City of Wichita campaign does not have any focus on safety for pedestrians. ■ Engineers are not able to prioritize communications in addition to other responsibilities. In addition, many agencies do not have communications departments. ■ Lack of awareness from drivers, bicyclists, and enforcement on the rules of the road. In addition, the public needs to be accountable for their actions, ■ Training or re-training of drivers on new infrastructure, rules of the road, and defensive driving.	■ Catalogue existing education campaigns in the region and share with partners. ■ Identify opportunities to incorporate safety messaging into the City of Wichita campaign. ■ Share the WAMPO safety communications calendar with partners. At identified times, share developed resources, links, and content for posts to make it easy for partners to cross share. ■ Develop a communications and education document (PowerPoint, one-pager, other) defining the basic rules of the road for pedestrian, bicyclists, and drivers. ■ Develop a communications and education series that highlight one new safety item a month or bi-monthly

Table 6. Safe System Framework Continued				
Benchmark	**State of Practice**	**Opportunities to Build Upon**	**Challenges**	**Solutions**
Safe Roads are being addressed in the region		■ The region is learning how to do safe roads - trying pilot projects and prioritizing proven safety countermeasures.	■ Overcoming the public notion that change is bad. ■ PR around safety improvements and investments is lacking. ■ Connecting the results of a data analysis to the improvements being recommended. ■ Innovative safety improvements often receive pushback.	■ Develop a communications and education series that highlight one new safety item a month or bi-monthly. ■ Share the WAMPO safety communications calendar with partners. At identified times, share developed resources, links, and content for posts to make it easy for partners to cross share. ■ Share the final CSAP, when complete, which will identify the key data-driven challenges and proposed solutions. ■ As part of the communications and education series, share information on innovative safety improvements.

TSTA Meeting #2
March 28, 2023, 1:30-4:30PM
WAMPO Office – 271 West 3rd Street, Suite 203, Wichita, Kansas 67202

Attendees

Jessica Warren, CTD 9
Mike Armour, City of Wichita
Dan Squires, City of Derby
Georgie Carter, City of Haysville
Jolene Graham, City of Maize
Raven Alexander, City of Wichita Transit
Chad Parasa, WAMPO Ashley Bryers, WAMPO Alicia Hunter, WAMPO Slade Engstrom, TranSystems
Nicole Waldheim, B&N

CSAP Overview and Outcomes

The purpose of TSTA Meeting #2 was to identify the priority safety challenges to address in the Comprehensive Safety Action Plan (CSAP) and initiate a discussion on solutions. The agenda for the meeting included the following:

- Welcome and Introductions
- Safety Communications
- Benchmarking Priority Actions
- Problem Identification
- Safety Prioritization and Initial Solutioning
- Mark Up the Map Exercise

Communications

A key feature of the CSAP is a communications calendar. It outlines safety outreach methods to be conducted over the course of the plan. The goal of the calendar is to have all partners share the same information at the same time to increase the reach of critical safety education. Recent communications efforts included:

- Be Safe Wichita! Video (Viewed 180 times on You Tube, 13 on Twitter, and 921 on Facebook)
- Culture survey (179 survey responses)

Upcoming communications efforts include the following and will be shared with TSTA members to cross-post:

- TSTA Meeting #2 PowerPoint and Highlights
- Emphasis Area Announcement
- Distracted Driving messaging

Safe System Benchmarks And Safety Program Next Steps

For WAMPO's safety program to be successful and move the needle on severe crashes, different topics need to be discussed, assessed, and solutions integrated into planning and programming. Six key areas were shared with stakeholders at TSTA Meeting #1, including:

- **Culture**: Safety needs to be a priority for the traveling public, at transportation agencies, and in our individual job responsibilities
- **Leadership and Commitment**: Leaders need to be bought in and supportive of safety efforts

- **Planning**: Plans need to be developed using inputs and considerations of transportation safety
- **Data Analysis**: Crash and other data need to be available and utilized to make informed decisions
- **Project Delivery**: Projects should be executed with safety policies and countermeasures in mind
- **Safe System Framework**: The Safe System Approach should be used as a tool to guide decision-making

For each of the six topics, a list of challenges and suggested solutions (forty-two) were identified (the full list can be found in Meeting Summary #1). At TSTA Meeting #2, participants prioritized the 42 solutions to determine the highest priorities to carry forward in the CSAP. A 1 (one) indicated a low priority and a 5 (five) a high priority. Those highlighted in blue were identified as the highest priorities. The aggregated results are below.

Culture	
Solutions	**Priority Ranking**
Include transportation safety as an explicit part of the vision for all municipalities in the region	4.4
WAMPO continues to convene the CSAP safety committee and other interested groups to regularly coordinate on transportation safety priorities	3.9
WAMPO shares and provides education on the final CSAP with local agencies, advocacy organizations, and WAMPO committees	4.6
The final CSAP is endorsed by local agencies, WAMPO committees, and advocacy organizations	3.7
WAMPO establishes a CSAP Implementation Committee to ensure projects and program in final plan are completed	3.9
Create a centralized hub for information on transportation safety for agency staff	3.6
Hold at least one transportation safety event for local agency staff and other stakeholders annually	3.7
Continue utilizing accountability policies, measures, and review boards for safe driving of fleet vehicles	3.1

Leadership and Commitment	
Solutions	**Priority Ranking**
Create a regional transportation safety compact, asking local agency leaders to agree to implement CSAP recommendations	3.9

Develop briefing materials or a basic training to educate newly elected officials on the CSAP and safety priorities	3.9

Planning	
Solutions	**Priority Ranking**
Provide CSAP implementation updates to existing WAMPO committees on a more regular basis	3.1
Continue to identify gaps in transportation safety representation on existing committees	3.6
Increase infographic development to communicate information on transportation safety	3.7
Identify and build relationships with community-based organizations and work with them to reach a wider audience	4.0
Share and educate local agencies on existing safety policies, guidelines, and standards	4.2
Review previous plans' implementation items and determine what is effective and what is not	3.2
Ensure CSAP recommendations consider all potential funding sources	4.1

Data Analysis	
Solutions	**Priority Ranking**
Additional training with officers showing importance of crash data reporting	3.8
Create a regional data subcommittee	3.6
Discuss approach and funding source to mainstream aggregated data while removing personal information	3.4
Update high crash locations at a minimum of every 5 years	4.5
Update high risk locations at a minimum of every 5 years	4.4
Review and complete a deeper dive into other common risk areas	3.3
Continue to map and provide resources every few years to local agencies on high crash and high-risk locations	4.3

Project Delivery	
Solutions	**Priority Ranking**
Review amount of funding (TIP/CIP) going toward safety improvements to better understand how to leverage resources	3.1
Review safety prioritization criteria for CIP and TIP projects	3.3
Provide educational materials to the public about specific safety measures being implemented (how to use, data behind it, reason for it, etc.)	4.1
Provide resources to local agencies on high-value and effective safety countermeasures	4.4
Continue to enhance communications efforts between the Transportation Management Center and enforcement	3.8
Consider using Dynamic Messaging Signs signs to promote seatbelt and DUI checks	3.4
Continue to pilot test engineering and education countermeasures and track effectiveness	3.7
Continue with Complete Streets education to local agencies and the public	3.3
Continue conversations on how to integrate low-cost safety improvements into maintenance projects	4.1

SSA Framework	
Solutions	**Priority Ranking**
Continue discussing Safe Vehicles as part of the CSAP planning process to better understand role of transportation planners and engineers	2.7
Catalog existing education campaigns in the region and share with partners	3.2
Share WAMPO safety communication calendar with partners. At identified times, share developed resources, links, and content for posts to make it easy for partners to cross share.	3.3
Develop a communications and education document defining basic rules of the road for pedestrian, bicyclists, and drivers	4.2
Develop a communications and education series that highlight one new safety item a month or bi-monthly	3.1

Safety Story: Public Input and Analysis

The results of the culture survey and initial trends analysis were shared. The analysis outputs can be found in the TSTA Meeting #2 PowerPoint. The goal of sharing the data was to help TSTA members make informed decisions about the key safety challenges in the region based on both qualitative and quantitative inputs.

Emphasis Area Priorities

Based on the results of the WAMPO region crash trend analysis, ten safety issues emerged as potential priorities to address. TSTA members prioritized the top three areas to address in the CSAP, which included:

- Intersections
- Speed
- Vulnerable Road Users

At TSTA Meeting #3, additional crash analysis will be completed for these three areas to demonstrate why these types of crashes are occurring, what is occurring when these crashes take place, who is involved in the crashes, when they are happening, and where they are happening. This will provide more information to enable TSTA members to identify applicable solutions.

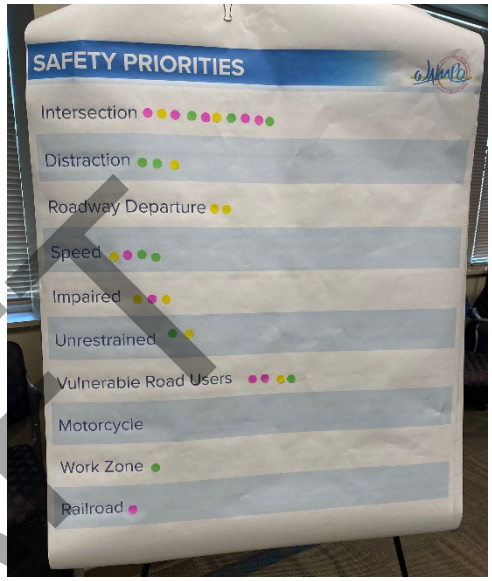


Figure 1: Identified Safety Issue Areas for CSAP

Safety Solutions

For the CSAP, other regional and local transportation and safety plans were reviewed. Those documents identified several solutions to address the road safety and road user safety. All these solutions were presented to TSTA members so they could identify those that have been (or have the most potential) to be effective at reducing severe crashes in the region. The following were selected as priorities and will be prioritized for inclusion in the CSAP. The numbers represent how many votes a solution received.

Safe Roads – Intersections

Flashing solar-powered beacons for intersection warnings (6)
Street lighting (6)
Advanced intersection identification signing (5)
Improved geometry (4)
Install stop signs with LED flashing lights (3)
Right in-Right out roundabouts (3)
Consistent yellow and all-red timings (2)
Additional stop and warning signing (2)
Rectangular rapid flashing beacon (2)
Traffic calming (2)
Curb and gutter (2)
Install beacon on stop signs (2)
Clearing vegetation within sight triangles (1)
Fluorescence yellow advanced warning signs (1)
Diverging diamond interchange (1)
Convert two-way stop to all-way stop (1)
Re-align intersection approaches (1)
Reflective backplates (1)
Convert stop-control to roundabouts (1)

Safe Roads – Bicycle and Pedestrian

Pedestrian refuge island (6)
Sidewalks (6)
Pedestrian crossing signal (5)
Curb extension/choker/bulb out (4)

Enhanced signing and pavement markings (4)
Off-street bike facilities (4)
Pedestrian hybrid beacons and signs (3)
Bike lanes and buffered bike lanes (2)
Road diets (2)
ADA curb ramps (2)
Marked pedestrian crossing (1)
Raised crosswalk (1)
Transit shelters (1)
Curb and gutter (1)

Safe Roads – Roadway Departure
Edgeline/centerline rumble strips (6)
Enhanced signage and delineation (6)
Rumble strips (5)
6" retroreflective centerline (5)
Road safety audits (4)
Delineate roadway hazards with retroreflective markers (3)
Paved shoulders (2)
Medians (2)
18-inch aggregate shoulder treatment (1)
Shoulder widening (1)
Tapered pavement edge (1)
6" retroreflective edgeline (1)

Safe Roads – Curve
New pavement markings (5)
Install/upgrade curve signage (2)
Speed activated flashers on chevron signs (7)
Retroreflective strips on chevron signs (5)
Transverse rumble strips prior to curve (2)

Safe Road Users – Enforcement
High visibility campaigns to deter aggressive driving/speeding (7)
Promote strategic enforcement at intersections with safety issues (7)
Perfrom targeted enforcement of motorists in school zones (7)
Perform targeted education and enforcement of motorists in locations where yielding to pedestrian in crosswalks is an issue (6)
Identify behaviors of motorists and bicyclists that led to crashes and focus tickets on changing behaviors that cause crashes (3)
Compile and review statistics on where and why citations are issued to assess enforcement consistency and focus (2)
Continue to utilize annual high visibility statewide high school and middle school neighborhood safety restraint enforcement campaigns (1)
Work with law enforcement to evaluate/improve current crash reporting system (1)
Perfrom targeted enforcement of pedestrians in locations with jaywalking (1)
Increase enforcement of bicyclist/motorists behavior to reduce these crash occurrences (1)

Safe Road Users – Education
Conduct driver education programs (6)
Identify and apply for funding for annual education/enforcement programs (6)
Conduct education campaigns that target factors in roadway departure crashes and active transportation users (5)
Collaborate with state and local partners to promote seat belt use through education programs (4)
Provide educational opportunities to staff, consultants, and project sponsors that reflect best practices in active transportation design (4)
Develop education materials for new intersection types and new traffic control devices (3)
Issue annual report identifying top ten crash intersections (3)
Develop walking and biking safety educations lessons for youth (2)
Identify best practices for routine maintenance (2)
Provide training for law enforcement on laws and best practices related to active transportation (2)
Support partner organizations to train parent volunteers in promoting safe routes to school (2)
Educate person above 60 on issues that can impact older drivers (1)
Address driver behavior on the locally owned road system (1)

Improve public awareness of non-motorized users (1)
Provide opportunities for adult bicycle education course (1)
Support partner organizations in their efforts for national “walk to school day” (1)

Maps

Participants viewed high crash location maps for the region and made comments.

Next Steps

The TSTA will meet for a third and final time to identify solutions for intersection, speed, and vulnerable road user crashes; review high crash and high-risk locations; and provide feedback on layout and inputs into the final CSAP document.

TSTA Meeting #3
May 17th, 2023, 1:30-4:30PM
WAMPO Office – 271 West 3rd Street, Suite 203, Wichita, Kansas 67202

Attendees

Jack Brown, Univ. of Kansas School of Medicine
Lizeth Ortega, City of Wichita
Mike Armour, City of Wichita
Raven Alexander, City of Wichita Transit Daniel Schrant, Sedgwick County
Jessica Warren, CTD 9
Dan Squires, City of Derby
Georgie Carter, City of Haysville
Sarah Oldridge, Derby Police
Tom Hein, KDOT
Tia Raamot, City of Wichita
Jason Stephens, Wichita Police
Chad Parasa, WAMPO
Ashley Bryers, WAMPO
Dylan Cossart, WAMPO
Peter Mohr, WAMPO
Triveece Penelton, Vireo
Jamaica Whitehead, Vireo
Slade Engstrom, TranSystems
Kendra Schenk, B&N

CSAP Overview and Outcomes

The purpose of TSTA Meeting #3 was to discuss the high crash locations in the WAMPO region and identify countermeasures, including systemic countermeasures, that could be effective in mitigating crashes in the WAMPO region. The agenda for the meeting included the following:

- Welcome and Introductions
- Review of TSTA Meeting #2
- Discussion of High Crash Locations
- Field Review of High Crash Locations
- Countermeasures Discussion
- Grant Applications
- Project Next Steps

Review of TSTA Meeting #2

The polling results from TSTA Meeting #2 were presented from the Safe System Benchmarks and Safety Program Next Steps discussion. The priority solutions for the six key areas are summarized below. Refer to TSTA Meeting #2 summary for more details.

- **Culture**: Safety needs to be a priority for the traveling public, at transportation agencies, and in our individual job responsibilities
    - Include transportation safety as an explicit part of the vision for all municipalities in the region
    - WAMPO shares and provides education on the final CSAP with local agencies, advocacy organizations, and WAMPO committees
- **Leadership and Commitment**: Leaders need to be bought in and supportive of safety efforts
    - None
- **Planning**: Plans need to be developed using inputs and considerations of transportation safety
    - Identify and build relationships with community-based organizations and work with them to reach a wider audience
- Share and educate local agencies on existing safety policies, guidelines, and standards
    - Ensure CSAP recommendations consider all potential funding sources

- **Data Analysis**: Crash and other data need to be available and utilized to make informed decisions
- Update high crash locations at a minimum of every 5 years
- Update high risk locations at a minimum of every 5 years
- Continue to map and provide resources every few years to local agencies on high crash and high-risk locations

- **Project Delivery**: Projects should be executed with safety policies and countermeasures in mind
- Provide educational materials to the public about specific safety measures being implemented (how to use, data behind it, reason for it, etc.)
- Provide resources to local agencies on high-value and effective safety countermeasures
- Continue conversations on how to integrate low-cost safety improvements into maintenance projects

- **Safe System Framework**: The Safe System Approach should be used as a tool to guide decision-making
- Develop a communications and education document defining basic rules of the road for pedestrian, bicyclists, and drivers

Discussion of High Crash Locations

The top intersections throughout the region were highlighted and ranked. For the ranking process, property damage only crashes were removed from the analysis. Given that the three emphasis areas identified from previous TSTA discussions were Intersections, Vulnerable Road Users (VRUs), and Speeding, the intersections were ranked based on overall fatal and injury crashes (separated by signalized and unsignalized), VRUs crashes (combined signalized and unsignalized), and speed related crashes (combined signalized and unsignalized). The maps of these locations are provided in the attachments.

Field Review of High Crash Locations

The stakeholders conducted a field review of the following intersections:

- Main Street & 3rd Street
- Market Street & 3rd Street
- Market Street & Central Avenue
- Broadway Avenue & Central Avenue
- Broadway Avenue & Pine Street

At these intersections countermeasures were identified to mitigate the crashes and contributing factors. The following deficiencies were identified:

- Faded striping in general, but particularly noted for crosswalks and stop bars
- Lack of signal head conspicuity
- Confusing one-way configurations
- Lack of dedicated turn lanes and protected left turn signal phases
- Sight distance obstructions including:
- Parking near intersections
- Utility poles
- Trees
- Off tracking of vehicles including freight.

- Wide crossings without median refuges for pedestrians even though high pedestrian generators at the intersection.
- Far side transit stops without turnouts present.

The following countermeasures were also identified:

- Improved striping that lasts longer
- Backplate retroreflective borders
- Protected bike lanes and bike lane/right turn separation at back of bay rather than conflicting at intersection
- Leading pedestrian intervals
- Medians and pedestrian refuges
- Dedicated turn lanes and protected left turn phasing. Look at lead/lag-protected lefts at locations that can't be widened due to right of way constraints.
- Curb extensions/bulb outs
- Education of drivers and pedestrians on proper operations of traffic control devices
- Speed reduction devices (speed tables, raised intersections, chicanes, etc.)
- Bet er lighting
- Advance warning applications (e.g. signs)
- Access Controls at minor roads
- Yellow and all red cycles short without the protected left turn phasing
- Bet er design for all users

Countermeasure Discussion

After the field review, the countermeasures were discussed in more detail and the priority countermeasures that would be most effective in the region were identified:

- Leading pedestrian intervals
- High visibility crosswalks
- Backplates with retroreflective borders
- Dedicated left-turn lanes on high volume roadways
- "Turning Traffic Yield to Pedestrian" signage at intersections with high pedestrian traffic
- Access control through medians
- Advanced warning signs where contextually logical
- Improved pavement markings for vehicle travel lanes
- Curb extensions/bulb outs
- Complete streets discussion, designing for all users (e.g. freight, transit, pedestrian, vehicles and bicyclists).

Another major countermeasure that emerged from the discussion was the need for education surrounding VRUs – both education for drivers and for the VRUs. The "See Me AZ" website was shared with the group as an example of a cohesive marketing campaign being conducted with the Phoenix MPO - https://azmag.gov/Programs/Transportation/Safety-Programs/See-Me-AZ. This type of program could be considered for the WAMPO region.

Grant Discussion

The Safe Streets and Roads for All (SS4A) Grant application is open and responses are due July 10, 2023. The WAMPO region is well-positioned for an implementation as a result of the CSAP. However, without

a specific project identified and detailed analysis having been conducted to inform the application, an Implementation Grant would likely not be competitive at this time. Therefore, it was proposed that the WAMPO region apply for a Planning and Demonstration Grant. This grant can be used to supplement a comprehensive safety action plan including additional stakeholder and public engagement and collaboration, topical sub-plans. This grant could also be used for demonstration activities such as quick-build strategies that inform permanent projects in the future, pilot programs for behavioral and operational activities or evaluation of new technologies not yet adopted in the region.

There was discussion about what could be included in a WAMPO Planning and Demonstration Grant. Ideas included additional grassroots community engagement, additional studies on high crash locations to determine improvements, piloting a behavioral safety campaign with a major local employer, temporary curb extensions, and temporary speed calming elements.

The group will reconvene virtually to decide what items should be included in the grant application which is a two-page narrative with letters of support from local stakeholders endorsing the project. The activities to be included in the application will be determined by May 31, 2023. The application will be completed for submittal on June 30, 2023. Supporting information, such as a draft implementation plan, will be provided with the application.

Example successful implementation grants were shared:

- Louisville Metro SS4A Application – Rightsizing Louisville for Safe Streets
- Columbus, OH Application – Livingston Avenue
- Fact sheets for all 37 Implementation Grant awards

Next Steps

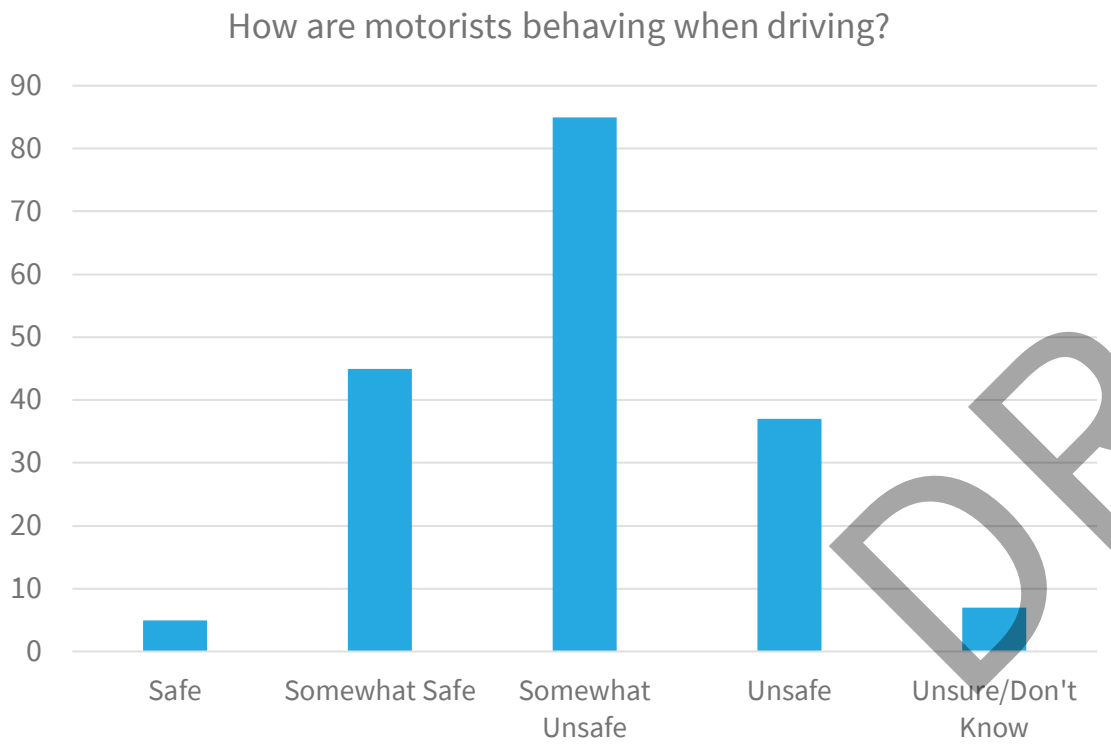
This is the third and final TSTA meeting for the plan development process. A Traffic Safety Committee and public information meeting will be held on June 8, 2023. The goal of this meeting is to solicit additional input from stakeholders and the public to inform the SS4A application and the recommendations included in the CSAP.

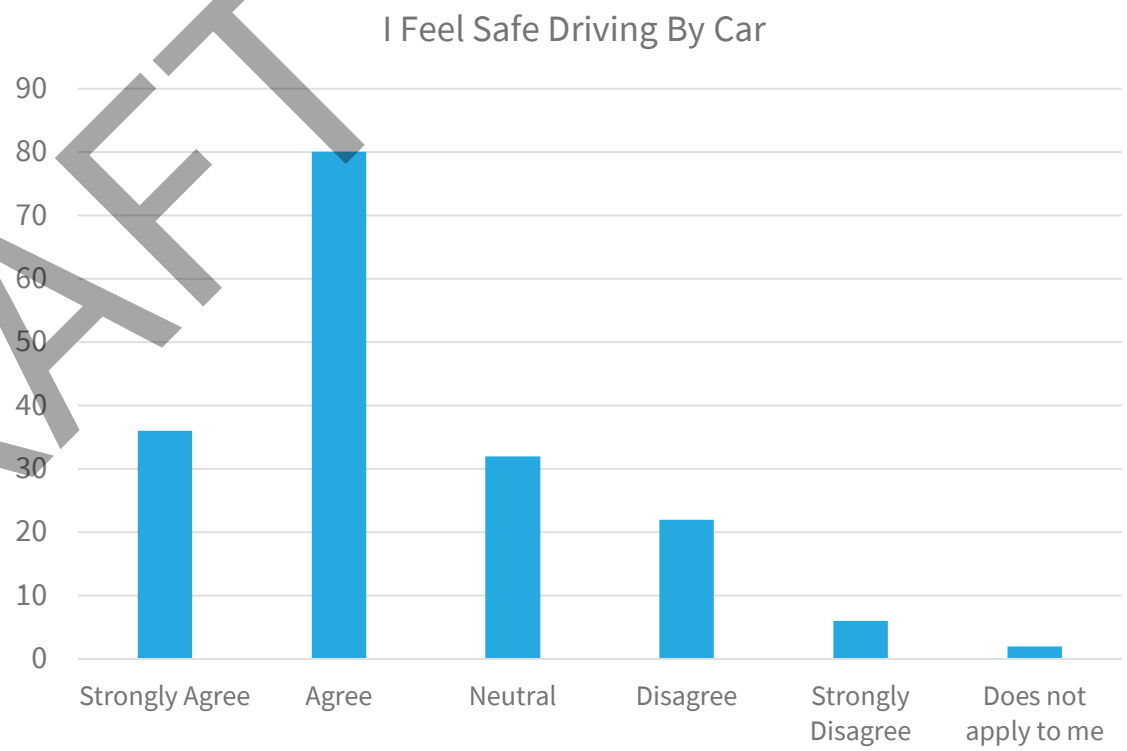
The draft implementation plan will be prepared by the end of June for inclusion in the SS4A application. The SS4A Planning and Demonstration Grant application will be completed and submitted on June 30, 2023. The draft CSAP will be provided in July with the final plan provided in August or September.

SURVEY ANALYSIS RESULTS

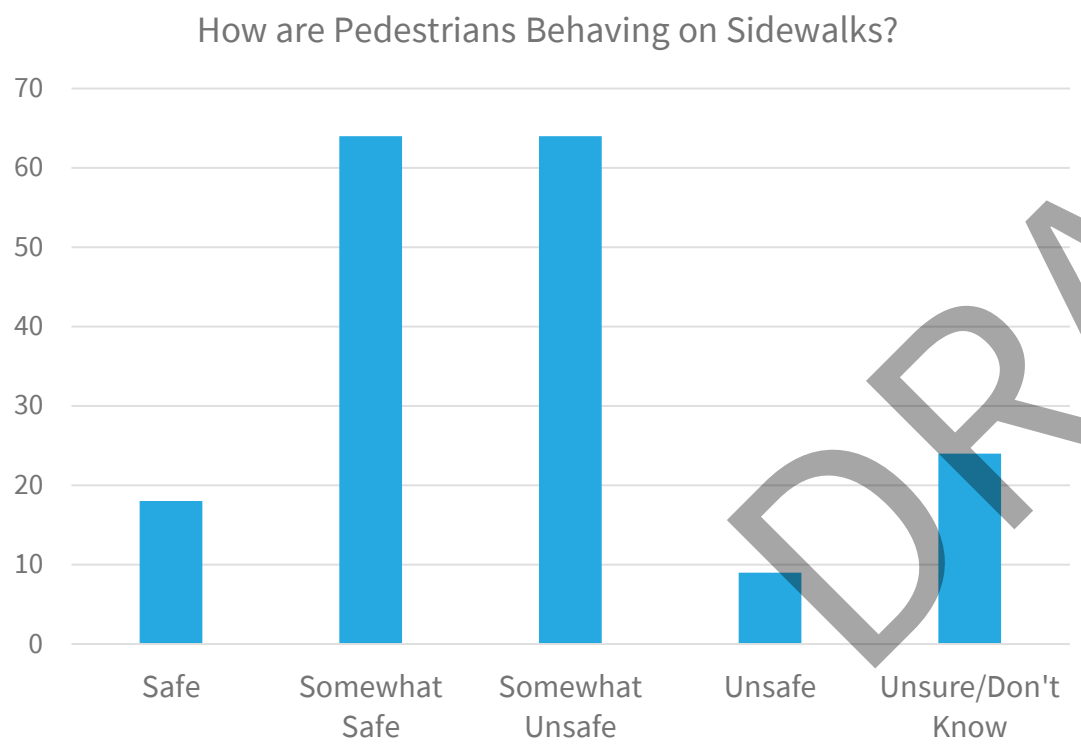
MARCH 15, 2023

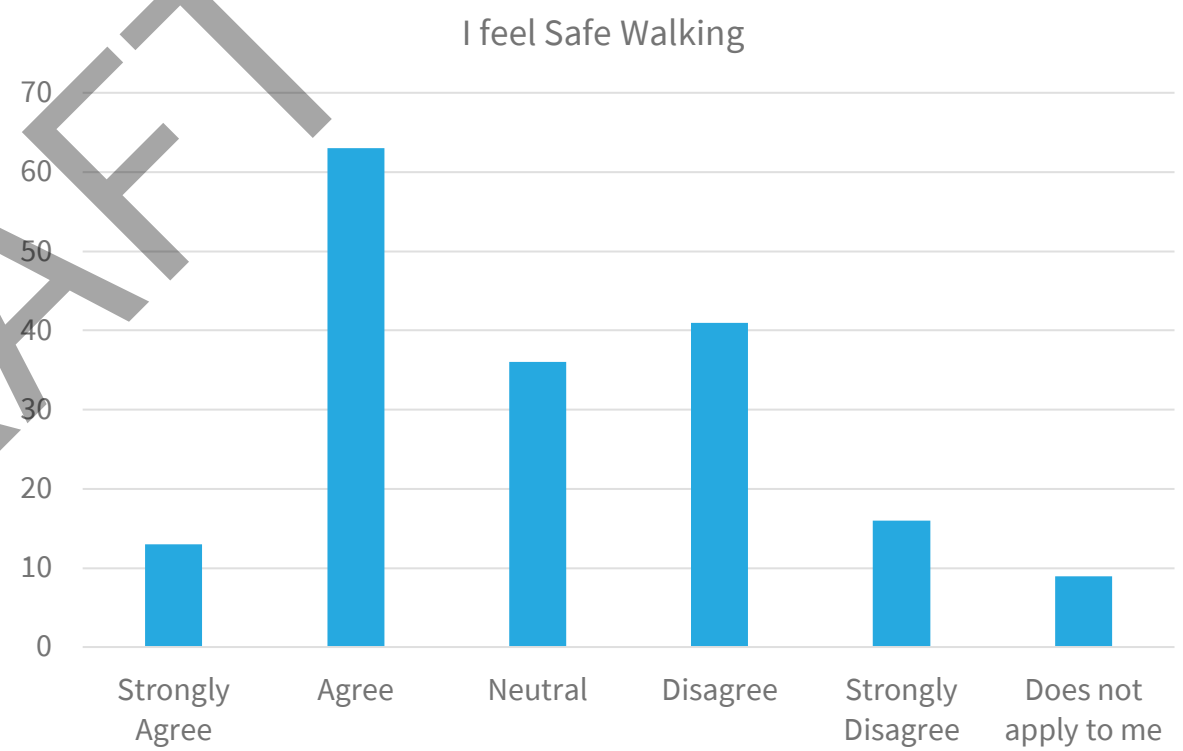
SURVEY RESULT – MOTORIST BEHAVIOR



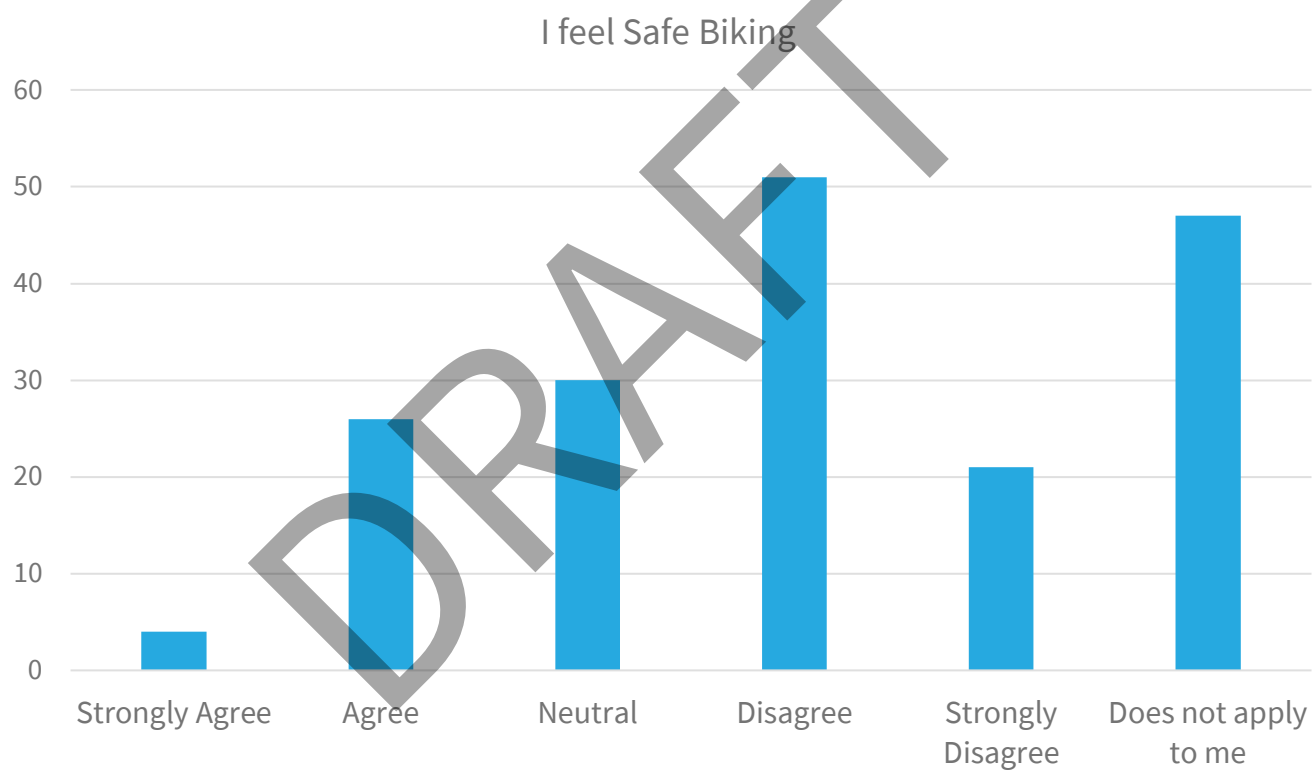


SURVEY RESULT – PEDESTRIAN BEHAVIOR



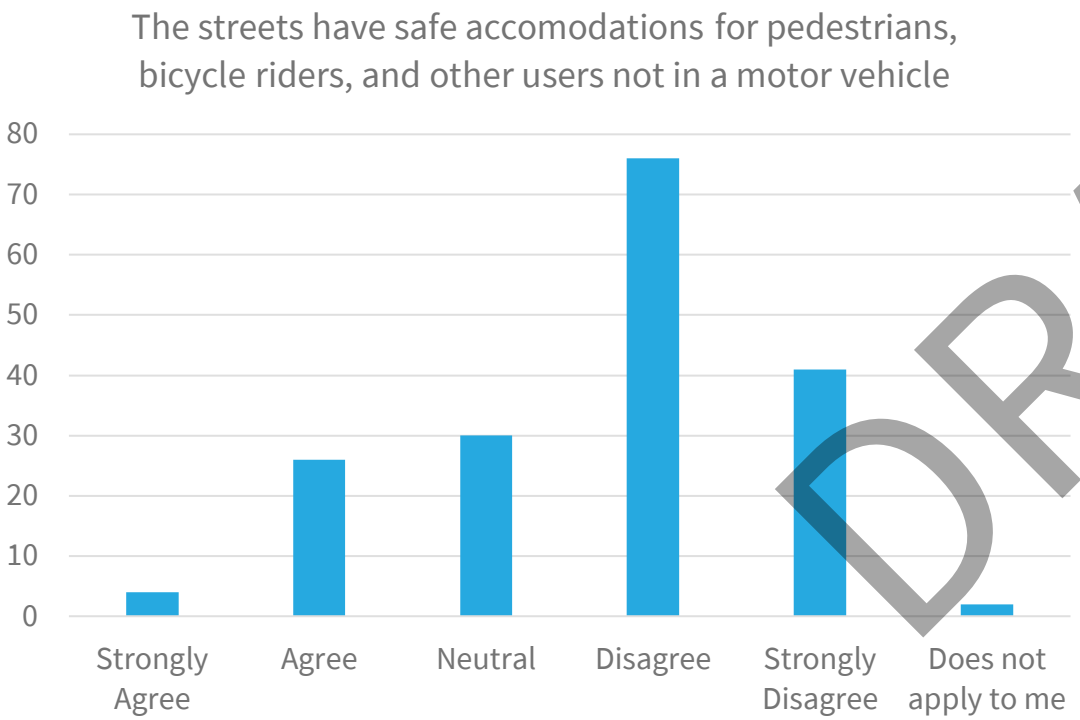


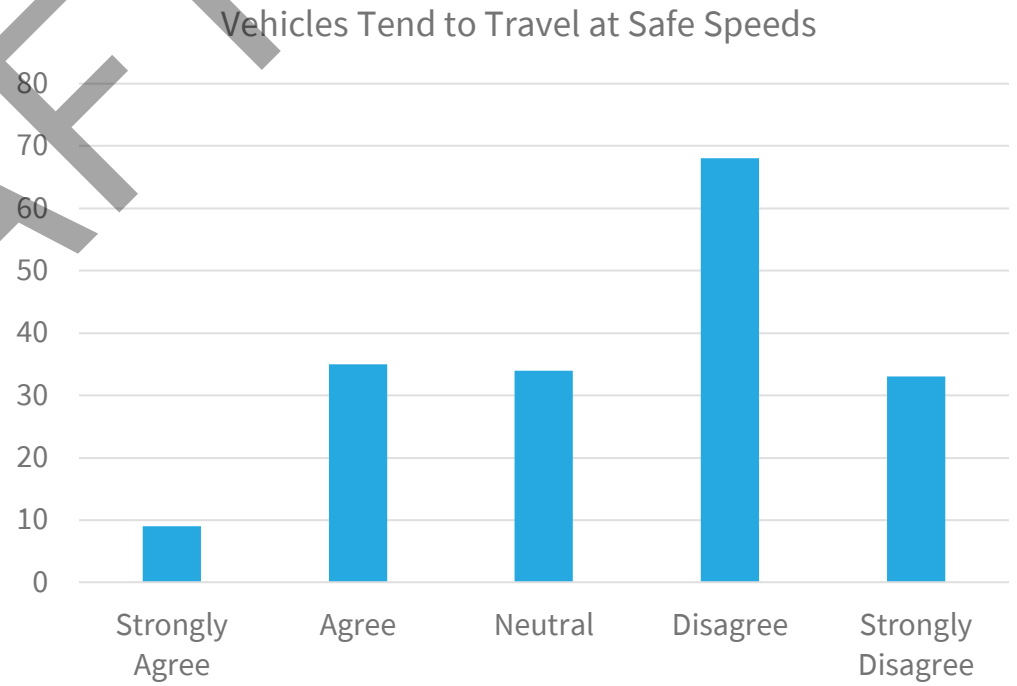
SURVEY RESULT – BICYCLIST BEHAVIOR*



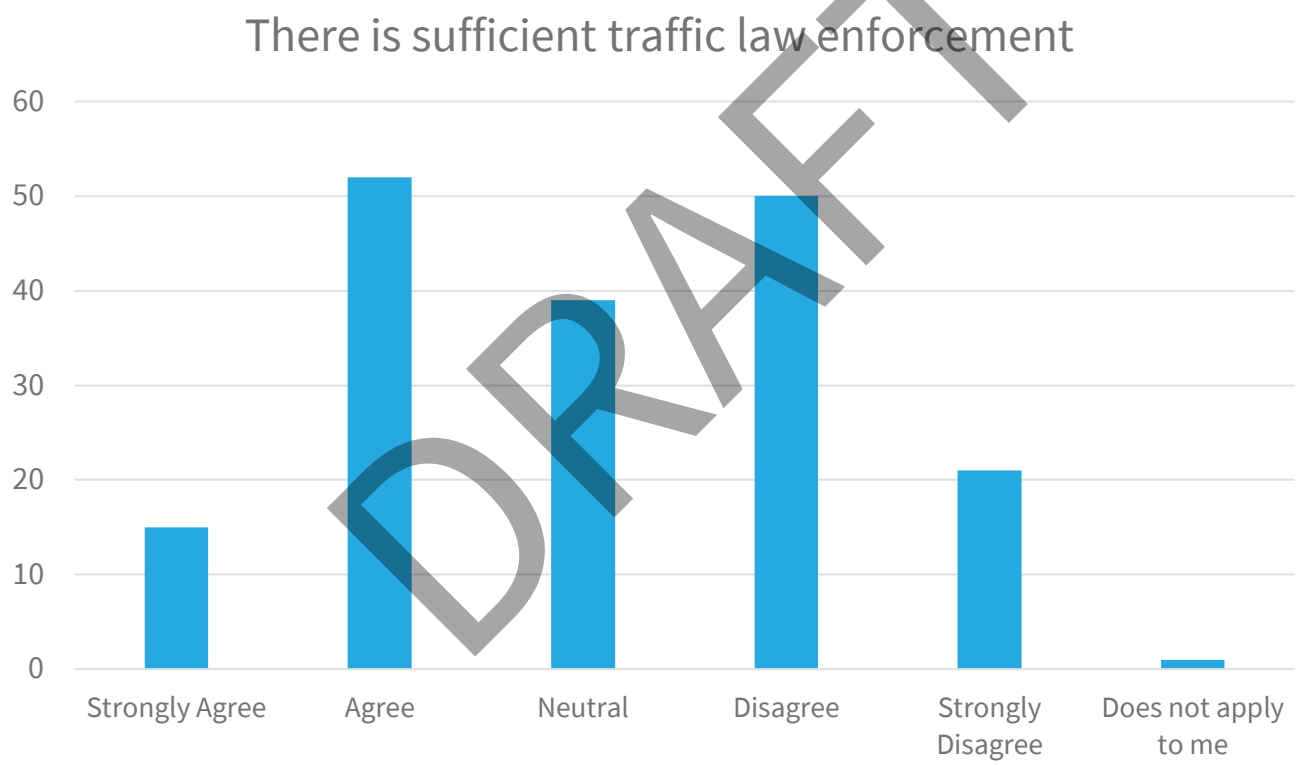
*Survey did ask question on how bicyclists behaved when biking. This question received no responses

SURVEY RESULT – VULNERABLE ROAD USER PROTECTION

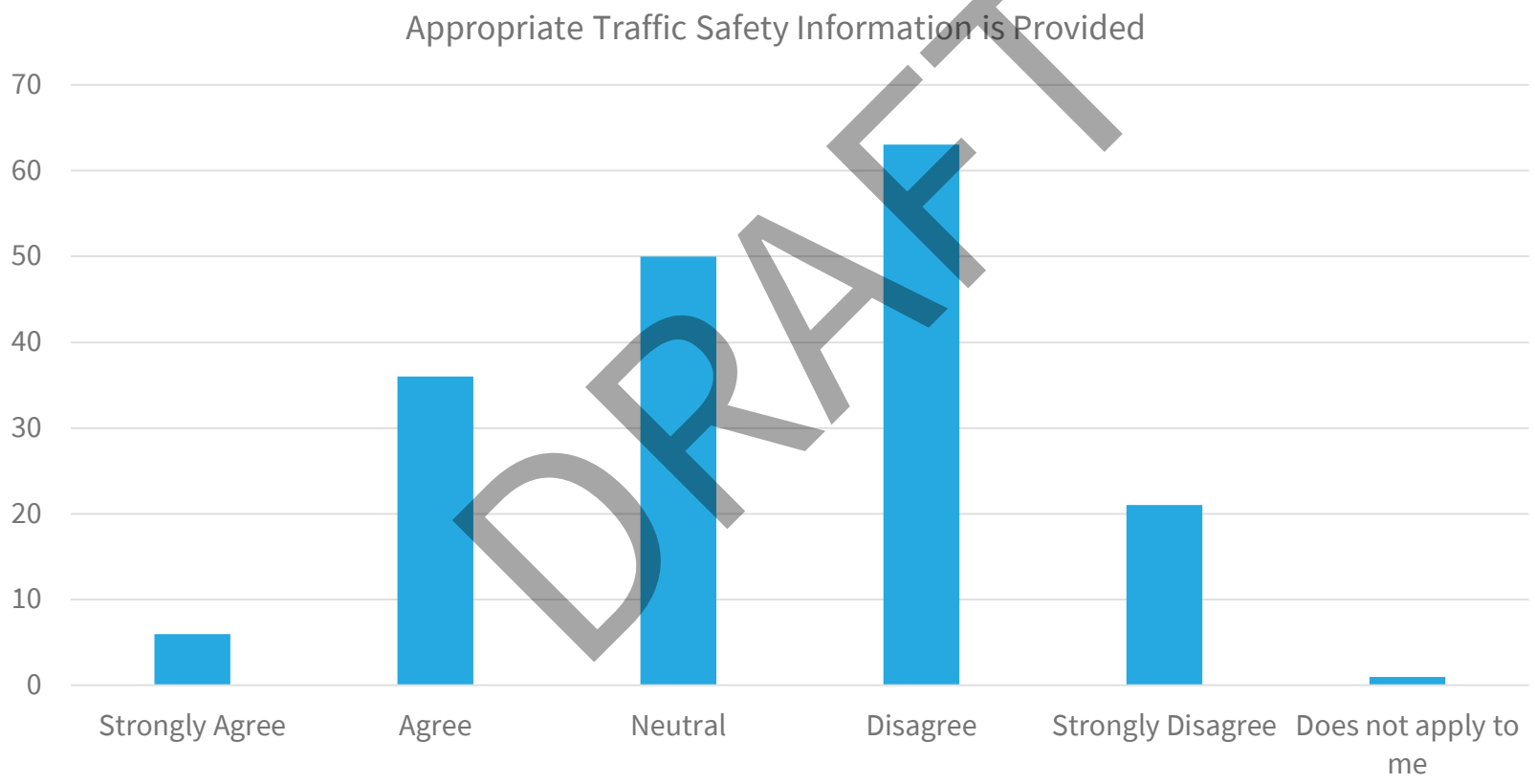




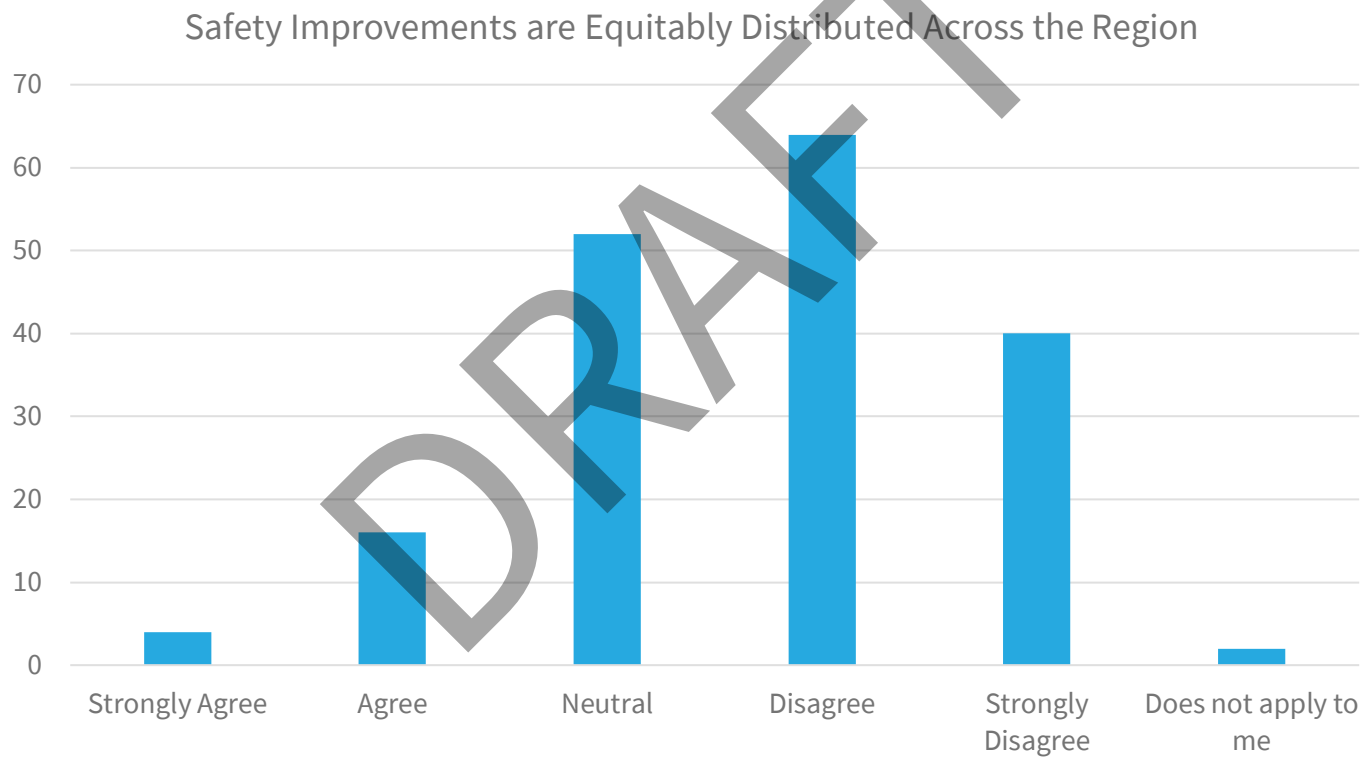
SURVEY RESULT – ENFORCEMENT



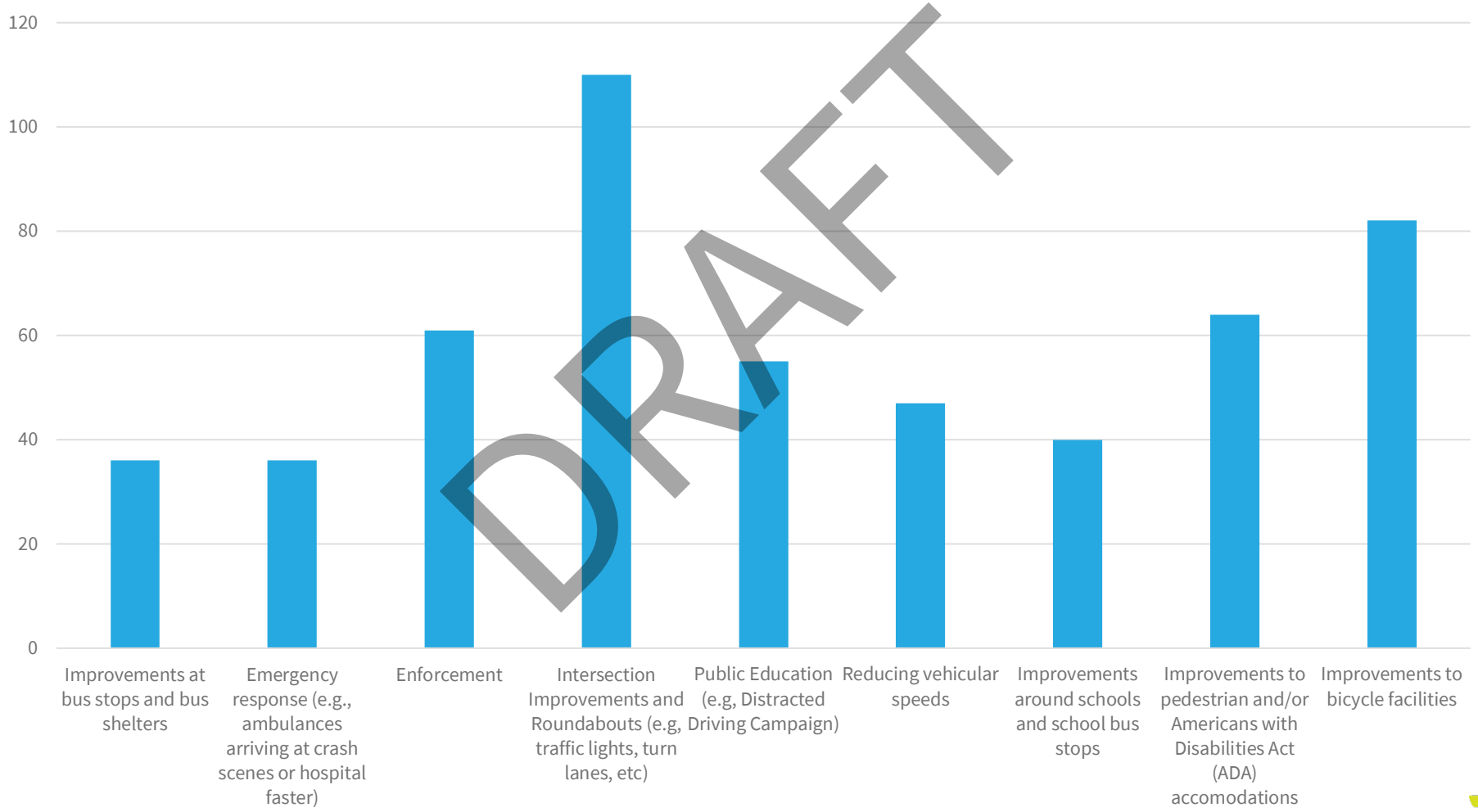
SURVEY RESULT – INFORMATION



SURVEY RESULT – EQUITY



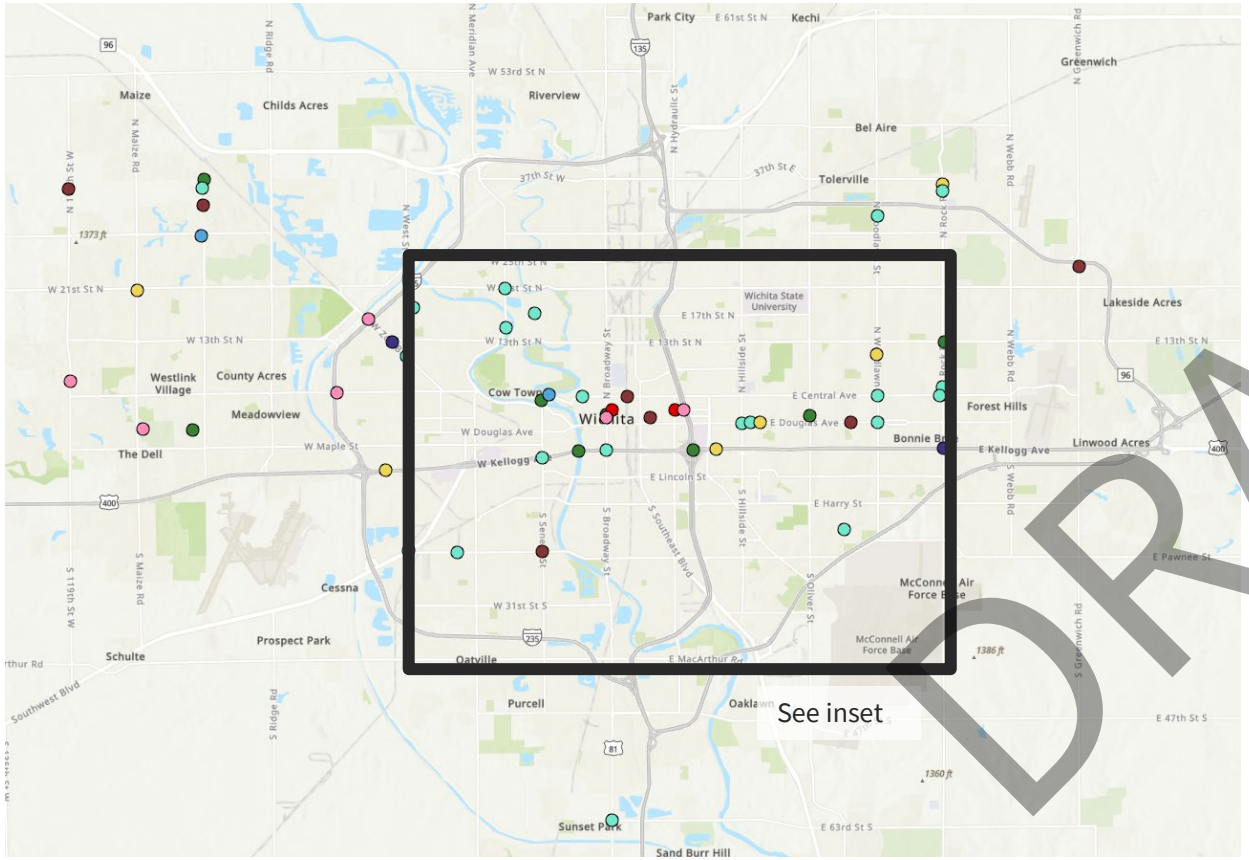
SURVEY RESULT – TOP INVESTMENT PRIORITIES

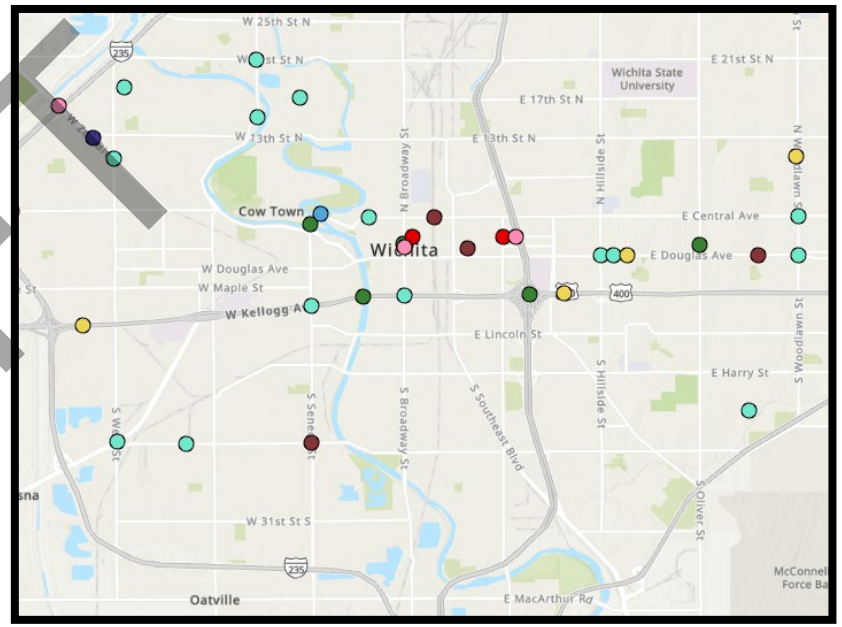


COMMENT SAMPLE

Engineering	Enforcement	Education	Equity
Walking in the street is unsafe. No available sidewalks mean walking in the street or in the ditch or lawns.	Enforce no parking on 2nd street bike lane	Drivers aren't educated about sharing the road with cyclists, or that the bike lanes aren't turn lanes. Cyclists do a generally poor job of sharing paths with walkers/runners, have literally been shouted at by cyclists for not stepping off the path or watching for them when it's their responsibility to let me know they're coming up on my left so I can step to the right. .	With only a few exceptions, Sedgwick County is car dependent to the exclusion of options. Given the effects of post 1960 zoning, distances are often longer than many pedestrians and cyclists will attempt. This factor, combined with existing design speeds, transit is often most realistic alternative.
There needs to be sidewalks and better pedestrian accommodations from this point in all directions for students going to school. Students should not have to walk on the side of the highway to get home. There are accidents here monthly	I see more and more cars running red lights, going above 5 MPH above the speed limit	Lack of driver education in high schools	Lack of curb cuts
Segments of complete streets and bike paths mean little if they're not interconnected.	Delano needs more policing…from seven a m on…homeless r coming into businesses and mcd's	people just don't care, they are on their phones, texting. It's not just one area, Its everywhere.	Growing amount of homeless and mentally challenged people. would love if the city would provide humanitarian (sic) efforts to keep the streets of Wichita safe.

SURVEY MAP RESULTS





What is your biggest/main transportation safety concern?

Distracted Driving	Driving Under the Influence	Lack of Bicycle Accommodations	Lack of Pedestrian Accommodations	Speed Concerns	Unsafe Crossing	Unsafe Intersection/Street Segments	Other

THANK YOU

WICHITA AREA METROPOLITAN PLANNING ORGANIZATION

WAMPO@WAMPO.ORG / WWW.WAMPO.ORG/SAFETY

316.779.1313

Summary of TSC / Public Open House

WAMPO Comprehensive Safety Action Plan

Meeting Date:
June 8, 2023

Overview

Wichita Area Metropolitan Planning Organization (WAMPO), in collaboration with Burgess and Niple, TranSystems, and Vireo, held a Transportation Safety Committee (TSC) meeting / public open house for the Comprehensive Safety Action Plan (CSAP) on Thursday, June 8, 2023, from 4 to 6 p.m. Bike Walk Wichita hosted the meeting at their office located at 325 N. Saint Francis Avenue. The purpose of the meeting was to:

- Hold a TSC meeting as a public open house.
- Provide an overview of the planning effort.
    - Process/schedule
    - Existing conditions summary
    - Community feedback
    - Draft transportation safety strategies
    - Other
- Use exhibits and interactive tools to gather community comments about:
    - Missing strategies
    - Most important elements
    - Other comments
- Incorporate the feedback gathered into the draft CSAP.

WAMPO provided meeting notice via a press release to media outlets, e-blasts to the project contact list, and social media posts to the agency's followers. Twenty-seven people attended, including representatives of Bike Walk Wichita, The Health and Wellness Coalition, Kansas Health Foundation, Cities of Derby and Andover, and Wichita residents. Generally, comments collected during the meeting related to:

- Priority countermeasures for roads and speeds
- Priority countermeasures for safe road users
- Drivers behavior
- Other comments

Below is a detailed summary of the comments collected via dot exercise, flip chart, comment forms, and email.

Dot Exercise

Via dot exercise, participants selected their top five countermeasures for roads and speeds as well as their top five for safe road users.

Countermeasures: Safe Roads and Speeds	Votes
• Crosswalk Visibility Enhancements	15
• Medians and Pedestrian Refuge Islands	10
• Leading Pedestrian Interval	9
• Bicycles Lanes	25
• Sidewalk Walkways	10
• Road Diets	12
• Rumble Strips	0
• Road Safety Audits	7
• Paved Shoulders	9
• Medians	2
• Intersection Improvements	9
• Street Lighting	4
• Install/upgrade curve signage	1
• Traffic Calming (speed humps, lane narrowing)	18
• Enhanced Signing and Pavement Marking	6

Countermeasures: Safe Road Users	Votes
• General Safety Education Campaigns for All Ages / All Users	2
• Seat Belt Education Campaigns	6
• Distracted Driving Education Campaigns	20
• Aggressive Driving Education Campaigns	7
• Walking and Bicycle Safety Education for Youth	17
• Education for New Intersection Types	1
• Improved Public Awareness of Non-Motorized Users	24
• Targeted Impaired Driving Enforcement	6
• Targeted Aggressive Driving Enforcement	12
• Targeted Distracted Driving Enforcement	17
• Targeted Seat Belt Enforcement	6

Comment Forms

The participants were given the opportunity to share their feedback through comment forms. At the conclusion of the meeting, WAMPO and the consultant team received three forms. Participants' comments are listed below.

- In relationship to the Wichita Region, how would you DESCRIBE yourself? Circle all that apply.
    - Resident: 3 respondents
    - Worker: 2 respondents
    - Business Owner: 0 respondents
    - Property Owner: 2 respondents

- Other: 0 respondents

- Which draft strategies are MOST IMPORTANT to you?
  - Medians
  - Bike lanes
  - Roundabouts

- What's MISSING from the draft strategies?
  - No Responses
- What is your HOME zip code?
  - 67218
  - 67219
  - 67203
- What OTHER COMMENTS, QUESTIONS, OR CONCERNS would you like to share?
  - Bicycles are to be [ridden] on sidewalks for safety (mostly). Taxpayers have to pay taxes for this. My tax dollars will require bicycles on sidewalks.
  - I just say no to diverging diamonds. Please do not install diverging diamonds on K-96.

Flip Chart

As an alternative to comment forms, WAMPO and the consultant team staffed a flip chart during the meeting. They used it to note meeting participants' ideas about needs and significant improvements along with other comments. The responses they gathered included:

- Aggressive drivers:
  - Delano area - Downtown
  - Aggressive driving even on the bikes lanes
- Traffic calming and road diets
  - In Wichita the two terms go hand in hand and road diets are one of the most common ways of traffic calming.
  - Changing the "traffic counts" terminology because it automatically refers to cars and is missing other forms of transportation, such as bicycling, pedestrians, scooters, etc.
  - "Parking" bike racks is parking
  - Scooters spots = "street capacity."
- Four crashes in one day at 13th and Waco
  - Young teens driving
  - "Pick-up truck" meetings
  - "Showing off"
  - 21st and Arkansas

- Motorcycles:
    - Popping on one wheel while driving down streets, standing on their seats / handlebars.
- Speed management is missing from the countermeasures dot exercise.
- No diverging diamonds because they're not good for multi-modal transit.
- Intelligent speed assistance (USA) is needed in all vehicles, not just CTS Fleets.

Email Messages

One email message was received during the engagement period. Its verbatim content includes:

- **From Brenda Mueller (bre1229@sbcglobal.net):** CSAP meeting on June 8 but want to share a thought about transportation safety in Wichita. This is from an avid cyclist's point of view. I ride our bike paths, bike lanes, and sharrowed streets A LOT, as many local cyclists do. The thing that really irritates me is how badly they are in need of repair and, in many cases, replacement 'cause the cracking, heaving, and potholes are so bad. There are many places where they are downright dangerous. When I have friends who are cyclists come to visit from out of town, I'm embarrassed to take them on many of our bikeways because they are in such bad shape. My thought is: Why couldn't the City suspend adding new bikeways and direct their efforts and money into repairing/replacing what we already have? When that's completed, then build new ones. Establishing a fund for bikeway maintenance would seem to be a reasonable line item in the budget as well. Anyway, just a thought! Seeya bye!!

WAMPO CSAP Strategy Update Meeting
Transportation Safety Technical Advisors (TSTA) Meeting Summary
Tuesday, February 25,2025, 11:00 AM-12:00 PM
271 W 3rd St., Room 203, Wichita, KS 67202 and online via Zoom

Attendance

Mike Armour, City of Wichita

Tia Raamot, Sedgwick County

Dan Squires, City of Derby

David Seitz, KDOT

Jessica Warren, CTD 9

Jolene Graham, City of Andover

Alan Kailer, Bike Walk Wichita

Lisa Fre Blume, KS Depart of Health & Environment

Kimberly Negrete, WAMPO

Peter Mohr, WAMPO

Markey Jonas, WAMPO

Meeting Agenda

I. **CSAP Update & Proposed Targets:** Kim Negrete, WAMPO, kicked off the meeting with an update on each of the 18 strategies identified in the Comprehensive Safety Action Plan (CSAP). The majority of the strategies are being implemented by WAMPO and community partners. Pete Mohr, WAMPO, presented annual targets for reaching zero fatalities and serious injuries in 25 years that are proposed for addition to the CSAP. The committee was asked what they thought about these annual targets and whether they seem achievable. There were no major concerns from the committee. Ms. Negrete asked the committee to consider these targets and to send any further feedback via email by March 7, 2025.

Targets

Loss of life on the road is unacceptable. In 2021, there were 65 fatalities and 221 serious injuries. Building on these figures, achieving the annual targets below will eliminate regional serious injuries and fatal crashes within 25 years.

	Annual Target
Total Fatalities	Reduce Fatalities by - 7.5% or by - 2 Fatalities Whichever is greater
Total Serious Injuries	Reduce Serious Injuries by - 7.5% or by - 6 Serious Injuries Whichever is greater

II. **Strategy Review & Recommendations:** Ms. Negrete walked through each of the two main strategy areas: Safe Roads & Safe Road Users.

SAFE ROADS:

Design to accommodate human mistakes and injury tolerance to reduce the severity of crashes that do occur.

1	Identify proven safety countermeasures at priority intersections to reduce crashes.
2	Identify proven countermeasures at priority locations to improve safety for pedestrians.
3	Identify proven countermeasures on priority corridors to improve safety for bicycle riders.
4	Conduct Road Safety Audits at priority high-crash locations.
5	Identify proven safety countermeasures along priority corridors and at priority intersections to reduce crashes related to speed.
6	Develop a countermeasure toolbox that identifies spot, systemic, and emphasis area countermeasures.
7	Develop Safe Street Visualizations and a Vision Zero Toolkit for the region.
8	Incorporate goals and recommendations of the WAMPO CSAP into the Metropolitan Transportation Plan (MTP) project prioritization process.
9	Develop a fatal crash review committee that includes representatives from each jurisdiction within the WAMPO planning area.

Ms. Negrete first asked the committee if there were any needed edits to the strategy description. No edits were mentioned. Mike Armour suggested that it would be good to have a policy-focused strategy that city/county staff could reference if asked by decision-makers and/or residents when implementing specific safety improvements. This addition would make it so that staff could reference the CSAP as a guiding document. Several TSTA members expressed support for this additional strategy.

Next, the group discussed Safe Roads strategy #9: “Develop a fatal crash review committee that includes representatives from each jurisdiction within the WAMPO planning area.” The group expressed the benefits of crash review committees, noting that both the City of Wichita and Sedgwick County conduct internal reviews following each fatality crash. Dan Squires suggested that the smaller communities might be able to present one of their cases to these larger committees with experience, since they have fewer fatalities annually. Mr. Squires also said staff from smaller jurisdictions may be able to attend a couple review committee meetings to learn how they can have one in their community as needed. Mr. Armour welcomed their attendance and offered to assist the smaller communities as needed. It was suggested to encourage that option while exploring the creation of a regional fatal crash review committee.

SAFE ROAD USERS:

Address the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes, by providing education on transportation safety and enforcement of related rules.

1	Conduct high-visibility law enforcement campaigns to deter aggressive diving/speeding on high-crash corridors.
2	Perform targeted enforcement of motorists in school zones.
3	Perform targeted education and enforcement in locations where yielding to pedestrian in crosswalk is an issue.
4	Coordinate with KDOT to administer annual safety grants funded by the state that are targeted at behavioral safety projects.
5	Identify and apply for funding for education/enforcement programs annually.
6	Conduct education campaigns that target factors in speed-related and roadway departure crashes.
7	Collaborate with state and local partners to promote seat-belt use through education programs.
8	Provide educational opportunities to staff, consultants, and project sponsors that reflect best practices in active transportation design.
9	Form and facilitate a Regional Safety Coalition to promote transportation safety in the region.

Mr. Armour suggested adjusting Safe Road Users strategy #3 ("Perform targeted education and enforcement in locations where yielding to pedestrian in crosswalk is an issue") to include demonstration projects, or to add an additional strategy. David Seitz brought up impaired driving and suggested including a strategy related to working with the District Attorney regarding DUI enforcement. Lisa Frey Blume reminded the group that the TSTAs chose to prioritize the three emphasis areas to ensure outcomes are achieved but noted it may be worth revisiting the latest crash data to determine if impaired driving crashes have risen.

III. **Timeline and Next Steps:** Ms. Negrete asked the committee to provide additional feedback by Friday, March 7, 2025. Recommended updates are tentatively scheduled to be presented at the March 24, 2025, Technical Advisory Committee (TAC) meeting and to the Transportation Policy Body (TPB) on April 8, 2025, for approval.

IV. **Adjourn:** The meeting adjourned at 12:04 PM.

WAMPO CSAP Strategy Update Meeting #2
Transportation Safety Technical Advisors (TSTA) Meeting Summary
Thursday, April 17, 2025, 10:00 AM-11:00 AM
271 W 3rd St., Room 126, Wichita, KS 67202 and online via Zoom

Attendance

Mike Armour, City of Wichita

Tia Raamot, Sedgwick County

Dan Squires, City of Derby

Georgie Carter, City of Haysville

Jolene Graham, City of Andover

Jason Stephens, Wichita Police Department

Lisa Fre Blume, KS Dept of Health & Environment

Chad Parasa, WAMPO

Kimberly Negrete, WAMPO

Peter Mohr, WAMPO

Markey Jonas, WAMPO

Nicholas Flanders, WAMPO

Meeting Summary

I. **Strategy Review & Recommendations:** Kim Negrete, WAMPO, kicked off the meeting with a review of the CSAP strategies that were suggested during the last TSTA meeting in February 2025. Below is the list of updated strategies, there were no additional revisions recommended.

Safe Roads
Identify proven safety countermeasures at priority intersections to reduce crashes (e.g., flashing solar-powered beacons, street lighting, advance intersection identification signing, improved geometry).
Identify proven countermeasures at priority locations to improve safety for pedestrians (e.g., pedestrian refuge islands, sidewalks, pedestrian crossing signals, curb extensions, enhanced signing and pavement markings).
Identify proven countermeasures on priority corridors to improve safety for bicycle riders (e.g., bike lanes, off-street bike facilities, road diets).
Conduct Road Safety Audits at priority high-crash locations.
Identify proven safety countermeasures along priority corridors and at priority intersections to reduce crashes related to speed (e.g., road reconfigurations, enhanced signing and striping, roundabouts).
Develop a Countermeasure Toolbox that identifies spot, systemic, and emphasis area countermeasures.
Develop a Complete Streets Toolkit and a Vision Zero Toolkit for the region.
Incorporate goals and recommendations of the WAMPO Comprehensive Safety Action Plan (CSAP) into the Metropolitan Transportation Plan 2050 (MTP 2050).
Explore the development of a fatal crash review committee that includes representatives from each jurisdiction within the WAMPO planning area.
Coordinate a Safe Routes to School (SRTS) Planning Assistance program to develop SRTS plans throughout the WAMPO region.
Coordinate with local governments to install and evaluate demonstration safety-improvement projects to assess their effectiveness.

Safe Road Users
Identify proven safety countermeasures at priority intersections to reduce crashes (e.g., flashing solar-powered beacons, street lighting, advance intersection identification signing, improved geometry).
Identify proven countermeasures at priority locations to improve safety for pedestrians (e.g., pedestrian refuge islands, sidewalks, pedestrian crossing signals, curb extensions, enhanced signing and pavement markings).
Identify proven countermeasures on priority corridors to improve safety for bicycle riders (e.g., bike lanes, off-street bike facilities, road diets).
Conduct Road Safety Audits at priority high-crash locations.
Identify proven safety countermeasures along priority corridors and at priority intersections to reduce crashes related to speed (e.g., road reconfigurations, enhanced signing and striping, roundabouts).
Develop a Countermeasure Toolbox that identifies spot, systemic, and emphasis area countermeasures.
Develop a Complete Streets Toolkit and a Vision Zero Toolkit for the region.
Incorporate goals and recommendations of the WAMPO Comprehensive Safety Action Plan (CSAP) into the Metropolitan Transportation Plan 2050 (MTP 2050).
Explore the development of a fatal crash review committee that includes representatives from each jurisdiction within the WAMPO planning area.
Coordinate a Safe Routes to School (SRTS) Planning Assistance program to develop SRTS plans throughout the WAMPO region.
Coordinate with local governments to install and evaluate demonstration safety-improvement projects to assess their effectiveness.

II. **Annual Targets:** Peter Mohr, WAMPO, presented annual targets for reaching zero fatalities and serious injuries in 25 years that are proposed for addition to the CSAP. The committee was asked what they thought about these annual targets and whether they seem achievable. The committee affirmed the targets.

Reduce fatalities by 7.5% or 2 annually, whichever is greater. Reduce serious injuries by 7.5% or 6 annually. Building on the 2021 data of 65 fatalities and 221 serious injuries, achieving the annual targets will eliminate regional serious injuries and fatal crashes within 25 years.

III. **Project List:** Peter Mohr, WAMPO, presented a list of 81 projects that were identified by local jurisdictions. The committee reviewed the list. All projects address at least one of the CSAP emphasis areas: Speed, Intersections, or Vulnerable Road Users. The list of projects will be inserted into the draft CSAP which can be found online at www.wampo.org.

IV. **Timeline and Next Steps:** Ms. Negrete asked the committee to provide additional feedback by Friday, March 7, 2025. Recommended updates are scheduled to be presented at the April 28, 2025, Technical Advisory Committee (TAC) meeting and to the Transportation Policy Body (TPB) on May 13, 2025.

V. **Adjourn:** The meeting adjourned at 11:08 AM.

WAMPO Comprehensive Safety Action Plan Engineering Toolbox

Appendix C

SAFETY ENGINEERING TOOLBOX

A Comprehensive Safety Action Plan (CSAP) looks at the entire road network in a geographic area, in this case the Wichita Area (WAMPO Region) and studies crash data and factors to make countermeasure recommendations with the eventual goal of zero road deaths and serious injuries.

This Toolbox was developed to support implementation of the WAMPO CSAP through providing countermeasures for the key goals of: reducing conflicts at intersections, creating safer roads for all road users, and employing tactics to reduce vehicle speeds. This Toolbox was created with the guidance of FHWA Proven Safety Countermeasures and follows Safe System Approach (SSA) principles. It acknowledges that severe crash outcomes are preventable, despite the inevitability of human error, and integrates this mindset in the pursuit of zero fatalities and serious injuries on WAMPO-area roads. The SSA is structured around the following five complementary objectives: Safe Roads, Safe Speeds, Safe Road Users, Safe Vehicles, and Post-Crash Care. Layering these together creates redundancy, so that if one component fails, the others are still in place to prevent severe outcomes. Metropolitan Planning Organizations such as WAMPO have limited ability to influence Safe Vehicles or Post-Crash Care, so this toolbox focuses on the other three SSA elements: Safe Roads, Safe Speeds, and Safe Road Users.

To support the goals of the SSA, The Transportation Safety Technical Advisors (TSTA) identified safety solutions for each of the SSA elements. This includes Safe Roads strategies for **Roadway Departure**, and Safe Road User strategies for enforcement and education.

In addition to the SSA safety solutions, the TSTA chose three Emphasis Areas. Emphasis Areas focus on specific types of crashes to help direct resources and guide safety improvements where there is the greatest need. These were identified in the development of the CSAP through a data review process and organized discussions with the TSTA. Ultimately three Emphasis Areas were chosen to focus resources and efforts: **Intersections, Speed, and Vulnerable Road Users (VRUs).**

The Toolbox provides engineering recommendations for each of these Emphasis Areas and SSA additional areas of focus. Efforts are intended to focus on fatal and serious injury crashes rather than looking to prevent property damage only crashes.

The TSTA identified “priority countermeasures” as the best for implementing systemically to move toward Vision Zero goals. Additional infrastructure countermeasures were identified for consideration on a case-by-case basis of the site as well as education and enforcement opportunities.

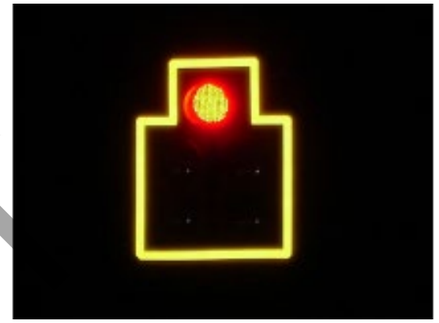
The toolbox below includes:

- a photo or graphic of each type of infrastructure countermeasure,
- a description of the safety benefit each tool can provide,
- information about which emphasis areas are addressed by each tool

- estimated costs -
  - **$** less than $20,000
  - **$$** less than $250,000
  - **$$$** less than $1,000,000
  - **$$$$** more than $1,000,000
- a Crash Modification Factor (CMF), which is the potential anticipated reduction in overall crashes expected after implementing the countermeasure,
- any other information or related web links, and
- anticipated effectiveness (for education and enforcement countermeasures).

WAMPO Priority Countermeasures

The WAMPO TSTA identified the following priority countermeasures as ones that given the data, drivers, and location, would be best for implementing systemically to move toward Vision Zero goals.

Countermeasure:	Leading Pedestrian Interval	High-Visibility Crosswalk	Backplates with Retroreflective Boarders	Turning Vehicles Yield to Pedestrian Signage at Intersections with High Pedestrian Traffic
Image/Graphic:				
How it Works:	A leading pedestrian interval (LPI) gives pedestrians the opportunity to enter the crosswalk at an intersection 3-7 seconds before vehicles are given a green indication. Pedestrians can better establish their presence in the crosswalk before vehicles have priority to turn right or left. There is also a secondary benefit as this increased all-red time for motorized traffic can also help reduce angle crashes between vehicles.	High-visibility crosswalks use patterns (i.e., bar pairs, continental, ladder) that are visible to both the driver and pedestrian from farther away compared to traditional transverse line crosswalks. They should be considered at all midblock pedestrian crossings and uncontrolled intersections. Agencies should use materials such as inlay or thermoplastic tape, instead of paint or brick, for highly reflective crosswalk markings.	Backplates added to a traffic signal head improve the visibility of the illuminated face of the signal by introducing a controlled-contrast background. The improved visibility of a signal head with a backplate is made even more conspicuous by framing it with a 1- to 3-inch yellow retroreflective border. Signal heads that have backplates equipped with retroreflective borders are more visible and conspicuous in both daytime and nighttime conditions.	Adding signage to increase driver attention of high-volume pedestrian movements may help assist in visibility of vulnerable road users.
Emphasis Areas Addressed:	Vulnerable Road Users (VRUs)	VRUs	Intersections	VRUs
Estimated Cost:	**$** (existing signal), **$$** (new signal)	**$**	**$**	**$**
Anticipated CMF:	0.41	0.60	0.85	Not Studied
Other Information:	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Leading%20Pedestrian%20Interval_508.pdf	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Crosswalk%20Visibility%20Enhancements_508.pdf	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Backplates%20with%20Retroreflective%20Borders_508.pdf	FWHA: https://mutcd.fhwa.dot.gov/htm/2009/part2/part2b.htm#figure2B27

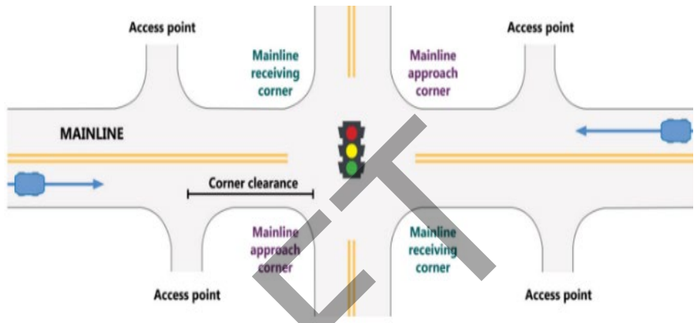
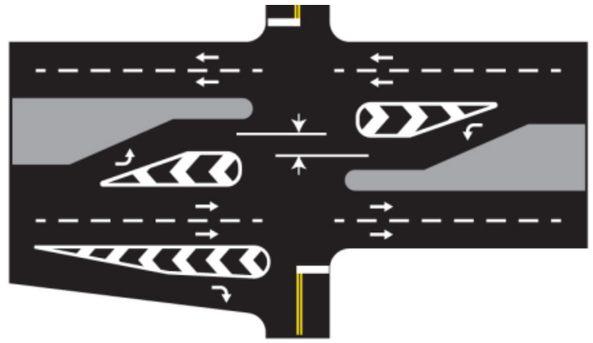
WAMPO Priority Countermeasures

The WAMPO TSTA identified the following priority countermeasures as ones that given the data, drivers, and location, would be best for implementing systemically to move toward Vision Zero goals.

Countermeasure:	VRU Education	Advanced Warning Signs Where Contextually Logical	Improved Pavement Markings for Vehicle Travel Lanes	Curb Extensions/Bulb Outs/Refuge Islands
Image/Graphic:				
How it Works:	Most of the educational components have revolved around the Share the Road program. The purpose of Share the Road programs is to increase drivers' awareness of bicyclists or other pedestrian rights and the need for mutual respect of VRU's on the roadway. Campaign education efforts are intended to improve the safety of all road users, including bicyclists and to enhance the understanding and compliance with relevant traffic laws. Bikes may use full lane signage clearly communicates roadway rules.	Advanced warning signs, especially around curves or other sight limiting areas, or where crash problems exist, allow drivers advance warning of decisions to changing conditions that they will need to make.	Clearly delineating travel lanes allows vehicles to better understand where they need to be located within the roadway. Enhancing retro-reflectivity provides better visual cues for drivers, especially during adverse conditions (nighttime, rain, snow, etc.).	Shortening the distance that a pedestrian must cross decreases the time they are in the roadway exposed to moving traffic. The "bulb outs" also increase the visibility of the pedestrian getting ready to cross a street. A pedestrian refuge island (or crossing area) is a median with a refuge area that is intended to help protect pedestrians who are crossing a road and enables them to cross one direction of moving vehicular traffic at a time.
Emphasis Areas Addressed:	VRUs	Intersections	Roadway Departure	VRUs, Speed, Roadway Departure
Estimated Cost:	**$**	**$**	**$/mi**	**$ - $$**
Anticipated CMF:	CMF not defined	0.65	6" edge line 0.64 – 0.88 4" centerline 0.76	0.44
Other Information:	NHTSA Countermeasures Guide: https://www.nhtsa.gov/book/countermeasures/countermeasures/42-share-road-awareness-programs	Some are included (Stop Ahead, Curve Warning, etc.) in FHWA proven countermeasures and the CMF Clearinghouse depending on the application.	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Medians%20and%20Pedestrian%20Refuge%20Islands_508.pdf

WAMPO Priority Countermeasures

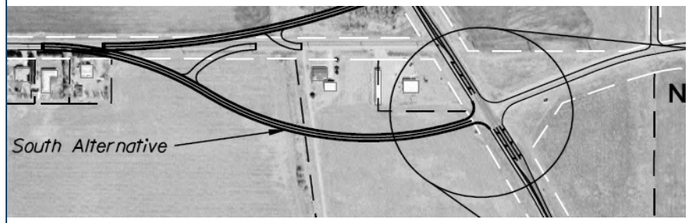
The WAMPO TSTA identified the following priority countermeasures as ones that given the data, drivers, and location, would be best for implementing systemically to move toward Vision Zero goals.

Countermeasure:	Complete Streets/Designing for all Users	Access Control Through Medians	Dedicated Left-Turn Lanes & Left Turn Signal Phasing on Appropriate Roadways
Image/Graphic:			
How it Works:	Complete Streets are streets for everyone. Complete Streets is an approach to planning, designing, building, operating, and maintaining streets that enables safe access for all people who need to use them, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.	Thoughtful access management along a corridor can simultaneously enhance safety for all modes, facilitate walking and biking, and reduce trip delay and congestion.	Auxiliary turn lanes—either for left turns or right turns—provide physical separation between turning traffic that is slowing or stopped and adjacent through traffic at approaches to intersections. Turn lanes can be designed to provide for deceleration prior to a turn, as well as for storage of vehicles that are stopped and waiting for the opportunity to complete a turn.
Emphasis Areas Addressed:	VRUs, Speed, Intersections	VRUs, Speed, Roadway Departure	Intersections
Estimated Cost:	Varies depending on treatments	**$$** / 100 feet	**$-$$$** /leg
Anticipated CMF:	Varies depending on treatments	0.69-0.95	0.52-0.72
Other Information:	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php?qst=complete%20streets	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Corridor%20Access%20Management_508.pdf	CMF changes depending on configuration; FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Left-%20and%20Right-Turn%20Lanes_508.pdf

Intersection Countermeasures

Emphasis Area

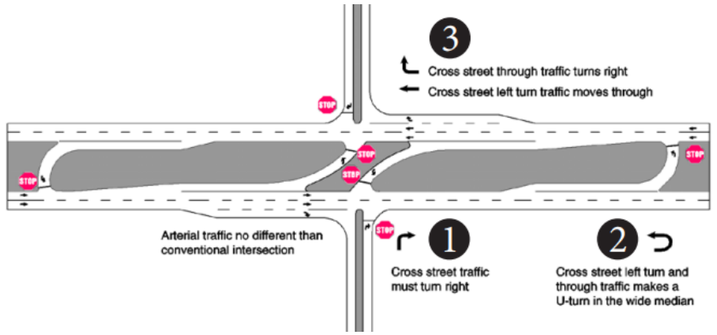
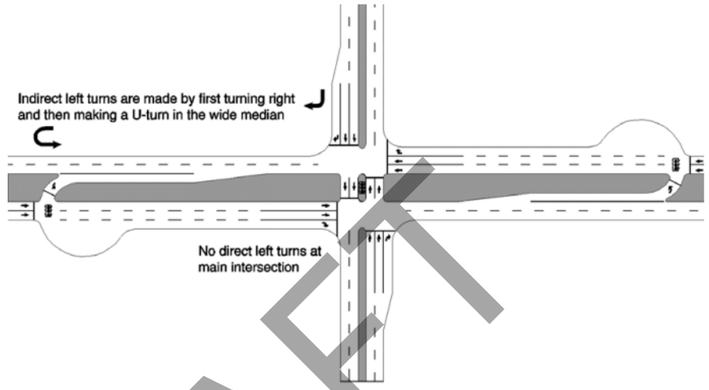
Intersections are defined as two or more roads that intersect and can be signalized or unsignalized. Intersections create several conflict points, resulting in a higher likelihood of a crash.

Countermeasure:	Improved Geometry	Roundabout	Consistent Yellow and All-Red Timings	Improved Signal Phasing/Timing Plans
Image/Graphic:				
How it Works:	Geometry improvements such as positive offset of left turn lanes, skew elimination, and sight distance improvements all can have great effects on the number of crashes in the intersection.	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, entry yield control that gives right-of way to circulating traffic, and counterclockwise flow around a central island that minimizes conflict points. The net result of lower speeds and reduced conflicts at roundabouts is an environment where crashes that cause injury or fatality are substantially reduced.	At a signalized intersection, the yellow change interval is the length of time that the yellow signal indication is displayed following a green signal indication. The yellow signal confirms to motorists that the green has ended and that a red will soon follow. Consistent yellow and all red time throughout a region can help motorists to gauge when to begin braking as they approach a changing signal.	Traffic signal coordination could decrease total crashes by 21%, injury crashes by 52% and property-damage-only crashes by 21%. Signal coordination has also been shown to improve speed harmonization due to drivers learning the speed that the signals are coordinated for.
Emphasis Areas Addressed:	VRUs, Speed, Intersections, Roadway Departure	Speed, Intersections	Intersections	Speed, Intersections
Estimated Cost:	**$$-$$$$**	**$$$$**	**$**	**$**
Anticipated CMF:	Varies	0.18	0.5-0.6	0.79
Other Information:	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Roundabouts_508.pdf	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Yellow%20Change%20Intervals_508.pdf	CMF Clearinghouse: https://www.cmfclearinghouse.org/detail.php?facid=9870

Intersection Countermeasures

Emphasis Area

Intersections are defined as two or more roads that intersect and can be signalized or unsignalized. Intersections create several conflict points, resulting in a higher likelihood of a crash.

Countermeasure:	Restricted Crossing U-Turn (RCUT)	Median U-Turn (MUT)	Turbo Roundabout
Image/Graphic:			
How it Works:	The restricted crossing U-turn (RCUT) intersection, also known as a J-Turn, Superstreet, or Reduced Conflict Intersection, modifies the direct left-turn and through movements from cross-street approaches. Minor road traffic makes a right turn followed by a U-turn at a designated location—either signalized or unsignalized—to continue in the desired direction.	The median U-turn (MUT) intersection modifies direct left turns from the major approaches. Vehicles proceed through the main intersection, make a U-turn a short distance downstream, followed by a right turn at the main intersection. The U-turns can also be used for modifying the cross-street left turns, similar to the RCUT. The MUT is an excellent choice for intersections with heavy through traffic and moderate left-turn volumes. Studies have shown a 20 - 50% improvement in intersection throughput for various lane configurations as a result of implementing the MUT design. When implemented at multiple intersections along a corridor, the efficient two-phase signal operation of the MUT can reduce delay, improve travel times, and create more crossing opportunities for pedestrians and bicyclists.	A turbo roundabout has the same operating characteristics as modern roundabouts but utilizes notably different geometrics to address the conflicts associated with the common crash types in multilane roundabouts.
Emphasis Areas Addressed:	Intersections	VRUs, Intersections	Speed, Intersections
Estimated Cost:	**$$$-$$$$**	**$$$-$$$$**	**$$$$**
Anticipated CMF:	0.46	0.70	0.24
Other Information:	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Reduced%20Left-Turn%20Conflict%20Intersections_508.pdf	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Reduced%20Left-Turn%20Conflict%20Intersections_508.pdf	CMF Clearinghouse: https://www.cmfclearinghouse.org/detail.php?facid=2121 FHWA guide: https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/fhwasa19027_0.pdf

Intersection Countermeasures

Emphasis Area

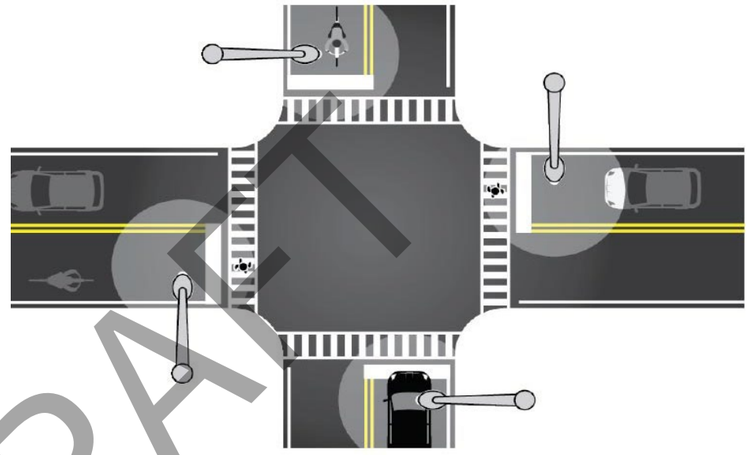
Intersections are defined as two or more roads that intersect and can be signalized or unsignalized. Intersections create several conflict points, resulting in a higher likelihood of a crash.

Countermeasure:	Diverging Diamond Interchange (DDI)	Rectangular Rapid Flashing Beacon (RRFB)	Traffic Calming	Flashing Beacons on Warning Signs (Intersection)
Image/Graphic:				
How it Works:	The diverging diamond interchange (DDI), also known as double crossover diamond, is a new design that is a variation of the conventional diamond interchange. The main difference between a DDI and a conventional diamond interchange is the crossing (or channelizing) of the traffic on the crossroad to the left side between the ramp terminals.	To enhance pedestrian conspicuity and increase driver awareness at uncontrolled, marked crosswalks, transportation agencies can install a pedestrian actuated Rectangular Rapid Flashing Beacon (RRFB) to accompany a pedestrian warning sign. RRFBs consist of two, rectangular- shaped yellow indications, each with a light-emitting diode (LED)-array-based light source. RRFBs flash with an alternating high frequency when activated to enhance conspicuity of pedestrians at the crossing to drivers.	Traffic calming reduces automobile speeds or volumes, mainly through the use of physical measures, to improve the quality of life in both residential and commercial areas and increase the safety and comfort of walking and bicycling.	Adding flashing beacons on warning signs increases driver awareness and recognition of upcoming problems and potential conflicts.
Emphasis Areas Addressed:	Intersections	VRUs, Intersections	Speed, Intersections, VRUs	Intersections
Estimated Cost:	**$$$$**	**$$**	**$-$$**	**$**
Anticipated CMF:	0.42-0.85	0.53	Varies Depending on Treatment	Varies Depending on Application
Other Information:	MF Varies depending on existing condition; CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/RRFB_508.pdf	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php

Intersection Countermeasures

Emphasis Area

Intersections are defined as two or more roads that intersect and can be signalized or unsignalized. Intersections create several conflict points, resulting in a higher likelihood of a crash.

Countermeasure:	Intersection Conflict Warning System	Street Lighting	Retroreflective Strips on Signposts
Image/Graphic:			
How it Works:	Providing an automated real-time system to inform drivers of suitability of available gaps for making turning and crossing maneuvers is a recommended strategy in Volume 5 of the NCHRP 500 Series Guidebooks. These systems may be installed on the major and/or minor approaches of unsignalized intersections with stop-control on the minor approaches. They employ vehicle detectors to alert motorists of conflicting vehicles on an adjacent approach. Current installation practices use warning signs on the major approaches alerting motorists with a message.	At nighttime, vehicles traveling at higher speeds may not have the ability to stop once a hazard or change in the road ahead becomes visible by the headlights. Therefore, lighting can be applied continuously along segments and at spot locations such as intersections and pedestrian crossings in order to reduce the chances of a crash.	Retroreflective strips on signposts increase the visibility of the signpost. Adjusting the height and angle of the retro-reflectivity, can also increase viewability. Initial studies have shown great efficacy, but CMF's have not been adopted by the FHWA.
Emphasis Areas Addressed:	Intersections	VRUs, Intersections, Roadway Departure	Roadway Departure, Intersections
Estimated Cost:	**$$**	**$-$$**/each	**$**
Anticipated CMF:	0.7	0.58	CMF not defined
Other Information:	FHWA: https://www.fhwa.dot.gov/publications/research/safety/15076/ CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Lighting_508.pdf	https://safety.fhwa.dot.gov/hsip/hrrr/manual/sec48.cfm

Vulnerable Road User Countermeasures

Emphasis Area

Pedestrians and bicyclists are referred to as vulnerable road users because they are not protected by the outer shell of a vehicle.

Countermeasure:	Pedestrian Crossing Signals	Raised Crosswalk/Raised Intersection/Speed Table	Pedestrian Hybrid Beacons	Multi-Use Paths
Image/Graphic:				
How it Works:	Pedestrians typically cross streets based on perceptions of gaps between crossing traffic. Traffic signals allow gaps to be forced by stopping traffic and allowing pedestrians to cross at locations where traffic volumes are higher and do not allow for natural gaps between oncoming vehicles.	Raised crosswalks are ramped speed tables in the road that allow pedestrians to cross at the same level with the sidewalk, reducing vehicle speeds as they travel over the ramp and enhancing the pedestrian crossing environment.	The pedestrian hybrid beacon (PHB) is a traffic control device designed to help pedestrians safely cross higher-speed roadways at midblock crossings and uncontrolled intersections. The beacon head consists of two red lenses above a single yellow lens. The lenses remain “dark” until a pedestrian desiring to cross the street pushes the call button to activate the beacon, which then initiates a yellow to red lighting sequence consisting of flashing and steady lights that directs motorists to slow and come to a stop and provides the right-of-way to the pedestrian to safely cross the roadway before going dark again.	Shared use paths should be thought of as a complementary system of off-road transportation routes for vulnerable road users that serves as a necessary extension to the roadway network. Shared use paths provide a lower-stress, separate space for non-motorists of all ages. This separated space is most critical on higher volume, higher speed streets.
Emphasis Areas Addressed:	VRUs	Speed, VRUs	VRUs, Intersections	VRUs
Estimated Cost:	**$-$$**	**$**	**$$**	**$$$-$$$$**
Anticipated CMF:	Varies (formula based on ADT and area type)	0.64	0.45	0.75
Other Information:	CMF Clearinghouse: https://www.cmfclearinghouse.org/detail.php?facid=8480	CMF Clearinghouse: https://www.cmfclearinghouse.org/study_detail.php?stid=14	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Pedestrian%20Hybrid%20Beacons_508.pdf	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php

Vulnerable Road User Countermeasures

Emphasis Area

Pedestrians and bicyclists are referred to as vulnerable road users because they are not protected by the outer shell of a vehicle.

Countermeasure:	Shared Lane Markings	Buffered Bike Lanes/Bike Lanes	Calibrate Bike Detection for Bike Lanes
Image/Graphic:			
How it Works:	Sharrows are road markings that designate a space for both motorists and bicyclists. This allows for the combined use of bikes and motor vehicles, and can designate the best position within the lane for bicyclists to ride.	Providing bicycle facilities can mitigate or prevent interactions, conflicts, and crashes between bicyclists and motor vehicles, and create a network of safer roadways for bicycling. Bicycle lanes align with the Safe System Approach principle of recognizing human vulnerability—where separating users in space can enhance safety for all road users.	Bicycle detection is used at actuated signals to alert the signal controller of bicycle crossing demand on a particular approach. Bicycle detection occurs either through the use of push-buttons or by automated means (e.g., in-pavement loops, video, microwave, etc). Inductive loop vehicle detection at many signalized intersections is calibrated to the size or metallic mass of a vehicle. For bicycles to be detected, the loop must be adjusted for bicycle metallic mass. Otherwise, undetected bicyclists must either wait for a vehicle to arrive, dismount and push the pedestrian button (if available), or cross illegally.
Emphasis Areas Addressed:	VRUs	VRUs	VRUs, Intersections
Estimated Cost:	$	$-$$	$
Anticipated CMF:	Not Fully Studied	0.47	Not studied
Other Information:	https://cycling4safety.com/what-is-a-sharrow-are-they-safe/#:~:text=According%20to%20NACTO%20sharrows%20are%20road%20markings%20that,that%20the%20road%20could%20be%20safer%20for%20both	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Bicycle%20Lanes_508.pdf	https://nacto.org/publication/urban-bikeway-design-guide/bicycle-signals/signal-detection-and-actuation/

Vulnerable Road User Countermeasures

Emphasis Area

Pedestrians and bicyclists are referred to as vulnerable road users because they are not protected by the outer shell of a vehicle.

Countermeasure:	Bicycle Boulevard	Cycle Tracks	Curb Ramps
Image/Graphic:			
How it Works:	Signs and pavement markings create the basic elements of a bicycle boulevard. They indicate that a roadway is intended as a shared, slow street, and reinforce the intention of priority for bicyclists along a given route. Signs and pavement markings alone do not create a safe and effective bicycle boulevard, but act as reinforcements to other traffic calming and operational changes made to the roadway.	Cycle tracks are bikeways that are at street level and use a variety of methods for physical protection from passing traffic. A protected cycle track may be combined with a parking lane or other barrier between the cycle track and the motor vehicle travel lane.	Title II of the Americans with Disabilities Act (ADA) of 1990 requires that public entities, including state and local governments, ensure that persons with disabilities have access to the pedestrian routes in the public right of way. A curb ramp provides a flush, gradual transition from the sidewalk to the street level. It also includes detectable warnings (small truncated domes) where the ramp meets the vehicular area to serve as a warning to visually impaired pedestrians that they are about to leave the pedestrian space and enter the street.
Emphasis Areas Addressed:	Speed, VRUs	VRUs	VRUs
Estimated Cost:	**$**	**$$-$$$**	**$/ ramp**
Anticipated CMF:	Not Studied - Individual CMF's may be available	CMF: 0.55 - 2-5 meters from traveled way	CMF not Defined
Other Information:	NACTO: https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/signs-and-pavement-markings/#design Small Town and Rural Design Guide: https://ruraldesignguide.com/mixed-traffic/bicycle-boulevard	CMF Clearinghouse: https://www.cmfclearinghouse.org/detail.php?facid=4034	https://www.access-board.gov/prowag/

Vulnerable Road User Countermeasures

Emphasis Area

Pedestrians and bicyclists are referred to as vulnerable road users because they are not protected by the outer shell of a vehicle.

Countermeasure:	Pedestrian Countdown Signals	Accessible Pedestrian Signals	Road Diet
Image/Graphic:			 
How it Works:	Pedestrian countdown signals show the walking man during the time a person walking may begin crossing the street. A hand comes up with the countdown of time remaining to cross. Pedestrians should not begin crossing during the countdown phase. The timing for each phase is based on the crossing time as indicated in the MUTCD.	Accessible pedestrian signals (APS) translate the pedestrian signal into audio information for people with visual impairments. Every time the APS is activated, the audio beacon indicates that the DON'T WALK phase has turned into the WALK phase.	A roadway reconfiguration known as a road diet offers several high-value improvements at a low cost by reallocating vehicular lanes. The primary benefits of a road diet include enhanced safety, mobility and access for all road users and a "complete streets" environment to accommodate a variety of transportation modes. A road diet can better align left turning vehicles, encourage safer speeds, and potentially add separated space for cyclists or transit.
Emphasis Areas Addressed:	VRUs	VRUs	Speed, VRUs
Anticipated CMF:	0.92	CMF not Defined	0.53
Estimated Cost:	**$**	**$**	**$$** (no resurfacing)
Other Information:	FHWA: https://highways.dot.gov/sites/fhwa.dot.gov/files/FHWA-HRT-19046.pdf#:~:text=This%20document%20is%20a%20technical%20summary%20of%20the,as%20part%20of%20its%20strategic%20highway%20safety%20effort.	https://www.access-board.gov/prowag/	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php

Speed Countermeasures

Emphasis Area

The speed that a motorist drives is heavily influenced by the roadway design, and crashes are more likely to be serious or fatal at improper speeds.

Countermeasure:	On-Pavement Markings for Speed Control	Transverse Rumble Strips	Enhanced Signing and Delineation	Road Safety Audits
Image/Graphic:				
How it Works:	By varying transverse pavement marking or chevrons closer together, a visual illusion of increased speed causes drivers to slow down.	Transverse rumble strips are used to alert drivers of a need to slow down or stop, or to other upcoming changes that may not be anticipated by an inattentive driver. These rumble strips are placed in the travel lane perpendicular to the direction of travel. They are typically used in non-residential areas as they can be noisy.	Enhanced delineation treatments can alert drivers to upcoming curves, the direction and sharpness of the curve, and appropriate operating speed.	While most transportation agencies have established traditional safety review procedures, a road safety audit (RSA) or assessment is unique. 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.
Emphasis Areas Addressed:	Speed, Roadway Departure	Speed, Roadway Departure	Speed, Roadway Departure	Speed, Roadway Departure, VRUs, Intersections
Estimated Cost:	**$**	**$/location**	**$/curve**	**$$/each**
Anticipated CMF:	0.68	0.66-0.73	0.8	Varies: 0.4-0.9
Other Information:	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Enhanced%20Delineation%20for%20Curves_508.pdf	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Road%20Safety%20Audits_508.pdf

Roadway Departure Countermeasures

SSA principal of Safer Roads

For roadway segments, if countermeasures can be implemented to prevent leaving the roadway or making it more recoverable if the motorist leaves the roadway, it will allow safer driving.

Countermeasure:	Relocating/Moving/Shielding Fixed objects.	Post Mounted Delineators	Paved Shoulders
Image/Graphic:			
How it Works:	Roadside design improvements can be implemented alone or in combination and are particularly recommended at horizontal curves—where data indicates a higher risk for roadway departure fatalities and serious injuries. Roadside design improvements provide for a safe recovery by providing a clear zone that is an unobstructed, traversable roadside area that allows a driver to stop safely or regain control of a vehicle that has left the roadway. Agencies should avoid adding new fixed objects such as trees and utility cabinets or poles in the clear zone.	Improving curve delineations helps prevent roadway departures from the mainline pavement by showing drivers where the edge of shoulder is. This is also helpful at night.	Paving shoulders has shown good decreases in crashes; allowing better recovery for roadway departures. Paved shoulders are often combined with edgeline rumble strips.
Emphasis Areas Addressed:	Roadway Departure	Roadway Departure	Roadway Departure
Estimated Cost:	**$-$$/object**	**$**	**$$**
Anticipated CMF:	0.56	0.72-0.82	Varies
Other Information:	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Roadside%20Design%20Improvements%20at%20Curves_508.pdf	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Roadside%20Design%20Improvements%20at%20Curves_508.pdf

Roadway Departure Countermeasures

SSA principal of Safer Roads

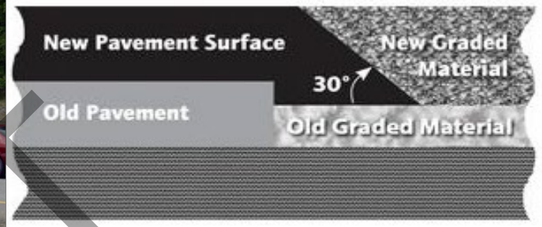
For roadway segments, if countermeasures can be implemented to prevent leaving the roadway or making it more recoverable if the motorist leaves the roadway, it will allow safer driving.

Countermeasure:	High Friction Surface Treatment	6" Retroreflective Edgeline	6" Retroreflective Centerline
Image/Graphic:			
How it Works:	High friction surface treatment (HFST) involves the application of very high-quality aggregate to the pavement using a polymer binder to restore and/or maintain pavement friction at existing or potentially high crash areas. The higher pavement friction helps motorists maintain better control in both dry and wet driving conditions. HFST results in more efficient and effective installations when using continuous pavement friction data along with crash and roadway data.	If drivers cannot clearly identify the edge of the travel lanes and see the road alignment ahead, the risk of roadway departure may be greater. Wider edge lines enhance the visibility of travel lane boundaries compared to traditional edge lines. Edge lines are considered “wider” when the marking width is increased from the minimum normal line width of 4 inches to the maximum normal line width of 6 inches.	If drivers cannot clearly identify the edge of the travel lanes and see the road alignment ahead, the risk of crossing to adjacent lanes is greater. Wider centerlines enhance the visibility of travel lane boundaries compared to traditional edge lines. Centerlines are considered “wider” when the marking width is increased from the minimum normal line width of 4 inches to the maximum normal line width of 6 inches.
Emphasis Areas Addressed:	Roadway Departure	Roadway Departure	Roadway Departure
Estimated Cost:	$$	$	$
Anticipated CMF:	0.37	0.63	0.33
Other Information:	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Pavement%20Friction%20Management_508.pdf	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Wider%20Edge%20Lines_508.pdf	CMF Clearinghouse: https://www.cmfclearinghouse.org/detail.php?facid=1692

Roadway Departure Countermeasures

SSA principal of Safer Roads

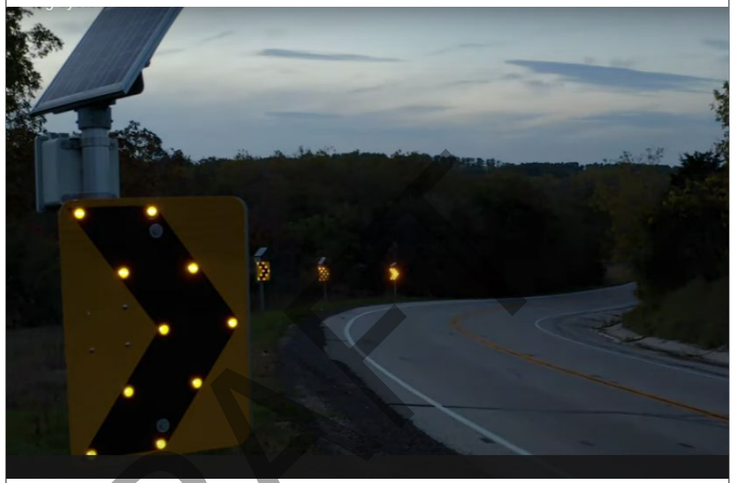
For roadway segments, if countermeasures can be implemented to prevent leaving the roadway or making it more recoverable if the motorist leaves the roadway, it will allow safer driving.

Countermeasure:	Flattening and Widening Foreslopes	Median Barrier	2' Paved Shoulder with Safety Edge	Longitudinal Rumble Strips
Image/Graphic:				
How it Works:	Flattening and widening foreslopes allows a more recoverable slope when a vehicle runs off the road, can help prevent roll-over, and potentially can decrease the clear zone distance required.	Median barriers are longitudinal barriers that separate opposing traffic on a divided highway and are designed to redirect vehicles striking either side of the barrier. Median barriers significantly reduce the number of cross-median crashes, which are attributed to the relatively high speeds that are typical on divided highways.	The SafetyEdgeSM technology shapes the edge of the pavement at approximately 30 degrees from the pavement cross slope during the paving process. This safety practice eliminates the potential for vertical drop-off at the pavement edge, helping to reduce instability of vehicles as they leave the pavement edge and/or attempt to recover back to the pavement. Additionally, this feature has minimal effect on project cost, and can improve pavement durability by reducing edge raveling of asphalt.	Longitudinal rumble strips are milled or raised elements on the pavement intended to alert drivers through vibration and sound that their vehicle has left the travel lane. They can be installed on the shoulder, edge line, or at or near the center line of an undivided roadway. These are typically used in non-urban areas due to noise levels.
Emphasis Areas Addressed:	Roadway Departure	Roadway Departure	Roadway Departure	Roadway Departure
Estimated Cost:	$$	$$	$$	$
Anticipated CMF:	Varies	Varies; depending on crash types	0.65-0.9	Varies
Other Information:	FHWA Proven Countermeasures: https://highways.dot.gov/sites/fhwa.dot.gov/files/Enhanced%20Delineation%20for%20Curves_508.pdf	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Median%20Barriers_508.pdf	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/SafetyEdge_508.pdf	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Longitudinal%20Rumble%20Strips_508.pdf

Roadway Departure Countermeasures

SSA principal of Safer Roads

For roadway segments, if countermeasures can be implemented to prevent leaving the roadway or making it more recoverable if the motorist leaves the roadway, it will allow safer driving.

Countermeasure:	Install or Update Curve Signage and Chevron Placement	Speed Activated Flashers	Superelevation Correction
Image/Graphic:			
How it Works:	Enhanced delineation at horizontal curves includes a variety of potential strategies that can be implemented in advance of or within curves, in combination, or individually. Chevrons can be retro-reflective and improve visibility of the curve in both light and dark conditions.	Speed activated flashers on chevrons in a curve have shown significant decreases in crashes although the study CMF's have not yet been adopted by the FHWA. By activating the flashers dynamically, it keeps drivers from getting used to them constantly being on.	Correcting and reshaping the roadway superelevation (banking of the curve) to meet posted speed, or where crashes have occurred, allows an increased friction with pavement.
Emphasis Areas Addressed:	Roadway Departure	Roadway Departure	Roadway Departure, Speed
Estimated Cost:	$	$	$$-$$$
Anticipated CMF:	0.65	CMF not currently defined	Varies: Formula based
Other Information:	FHWA Proven Countermeasure: https://highways.dot.gov/sites/fhwa.dot.gov/files/Enhanced%20Delineation%20for%20Curves_508.pdf	https://www.tapconet.com/product/blinkerchevron-dynamic-curve-warning-system	CMF Clearinghouse: https://www.cmfclearinghouse.org/results.php

The National Highway Traffic Safety Administration (NHTSA) created a rating scale to rank the effectiveness of non-infrastructure countermeasures. The ratings are as follows:
★★★★★Demonstrated to be effective by several high-quality evaluations with consistent results
★★★★ Demonstrated to be effective in certain situations
★★★ Likely to be effective based on balance of evidence from high-quality evaluations or other sources
★★ Effectiveness still undetermined; different methods of implementing this countermeasure produce different results
★ Limited or no high-quality evaluation evidence
NHTSA Documentation

Education Countermeasures **SSA principal of Safer Road Users** NHTSA has developed a number of countermeasures associated with education campaigns.				
Countermeasure:	**Safe Routes to School Program**	**Pedestrian Safety Zones**	**Enforcement, Communications, and Outreach**	**Outreach Strategies for Low-Seatbelt Use Groups**
How it Works:	The goal of Safe Routes to School (SRTS) programs is to increase the amount of bicycling and walking trips to and from school while simultaneously improving safety for children bicycling or walking to school.	The pedestrian safety zone concept was developed in a joint effort study by NHTSA and FHWA (Blomberg & Cleven, 1998). The idea is to strive for large decreases in pedestrian crashes and injuries by more effectively targeting resources to problem areas. Specifically, the objective of pedestrian safety zones is to increase cost-effectiveness of interventions by targeting education, enforcement, and engineering measures to geographic areas and audiences where significant portions of the pedestrian crash problem exist (NHTSA, 2008).	Effective, high-visibility communications and outreach are an essential part of successful traffic safety programs. Paid advertising can be a critical part of the media strategy. Paid advertising brings with it the ability to control message content, timing, placement, and repetition.	Communications and outreach campaigns directed at low-belt-use groups have been demonstrated to be effective for targeted programs that support, and are supported by, enforcement.
Emphasis Areas Addressed:	VRUs	VRUs	VRUs, Speed	Unrestrained Occupants
Anticipated Effectiveness:	★★★	★★★★	★★★★★	★★★★
Other Information:	https://www.nhtsa.gov/book/countermeasures/countermeasures/12-safe-routes-school	https://www.nhtsa.gov/book/countermeasures/countermeasures/41-pedestrian-safety-zones	https://www.nhtsa.gov/book/countermeasures/countermeasures/31-supporting-enforcement	https://www.nhtsa.gov/book/countermeasures/countermeasures/32-strategies-low-belt-use-groups

Enforcement Countermeasures **SSA principal of Safer Road Users** NHTSA has developed a number of countermeasures associated with enforcement campaigns.				
Countermeasure:	**Reduce and Enforce Speed Limits**	**Communications and Outreach Supporting Enforcement**	**High-Visibility Cell Phone/Text Messaging Enforcement**	**Short Term, High-Visibility Seat Belt Law Enforcement**
How it Works:	The goal of reducing motorist travel speeds is to increase reaction time for both drivers and pedestrians to avoid crashes, as well as reduce the severity of pedestrian injuries when these crashes occur. Higher vehicle speeds produce more frequent and more serious crashes and casualties.	The objective should be to provide information about the program, including expected safety benefits, and to persuade motorists that detection and punishment for violations is likely. Communications and outreach programs urging drivers to behave courteously or not to speed are unlikely to have any effect unless they are tied to enforcement. Campaign messages that are pre-tested to ensure they are relevant to the target audience and that reach the audience with sufficient intensity and duration to be perceived and noticed are most likely to be effective.	Similar to sobriety checkpoints, the objective is to deter cell phone use by increasing the perceived risk of a ticket. The High Visibility Enforcement (HVE) model combines dedicated law enforcement with paid and earned media supporting the enforcement activity.	The most common high-visibility seat belt law enforcement method consists of short (typically lasting 2 weeks), intense, highly publicized periods of increased belt law enforcement, frequently using checkpoints (in states where checkpoints are permitted), saturation patrols, or enforcement zones.
Emphasis Areas Addressed:	Speed	Speed	Distracted Driving	Unrestrained Occupants
Anticipated Effectiveness:	★★★	★★★	★★★★	★★★★★
Other Information:	https://www.nhtsa.gov/book/countermeasures/countermeasures/42-reduce-and-enforce-speed-limits	https://www.nhtsa.gov/book/countermeasures/countermeasures/41-communications-and-outreach-supporting-enforcement	https://www.nhtsa.gov/book/countermeasures/countermeasures/13-high-visibility-cell-phone-and-text-messaging-enforcement	https://www.nhtsa.gov/book/countermeasures/countermeasures/21-short-term-high-visibility-seat-belt-law-enforcement