

REIMAGINED MOVE 2040



APPENDIX 4: SAFETY



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Introduction

Traffic fatalities in the WAMPO region have been on the rise over the past five years, as have fatalities and serious injuries among bicyclists and pedestrians. These trends lead WAMPO to prioritize safety as one of our main goals in *MOVE 2040 REIMAGINED*.

Because safety is an important goal in the MTP, we have used it as a project selection criteria when selecting projects to be eligible for WAMPO funding (see the projects appendix for more details). Safety is also a selection criteria for prioritizing projects in the Transportation Improvement Program (TIP). WAMPO also reports on safety performance measures including number and rate of fatalities and serious injuries and non-motorized user fatalities and serious injuries.

However, achieving a safer transportation system in the WAMPO region will require efforts that go well beyond applying WAMPO's suballocated federal funding. This appendix includes examples of innovative safety measures and best practices used by other Metropolitan Planning Organizations (MPOs).

Safety Performance Measures

With the passage of the U.S. Department of Transportation's Moving Ahead for Progress in the 21st Century Act (MAP-21) in 2012, there was a requirement to set performance measures related to safety. This emphasis on performance-based planning has been carried over into Fixing America's Surface Transportation Act (FAST Act), passed into law in 2015. Each year, WAMPO is required to set targets for these safety-related measures, with an overarching goal of increasing safety in the area, and reports those targets annually to the Kansas Department of Transportation (KDOT).

As a part of MAP-21, the transportation planning process should integrate directly or by reference the goals, objectives, performance measures, and targets described in other state transportation plans such as the Strategic Highway Safety Plan (SHSP). Safety Performance Management (Safety PM) is part of the overall [Transportation Performance Management](#) (TPM) program, which FHWA defines as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. The Safety PM Final Rule supports the Highway Safety Improvement Program (HSIP), as it establishes safety performance measure requirements for the purpose of carrying out the HSIP and assessing fatalities and serious injuries on all public roads.

The Safety PM Final Rule establishes five performance measures as the five-year rolling averages to include:

1. Number of Fatalities
2. Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT)
3. Number of Serious Injuries
4. Rate of Serious Injuries per 100 million VMT
5. Number of Non-motorized Fatalities and Non-motorized Serious Injuries

The following **Table 1** provides a summary of each of those five performance measures, the latest WAMPO 5-year averages, and current and proposed targets.

Table 1. WAMPO Safety Performance Measures and Targets

PERFORMANCE MEASURE	2014 - 2018 AVERAGE	PERFORMANCE MEASURE TARGETS		
		2014 - 2018	2015 - 2019	2016 - 2020
Number of Fatalities	58.6	54	59	66
Rate of Fatalities per 100 million VMT	1.22	1.13	1.22	1.35
Number of Serious Injuries	146.8	138	123	123
Rate of Serious Injuries per 100 million VMT	3.07	2.85	2.4	2.4
Number of Non-motorized Fatalities and Non-motorized Serious Injuries	28.2	35	35	29

See the Safety appendix for more detail on the performance measures and the target setting process.

Safety in the Project Selection Process

Safety was one of the project selection criteria used in selecting which projects would be eligible for WAMPO's suballocated federal funding. Projects were eligible for consideration under this criteria based on:

- The accident history at the project location
- Including features that eliminated conflicts between bicyclists or pedestrians and automobiles such as protected bike lanes, or flashing beacons at pedestrian crossings
- Added a roundabout in lieu of a signalized intersection

Of the 48 selected projects, 21 were rated Excellent on the safety criteria, and an additional seven were rated as Good. See the Projects appendix for more detail.

KDOT Strategic Highway Safety Plan (SHSP)

The [KDOT SHSP](#) was completed in 2017. The SHSP covered several topics including impaired driving, intersections, occupant protection, older drivers, roadway departures, local roads, data support and education support. The SHSP's stated goal is to reduce by half the fatalities and disabling injuries over a 20-year period (from the base five-year 2005-2009 interval). Kansas has approximately 140,000 miles of public roadways, of which only approximately 10,000 miles are state highways.

With these totals, Kansas has the fourth highest mileage of public roadways in the US. The fatalities that occur within these miles are primarily due to roadway departure (60%) and lack of seatbelt use (43%), both of which occur more frequently in rural areas. The third most common contributing circumstance for fatal crashes is impaired driving (38%). According to the SHSP, a fatal injury often involves more than one contributing circumstance and therefore these percentages total more than 100%. The SHSP identifies and discusses goals and strategies to help decrease each type of crash. Below is a brief discussion of the top three goals, along with two other goals (intersection crashes and local roads) which apply more to urban areas like the WAMPO region:

- **Roadway departures:** To address the leading cause of roadway fatalities in Kansas, strategies for reducing roadway departures include a recommendation for a new distribution of Highway Safety Improvement Program (HSIP) funds and promoting education. Engineering strategies include wider edge-line pavement markings, high-friction surface treatments, and edge-line rumble strips, as well as promoting enforcement campaigns.
- **Unbelted motorists:** The second leading cause of fatalities in Kansas is unbelted motorists, which tends towards being a rural issue. Strategies to improve belt use are focused on legislation, education and enforcement, with a focus on geographic areas of the state where compliance is currently lowest.
- **Impaired driving:** Impaired driving is another common cause of fatal crashes. The overwhelming cause of impairment is alcohol related. These crashes tend to be on rural blacktop roadways. Strategies that tackle the issue of impaired driving include legislation and revising existing laws, education and public outreach, training law enforcement and others who deal with impaired driving and drivers, technology, interagency cooperation, and treatment options for those previously charged with DUI.
- **Intersection crashes:** Intersection-related crashes account for approximately 21 percent of all fatalities in Kansas. Given that there are more local at-grade roadways in urban areas, there are more intersections; thus, urban areas have a higher share of intersection crashes. Strategies to improve intersection crash rates include making use of available traffic records and other data to identify projects that would make intersections safer, promoting proven engineering countermeasures such as coordinating traffic signals through adaptive traffic signals, and promoting education that stresses intersection crash factors.
- **Local roads:** Like intersections, there are a lot of local roads within urbanized areas. Sedgwick County Traffic Engineering is part of the Local Roads Emphasis Area Team that found local roads are considered a bigger safety issue in rural areas. However, the Wichita area could still benefit from some of the safety strategies such as making access to federal and state safety dollars easier to obtain, improving local public agencies' access to crash data, and promoting multi-disciplinary collaboration on safety at local and regional levels to reduce crashes on the local system.

Review of Other MPOs Best Safety Practices

This section summarizes research gathered from available resources and information regarding the safety methods and approach other MPOs use. Given the large number of MPOs in the US, only a small sampling was examined. The MPOs selected were a combination of peer MPOs and MPOs identified in a resource entitled *The Innovative MPO* from Transportation for America. Peer MPOs for this white paper were defined as those of a similar size and/or located in the Midwest. A total of five MPOs are discussed including: Kansas City Mid-America Regional Council (MARC), St. Louis East-West East West Gateway, Indianapolis MPO, Central Lane MPO, and Des Moines MPO.

Kansas City MARC

MARC covers a 9-county area in Missouri and Kansas with an approximate population of 2.1 million. There are 119 cities across the two-state MPO.

Destination Safe

As a result of MARC's 2002 long-range transportation plan, Destination Safe was established. Destination Safe is a coalition of federal, state, regional, local agencies and private entities with a mission to reduce transportation-related fatalities and serious injuries. The goal is to improve transportation system safety in a 13-county area in the Greater Kansas City region. The coalition receives limited funds from MoDOT to support efforts that address priority safety transportation issues. Destination Safe has identified five high-priority areas including unbelted motorists, aggressive drivers, youth and young adults, impaired drivers, and pedestrians. Destination Safe uses regional data to track changes in designated coalition priority areas. Quarterly fatality reports are prepared and display the fatalities by priority issue. There are three main emphasis areas:

- **Behavioral Priorities:** these include unrestrained occupants, aggressive driving, impaired driving, unlicensed drivers, and distracted driving.
- **Infrastructure-related Issues:** these include lane departures, fixed object collisions, horizontal curves; intersections, and head-on collisions
- **Special User Priorities:** these include motorists 15-24 years old, motorcycle/moped, motorists 65 years old and older, pedestrians, and large trucks.

The coalition is also guided by the [Together Toward Zero: 2018-2022 Kansas City Regional Transportation Safety Blueprint](#), which aims to reduce the number of annual fatalities to 197 by the year 2022 (from 251 fatalities in 2018 and 219.4 fatalities in the five-year average ending December 31, 2017). There are 15 focus areas which are grouped into one of the three emphasis areas listed above. Through data provided by MoDOT and KDOT, Destination Safe determined three Spotlight Areas from the focus areas. Within each emphasis area, the related spotlight areas are:

- Infrastructure spotlight is intersections
- Behavioral spotlight is aggressive driving
- Special user spotlight is young drivers

General strategies identified by the coalition included:

- Low-Cost strategies could include an education campaign and adding signage or bicycle lanes.
- Moderate-cost strategies could include obstruction removal, communications systems or more lighting.
- High-cost strategies could include road reconstruction with improved safety features or bus rapid transit service line.

The Safety Blueprint report further suggests strategies to address all 15 focus areas.

Operation Green Light and KC Scout

Operation Green Light (OGL) is a cooperative program between FHWA, KDOT, MoDOT, MARC and 25 cities throughout the Kansas City metro to improve the coordination of traffic signals and incident response. It helps improve traffic flow and reduce emissions while saving on fuel consumption. This program, although helping with safety, is not strictly focused on it.

KC Scout is a bi-state traffic management system that operates separately from MARC. KC Scout is designed to lessen traffic jams by improving rush-hour speeds, increasing safety by decreasing the number of rush-hour accidents, and improving emergency response to traffic situations by clearing incidents quickly and safely. It manages traffic on more than 300 miles of continuous freeways in the greater Kansas City metropolitan area. WAMPO could potentially use a similar approach as Destination Safe by organizing a committee of technical experts and stakeholders, following a process that reviews current data and recommends safety focus areas and strategies.

Indianapolis MPO

The Indianapolis MPO is an eight-county area in central Indiana with approximately 1.55 million in population. FHWA designated the city of Indianapolis as a focus area for pedestrian safety due to an increase in pedestrian deaths. From 2010 to 2015, pedestrian and bicyclist serious injuries increased from 87 to 139 and fatalities increased from 27 to 33. This was despite a desire to create more walkable developments and better bicycle facilities.

Indianapolis MPO's 2045 LRTP lists safety as a top priority. Their vision includes supporting a safe traveling environment for all users by making strategic investments in the region's infrastructure that preserve and enhance the existing system. In 2016, the MPO evaluated 50 high-crash intersections that were not located on the Indiana DOT state roadway system in the [Top 50 Most Dangerous Intersections Report](#). The 50 intersections were selected based on two indices: crash frequency and crash cost. Each intersection was evaluated based on traffic operations (including reviews of mobility and safety performance factors) to come up with alternatives for improvement. Alternatives and recommendations were developed for each intersection with short-term and long-term improvement alternatives. Relative cost estimates for these improvements were included as well, and each intersection was scored and prioritized.

WAMPO could consider a similar study as the Indianapolis MPO. Evaluating WAMPO's 50 most dangerous intersections (or some number appropriate to the area, budget for the study, etc.), and developing a range of alternatives from low to high cost for potential improvement, could be a helpful tool in prioritizing improvement projects.

Central Lane MPO

The Central Lane MPO is in Lane County, Oregon and includes the cities of Eugene, Springfield and Coburg and surrounding area and has a population of just over 230,000.

In 2017, Central Lane MPO adopted a safety plan, [Travel in the Safe Lane](#) which has a vision of zero deaths following USDOT's initiative in 2016. This plan is focused on reducing the number of severe-injury and fatal traffic crashes in the MPO. The plan uses an integrated performance-based planning approach that provides:

- Data-driven determination of priority safety issues;
- Goals to support a safety culture in transportation;
- Multi-disciplinary safety solutions to reduce fatal and severe-injury crashes through the Safety E's which include education, engineering, enforcement, evaluation, emergency medical service and equity.

The plan is closely aligned with Oregon DOT's safety plan goals. The MPO's safety program works with the ODOT Traffic-Roadway Division to provide recommendations for improvements in high crash risk locations. ODOT provides performance plans and annual evaluation, public education materials, legislation reviews, and regional transportation safety newsletters for example.

ODOT also identifies "safety corridors" which are stretches of highway where fatal and serious injury crash rates are higher than statewide averages. In these corridors:

- The highway becomes subject to heightened enforcement;
- Fines are doubled for traffic infractions;
- Drivers may be asked to turn on headlights during the day, reduce speed and refrain from passing.

WAMPO could consider developing a partnership with KDOT to develop safety corridors within the WAMPO region to encourage greater safety on the most dangerous stretches of roadway.

St. Louis East-West Gateway (EWG)

EWG covers a seven-county area in Missouri and Illinois with a population of approximately 2.57 million.

Long Range Transportation Plan Connected 2045

EWG's LRTP Connected 2045 Update was completed in June 2019. Promote Safety and Security is one of the guiding principles of the LRTP.

Strategies related to reducing fatal crashes under Promote Safety and Security include:

- Continue to incorporate safety issues into state and local strategic highway safety plans and the planning process.

- Support projects that focus on pedestrian safety.
- Continue with teen and elderly driver safety programs in collaboration with Missouri Department of Transportation (MoDOT) and Illinois Department of Transportation (IDOT). EWG and MoDOT have developed a one-day teen driver safety program that is available to area high schools called St. Louis Youth – Drive for Tomorrow. Using a presentation and driving simulators, teens can safely experience the effects of impaired and distracted driving behaviors.

Other secondary safety-related strategies related to the “Provide More Transportation Choices” guiding principle include:

- Coordinate with agencies to overcome barriers and provide safe environments for walking/bicycling for people of all ages and abilities, focusing on intersections and street crossings.
- Enhance connections between neighborhoods and activity centers by using Complete Street principles.
- Promote using best practices for the development of bicycle and pedestrian facilities from organizations including the Federal Highway Administration (FHWA), National Association of City Transportation Officials (NACTO) and American Association of State Highway and Transportation Officials (AASHTO).
- Work with the disabled community and local agencies to ensure that all planning and implementation processes meet or exceed the Americans with Disabilities Act (ADA) requirements.

Bicycle and Pedestrian Transportation Planning

In the St. Louis region, bicycling has become increasingly more popular which prompted the MPO to update their [Regional Bicycling and Walking Transportation Plan](#). This plan was adopted in 2005. Since that time, the [Gateway Bike Plan](#) was developed which identifies a regional system of on-street bikeways in the city of St. Louis, St. Louis County and St. Charles County. This plan also includes strategies for education, encouragement, and enforcement to make bicycling safe for residents of all ages and abilities. In 2018 and 2019, there have been three Bicycle and Pedestrian workshops held on topics such as safety, complete streets and bikeway design best practices to implement low-stress bicycle facilities. Local public agencies were the primary focus of two of the workshops; planners and engineers were part of the third workshop. Complete Streets are a way to improve safety, benefit adjacent properties, and encourage healthy living.

Traffic Incident Management

In 2015, EWG completed a comprehensive update of the intelligent transportation system (ITS) architecture for the St. Louis area. The St. Louis Regional ITS Architecture uses state-of-the-art technology to improve travel on the major roads in the region. One portion of this system is traffic incident management (TIM). Providing timely information to motorists in the event of a traffic incident can help improve flow and reliability. Some features of TIM are dynamic signs, mobile/web/phone-based traveler information, and coordinated response as examples. Although ITS in EWG is still in the planning stages, TIM is part of the first phase or tier 1 of their implementation plan. In 2015, EWG was 5 to 10 years from implementation.

WAMPO could consider developing a similar teen driver safety program as EWG has instituted. This one-day high school focused program using a presentation and driving simulators which allows teens to experience the

effects of impaired and distracted driving behaviors could help increase safe driving among teens in the WAMPO region.

Des Moines MPO

The Des Moines Area MPO has a population of approximately 655,000 in its three-county area in Central Iowa. It includes 16 cities plus Des Moines Area Rapid Transit (DART) as voting members. Associate members (non-voting) include four cities and one county.

[Mobilizing Tomorrow](#) is the MPO's MTP for the year 2050. Mobilizing Tomorrow identified the strategy of deploying an integrated corridor management (ICM) system. Although this strategy provides a way to manage and coordinate various modes of traffic, it can improve safety and in a more cost-effective manner compared to adding more lanes. A regional ICM deployment strategy for near-term implementation on the Des Moines area Freeway and arterial system is [currently being studied](#), and includes safety as a primary goal. The Des Moines area ICM study is considering Intelligent Transportation Systems (ITS) and active system management strategies that will better manage Freeway system incidents. The ICM is expected to have some reduction on system crash rates.

A secondary strategy to motor vehicle safety, [CONNECT – Central Iowa Bicycle and Pedestrian Plan](#) was adopted in 2009 by the MPO and is a guide for projects, programs and policies regarding bicycles and transportation. Regarding safety, CONNECT listed improvement areas including reporting bicycle and pedestrian crashes to identify problem areas and relevant solutions. Possible solutions in high crash locations include traffic calming, signal timing and other traffic safety improvements. Education of bicyclists, school-age students, and motorists was another focus area regarding bicyclists and pedestrians. Knowing and understanding the rules of the road and the trail, can improve safety for all users.

WAMPO could consider looking into ICM strategies in areas where bottlenecks tend to occur now as a way to improve performance. The ICM approach can be a relatively low-cost approach to mitigating crashes on the system due to recurring and non-recurring incident queues.

Conclusions

There are some key aspects from these other organizations that WAMPO may choose to investigate for implementation in the Wichita Area:

- Consider adoption of Vision Zero as a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility.
- Detailed intersection safety analysis and countermeasure prioritization, as was recently completed by the Indianapolis MPO.
- Development of a teen and elderly safe driving program such as East-West Gateway (EWG) implemented.
- Development of a safety working group, similar to the experience at Mid-America Regional Council (MARC).
- Enhanced data collection and analysis for providing key insights into critical issue areas and potential regional strategies to consider, such as the work in MARC and Indianapolis MPO.
- Consideration of Integrated Corridor Management strategies, like what is being evaluated in depth in the Des Moines area.
- Consideration of reviewing other regional Traffic Incident Management initiatives such as MARC and EWG, to learn from other regional experiences to supplement the successful WICHway program.

MPOs often create separate bicycle and pedestrian plans that include safety strategies for those users. Beyond including capital improvements in plans and programs, safety often includes education, legislation and enforcement components. A popular strategy is to consider using Complete Streets.

Using data is part of all safety planning efforts. Some specific examples include:

- MARC uses regional data in their Destination Safe to track fatalities by type and location and develops key priority area and strategies based on that data.
- Indianapolis MPO used data to determine the 50 most dangerous intersections, then developed alternatives for improvements, estimated costs, prioritized improvements and made recommendations.
- Central Lane MPO uses a data-driven approach to help prioritize improvement areas as part of their vision zero plan.

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