

Integrating Safety in the Rural Transportation Planning Process



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16. Abstract Rural areas consistently experience higher numbers of crash-related fatalities and serious injuries than urban areas. Regional planning organizations (RPO) are poised to assist state departments of transportation (DOT) and local officials in addressing the safety needs in nonmetropolitan areas in accordance with statewide safety goals. RPOs in general engage in a planning process to understand the regional issues and needs, and identify strategies to address them through coordination with regional stakeholders. The opportunity exists to incorporate safety into this existing process. This Technical Report provides methods for integrating safety into each step of the RPO planning and programming process, to assist in addressing rural roads multimodal safety needs.			
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Executive Summary

Regional planning organizations (RPO) are poised to assist state departments of transportation (DOT) and local officials in addressing the safety needs in nonmetropolitan areas. By identifying transportation safety needs in RPO transportation plans, funding for safety countermeasures or other transportation improvements can be programmed into long-range transportation plans (LRTP) and statewide or regional Transportation Improvement Programs (S/TIP).

The most recent crash data from the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS) indicates that rural fatalities account for 55 percent of all fatalities, although Census Bureau figures show only 19 percent of the United States population living in rural areas.

Every RPO engages in a planning process to understand the regional issues and needs, either through the development of a regional plan, by providing input into the statewide plan, or coordinating the development of other planning documents. During the development of any of these plans, the opportunity exists to incorporate safety into the process. The terminology may differ across agencies, but the basic elements of a transportation planning process include:

- Public Involvement and Outreach;
- Multidisciplinary Coordination and Input;
- Data Collection and Analysis (Problem Identification);
- Development of Goals and Objectives;
- Identification of Performance Measures and Targets;
- Project Prioritization and Programming; and
- Monitoring and Evaluation.

This Technical Report provides regional planners in nonmetropolitan areas with methods for integrating safety into each of the above-mentioned planning elements, with the goal of incorporating safety into all the elements to help planners address multimodal safety needs. Key methods for integrating safety in the planning processes for rural regions, which are expanded in the document, are highlighted below.

Public Involvement: A key function of the transportation planning process is soliciting input from stakeholders, local officials, and the public to inform decisions regarding regional priorities.

Safety Integration – RPOs can solicit and provide information on safety topics through surveys, comment cards, open houses, newsletters, and social media. This will also help to ensure that any safety stakeholders who are not reached

through specific multidisciplinary coordination efforts have the opportunity to weigh in, along with gathering safety-specific input from the general public.

Multidisciplinary Coordination: RPOs often establish committees to discuss and analyze system needs, and use that information to make informed decisions regarding programs and projects.

Safety Integration – Discussing safety at various RPO committee meetings (i.e., Policy, Technical, Bicycle/Pedestrian) and/or identify opportunities to engage safety stakeholders in committee discussions can promote awareness and stimulate action. In addition, safety workshops, or summits can be used to engage transportation stakeholders specifically on safety topics. Involving representatives from law enforcement, emergency medical services, schools, and other professions with safety interests in committees, workshops, and summits institutionalizes the role of safety professionals and stakeholders within RPOs.

Data Collection and Analysis: Data collection and analysis methodologies inform regional trends and challenges, which are used to identify goals, objectives, policies, programs, and projects.

Safety Integration – RPOs can utilize crash, roadway, traffic volume data, bicycle and pedestrian counts, transit data, or customized reports to identify current safety concerns and make decisions for improved transportation safety.

Development of Goals and Objectives: Goals address key desired outcomes, and supporting objectives are statements that support achievement of goals. They provide the framework for evaluating different transportation system options, strategies, policies, programs, and projects.

Safety Integration – RPOs can utilize public and stakeholder input, the results of data analysis, and information in other plans to develop safety goals and objectives in the planning process and associated documents.

Identification of Performance Measures and Targets: Performance measures can support the goals, objectives, or both and serve as a basis for making investment decisions and tracking results over time. A target is a numeric goal an agency desires to achieve over some period of time.

Safety Integration – RPOs can identify performance measures and utilize crash data to set targets to track progress toward the safety goals, objectives, programs, and/or projects.

Project Prioritization and Programming: This is the process by which projects and/or programs are ranked and prioritized to match the desired outcomes of goals, objectives, and performance measures.

Safety Integration – RPOs can include safety considerations in the prioritization and programming processes for the TIP, and can establish processes for prioritizing Highway Safety Improvement Program (HSIP) funds.

Monitoring and Evaluation: Monitoring can occur at the system, corridor, goal, emphasis area, or project level. The purpose is to inform performance and assist with the selection of programmatic or investment choices moving forward.

Safety Integration – RPOs can routinely monitor and track safety performance to evaluate progress towards meeting performance measures and targets.

1.0 Introduction

In 2012, 30,800 fatal motor vehicle crashes resulted in 33,561 fatalities. Rural areas accounted for 53 percent (16,443) of the fatal crashes; and 54 percent (18,170) of the fatalities.¹ Some of the major factors contributing to crashes on rural roads include:

- Exposure – people who live in rural communities generally travel more in their automobiles and over further distances, increasing the likelihood of a crash;
- Public transportation and bicycle and pedestrian networks may be insufficient, forcing people to travel by car or risk unsafe circumstances on alternative modes;
- Rural roadways typically have higher speed limits, which increase the severity of crashes when they occur;
- Physical limitations of rural roadways, some constructed between mountains or waterways, creates narrower lanes;
- Wildlife and weather conditions, such as rock slides, often affect rural roadways more significantly than urban areas; and
- Rural roadways may have more curves, making roads longer and more challenging to navigate.

In nonmetropolitan areas,² where crashes are occurring at higher rates, regional planning organizations (RPO)³ are in place in about 30 states⁴ to assist state departments of transportation (DOT) and work with the public and local officials to understand the transportation needs for the region. Multimodal safety is often identified as a major issue in rural areas, but challenges, such as limited staff, a shortage of financial resources, inadequate data and analysis gaps, and other issues, may prohibit safety from being addressed in planning documents. This

¹ <http://www-nrd.nhtsa.dot.gov/Pubs/812050.pdf>.

² The term “nonmetropolitan area” means a geographic area outside designated metropolitan planning areas.

³ Also known as regional transportation planning organizations (RTPO), regional planning affiliations (RPA), planning district commissions (PDC), councils of governments (COG), or regional planning commissions (RPC) (who also have a rural transportation program). This report will refer to rural planning agencies as RPOs, unless using the name of a specific agency or when referring to RTPO designation as part of the Moving Ahead for Progress in the 21st Century Act (MAP-21) legislation.

⁴ <http://www.ruraltransportation.org/about-rtpos/rtpo-states/>.

report presents opportunities and strategies for regional planners to consider safety throughout the transportation planning process for rural areas.

This technical report is based on available literature, web resources, and input from a technical oversight working group (TOWG) composed of practitioners at regional planning, state, and federal agencies.

1.1 PROJECT OBJECTIVE

The objective of this project is to develop a technical report to assist RPOs with the integration of safety into their transportation planning and programming process.

1.2 TARGET AUDIENCE

The main target audience of this technical report is planners at RPOs and state DOTs. Regional planners typically have a number of job responsibilities, but for many this includes assisting state DOTs with completing the requirements for statewide transportation planning in rural areas. This report provides regional planners with information on the resources, strategies, and ideas for considering safety in their transportation planning processes. DOTs often have planners on staff to liaise with the RPOs in their states. In this role, they support and provide technical assistance to RPOs to help them carry out transportation planning functions. This report will provide strategies for DOTs to better assist RPOs in understanding the safety issues in their regions, and incorporate solutions through the transportation planning process.

1.3 RESEARCH APPROACH

Results from a review of recent literature and web site resources and the perspectives from the TOWG informed this technical report.

Web sites reviewed for resources and literature included the Transportation Research Board (TRB) TRID database; the National Association of Development Organizations (NADO); Federal Highway Administration (FHWA) sites, specifically the Rural and Small Community Transportation Planning page, the Safety page, and the Planning page; the National Association of Regional Councils (NARC); and the Community Transportation Association of America (CTAA).

The literature search revealed that publications do not specifically address safety integration in the RPO transportation planning process. However, a number of literature and web resources were useful and relevant to this research. They fell into four broad categories, including: 1) transportation safety planning from the urban or statewide perspective; 2) discrete safety tools and/or strategies; 3) different processes or frameworks for transportation decision-making; and

4) other issues important to RPO planners (i.e., economy, land use). Appendix B documents and provides links to these resources, while Appendix A offers short case studies identified in the research process of how two states are working with the RPOs in their states to address safety.

In addition to the literature search, this report also is based on input from the TOWG. The TOWG comprised planners from seven regional planning agencies and two state DOTs, and three representatives from FHWA.

2.0 Safety and Transportation Planning

Section 2 provides background on recent transportation and safety legislation and the transportation planning process. It also identifies why, among other interests, safety should be considered in transportation plans, including opportunities for RPOs to engage in safety planning and programming.

2.1 LEGISLATION AND REQUIREMENTS

Title 23 of United States Code (U.S.C.)⁵ focuses on safety as an important characteristic of the transportation network. Recent Federal requirements for transportation planning processes stayed much the same as the requirements under earlier transportation laws, although new processes and concepts such as performance measurement are changing the way planning organizations complete their required plans.

Statewide and Nonmetropolitan Planning

Planning for rural areas, not served by a metropolitan planning organization (MPO), falls into the general category of Statewide and Nonmetropolitan Planning. State DOTs are responsible for developing two major statewide planning documents; a long-range transportation plan (LRTP), and the shorter-range statewide transportation improvement program (STIP).

Rural Regional Planning

In approximately 30 states, RPOs assist state DOTs and local officials with regional transportation planning in nonmetropolitan areas. RPOs are voluntary organizations that typically function under contract to state DOTs to assist with tasks related to statewide planning, including public involvement, gathering input of local officials in the consultation process in statewide planning, and providing technical assistance to local governments.

Most of the RPOs that existed before MAP-21 were formed after the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) and 1998 Transportation Equity Act for the 21st Century (TEA-21) strengthened the role of local officials in the statewide transportation planning process. RPOs are often organized similarly to metropolitan planning organizations (MPO), with membership comprising primarily of local governments within the region and governed by a policy board or committee that receives recommendations from a technical committee.

RPOs are often housed in a multipurpose RPC or COG, or in a county transportation commission or county planning office. In some cases, a state DOT district office conducts the RPOs' functions and acts as the local conduit on transportation issues.

⁵ <http://www.fhwa.dot.gov/map21/docs/title23usc.pdf>.

The LRTP lays out the vision and goals regarding all aspects and modes of transportation over the next 20 or more years. Safety is usually highlighted in an LRTP and often appears in vision statements that describe the characteristics of a transportation network that stakeholders desire in the state or particular region. The LRTP reviews current trends and conditions to assist in identifying policies, programs, and projects that help a state achieve its goals. The STIP is a listing of priority transportation projects (highway and transit) that are selected to receive Federal funds usually in the next four or so years.

The state may decide to seek assistance with completing statewide planning tasks and outreach from RPOs and other planning partners in rural areas. Many states have chosen to contract with rural planning partners to complete regional LRTPs that influence the development of the state's LRTP. RPOs also often identify project priorities and submit them to the state for possible inclusion in the STIP. RPOs provide a forum for the state to consult with local officials on transportation issues and priorities and assist with public involvement.

Title 23, U.S.C. identifies several issue areas that are required to be considered during planning, called planning factors. These factors are intended as guidelines for considering strategies, as well as specific projects and safety plays a prominent role. These planning factors can serve as a starting point for organizations to develop a vision, goals, and objectives in their long-range plan. The Federal planning factors also provide a basis for developing project ranking criteria, if a scoring process is used to determine which projects are the highest priority.

Major changes to Title 23, U.S.C. include a new focus on transportation performance management. The law identifies several national goal areas, and also requires states and MPOs to adopt performance targets in several areas, including safety. For safety, states are responsible for reporting on numbers and rates of fatalities and serious injuries.

Including Safety in Vision Statements

The 2013 – 2037 LRTP adopted by the Southern Alleghenies Rural Planning Organization in Pennsylvania is centered on the following vision:

Provide a safe, efficient, and sustainable multi-modal transportation system that fosters economic development, protects the environment, and meets the needs of all residents in the region.

Federally Required Planning Factors

Title 23, U.S.C. requires planning agencies to consider eight planning factors in the development of plans and project selection:

1. Improving safety;
2. Supporting economic vitality;
3. Increasing security;
4. Increasing accessibility and mobility;
5. Protecting the environment and promoting consistency between transportation investments and state and local growth plans;
6. Enhancing connectivity for people and goods movement;
7. Promoting efficient system management and operations; and
8. Emphasizing preservation of existing transportation infrastructure.

In addition, Moving Ahead for Progress in the 21st Century (MAP-21) created an optional opportunity for states to formally designate regional transportation planning organizations (RTPO) to assist with statewide planning. Designated RTPOs would be required to have a policy committee; have a parent organization to serve as the administrative and fiscal agent, and provide planning staff; conduct public involvement; and complete regional transportation improvement programs and long-range plans.

Highway Safety

Beginning with legislation passed in 2005, known as the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and continuing under MAP-21, states are required to develop Strategic Highway

Safety Plans⁶ (SHSP). The State DOT is responsible for the development of the plan. Staff assigned to the SHSP may not be the same as the persons involved in overall statewide transportation planning. The SHSP is to be developed in consultation with a variety of multidisciplinary stakeholders, including regional planners and county transportation officials, and should be updated no later than every five years.

The SHSP is a data-driven plan that presents a framework for reducing deaths and serious injuries. Each state's SHSP identifies safety problems, as well as key emphasis areas that direct safety efforts. Federal Highway Safety Improvement Program (HSIP)⁷ funds are applied to projects and initiatives that are consistent with the emphasis areas and strategies found in their state's SHSP and applicable to all public roads. Other funds, such as those administered by NHTSA (e.g., Section 402), may also be used to implement SHSP strategies.

Safety Funding

Federal-funding programs and funding levels are set through authorization bills that historically have covered multiple years, rather than being subject to annual appropriations like other Federal funds.

Federal funds that are dedicated for safety projects come through the Highway Safety Improvement program (HSIP). However, other Federal programs can be used to enhance safety as well, provided that funds are spent within the parameters of those programs, such as the National Highway Performance Program, Surface Transportation Program, and Transportation Alternatives Program.

In addition, the National Highway Traffic Safety Administration (NHTSA) has funds for educational, enforcement, and other programs that enhance safety. These grant programs may be open to states and localities; localities generally apply to the state for funding for their projects. Contact your state Highway Safety Office (HSO) to learn more (Appendix B includes a link to the Highway Safety Plans (HSP) for every state. Most include contact information for the HSO).

⁶ A web site listing the links for all the SHSPs for every state can be found in Appendix B.

⁷ HSIP funds are federal funds, administered by the State DOT, and eligible to be spent on all public roads (regardless of ownership). Planners should check with their respective State DOTs for state specific requirements for these funds.

Linking Transportation and Safety Planning Documents

Federal regulations strengthen the expectation that the SHSP, Highway Safety Plan (HSP), and Motor Carrier Safety Plan have shared goals and performance measures and suggests other state and local plans should also align. The SHSP and HSIP are also required to coordinate since the obligation of HSIP funds must be directly related to the data-driven emphasis areas identified in the SHSP. State and regional LRTPs, as well as other rural/local plans, should be developed to coordinate with the SHSP.

2.2 PLANNER’S ROLE IN TRANSPORTATION SAFETY PLANNING

Federal legislation may be moving toward a more defined role for RTPOs, but many RPOs already participate in or have initiated a rural transportation planning process essentially following the same Federal transportation planning requirements as DOTs and MPOs. The extent to which RPOs address safety during this process is at the discretion of the agency based on available resources, identified need, and staff time and expertise. However, a number of factors, including momentum in states to adopt Toward Zero Deaths targets, the proportion of accidents occurring on rural roads, and advances in the availability of rural roads crash data, places RPO planners in an excellent position to address regional transportation safety issues. Research completed by the NADO Research Foundation⁸ and input from TOWG members provides insight into the capabilities and tools RPO planners have at their fingertips to play an active role in transportation safety planning.

- RPOs’ structure naturally provides a forum for identifying regional issues and priorities and engaging with diverse stakeholders, in addition to local governments. In their role as conveners, RPOs can gather input about safety issues that area user’s experience. Transportation safety planning requires input across a number of disciplines, so the ability to convene, lead, and facilitate conversations further enhances communication efforts on safety.
- RPOs also commonly conduct public involvement activities for their regional planning efforts, and to assist the state DOT with outreach efforts. Gathering information about how the public views safety and where/what the biggest concerns are, is another public outreach effort that RPOs can complete. Using existing public outreach strategies, such as routine newsletters, to give the public information about safety topics can also be effective at improving awareness of not only problems, but also of safe driving techniques,

⁸ <http://www.nado.org/transportation-project-prioritization-and-performance-based-planning-efforts-in-rural-and-small-metropolitan-regions/>.

resources such as child restraint inspections, or opportunities to comment about safety issues on statewide plans and programs.

- RPOs are connected regularly to local officials through Policy Committee meetings and other interactions, such as Chamber of Commerce meetings. Not many other regional entities have this type of access to local decision-makers or the opportunity to convey the importance of safety on a regular basis.
- RPOs often have experience leading or supporting long-range planning processes and/or other state, regional, and local planning efforts. Involvement in so many different aspects of the transportation network and planning process in general (e.g., local land use planning, economic and workforce development) provides valuable insights into how safety connects with operations, congestion, livable communities, the economy, land use decisions, and other issues.
- Two common RPO positions are planners and geographic information system (GIS) professionals. As a result, RPOs often have data analysis and mapping capabilities and technology. If data are available, RPO planners can identify crash locations and unsafe roadway characteristics. Mapping provides the basis for conducting a multimodal corridor safety study, or for prioritizing projects that improve safety by using safety and/or roadway data. RPO staff might also use their need for data or results from their analysis as reasons to communicate trends with the state DOT and state highway safety office to exchange information and identify ways to work more closely together.
- It is a challenge for state DOTs to coordinate with many small jurisdictions, but RPOs are the “boots on the ground” that provide services to member agencies and officials, which could include assistance to understand the individual jurisdiction’s safety concerns.
- Elected officials are often identified as champions because of their leadership role and ability to advocate for safety projects. However, RPO planners can also be champions and lead safety efforts in other ways. Two opportunities include engaging in frequent conversations with decision-makers about the importance of safety; and identifying opportunities for the RPO to engage in transportation safety, perhaps through a road safety audit program or bicycle/pedestrian safety campaign.

2.3 DEFINING SAFETY IN THE RURAL PLANNING CONTEXT

Transportation legislation provides the basic framework for including safety in the transportation planning process. *American Association of State Transportation Organization Highway Safety Manual* refers to safety as the crash frequency or severity, or both, and collision type for a specific time period, a given location

and a given set of geometric or operational conditions. In general, transportation safety refers to reducing fatalities, serious injuries, and economic loss resulting from crashes on the transportation system.

However, defining safety in the planning context and identifying how to provide safe facilities for all users is at the discretion of the planning agency and stakeholders. RPO planners can facilitate discussions with transportation and safety stakeholders to develop a description of safety pertinent to the region. Potential options are to spend time discussing this within an RPO Technical Advisory Committee (TAC) meeting or during public involvement efforts.

Discussing safety in the planning context is an opportunity to open up a dialogue with regional stakeholders, if safety has not been systematically addressed before.

At a regional meeting, such as a transportation advisory committee meeting, it may be beneficial to schedule time in the agenda to ask: *What does transportation safety mean to you?*

Give respondents some time to write down their ideas, and discuss the responses as a group. Issues that appear multiple times might become safety emphasis areas for that community or region.

2.4 TRANSPORTATION SAFETY CHALLENGES

Rural regions continue to see the majority of fatal crashes on their roads, but addressing safety in the planning process can be challenging.

Rural roadway networks are often extensive with sparse populations, and crashes tend to be dispersed across the network and usually not found in clusters. Systemic analysis is a tool to overcome this challenge. The approach provides a more comprehensive method for safety planning and implementation that supplements and complements traditional site analysis. It helps agencies broaden their traffic safety efforts and consider risk, as well as crash history when identifying where to make low-cost safety improvements. However, conducting systemic analysis requires data, staff time, and analysis expertise.

Like MPOs, RPOs develop staff expertise as planners, conveners, and analysts, but the regional organization itself is not an owner of roads or bicycle and pedestrian paths, and usually does not operate transit; as a result, finding an appropriate role in addressing safety sometimes proves challenging.

RPOs often have fewer resources to comprehensively consider safety, including the development of specific safety plans at the local or regional level or programs (e.g., road safety audit programs) that could assist in identifying safety projects.

In their role to assist state DOTs with statewide planning, RPOs often work most closely with state DOT planning and programming offices and do not have the same familiarity with state DOT safety staff who can assist with safety analyses and safety funds for local projects.

Crash data collection and analysis are central to identifying safety problems. Some states lack timely and/or accurate crash data for local and rural roadways. This can hinder the understanding of regional safety issues. Limited staff and

resources at both state DOTs and RTPOs may preclude crash data from being reviewed or analyzed for a rural region. In addition, RTPOs may not have access to state or local crash databases, and need to rely on other agencies to generate reports or provide training on the crash databases. In some states, legal issues prevent the DOT from sharing safety data.

2.5 RPO TRANSPORTATION PLANNING PROCESS

MAP-21-defined tasks for RTPOs for the first time in Federal statute. RPOs that existed prior to MAP-21 have no Federally required standard work program across states, but they generally exist to assist state DOTs with requirements for statewide planning, particularly in conducting outreach to local officials and the public in nonmetropolitan areas. Many RPOs already comply with a number of these tasks, including the development of a long-range plan, similar to state and MPO long-range plans. These plans have a time horizon of about 20 years and outline vision and goals.

Regions that do not develop an LRTP typically have a planning process in place to identify regional needs. For instance, some rural regions complete a regional plan, but with no specific time horizon, which describes the region's transportation context and strategies to improve it. In areas that do not complete a long-range plan, community-specific comprehensive plans may convey desired transportation outcomes shared across a region. Another option is to integrate safety-related objectives into other plans they complete at the regional level. In addition, RPOs commonly assist the state with other types of planning, such as coordinated human services transportation planning.

It also is common for rural regions to develop a list of priority transportation needs. In some regions, the list is fairly formal and resembles a Transportation Improvement Program (TIP), similar to those required to be developed by MPOs. In other states, the RPOs submit a list of projects for consideration to be included as the state DOT develops its STIP. To develop a rural TIP or priority list of projects, most regions use a set of criteria to sort projects into higher and lower priorities. Sometimes the criteria are shared among all members of the board or committee conducting the prioritization, but others allow individual members to define their own criteria related to the overall vision for the region. Regardless of the process used to rank projects, the identified projects are typically consistent with the overall vision laid out in the long-range plan or other planning documents.

Defined Tasks in MAP-21 for Designated RTPOs

- Establish a policy committee of a majority of local official.
- Have a "parent" or "host" organization to serve as administrative and fiscal agent and provide planning staff.
- Develop rural, regional long-range transportation plans.
- Create a short-range transportation improvement program.
- Conduct public outreach.
- Coordinate transportation with other relevant planning areas.

The level of transportation planning varies among RPOs. However, every RPO engages in some type of planning process to understand the regional issues and needs, either through the development of a regional plan, by providing input into the statewide plan, or coordinating the development of other planning documents. Common planning tasks exist across RPOs, and when they are combined, they form a structured process to identify transportation priorities. The terminology may differ across agencies, but the basic elements of a transportation planning process include Public Involvement and Outreach, Multidisciplinary Coordination and Input, Development of Goals and Objectives, Identification of Performance Measures, Data Collection and Analysis (Problem Identification), Project Prioritization and Programming, and Monitoring and Evaluation.

- **Public Involvement/Outreach.** Public engagement is the process by which RPOs provide information and seek feedback from stakeholders, the public, and elected officials on regional transportation issues. Outreach techniques can take a number of forms, but the most common are web sites, newsletters, surveys, public meetings, and workshops.
- **Multidisciplinary Coordination.** RPOs often establish committee structures, made up of diverse individuals, to discuss and analyze system needs, and use that information to make informed decisions regarding programs and projects. The policy committee, often made up mainly of local elected officials and state DOT officials, makes decisions regarding project priorities and funding. The TAC (and other modal committees if established) provides technical analysis and support to assist the policy committee in making informed decisions.
- **Data Collection and Analysis.** Data collection and analysis methodologies inform assessment of regional trends and challenges, which are used to identify goals, objectives, policies, programs, and projects. The analysis process focuses on understanding how a transportation system and its components function, and consequently how improvements to that system will alter its performance.
- **Goals and Objectives.** Goals address key desired outcomes, and supporting objectives are statements that support achievement of goals. They provide a framework for later in the planning process to identify criteria for evaluating different transportation system options, strategies, policies, programs, and projects.
- **Performance Measures and Targets.** Performance measures can support the goals, objectives, or both; and serve as a basis for making investment decisions and tracking results over time. A target is a numeric goal an agency desires to achieve over some period of time.
- **Project Identification and Prioritization.** This is the process by which available funds are matched with desired actions. Earlier in the process, public input and data analysis results shape the plans' goals and objectives.

Performance measures are identified to track progress toward the goals and objectives and in combination of these considerations, projects and/or programs are ranked and prioritized.

- **Monitoring and Evaluation.** Monitoring and evaluation are commingled processes. Monitoring can be conducted at the system, corridor, goal, or project level; and initially relies on baseline data to demonstrate the “current state” of transportation safety for a region. Over time, RPOs can continue to collect and monitor crash data to make judgments concerning the relative merits of funding investments, alternative actions, and/or programs and projects. One of the most common ways of making sure evaluations are linked to the safety goals and objectives of a transportation plan is through the definition of performance measures.

The core planning tasks outlined above are being used by a number of RPOs to conduct transportation planning, including examples below from three states.

Virginia

The 20 Virginia Planning District Commissions (PDC) partnered with the Virginia Department of Transportation (VDOT) to evaluate the State’s rural transportation system, and recommend a range of transportation improvements that best satisfy existing and future needs. Each PDC has completed a 2035 LRTP that identifies needs based upon goals and objectives established by each region. The planning approach used to develop all the LRTPs included:

- Development of regional transportation goals and objectives;
- Public involvement;
- Data compilation and collection;
- Data analysis;
- Identification of transportation deficiencies and recommendations; and
- Environmental and cost reviews.

Ohio

In Ohio, ODOT began a two-year RTPO program with five existing regional planning agencies, and provided funding and assistance so each can develop the first regional transportation plan for their regions. The plans will provide a metric-based analysis of existing transportation infrastructure, and propose a list of regional multimodal transportation needs. The planning approach being used to develop all the LRTPs includes:

- Development of regional transportation goals and objectives;
- Inventory existing conditions;
- Project future conditions;

- Needs analysis;
- Fiscal analysis;
- Stakeholder participation; and
- Plan recommendations.

In addition to developing a transportation plan, one key part of the pilot program is the development of transportation expertise at each of the RTPOs. One way this is happening is through MPO mentorship. Each of the five agencies has an existing Ohio MPO that is providing mentorship over the two-year pilot program.

Alabama

In Alabama, the Alabama Department of Transportation (ALDOT) funded a two-year pilot program with the West Alabama RPO to understand the effectiveness of the rural transportation consultation process. The effort was deemed successful and 12 RPOs were established throughout the State. All the RPOs do not follow the same planning process, but the approach used by the West Alabama RPO is similar to that of the others and includes:

- Development of a vision statement;
- Development of goals;
- Identification of general problems and needs;
- Identification of strategies to address problems and needs;
- Identification of projects that support the strategies;
- Prioritization of projects; and
- Public review of the draft plan and adoption of the final plan.

2.6 FITTING SAFETY INTO THE RPO TRANSPORTATION PLANNING PROCESS

Table 2.1 lays out how safety can be integrated into the tasks that constitute the transportation planning process with associated strategies. It shows the basic elements of the transportation planning process, and depicts overarching strategies to integrate safety into each element of the planning process. The elements of the transportation planning process are further explored in Section 3: Methods for Integrating Safety into the Transportation Planning Process. In addition to the strategies presented below, RPOs may find it beneficial to complete a standalone safety plan, which is also described in Section 3.

Table 2.1 Elements of the Transportation Planning Process

Transportation Planning Process Tasks	Strategies to Integrate Safety into Transportation Planning Processes
Public Involvement/ Outreach	Utilize available public involvement tools (e.g., surveys, public meetings, comment cards, web sites, and newsletters) to collect information on transportation safety issues and needs.
Multidisciplinary Coordination	Discuss safety at various RPO committee meetings and/or identify opportunities to engage safety stakeholders in committee discussions.
Data Collection and Analysis	Collect and analyze safety data to identify goals, objectives, and project/ program priorities.
Develop Regional Goals and Objectives	Utilize public and stakeholder input, the results of data analysis, and information in other plans to develop safety goals and objectives in planning documents.
Establish System Performance Measures and Targets	Identify performance measures and targets to track progress toward the safety goals, objectives, programs, and/or projects.
Evaluate and Prioritize Projects	Include safety considerations in the prioritization and programming processes for the TIP.
Monitor and Evaluate Performance	Routinely monitor and track safety performance to evaluate progress towards meeting performance measures and targets.

2.7 COMMITTING TO RPO PLANNING – IOWA EXAMPLE

In Iowa, the RPAs are successful in their planning efforts and in integrating safety into the transportation planning processes. The success is due, in large part, to the coordination and collaboration between the Iowa DOT and the RPAs on institutional and planning topics.

The table below presents an example of how the RPOs in Iowa, known as RPAs, are approaching transportation safety integration in their planning processes.

Table 2.2 Elements of the Transportation Planning Process

Transportation Planning Process Tasks	Iowa RPA's Approach to Integrate Safety into Transportation Planning Processes
Public Involvement/ Outreach	<ul style="list-style-type: none"> • Utilize a variety of methods for incorporating safety considerations in the public involvement process, including Internet surveys, formal public participation meetings, and project review meetings. • Local safety workshops held across the State. • Must develop a Public Participation Plan.
Multidisciplinary Coordination	<ul style="list-style-type: none"> • Every RPA has (or is encouraged to have) a regional multidisciplinary safety team (MDST), which meets regularly to discuss regional safety issues, goals, and future projects. • RPAs periodically discuss safety issues with members of their TAC and Policy Committee. During these committee meetings, RPA staff provide relevant safety data and funding information to foster regional safety improvement decisions.
Data Collection and Analysis	<ul style="list-style-type: none"> • RPAs have access to a robust historical crash database and leading-edge evaluation software, which they use to evaluate safety needs. • Most RPA staffs include people who possess skills with GIS, CAD, and other technical evaluation programs. • RPAs participate in crash analysis workshops and road safety audits. • DOT currently is evaluating systemic safety improvements, which will be shared with the RPAs. The results of this analysis can assist the RPAs in identifying priority locations for future improvements.
Develop Regional Goals and Objectives	<ul style="list-style-type: none"> • Each RPA LRTP has a safety component that may include regional goals and objectives as well as analysis of safety and other trends in the region. The Southeast Iowa RPA's LRTP includes the following safety goal and objectives, and more examples can be found in section 3.5 of this report: Improve regional transportation system to make it a safe place to travel for all users • Create a regional traffic safety study. • Educate regional partners on current best practices for transportation safety. • Work with regional partners and Iowa DOT to implement safety improvements in locations where improvements are most needed. • Identify and secure funding sources to implement needed safety improvements.
Establish System Performance Measures and Targets	<ul style="list-style-type: none"> • RPAs are waiting for MAP-21 performance requirements to be finalized through a rulemaking, so they can better direct resources toward data collection, performance tracking, and evaluation. Iowa DOT will provide guidance to RPAs based on final performance measurement rulemaking.
Evaluate and Prioritize Projects	<ul style="list-style-type: none"> • RPAs are responsible for coordinating programming efforts and development of the TIP. Included in the programming process are safety considerations and projects. Some planning agencies provide increased weighting to elevate safety as an important component.
Monitor and Evaluate Performance	<ul style="list-style-type: none"> • RPAs are waiting for MAP-21 performance requirements to be finalized through a rulemaking, so they can better direct resources toward data collection, performance tracking, and evaluation. Iowa DOT will provide guidance to RPAs based on final performance measurement rulemaking.

Some of the keys to a successful planning partnership in Iowa that can be applied in other states include:

- RPA staff have many different resources available to them at Iowa DOT:
 - Systems Planning office for all standard planning activities/elements (including safety), general inquiries;
 - Safety Planning staff for assistance with crash data access, analysis, and training;
 - Program Management office for TIP and programming support;
 - District Planners for project-level and day-to-day issues; and
 - Other offices as needed (location and environment, local systems, other district staff, etc.) for resources.
- RPA staff communicate on a regular basis with the DOT offices mentioned above, and also participate in quarterly meetings to dialogue with DOT staff and network with other planning agencies. Topics can include safety.
- RPAs and Iowa DOT participate in routine agency planning reviews. It is an opportunity for DOT staff to learn about local conditions, including safety, and how planning is conducted in each region. It is also good for DOT staff to physically visit with the RPA at planning reviews and other times. RPA staff appreciate knowing that staff from Iowa DOT is willing to meet for any number of reasons.
- Iowa DOT provides clear planning expectations and requirements, and avoids requirements for RPAs that are overly burdensome. In addition, the DOT listens to the RPAs' concerns and is willing to adapt to different issues, which has been important to keeping agencies engaged in the planning process.
- Funding, including planning funds for agency staff and HSIP, Surface Transportation Program (STP)/Transportation Alternative Program (TAP) funds for locals, provides RPAs and the local jurisdictions they represent a reason to buy into the regional planning and programming process. The RPAs and locals are able to have input on how funds are administered.
- Some of the more rural RPAs who have fewer resources and staff are offered in-state trainings on different subjects, including safety.
- In Iowa the DOT staff play a critical role in communicating on behalf of the RPAs, and ensure that FHWA/FTA are engaging the RPAs in a fair and effective manner. The RPAs are not federally required to have a role in planning, they are the major mechanism by which the state completes its cooperation and consultation with local officials in compliance with federal statewide planning requirements, and RPAs are expected to follow federal planning requirements as well.
- Iowa DOT provides a wide variety of crash resources on its web site, including profiles of cities, counties, key emphasis areas, and top safety

improvement candidate locations. The DOT also accepts requests for crash data if a user has a need not covered by these items, such as a detailed look at a particular intersection.

- The DOT provides the Crash Analysis Mapping Tool (CMAT), which is a free, user-friendly software program that provides access to crash data through a simple GIS interface. It includes over 10 years of crash data that can be queried by items, such as major cause, injury level, etc.; and it also provides information at the crash level. There is also a free training offered for the software, which has been hosted by several RPAs in the past.
- The DOT, in partnership with the Institute for Transportation (InTrans) at Iowa State University, has conducted crash analysis and safety improvement workshops with Multidisciplinary Safety Teams in the State. These can be tailored to focus on specific geographic areas or specific crash types.

3.0 Methods for Integrating Safety into the Transportation Planning Process

Every RPO has elements of a planning process in place to identify regional transportation priorities. This section of the Technical Report breaks down the core planning tasks and describes strategies to integrate safety into each. RPOs are encouraged to engage in all the planning tasks, from public involvement to monitoring and evaluation, to inform program and project selection. For RPOs that may not follow this exact planning process, strategies and examples are separated by planning task, and can be adopted into any RPO planning process.

3.1 PLANNING WORKSHEETS

At the end of each planning section is a worksheet, designed to assist RPOs and DOTs understand how current assets can be leveraged to better consider safety in regional planning processes, consider any challenges that may inhibit progress, and identify future opportunities to plan for a safer system. The worksheets can be used as a collaborative tool to initiate internal and external discussions on transportation safety planning opportunities.

The worksheets could also be used as an activity during public, stakeholder, and/or committee meetings. It is an opportunity to engage multiple disciplines to identify a list of potential strategies.

Once strategies have been identified for all or some of the planning tasks using the worksheets, the next step would be to select the top priority planning areas and address them through the development of specific action steps. Appendix C provides an Implementation Tool template to guide this process.

3.2 PUBLIC INVOLVEMENT/OUTREACH

A key function of the transportation planning process is soliciting input from stakeholders, local officials, and the public to inform decisions regarding regional priorities. Public involvement is not a Federal requirement for RPOs, but it may be required by state legislation or the state DOT. A 2011 NADO Research Foundation survey found 87 percent of the responding 184 agencies conducting small metropolitan or rural transportation planning activities implement public involvement activities.⁹ RPOs may conduct public involvement for LRTPs, corridor studies, arterial plans, or other modal documents. The agencies benefit from discussing safety during public involvement activities by collecting information and using it to inform the goals and objectives in planning documents.

RTPO Public Involvement Policy Manuals

Public involvement manuals may not specify how to obtain input on transportation safety, but they do provide useful techniques and approaches for working with the public. Opportunities to incorporate safety into the approaches outlined in these manuals are described further in this section.

Southwestern RPO (North Carolina) Public Involvement Policy: <http://www.regiona.org/wp-content/uploads/2013/11/SWRPO-Public-Involvement-Policy.pdf>.

Albemarle RPO (North Carolina) Public Involvement Policy: <http://www.albemarlecommission.org/Planning/planning/Public%20Involv.%20Pan.pdf>.

North Central Pennsylvania RPDC (Pennsylvania) Public Participation Plan: http://www.ncentral.com/trans/wp-content/uploads/2014/01/NC_PublicParticipationPlan.pdf.

A number of methods are used to conduct public involvement activities, especially since the Internet and social media has exponentially increased the number of strategies used by people to receive and send information. Safety objectives can be worked into outreach techniques or become an outreach focus. Strategies are outlined below.

Strategies for Incorporating Safety into Public Involvement

Listening and Feedback. Listening and providing opportunities for feedback are important elements of the public engagement process. Listening enables RPO planners to understand the needs of the public, local officials, and stakeholders so they can provide transportation improvements and implement policies that best address their needs. An RPO might decide to reach out to specific agencies that are nontraditional planning partners through multidisciplinary coordination efforts, described in Section 3.3 below. However, listening through general public outreach can also provide access to other knowledgeable voices, such as individual school bus drivers, law enforcement officers, parents of children who walk or bike in the community, crossing guards,

⁹ <http://www.nado.org/transportation-project-prioritization-and-performance-based-planning-efforts-in-rural-and-small-metropolitan-regions>.

volunteer fire department members, civic leaders, public employees, and others. These individuals likely have knowledge of the regional roadway network based on their daily travels, and recognize the safety concerns expressed. Listening and feedback techniques range from surveys and comment forms, to public meetings.

Surveys and Comment Cards

Formats for surveys and comment cards can take a number of forms, including mailed or on-line questionnaires, survey questions or comment cards at public meetings, on-line surveys, or telephone surveys, but the purpose is to help agencies collect qualitative information about key issues. Soliciting information by asking safety-specific questions provides RPOs with input as to whether safety problems exist and the extent to which they are perceived as an issue throughout the region. If safety emphasis or goal areas are identified, RPO planners can focus resources or partner with other agencies, such as the state DOT, to learn more about the regional transportation safety concerns, and incorporate strategies and projects into planning documents.

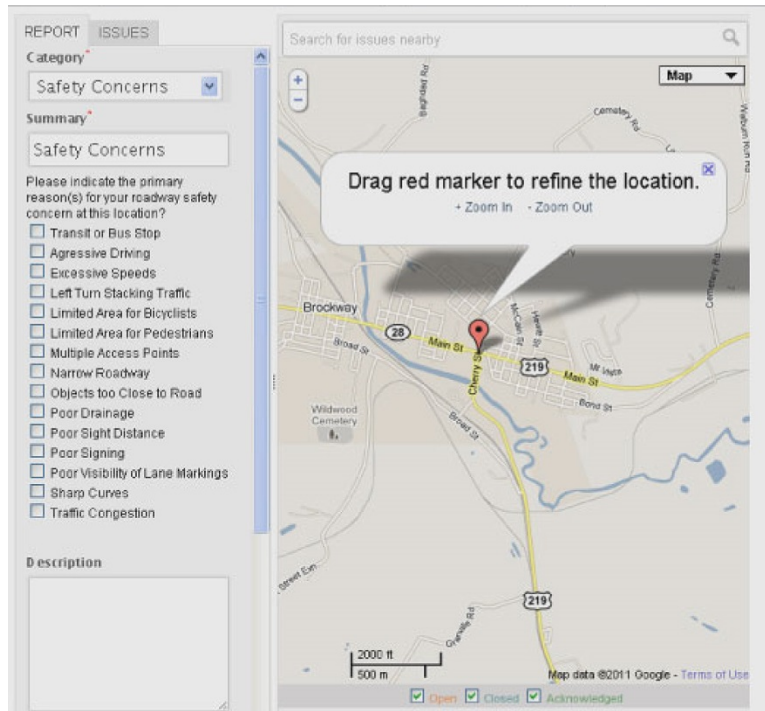
- Potential Safety Survey/
Comment Card Questions**
- Is transportation safety a concern for you and your family?
 - In what specific areas is transportation safety a concern (i.e., walking, biking, intersections, transit stops, rail crossings)?
 - What are your ideas for safety solutions?
 - What specific locations or roadways do you perceive as having a safety problem?

The North Central Pennsylvania Regional Planning and Development Commission (RPDC) utilized an on-line survey interface through SeeClickFix, a web-based mapping tool (Figure 3.1). Individuals were asked to pinpoint specific locations of safety concern, provide details about the location, and include a photo, if available. This information was used to inform the goals, strategy development, and project prioritization in the North Central Regional Safety Study.¹⁰

One of the main challenges expressed by planners is the lack of public interest in surveys or comment cards. An option is to provide incentives to complete the information. For the mapping survey, the North Central Pennsylvania RPDC offered participants a chance to win a \$25 gasoline gift card, and participation spiked. Another strategy is to provide opportunities for the public to participate in surveys or comment cards at community events such as festivals, or at places they frequent for other purposes such as shopping malls.

¹⁰http://www.ncentral.com/trans/wp-content/uploads/2014/01/NCentral_Final_Report_March2012.pdf.

Figure 3.1 SeeClickFix Web Mapping Tool



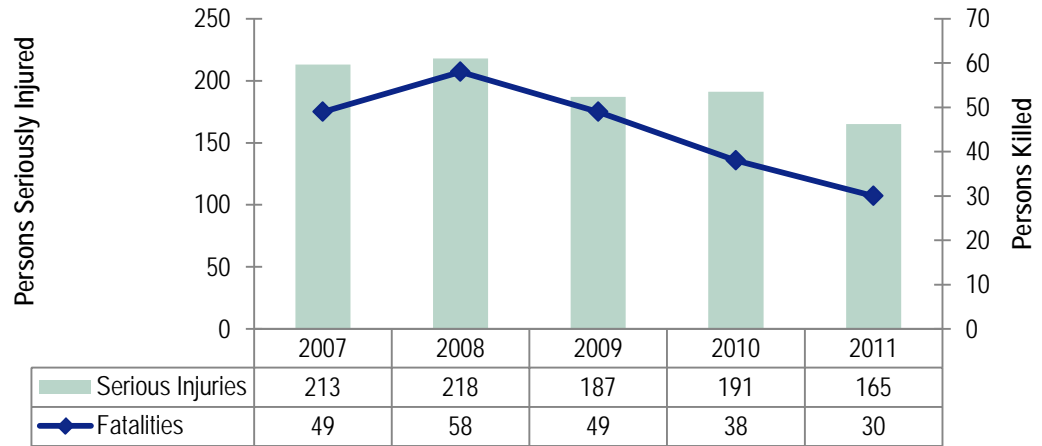
Source: http://www.ncentral.com/trans/wp-content/uploads/2014/01/NCentral_Final_Report_March2012.pdf.

Public Meetings

Open house meetings are usually conducted during plan development. Early meetings typically focus on developing the plan's goals and objectives, reviewing current conditions, projecting future conditions, and identifying transportation needs. Bringing safety into conversations during these meetings increases the likelihood that the public and stakeholders will see safety as a priority for the RPO region. Public meetings typically include presentation slides, presentation boards, maps, and/or handouts. Including information on crash data or discussions about general safety concerns helps attendees better understand and make informed decisions about transportation safety.

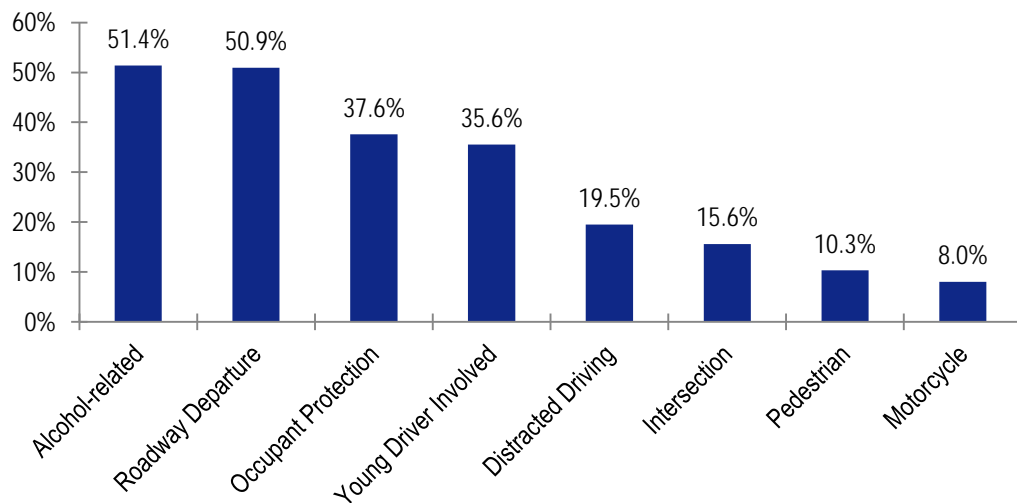
Figures 3.2 and 3.3 depict two graphics the South Central Planning Development Commission, which covers a small MPO and surrounding rural counties in Louisiana, used during an open house meeting for their safety plan. The graphics stimulated discussion among participants on the key issues.

Figure 3.2 Basic Crash Data Shown at South Central Planning Development Commission Transportation Planning Meeting
Annual Data for Fatalities and Serious Injuries



Source: http://www.scpdc.org/wp-content/uploads/SCRTSP-Updated-Feb-2013_withAug2013Status.pdf.

Figure 3.3 Basic Crash Data Shown at South Central Planning Development Commission Transportation Planning Meeting
Contributing Factors Data



Source: http://www.scpdc.org/wp-content/uploads/SCRTSP-Updated-Feb-2013_withAug2013Status.pdf.

Utilizing Outreach Materials. Web sites and newsletters are other methods for reaching and informing the public. An option for highlighting safety is to include regional or statewide transportation safety information and links on RPO web sites. Even if the region is not fully engaged in safety activities, providing a link to the state’s SHSP provides the public with an opportunity to learn about the major transportation safety issues throughout the state. Another option is to designate a safety section or safety article in RPO newsletters.

Transportation Safety Planning Web Site and Newsletter

The South Central Planning and Development Commission has a webpage and a newsletter dedicated to safety initiatives: http://www.scpdc.org/?page_id=81.

Table 3.1 Priority Planning Area Work Sheet
Public Involvement

Strengths	Responses
What are the advantages of considering safety during public involvement?	
What low-cost resources can you utilize to include safety in public involvement?	
Weaknesses	
What are the barriers to discussing transportation safety with the public?	
Opportunities	
What trends may work to enhance public involvement?	
Based on your identified strengths and weaknesses, what strategies would you identify to include safety in public involvement activities?	

3.3 MULTIDISCIPLINARY COORDINATION

Many RPOs convene committees, working groups, or host workshops to provide opportunities for diverse communities and stakeholder groups to discuss transportation issues for consideration during the planning process. According to a 2011 survey from NADO and insights from the TOWG, the most common RPO committees are the Policy Committee and the TAC. Other committees may include citizens advisory, transit, bicycle and pedestrian, and general transportation planning. Every committee offers the opportunity to discuss safety issues with existing members, as well as to invite the participation of nontraditional planning partners such as law enforcement, emergency medical services officials, and educational institutions who are central to understanding safety and affecting safety outcomes.

RPOs do not have Federal requirements for establishing committees (some states have statewide requirements mandating committees), or utilizing stakeholder input during plan development. However, many RPOs have institutionalized committees or, at a minimum, created opportunities to facilitate conversations about technical transportation issues and consult with local officials.

It is rare for an RPO to have a committee dedicated to safety issues, but some have focused efforts in this area. Even without a safety committee, opportunities exist to bring safety into the conversation during any type of committee meeting. The benefit of discussing safety with different stakeholders and groups is elevating infrastructure and behavioral safety concerns and solutions, which can be addressed in RPO transportation plans.

Strategies for Incorporating Safety into Multidisciplinary Conversations

Discuss Safety with Existing Committees

The multimodal, multidisciplinary nature of safety means it can be included on the meeting agenda for any RPO committee (e.g., policy, technical, citizens, or modal/topic).

Policy Committee

RPO policy committees are predominantly made up of locally elected officials and state DOT officials (other individuals, such as county/city manager, may participate). These committees make decisions about future transportation investments. Although policy committee meetings typically focus on RPO business and project decisions, there are benefits to including safety topics on the agenda. Providing local elected officials with background on multimodal safety issues helps them make informed decisions about safety priorities and potentially champion future efforts. To engage policy committee members, RPO staff could make high-level presentations on regional crash data, high-crash locations, and/or hot spots during a meeting. Engaging elected officials in a road safety audit¹¹ has the potential to gain their interest in safety issues related to multiple modes and types of road users.

Elected Official Training

Some RPOs have conducted trainings for their local elected officials. The Pueblo of Acoma, a member of the Northwest New Mexico RTPO, coordinated with the Tribal Technical Assistance Program (TTAP) to deliver a one-half-day session to its elected officials on the importance of establishing a safety program and how to achieve results.

Many RPOs conduct an orientation for their members each year, and the importance of engaging in RPO processes to enhance public safety could be included in the materials, along with more in-depth training such as that provided by the Pueblo of Acoma.

¹¹Road safety audits are examinations of roadways by multidisciplinary teams to identify potential safety concerns and opportunities to improve safety for all roadway users. For more resources, visit <http://safety.fhwa.dot.gov/rsa/>.

Technical Committee

RPO TAC typically consists of state DOT officials, local planners, transit officials, county engineers, city/county managers, public works representatives, bicycle and pedestrian and other transportation advocates. TAC participation could be expanded to include safety stakeholders such as law enforcement, schools, or emergency medical services, as well as other safety stakeholders with information about and an interest in transportation safety. TAC Committee roles may include reviewing RPO documents, studies, reports, plans, and programs; and providing recommendations on technical transportation matters to the policy members. The benefits of discussing crash data or other safety topics during these meetings is it

exposes committee members to safety concerns. This increases the likelihood that safety goals and objectives will be identified or incorporated in planning documents, leading to the development of programs and projects. Including key safety updates in regular meeting agenda can be beneficial.

Transportation Safety Agenda Ideas for Committee Meetings

- Presentation on the SHSP (overview, progress, implementation, opportunities to participate);
- Discuss opportunities to program and fund transportation safety projects;
- Identify opportunities to consider safety in nonsafety projects such as streetscaping (which may be eligible for non-transportation grant funds such as Community Development Block Grant projects);
- Presentation/review regional crash data;
- Annual review of regional high-crash locations;
- Overview of road safety audits and solicit committee interest; and
- Opportunities for a regional safety workshop.

Modal/Special Interest Committees

Stakeholders on modal and special interest committees, such as freight, economic development, bicycle and pedestrian, and environment, can also benefit from regular conversations regarding transportation safety. The purpose is to evaluate safety issues and needs from a modal or issue-area perspective and share that information for consideration during plan development. For instance, members of a bicycle and pedestrian committee would likely have insights into factors contributing to crashes, crash locations, and roadway treatments to reduce bicycle fatalities and serious injuries. Discussing and sharing this information could enhance the emphasis of bicycle safety in planning documents. Economic development also is keenly linked to safety as crashes not only cost \$277 billion annually¹², but individuals often choose to live in locations that they perceive to be safe, which usually includes amenities such as sidewalks, slower speeds, bike paths, or open space.

¹²[http://www.nhtsa.gov/About+NHTSA/Press+Releases/2014/NHTSA-study-shows-vehicle-crashes-have-\\$871-billion-impact-on-U.S.-economy,-society](http://www.nhtsa.gov/About+NHTSA/Press+Releases/2014/NHTSA-study-shows-vehicle-crashes-have-$871-billion-impact-on-U.S.-economy,-society).

Citizens Committees

This committee is made up of citizens, and they discuss an array of topics important to the people that live in the region. Any safety issues or concerns identified through surveys or during public meetings should be discussed with this committee, along with possible solutions that can be implemented considering the public's input. If safety is not a topic that regularly comes up in these meetings, a member of the technical committee or perhaps RPO staff could make a presentation to the committee on regional crash data, effective safety campaigns, or the SHSP to stimulate conversation on safety issues.

If RPOs have an interest in regularly discussing transportation safety topics with stakeholders and committee members, one opportunity is to identify and engage the participation of safety professionals. For example, a high-ranking law enforcement official could make a presentation to the policy committee; whereas, traffic enforcement officials, district safety engineers, emergency responders, neighboring MPO safety planners, or planners with a general interest in safety issues could be helpful additions to other RPO committees.

Establish a Safety Committee. RPOs do not typically have institutional barriers to establishing committees and may be able to create a committee focused on transportation safety issues. Since safety is multidisciplinary in nature, committee members could include representatives from law enforcement, emergency response, education, engineering, and different modes, such as transit, bicycle, and pedestrian. Including individuals that may not address safety issues on a regular basis, but have an interest in it, can stimulate conversation and bring unique perspectives to the topic. Prior to establishing a safety committee, consider what the role of the committee will be, how often it will meet, initial topics to discuss, and how it will be staffed. The benefits to establishing a safety committee is that members can review available safety data; develop transportation safety goals, key objectives, and performance measures; prioritize programs and projects eligible for funding; identify opportunities to include safety in the context of all transportation projects; act as champions for transportation safety; and provide updates on transportation safety activities. In Iowa, multidisciplinary safety teams have or will be established at each of the RPOs.

Iowa Multidisciplinary Safety Teams

Every Iowa RTPO has been encouraged to have a regional multidisciplinary safety team (MDST). At initial meetings, key transportation and safety players in the region are identified for the committee. They typically include planners, engineers, law enforcement, emergency response, incident response, Iowa DOT central and district staff, and Iowa State University (ISU) Institute for Transportation staff.

Meetings consist of many different activities (e.g., facilitated safety discussions, safety audits, crash analysis workshops, and construction zone management). All applicable activities are incorporated into RTPO/MPO planning and programming. Additional information on MDSTs can be found in Appendix A.

Host or Attend a Safety Workshop/Summit. Outside of the regularly scheduled committee meetings, which are typically used to discuss business items, opportunities exist to engage stakeholders in conversations about transportation safety issues. One- to two-day workshops or summits have been hosted by RPOs, state DOTs, or in partnership to discuss crash data, safety goals and objectives, and strategies to reduce fatalities and serious injuries. Some of the workshops focus more on education, providing participants with an overview of safety planning activities in the state. For example, the Michigan DOT hosts a Traffic Safety Summit each year,¹³ inviting all the regional COGs to learn about

the safety programs and projects in the State. The benefits for RPO planners to attend include making connections with safety stakeholders, and gaining a better understanding of statewide safety issues. Other workshops are used more as “working sessions,” educating stakeholders on transportation safety issues, but also asking them to provide input into future safety projects and priorities. The Vermont Highway Safety Alliance, in partnership with the Vermont Agency of Transportation (VTrans), is working with all of the regional planning commissions in the State to address rural safety issues through stakeholder forums. In Arizona, the State’s COGs and small MPOs work together to host an annual rural transportation summit, convening elected and appointed officials,

Safety Forums in Vermont

The Vermont Highway Safety Alliance partnered with the regional planning commissions in Vermont to host Regional Highway Safety Forums.

The purpose of the safety forums was to establish relationships between regional safety stakeholders; begin to discuss the sharing of resources; and identify highway safety issues specific to each region.

Key participants at each forum included local and regional law enforcement, emergency management services, fire departments, select boards, planners, engineers, driver’s education professionals, and all highway safety stakeholders in the region.

Materials from the Two Rivers-Ottawaquechee Regional Planning Commission Forum can be found in Appendix A.

transportation planners, engineers, service providers, and others to discuss relevant transportation issues, how they affect rural Arizona, and possible solutions for the complex transportation needs.

¹³http://www.michigan.gov/documents/msp/Summit_program_2014_10_web_450415_7.pdf.

Table 3.2 Priority Planning Area Work Sheet
Multidisciplinary Committees

Strengths	Responses
What multidisciplinary committees/working groups does your RPO convene on a regular basis?	
How can you utilize existing committees to raise awareness of safety issues?	
Weaknesses	
What stakeholders are not involved in your multidisciplinary committees that could discuss safety?	
Opportunities	
What trends may assist with integrating safety in RPOs committees?	
Based on your identified strengths and weaknesses, what strategies would you identify to include safety topics or stakeholders in multidisciplinary committees?	

3.4 DATA AND ANALYSIS

Analyzing data provides the foundation to help RPO planners identify safety issues and needs; develop goals, objectives, and performance measures; and identify opportunities to address issues through specific countermeasures or by incorporating safety into transportation projects.

Strategies for Identifying, Accessing, and Utilizing Safety Data

Identify Available Data. RPO planners can utilize crash data, traffic volumes, roadway characteristic data, bicycle and pedestrian use data, transit use and route data (where fixed route services exist), public input, and data from other planning documents to make decisions about safety goals, objectives/strategies, and programs/projects. Qualitative data can be collected through surveys, workshops, open houses, or other public involvement techniques. For RPOs with limited staff, time, or access to data, this can be a good starting point for

Types of Safety Data Information Required

- Crash frequencies (number of fatalities and serious injuries) by goal/emphasis area;
- Crash rates by goal/emphasis area or traffic volume data to calculate crash rates;
- Contributing factors data;
- Crash types;
- Crash severity;
- High-crash locations;
- Roadway characteristic data (segments and/or intersections);
- Geolocated crash data; and
- Traffic data (volume).

understanding regional safety issues. To obtain quantitative data sets (crash, traffic volumes, and roadway characteristics), the best place to start is with the state DOT, contacting either the RPO planning liaison or someone in the state safety office to identify the available data. When inquiring, it is important to clarify whether raw data or DOT-generated reports would be more useful to the planning process, which will depend on staff time and analysis capabilities. Other agencies to contact regarding data availability or assistance are local law enforcement agencies; Local Technical Assistance Program (LTAP); Tribal Technical Assistance Program (TTAP) and local safety agencies/organizations (e.g., National Safety Council chapter or Mothers Against Drunk Driving), who usually maintain data sets in specific safety areas. The Fatality Analysis Reporting System (FARS) is the source for roadway fatality data managed by NHTSA. Crash data can be found by reviewing other planning documents, especially the SHSP, which addresses common crash types.

Where to Find Data

The Fatality Analysis Reporting System (FARS). FARS is an on-line database that allows users to search for fatality crash statistics by state: <http://www.nhtsa.gov/FARS>.

State DOT. Often the state DOT manages the crash database or has full access to it, even if it is maintained by another agency. RTPOs can coordinate with the district or statewide traffic and/or safety engineer to obtain data.

Strategic Highway Safety Plan and Highway Safety Plans. Most of the data identified in these plans comes from FARS or the state DOT database, but it is already organized in these documents in an easy-to-read format and usually shows trend data as far back as 2002, albeit at the statewide level.

Local Law Enforcement. Local agencies crash records are often useful for understanding local road safety issues.

Each state's **Traffic Records Coordinating Committee (TRCC)** is another source of safety data. A roster of contact information for TRCC chairs is located at: <http://www.dot.gov/government/traffic-records/state-trcc-personnel>.

Access to Available Crash Data. Once data sources have been identified, the next step is to retrieve the information. Some state DOTs provide access to crash data through an on-line interface, which requires minimal effort to retrieve, although effectively using the data may require training or assistance from the DOT or a third party. For example, the Ohio DOT provides access to crash data on all public roads through the GIS Crash Analysis Tool (GCAT),¹⁴ and they also offer detailed training to planners in the State, including the RPOs. The Iowa DOT uses a similar approach with their Crash Mapping and Analysis Tool (CMAT), providing an accessible interface and training to the RPAs.¹⁵ Other states may not provide this level of access to the data, but can provide raw data

¹⁴<http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/HSIP/Pages/GCAT.aspx>.

¹⁵<http://www.iowadot.gov/crashanalysis/cmatmain.htm>.

or user-friendly reports, such as high-crash location reports, to RPOs. To obtain access to crash data or reports, RPOs should contact the DOT planning liaison or the state safety engineer. Some state crash databases do not have robust data for local roadways. In these instances, RPO planners can approach their local law enforcement to learn more about data availability and accessibility.

Identifying and Utilizing Analysis Tools. A number of approaches are available to analyze or review crash data sets.

High-Crash Locations

A common approach is for DOTs or RPOs (if they have analysis capabilities) to develop high-crash location reports for corridors and/or intersections. Information regarding high-crash locations can be incorporated into short- and long-range transportation planning.

High-crash reports stress immediate safety needs, aiding in the prioritization of safety countermeasures in the near term. This information can also be used to conduct road safety audits to glean additional information about the causes of the crashes and recommend solutions. Identified solutions in one location may be applied immediately, but the audits could also capture information about certain roadway characteristics and crash concerns to make recommendations at other locations with similar characteristics. Another opportunity is to look at high-crash segments and intersections when prioritizing future transportation projects, such as maintenance, preservation, bike, and pedestrian. These projects could be given additional weight or a higher score. The intent would be, in addition to meeting future mobility or maintenance goals, the project also would reduce crashes.

GIS Mapping and Crash Clusters

GIS mapping also is a useful tool for RPOs. According to a 2011 survey conducted by NADO, nearly one-half of the RPO respondents have GIS mapping capabilities. Spatial analysis is a useful tool to identify where fatalities and serious injuries occur, crash clusters, crash magnitude, and/or the types of

Prepared Crash Data Summaries

The Vermont Agency of Transportation provided and analyzed crash data, for both statewide and regional concerns, to assist the RPCs in communicating safety issues to stakeholders during Regional Highway Safety Forums.

Each year, the California DOT (Caltrans) prepares an Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions from the Statewide Integrated Traffic Records System (SWITRS), providing summaries by jurisdiction, type of crash, contributing factors, and other characteristics to all the RTPOs.

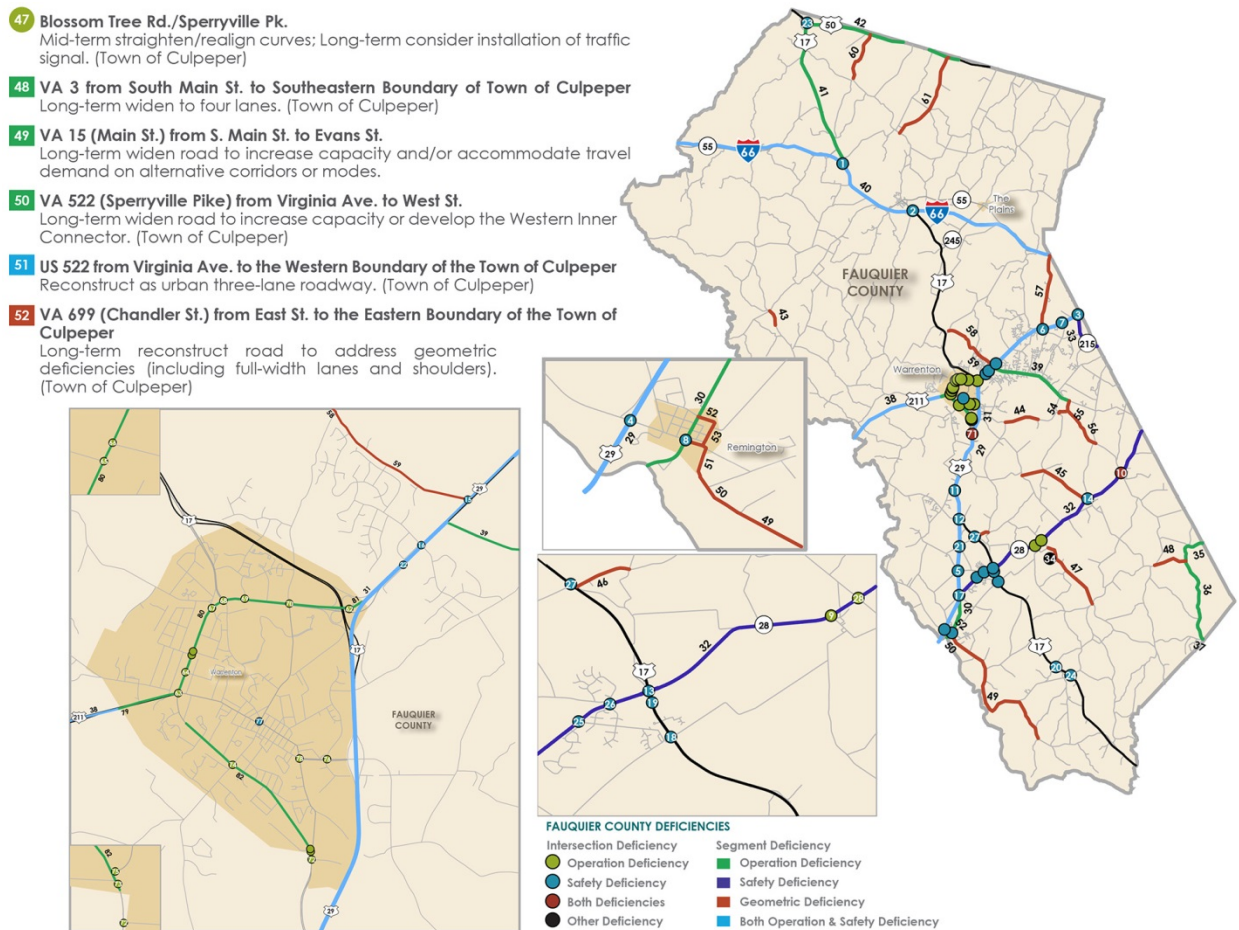
High-Crash Analysis in Maine and Vermont

The Androscoggin Valley Council of Governments (AVCOG) identifies high-crash locations during municipal comprehensive planning processes. AVCOG staff monitor the locations and request Maine DOT to conduct safety studies or road safety audits, when applicable.

The Vermont RPCs evaluate five-year crash data provided by VTrans. Each region then identifies top three crash locations (less than one mile in length) and corridors (greater than one mile in length). VTrans then coordinates with the RPCs on municipal outreach at these locations, including RSAs.

crashes. For instance, the Iowa Northland Regional COG used maps to show individual fatalities and serious injuries for each county, as well as crash density along roadways and at intersections for each county. The Piedmont-Triad Regional Council in North Carolina, as part of a speed management study, used GIS to rank schools by severe and speed-related crashes, and to rank road sections with crashes on/near curves. All the rural planning district commissions in Virginia used crash maps to conduct safety assessments, which later identified deficiencies, such as sight distance and visibility, access management, and inadequate signage. This informed safety recommendations for intersections and segments throughout the region (see Figure 3.4). Some states, such as Ohio, Iowa, and Pennsylvania, also have mapping functionality built into their crash analysis databases, which RPOs can connect to directly or request specific analysis from the state DOT or owner of the State’s database.

Figure 3.4 Rappahannock-Rapidan Regional Commission (Virginia) Spatial Analysis



Source: Rappahannock-Rapidan Regional Commission Rural Long-Range Plan
<http://www.rrregion.org/pdf/publications/transportation/RRRC%20RLRP%20Adopted%2020110622.pdf>.

Crash Frequency

Crash frequency is generally the simplest way of conducting analysis. It is defined as the number of crashes that have occurred across the regional network by member jurisdiction, or more specifically, at a given roadway section or intersection. If GIS capabilities exist, then these data can be transferred to a map to show crash clusters. Frequency information can also be used to demonstrate the propensity for certain types of crashes, such as impaired driving, roadway departures, distracted driving, intersections, occupant protection, speeding, or other safety areas of concern in the region. The outputs of this analysis will provide RPOs with an idea as to which goal/emphasis areas to focus on in the transportation planning process.

Data Analysis for a Speed Management Study

The Piedmont Triad Regional Council conducted a pilot speed management study for one of its member jurisdictions. The study included a three-pronged analysis approach.

County Level Analysis – Frequency tables using crash data variables were used to identify countywide trends and general crash factors associated with speeding-related crashes.

Network Screening – Identified routes where severe and/or speeding-related crashes are over represented compared with other similar routes.

Spatial Analysis – GIS was used to rank schools by severe and speeding-related crashes, and to rank road sections with crashes on/near curves.

Trend Analysis

Trend analysis is a useful tool to monitor increases and decreases in fatalities and serious injuries over a certain number of years to understand whether any changes are occurring for different safety issue areas or crash types. For example, if the data from 2007 to 2013 shows pedestrian injuries have consistently risen, RPO planners may explore the development of this as a goal area with objectives and strategies to address the issues.

Crash Rates

Crash rates need exposure data to calculate. Examples include traffic volume data (either Average Annual Daily Traffic (AADT) or Vehicle Miles Traveled (VMT) numbers). However, crash data, combined with traffic volumes can be used to depict the number of crashes in a given period as compared to the traffic volume. Rates can provide better insight into problematic locations, segments, or intersections. For example, some intersections may experience minimal crashes, but when you compare it to traffic volume, the crash rate may be higher than other intersections with higher volumes and crashes.

Additional Crash Data and Analysis Resources

Reports have been written specifically to assist local and rural planners understand and analyze crash data. One very useful document is *Road Safety Information Analysis – A Manual for Local Rural Road Owners*:

http://safety.fhwa.dot.gov/local_rural/training/fhwasaxx1210/.

Additional information on this report and others can be found in Appendix B.

Systemic Analysis

Crashes in rural areas tend to be spread out making it difficult to identify locations to address. The systemic approach is beneficial because safety improvements are identified based on high-risk roadway features, not high-crash locations. Systemic analysis is a risk-based approach and works by identifying common roadway characteristics associated with crashes across the road network. Once these roadway characteristics are known, locations through the network with these characteristics can be identified and countermeasures identified to address them. DOTs, more so than RPOs, have begun using systemic analysis to identify risk factors and program low-cost countermeasures. However, for RPO planners, understanding some of the systemic issues and proven countermeasures can aid in prioritizing transportation projects, where systemic treatments could be considered.

Planning for Systemic Projects in Vermont

Since 2008, 6,000 crashes in Vermont have been related to vehicles crossing the highway centerline. As a result, VTrans now considers the applicability of centerline rumble strips on every state road. During the planning process VTrans, the MPO, and the RPOs are encouraged to analyze corridors for high crossover crashes, higher speeds, and higher traffic volumes to make recommendations for the installation of rumble strips in conjunction with other projects, such as resurfacing, or as a standalone projects.

Table 3.3 Priority Planning Area Work Sheet
Data and Analysis

Strengths	Responses
What data and analysis tools are available?	
What corridor studies or other project analysis can be used for their data sources or analysis?	
Weaknesses	
What are the challenges related to data access and availability?	
What data analysis limitations exist?	
Opportunities	
What trends may work in your favor?	
Based on your identified strengths and weaknesses, what strategies would you identify to include crash and/or safety data in the transportation planning processes?	

3.5 GOALS AND OBJECTIVES

One of the key criteria for any transportation planning document is the identification of regional needs, opportunities, challenges, and priorities. These discussions inform the development of regional goals and objectives, which are then used to guide program and project decisions. For RPO staff to consult with local officials and DOT partners on safety projects or transportation projects inclusive of safety considerations, transportation safety goals first need to be identified.

Using a combination of public involvement, multidisciplinary input, crash and other data, and input from other planning documents, the goals and objectives in transportation plans can be identified or refined early in a planning process.

Goals and Objectives

Transportation safety goals demonstrate what an agency is dedicated to achieving, whether it be an overarching goal (reduce fatality and injury crashes), or more specific goals (reduce intersection-related fatalities and serious injuries).

Transportation safety objectives describe how the goal(s) will be achieved and the expected goal outcome. They should be specific, attainable, and measurable using quantitative or qualitative measures.

Strategies for Incorporating Safety into Goals and Objectives

Use Community and Stakeholder Input. Using opportunities to solicit input from the public and stakeholders, specifically on transportation safety issues, will provide a starting point to understanding whether or not safety is a priority in the RPO region (does the region have a high number of fatalities and serious injuries?); and for which areas (are the crashes occurring predominately at intersections or because of speeding?).

The Iowa Northland Regional Council of Governments currently is updating its rural LRTP and used a public-input survey and a safety focus group to better understand the regional safety issues; some of which were developed as objectives (or strategies) to meet the safety goals in the plan.¹⁶ For example, as part of the survey, the COG learned that safety improvements were very important to almost one-half of the respondents (second behind ongoing maintenance and preservation), completing missing sidewalk segments was a priority for 48 percent of respondents, and improving crosswalk safety was important to 46 percent of respondents. Figure 3.5 represents the responses from one of the questions on bicycle and pedestrian features and points to the status of safety. As part of the focus group, which included local planners, engineers, and law enforcement, discussions focused on what they considered the most important issues when it came to multimodal safety, driver issues, and funding opportunities. Using outputs of these activities can be a key resource to developing safety goals and objectives.

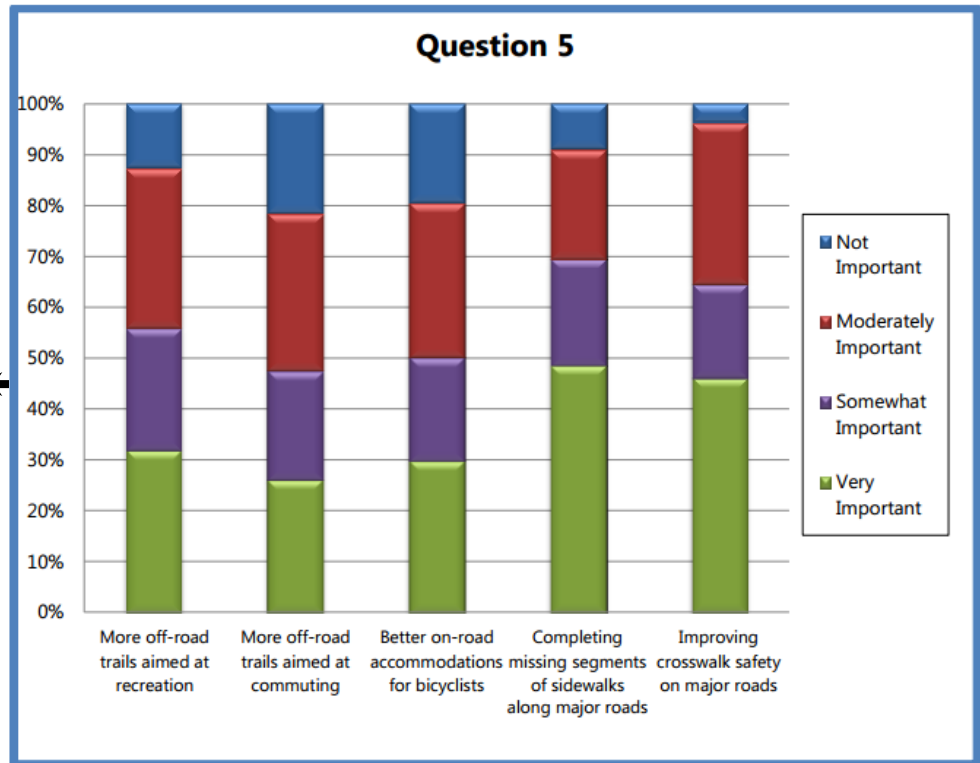
¹⁶ Iowa Northland Regional Transportation Authority 2012 Public Input Survey, <http://www.inrcog.org/pdf/RTA-Survey.pdf>.

Figure 3.5 Survey Output from the Iowa Northland Regional COG



With regard to bicycle and pedestrian features, how important are the following to you?

	Not Important	Somewhat Important	Moderately Important	Very Important
More off-road trails aimed at recreation	12.6%	24.6%	31.4%	31.9%
More off-road trails aimed at commuting	21.5%	22.0%	30.9%	26.2%
Better on-road accommodations for bicyclists	19.4%	20.4%	30.4%	29.8%
Completing missing segments of sidewalks along major roads	8.9%	21.1%	21.6%	48.4%
Improving crosswalk safety on major roads	3.7%	18.5%	31.7%	46.0%



Asking safety-related questions of the public and stakeholders is important, but visually depicting the results can further demonstrate to the public, stakeholders, and elected officials that safety is a priority and should be included in the planning process.

Source: Iowa Northland Regional COG, Black Hawk County Metropolitan Area 2013 Public Input Survey Report, <http://www.inrcog.org/pdf/2013-MPO-Survey-Report.pdf>.

Using Transportation Data. To effectively focus resources, it is essential to identify crash types contributing to the regional safety problem. RPO staff, typically in coordination with DOT staff, can obtain crash data and either analyze the information in-house or have the DOT conduct the analyses. Regardless of approach, all or some combination of the following data can be used to understand the key transportation safety issues: overall number of crashes in a rural region (crash frequency), crash frequency by jurisdiction, crash

rates, crash densities along roadways and intersections, and contributing crash factors. Reviewing these data can help a rural region understand if safety is indeed a concern for the region or jurisdiction, the primary issue areas (e.g., roadways, pedestrians, intersections, young drivers, or roadway departures), where these issues are occurring (at what segments or intersections), and crash characteristics (e.g., rear-end, head-on, impaired driving). All or some combination of the data can inform transportation safety goals and objectives/strategies to lower fatalities and serious injuries. Figures 3.6 to 3.10 depict ways the information can be shown to public, stakeholders, and local elected officials and examples of goals and objectives, based on the data.

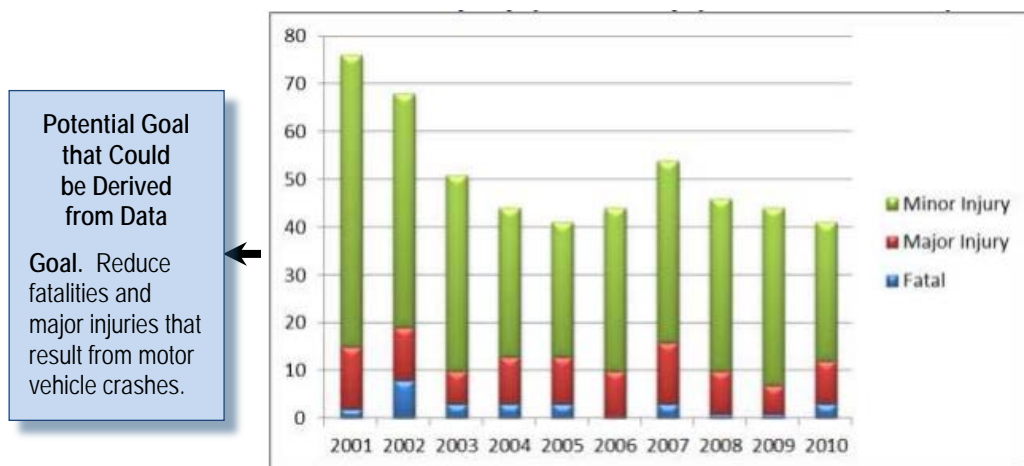
Figure 3.6 Iowa Northland Regional COG Crash Frequency Data by Jurisdiction
Number of Fatal Crashes per County, 2001-2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Black Hawk	10	12	16	16	13	9	9	12	5	10	112
In Metro Area	6	10	10	12	11	4	9	8	5	9	84
Outside of Metro Area	4	2	6	4	2	5	0	4	0	1	28
Bremer	2	8	3	3	3	0	3	1	1	3	27
Buchanan	1	5	6	4	3	2	3	5	2	1	32
Butler	3	1	2	5	3	4	2	4	1	0	25
Chickasaw	1	3	1	2	2	3	1	0	2	1	16
Grundy	1	2	3	3	2	4	5	1	1	2	24
RTA Total*	12	21	21	21	15	18	14	15	7	8	152

Source: Iowa Northland Regional COG Rural Long-range Transportation Plan, <http://www.inrcog.org/pdf/RTA-LRTP-Draft-Ch7.pdf>.

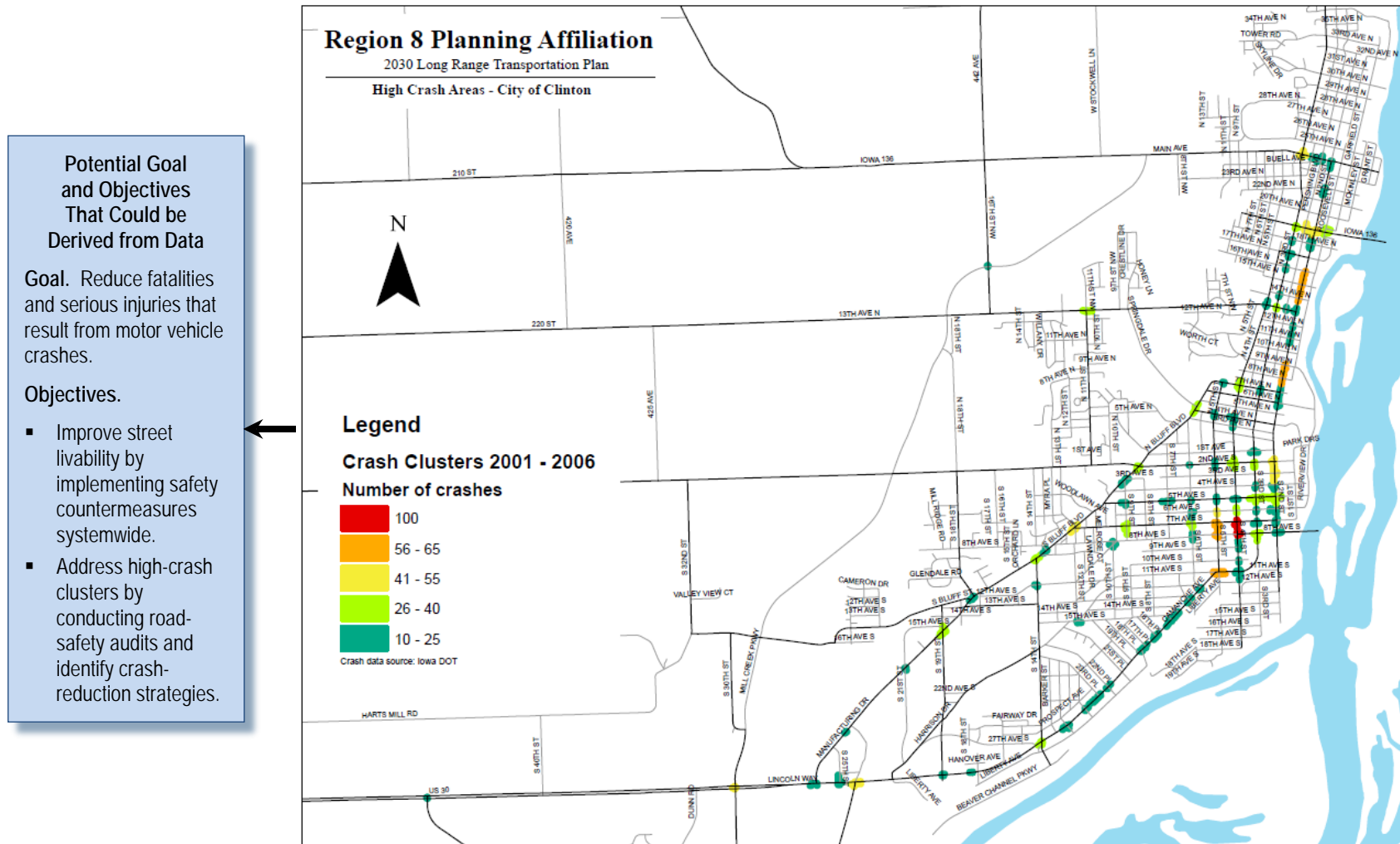
*For Black Hawk County, regional total excludes crashes within jurisdictions of the metropolitan area.

Figure 3.7 Iowa Northland Regional COG Crash Frequency Data by Jurisdiction
Number of Fatal, Major Injury, and Minor Injury Crashes in Bremer County, 2001-2010



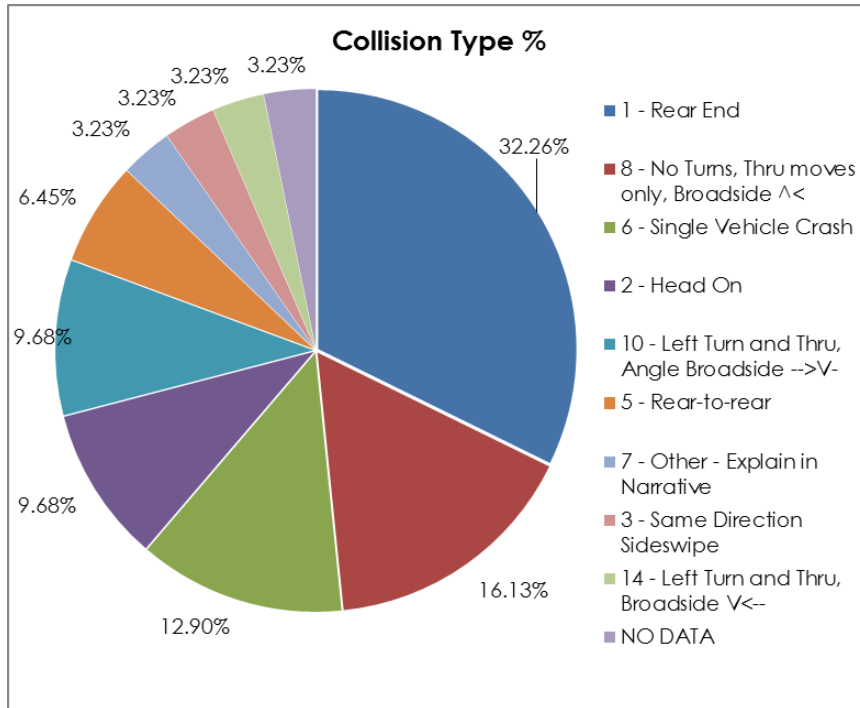
Source: Iowa Northland Regional COG Rural Long-range Transportation Plan, <http://www.inrcog.org/pdf/RTA-LRTP-Draft-Ch7.pdf>.

Figure 3.8 East Central Intergovernmental Association Crash Density Data



Source: East Central Intergovernmental Association (Iowa), Transportation 2031 Long-Range Transportation Plan, http://www.ecia.org/municipalities/transplanning/dmats/transport_lrtp.html

Figure 3.9 Two Rivers-Ottauquechee Regional Planning Commission Contributing Factors Data



Potential Goal and Objectives That Could be Derived from Data

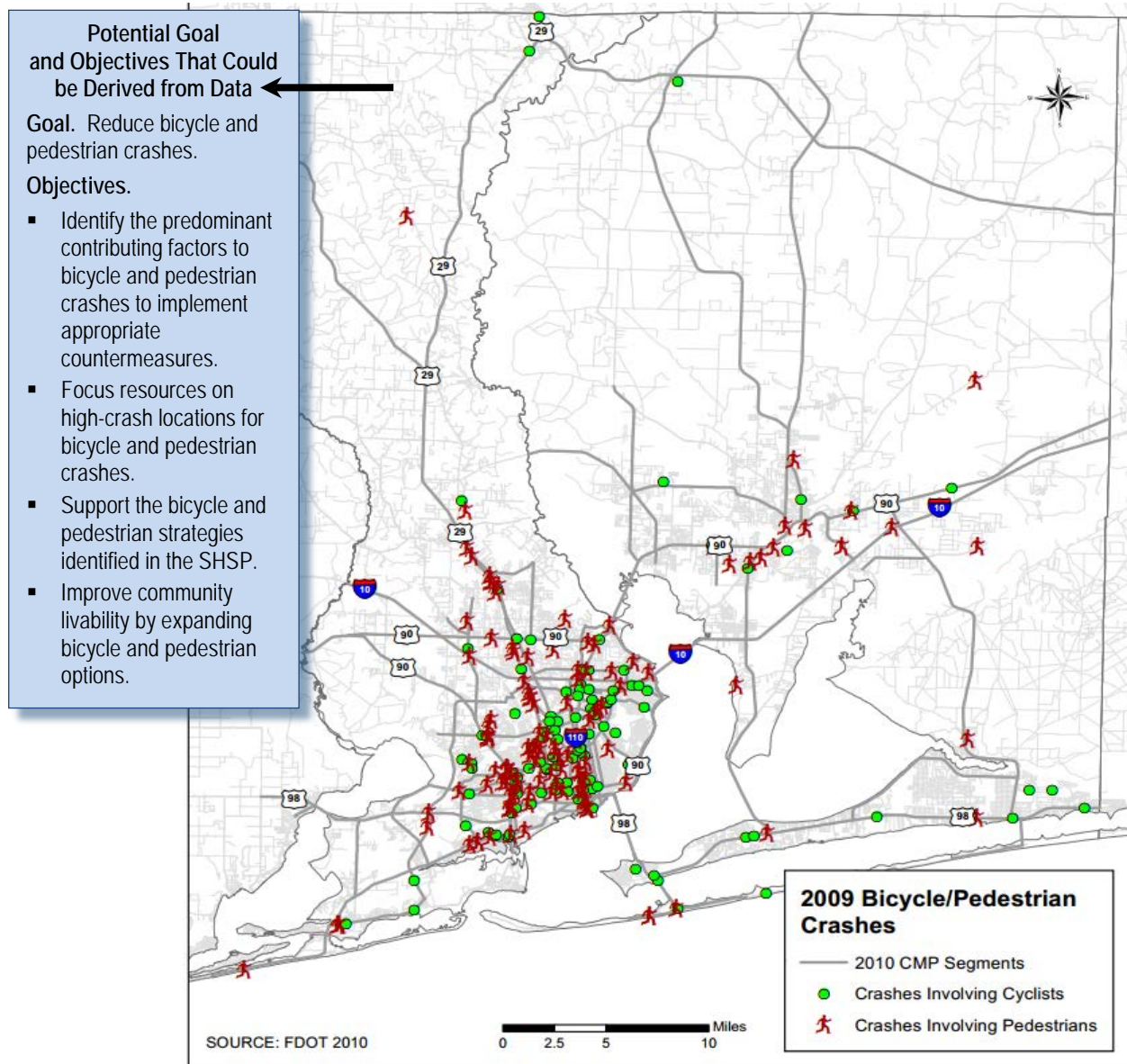
Goal. Reduce fatalities and serious injuries that result from motor vehicle crashes.

Objectives.

- Implement findings from road-safety audits at the top intersections or road segments with high numbers of rear-end crashes.
- Implement rear-end crash reduction strategies as identified by the DOT.

Source: Two Rivers-Ottauquechee Regional Commission.
Data developed for the September 11, 2012 Regional Highway Safety Forum.

Figure 3.10 Florida-Alabama TPO Bicycle and Pedestrian Emphasis Area Data



Source: Florida-Alabama TPO Bicycle and Pedestrian Master Plan, March 2012, <http://www.wfrpc.org/fatpo/Florida-Alabama%20TPO%20Bike%20Ped%20Plan%20Final%20March%202012.pdf>

Review Other Planning Documents. The safety goals and objectives in other planning documents also can be utilized in RPO transportation planning documents, where applicable and relevant. Reviewing transportation plans also will ensure consistency in goal areas across the region. Key documents to review and express support for in a RPO LRTP would, at a minimum, include the state's SHSP, the statewide and metropolitan LRTPs, and local comprehensive plans. Other plans may include useful goal information, such as the statewide or regional bicycle/pedestrian plans, coordinated public transit-human services transportation plans, economic development plans (CEDs), and freight plans.

Linking to the SHSP

The East Central Intergovernmental Association (ECIA) in Iowa developed a rural LRTP. After a review of the regional crash data, they recognized a number of elements in the Iowa Comprehensive Highway Safety Plan (ICHSP) were also applicable to rural issues within their region. ECIA adopted five safety policy strategies and eight safety program strategies from the ICHSP for inclusion in the LRTP.

Use the Information to Build Safety Goals and Objectives. Safety goals and objectives are developed through a combination of community input, safety data, and information in other plans. Below are examples of the goals and objectives for three regional planning agencies.

North Central Pennsylvania RPDC LRTP Goals

Goal 2. Increase transportation system safety.

Objectives

1. Reduce the rates of transportation-related fatalities and injuries.
2. Expand the use of compatible land use practices in regard to transportation.
3. Implement safety initiatives for all transportation modes.

East Central Intergovernmental Association Rural LRTP Goals

Goal 1. Develop a safe, secure multimodal transportation system that provides for the efficient movement of people and goods.

Objectives

1. Preserve and maintain the existing transportation system to maximize the performance of transportation infrastructure.
2. Identify future transportation improvements that are fiscally constrained and support the creation of a comprehensive, multimodal transportation system.
3. Identify appropriate mitigation techniques to minimize the number and severity of accidents within RPA 8.
4. Select and program transportation projects that are consistent with community values and goals.

<p>Benton-Franklin Council of Governments (MPO and RPO with a combined plan)</p> <p>Goal. Provide a transportation system that maintains and improves safety and security in all aspects of the transportation network, including both users and nonusers of the system.</p> <p>Objectives</p> <ol style="list-style-type: none"> 1. Support and promote regionwide participation in the state’s efforts to identify traffic safety needs and guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries on all public roads (SHSP: Target Zero). 2. Support and promote programs that ensure both structurally and operationally safe and secure pedestrian, bicycle, automobile, truck, rail, waterway, and air travel movement. 3. Encourage development of transportation safety goals (e.g., road safety targets and policies) to provide direction to the safety component of a plan. 4. Encourage interagency cooperation between governmental and private enterprises to increase overall safety and security awareness. 5. Promote high levels of safety standards for all modes of transportation so that users feel safe and secure as they travel. 6. Implement traffic calming measures to reduce automobile speeds in pedestrian areas, such as residential neighborhoods and school zones. 7. Encourage cities and counties to seek competitive funding solutions through Washington State DOT’s Safe Routes to Schools Program.
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Table 3.4 Priority Planning Work Sheet
Safety Goals and Objectives

Strengths	Responses
What elements of safety are included in your plan’s goals and objectives?	
What transportation safety data are available to develop safety goals and objectives?	
What other planning documents or resources can be used to inform your safety goals and objectives?	
Weaknesses	
What transportation safety data are needed to develop safety goals and objectives?	
What data analysis limitations exist?	
What other factors limit the development of safety goals and objectives?	
Opportunities	
What trends are evident that will assist in the process of developing goals and objectives?	
Based on your identified strengths and weaknesses, what strategies would you identify to develop or enhance transportation safety goals and objectives?	

3.6 SAFETY PERFORMANCE MEASURES AND TARGETS

Recent changes to Title 23, U.S.C. places emphasis on performance measures, as well as performance-based planning. The law identifies seven national goal areas to determine performance measures, including safety.

Title 23, U.S.C. requires the Secretary of Transportation to establish measures for states to use to assess the number and rate of fatalities and serious injuries on all public roads. These measures will be tracked by state DOTs and utilized as they report on performance goals, known as targets, for each of these measures. There is no requirement for rural regions to do this on their own, but it may be useful for RPOs and local governments to engage in the state's target-setting discussion for safety. State DOTs also may choose to set targets that are separate for rural and urban parts of the state, in addition to setting a statewide target. As required by Title 23, U.S.C., safety is measured on all public roads, so RPOs can play a role in helping a state achieve its targets by incorporating safety into their planning and other work.

According to the 2011 NADO study, 71 percent of RPOs develop a TIP or identify potential projects for the STIP, requiring a process of project identification and prioritization. As more RPOs move into project prioritization and selection, it would be useful to identify performance measures and potential targets, to better understand rural safety system performance, as well as project-level performance (which will be further discussed in Section 3.6 on project prioritization).

Performance measures and targets are used in the planning process in many rural regions, such as in developing criteria for determining which projects are high priorities. However, those internal processes are not always visible in published transportation planning documents, such as long-range plans. It is common to include vision, goals, and objectives in long-range plans, but measures may not be thought of as part of the plan in the same way. However, including performance measures in plans creates transparency and demonstrates to the public and stakeholders how transportation investments are meeting the shared safety vision and goals for the RPO planning area.

Strategies for Developing Safety Performance Measures and Targets

Identify Data. The identification of safety performance measures and targets often relies on past and current data, which describes the regions' crash patterns and trends. Although potential challenges exist when trying to access, analyze, or receive up-to-date data, a minimum amount of information on crashes and trends can help RPOs begin to understand past system performance and make

Performance Measures

Performance measures are used to track progress toward the safety goals and/or objectives identified in planning documents. These measures provide RPO planners with a snapshot of network-, corridor-, or project-level issues and trends, and can inform decisions on how to allocate resources.

predictions about future performance. This data can be used to convey the need to develop safety goals, help identify related performance measures, and be used to set a target.

The most basic level of data needed to do this includes:

- Five-year rolling averages, where multiple years of safety data are averaged to smooth out years where large decreases or increases occur outside the trend line.
- Total number of fatalities and serious injuries for the system can also be used, although setting a target with this data is challenging as annual numbers typically show sharp increases or decreases and do not necessarily convey an average or typical year in which to base a goal.

Develop Performance Measures and Targets

Performance Measures

Measuring performance is emerging as an important aspect of the transportation planning process, allowing agencies to assess whether safety efforts are successful, and to determine a direction for future safety planning and programming activities. The general framework for performance measurement is to use the vision, goals, and objectives developed earlier in the planning process to determine which particular measures are of interest. Measures, or metrics, refer to the characteristics of the transportation system that are analyzed. For safety, this may include information about crashes, as well as information about roadways and characteristics that might make a road less safe for travel.

Performance measures can be developed in a number of ways. The simplest approach is to establish performance measures that align with the state DOT's performance efforts. These are high-level measures, but the data to track them (at a minimum, on the statewide system) will be available; and they provide planners with a snapshot of system-level safety and whether safety investments are necessary. This can also help an RPO demonstrate its contribution to statewide crash reductions.

Some RPOs may have the data and capability to develop measures in addition to overall fatalities and serious injuries, helping them assess performance by specific goals or objectives (i.e., intersection or speeding fatalities). Other RPOs may be interested in developing measures to track programs and projects specifically. Below is an example from the North Central Pennsylvania RPDC LRTP, depicting the goals, objectives, and different types of measures the region is implementing to assess progress.

Goal. Increase transportation system safety.

Objectives

1. Reduce the rates of transportation-related fatalities and injuries;
2. Expand the use of compatible land use practices in regard to transportation; and
3. Implement safety initiatives for all transportation modes.

Performance Measures

1. Change in fatality rate over time;
2. Change in injury rate over time;
3. Estimated value of lives saved and injuries prevented;
4. Number of corridor safety studies completed;
5. 100 percent commercial driver's license (CDL) compliance for all operators of school buses and public transit vehicles;
6. Motor carrier crash rates in region at or below national or state averages;
7. Hazardous material (HAZMAT) spill changes in frequency over time;
8. Rail crossing accident changes in frequency, over time;
9. Changes in bicycle/pedestrian accidents, over time; and
10. Pennsylvania DOT motorcycle training and safety course offerings and number of students.

Targets

Progress in safety, as well as other performance characteristics, depends on many outside factors, like vehicle and roadway technology advancement, the economy, demographics, travel patterns, and more. With so many unpredictable factors having an impact on transportation, why do targets matter? Strategies to achieve targets may play a role in guiding the way funds are spent within a state or a region. Targets also help agencies communicate the progress they have made and where more work is needed to the public and to decision-makers. Even when agencies set ambitious targets that are difficult to meet, reporting on progress can spur partners to innovate new solutions or more efficient uses of public funds to achieve bigger impacts and prevent more deaths and serious injuries.

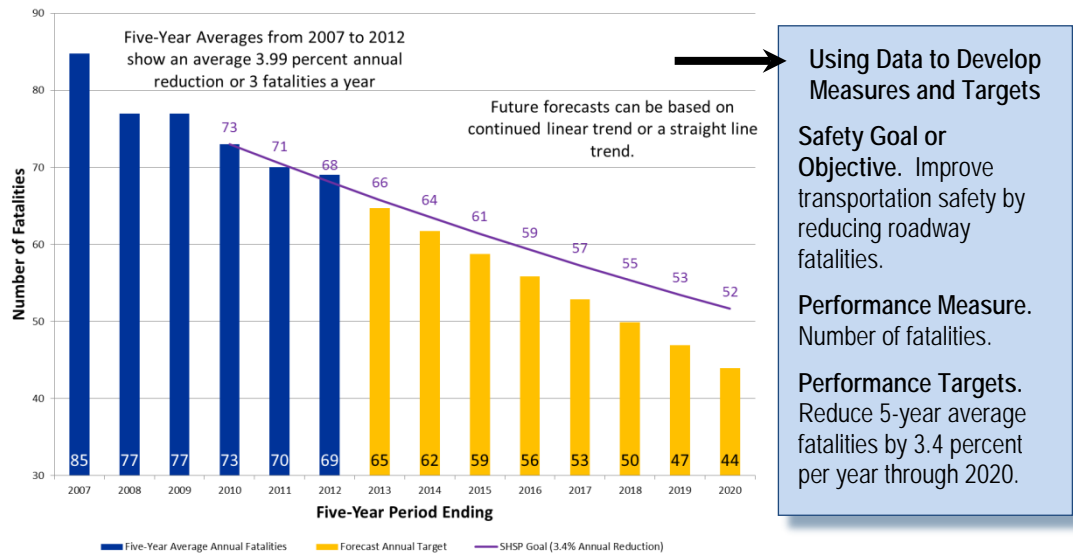
Targets also enable the public and media to hold agencies accountable, making the process of setting a target a controversial one in some cases. To address that, some agencies determine that a target that describes a trend, rather than a specific number, fits their region best. An example of a descriptive target would be “toward zero deaths,” using “toward” to indicate the desired direction of the trend line but without actually needing to adopt zero as a numeric target. Others agencies opt to select a numeric value at a point in time to give partners a specific goal to focus on, such as “half the number of deaths by 2030.”

Setting a target often involves analyzing historic data to understand the trend of how the number of fatalities and serious injuries has changed over time, and projecting how that trend would look if it held constant in the future. Once a projected point has been determined, transportation stakeholders can decide together whether the target should follow the forecasted line or be above or

below the historical trend. Selecting the target compared to a forecasted point allows stakeholders to identify their assumptions about what will happen in the future that may affect safety, and discuss whether an ambitious target would encourage partners to address safety even more aggressively.

See Figure 3.11 for an example of how fatality data can be used to establish a goal, a performance measure, and a target.

Figure 3.11 Sample Data to Depict Crash Data Trends to Set Performance Targets



Source: Sample data created for purposes of this report.

Adopting Statewide Performance Measures and Targets. RPO planners may choose to support statewide performance measures and targets rather than formally adopting specific ones for the region. This can be accomplished by referencing the statewide goals, objectives, and targets in regional transportation plans. The purpose would be to explicitly state how the regions’ efforts toward a set of shared safety goals and objectives will help to reach the state’s target, it is beneficial to engage in ongoing conversations/meetings with the DOT district traffic engineer, state safety engineer, or statewide transportation planners to confirm what is in current plans and understand the timeline for updates.

Table 3.5 Priority Planning Area Work Sheet
Performance Measures and Targets

Strengths	Responses
What elements of a performance management framework are already in place?	
What transportation safety data are available to support performance measures and targets?	
What other planning documents can be used to inform performance measures and targets?	
Weaknesses	
What data collection and analysis limitations exist to develop performance measures and targets?	
What other limitations exist?	
Opportunities	
What safety trends may work in your jurisdiction to improve transportation safety?	
Based on your identified strengths and weaknesses, what strategies would you identify to develop or enhance safety performance measures?	

3.7 PROJECT PRIORITIZATION AND PROGRAMMING

Identifying and ranking projects is the critical step in the planning process where all the visioning, analysis, performance measurement, and data come together to make decisions about investments that support the desired future for the region. The majority of RPOs develop a regional TIP or a list of projects that are identified as important in their region.

The processes used to identify and rank those projects vary by state and by region. In some places, state DOTs consider the projects identified, and depending on state priorities, may include them in the development of the STIP. In other states, the list of priority projects is developed in consultation with the state DOT, so that connections are made early on between projects identified locally and ones that are identified through the state DOT's own process. Other states use hypothetical sub allocation, where they use formulas or other ways to divide funding among regions, who then submit a prioritized list within the financial constraints of that funding target for adoption in the STIP.

RPOs may prioritize safety-specific projects or countermeasures for Highway Safety Improvement Program or other funding, but may also consider safety in the scoring process for all modal projects. Regardless of the methods used, having well-defined criteria and discussing tradeoffs that arise from funding limitations help to ensure that projects put forward are truly regional.

Strategies for Prioritizing Safety Projects and Including Safety Considerations in Transportation Projects

Incorporate Safety into Transportation Project Decisions. Effective prioritization can take many forms in the context of rural planning. An increasingly common approach is to have local project sponsors complete a project information form to collect basic data about a roadway segment or other multimodal issue. That information feeds into a project scoring process, where points are assigned in several different categories that describe the project context and the expected impacts, and address qualitative factors.

The scoring categories, as well as the number of points assigned to them, should refer back to the vision, goals, and objectives set in the regional planning process, so that the projects that receive the highest scores are the ones that demonstrably support the region's vision. Points are commonly assigned for criteria that support the planning factors, such as safety, environmental impact, economic impact, accessibility, and others. Other criteria refer to the use of the facility, such as average annual daily traffic, level of service, and volume/capacity ratio, or the roadway's condition, such as pavement quality or condition index, structural capacity, bridge sufficiency rating, International Roughness Index, or lane-width deficiency.

Using a numeric project scoring system is a way to ensure safety is considered systematically in every project. Safety scores are usually a quantitative measurement, such as crash rate, but it also can include qualitative assessments, such as a project's likely effects on pedestrian and bicycle safety. A real or perceived safety issue is one of the most common reasons a rural transportation project is identified within a regional plan. But for projects that are developed mainly to enhance accessibility or to promote economic development, including safety strategically as an element in a non-safety-focused project will help the project to earn more points. As a result, prioritizing safety can be used to reward projects that improve multiple goal areas, which each offer their own set of points.

Surface Transportation Program Project Prioritization

The Southeast Iowa RPC allocates Surface Transportation Program funds through a competitive application process and projects are rated on six different criteria: economic vitality, system preservation, local and regional factors, accessibility and mobility, integration and connectivity, and safety. Safety is one of the highest weighted criteria, and the safety score is assessed by comparing crash rates on the proposed facility with state rates and what proportion of the project cost will go toward safety improvements.

VDOT Rural Project Prioritization Approach

The Virginia DOT developed a priority ranking matrix to help prioritize projects in rural LRTPs. Every project was ranked based on weighted attribute data, including vehicle-to-capacity ratio, current and future daily traffic counts (AADT), flow rate, level of service, number of heavy trucks, number of environmental and social attributes, and number of crash injuries and fatalities per mile. See Appendix A for additional details on this process.

Benefit-cost analysis is a systematic evaluation of the advantages (benefits) and costs (funds needed for implementation) of a set of investment alternatives and can be combined with other scores when ranking projects. Traditionally, benefit-cost analysis for safety projects takes into account all of the positive benefits of the project, such as reductions in fatalities, serious injuries, or crashes or economic savings and compares it to a cost variable, such as the project cost or economic cost of crashes and quantifies it in financial terms. The North Central Pennsylvania RPDC used benefit-cost analysis to prioritize safety projects.

Proven Countermeasures

For RPO planners looking to identify safety treatments, the best place to start is to review:

FHWA proven countermeasures (<http://safety.fhwa.dot.gov/provencountermeasures/>).

NCHRP Report 500 series (<http://www.trb.org/main/blurbs/152868.aspx>), the NHTSA Countermeasures That Work (<http://www.ghsa.org/html/publications/countermeasures.html>).

Ask your state DOT as state-specific countermeasures may have been identified.

Prioritize Safety-Specific Projects. While integrating safety considerations into every transportation project is beneficial to maintain a safe system for the future, RPOs also identify safety-specific projects to address multimodal safety issues. While some RPOs have identified prioritization processes for safety projects, many state DOTs have developed approaches to prioritize and program Highway Safety Improvement Program funds. This prioritization may involve the identification of countermeasures with the highest potential for mitigating risks in the state. For RPOs seeking to prioritize safety projects or identify low-cost countermeasures, contacting the state safety engineer will provide insight into the scoring process, which could be customized to meet regional needs. A number of RPOs also lead road safety audits, using the results to identify safety projects and coordinate with DOT staff

on priorities. For instance, three RPOs in Missouri, the Mo-Kan Regional Council, Northwest Missouri Regional Council of Governments, and Green Hills Regional Planning Commission have institutionalized an annual road safety audit (RSA) program. With support and involvement from the Missouri Department of Transportation (MoDOT), the RPOs schedule one RSA in each region every spring. Following the completion of an RSA report, the communities receiving the RSA may approach their RPO about identifying potential funding for a safety project for that roadway segment, or about submitting a project through the RPO's prioritization process for MoDOT to consider funding through the STIP.

Safety Project Prioritization

The North Central Pennsylvania Regional Planning and Development Commission developed a prioritization approach for safety-specific projects. The RTPO developed a "top 25" safety project list as part of the region's Core Network Study, and multiple improvements were identified for each location.

The improvements were ranked using a quantitative benefit-cost analysis, which weighed the number of crashes occurring at a location, the economic loss that resulted from each crash, and the cost to implement the proposed safety improvement. The greater the economic loss and lower the cost of the proposed improvements, the higher the ranking of the safety improvement. Generally, low-cost, short-term (in terms of implementation) safety improvements ranked higher than long-term improvements that would involve a greater investment.

Safety projects also offer low-cost, quick solutions to transportation problems and often require little modification outside existing right-of-way. As a result, focusing on identifying and implementing safety projects can help to maintain buy-in into the planning process as a whole because the results are visible and tangible.

Work with Stakeholders to Prioritize Projects. Having stakeholders qualitatively determine whether proposed projects rank high, medium, and low is a straightforward method for developing a priority list. An RPO may choose to set parameters for how to define high-priority projects based on state priority, or allow stakeholders to select projects using their knowledge about local road conditions. Although a qualitative approach is less formal than completing a project score card, stakeholders who have been engaged in the RPO process tend to be knowledgeable about the region as a whole, and the outcome is often shared priorities rather than local concerns. A potential challenge to this approach is maintaining a focus on projects that rise above local or political concerns to truly regional ones. This regional focus is important because knowing that a project has been vetted by multiple stakeholders and prioritized at the regional level is helpful for state DOTs to make decisions about spending their own limited resources throughout the state.

Table 3.6 Priority Planning Area Work Sheet
Project Prioritization and Programming

Strengths	Responses
What are the elements of your RPO's project prioritization process? How is safety already included?	
What safety data or qualitative information are available for the project prioritization process?	
Weaknesses	
What are the challenges related to prioritizing safety projects with HSIP funds?	
What are the challenges to including safety considerations in transportation project prioritization?	
What data or other resources are needed for project prioritization?	
Opportunities	
What trends may assist in the project prioritization process?	
Based on your identified strengths and weaknesses, what strategies would you identify to prioritize safety projects or include safety in the decision-making process for all transportation projects?	

3.8 MONITORING AND EVALUATION

Monitoring can occur at the system, corridor, goal, emphasis area, or project level. The purpose is to inform safety performance in a region and assist with the selection of programmatic or investment choices moving forward.

Monitoring and evaluation requires data as well as performance measures identification. The data allows planners to view and evaluate fatality trends to make decisions regarding safety goals, programs, and projects. And the performance measures are the mechanism by which the data are evaluated to see if and where progress is being made or where changes need to occur. Measuring performance is the most reliable method for monitoring and evaluating transportation safety goals. However, tracking progress efficiently relies on data collection, data quality, and sound data management processes.

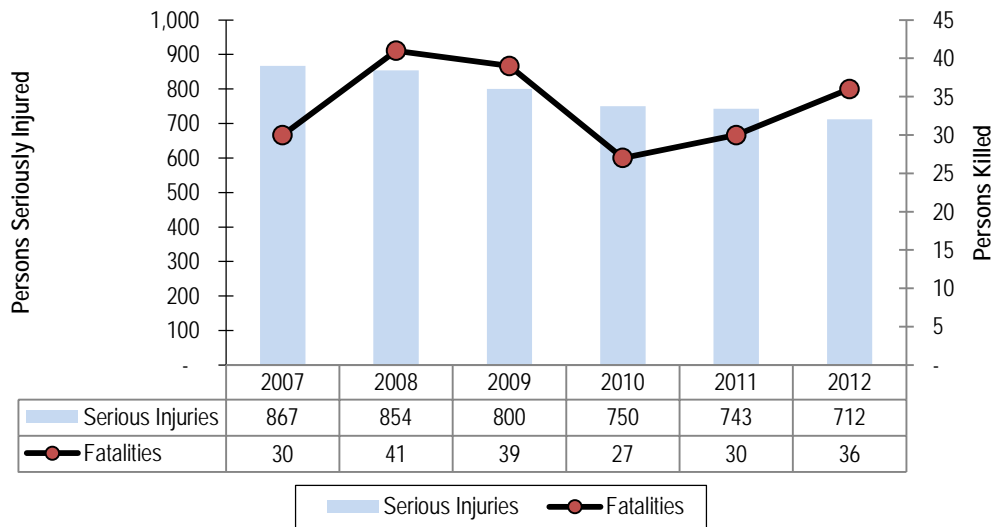
Monitoring and evaluation can be used to determine the effectiveness of implemented programs and projects on reducing fatalities and serious injuries and identify transportation safety priorities.

Strategies for Monitoring and Evaluating Transportation Safety

Use Monitoring to Establish a Network Baseline and Evaluate Performance.

At the network level, historical and recent data for fatalities and serious injuries (or other system-level measures, such as crash rates) can assist RPO planners in monitoring overall safety performance. These data provide information necessary to understand the extent to which safety investments have generated an impact and may need to be applied to similar safety issues. For instance, the sample data in Figure 3.12 shows fatalities and serious injuries over a six-year timeframe. Assuming 2007 and 2008 are the baseline years, the data indicates a crash problem, signaling the need to program and implement investments in subsequent years. Continuing to track high-level progress after transportation safety improvements and projects are in place will depict resulting changes in crash trends. Planners can use this information to evaluate the level of investment needed to continue lowering fatalities and serious injuries and to assess the efficacy of using various strategies to improve safety within that region.

Figure 3.12 Sample Fatality and Serious Injury Data for Evaluation Purposes



Source: Sample data created for purposes of this report.

A corridor focus provides another potential opportunity to monitor and evaluate the network. For RPOs that have the capability to look at crash clusters or crash locations by intersections, segments, or corridors, the data can be used as an initial indicator of safety concerns and crash trends by location. Once the areas are identified, programs or projects may be systematically implemented to reduce the number of crashes. Continuous monitoring and evaluation of crash clusters can provide insights into which areas need attention, as well as how well improvements are helping areas where they have been implemented.

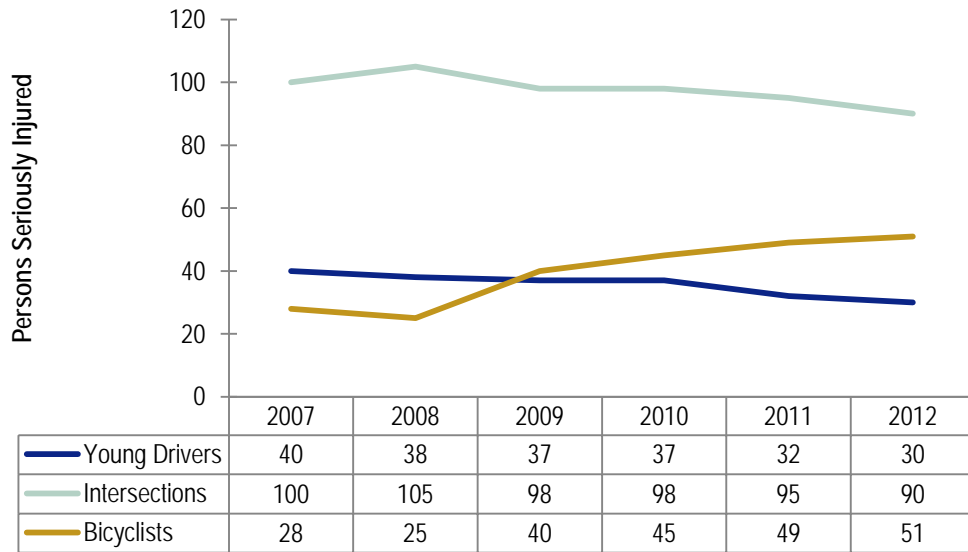
Corridor Report Card

The North Central Pennsylvania RPDC developed a Corridor Report Card to monitor and evaluate the core system roadway. Each roadway is given a letter grade (A, B, C, D, or F) based on the reportable crashes from the previous year. The report card will be updated on an annual basis and will provide information on the health of the corridor related to safety, candidates for safety improvements, and progress in corridors where improvements have been implemented.

Using Monitoring to Invest in Goal Areas. If RPOs have data to identify multiple safety goal areas or objectives, it is possible to monitor and evaluate performance across each area. Trend data (a minimum of three years, although five years is preferred) allows planners to initially identify goal areas in which to invest and later, identify how those investments are moving the needle on fatality and serious injury reductions, informing future resource allocation. Figure 3.13 depicts sample data, showing trends for three safety goal areas over the course of six years. In 2008, funding was programmed for young driver and intersection projects. The data show that over time, serious injuries in both emphasis areas declined. Bicycle programs however did not receive any funding in 2008 as fatalities appeared to be declining at the time, but more recent data show a steady increase. It is up to planners to monitor these trends and evaluate

where to make investments. For instance, even though serious injuries for young drivers and intersections show decline after 2008, it does not necessarily mean funding and project/program implementation should cease in those areas.

Figure 3.13 Sample Data for Goal Area Monitoring and Evaluation

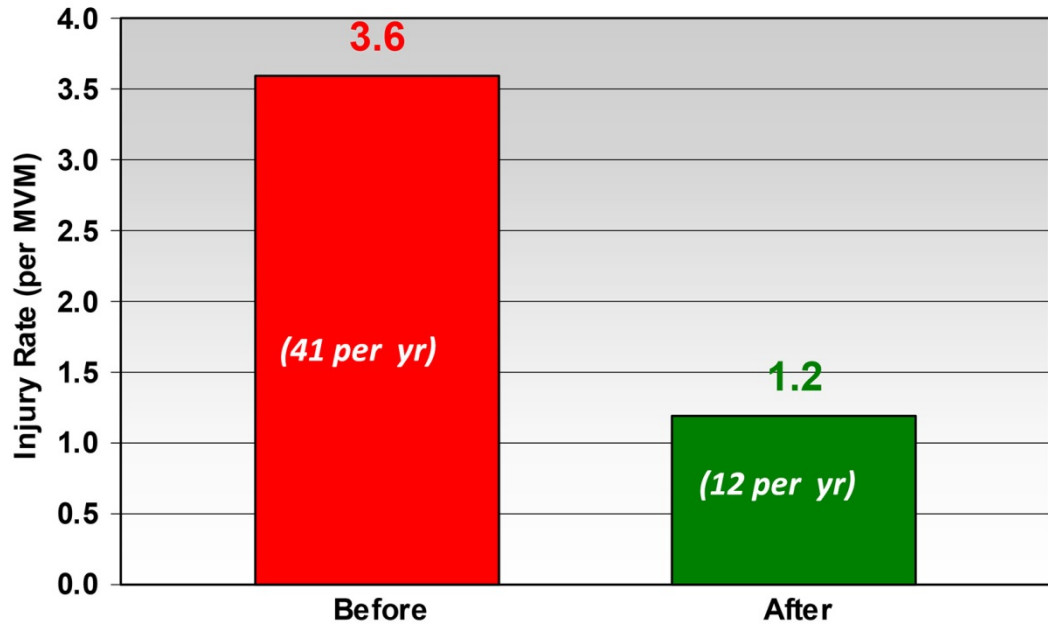


Source: Sample data created for purposes of this report.

Monitor and Evaluate Projects. Ideally, monitoring safety project effectiveness should take place, before and after project completion. As part of a speed management study for Randolph County (North Carolina), the Piedmont Triad RPO reviewed the outcomes of converting a four-lane road to a two-lane road, with a middle turning lane. The evaluation showed an increase in the number of pedestrians and bicyclists using the road, and decreases in speed and the injury rate (Figure 3.14).

Many states are implementing low-cost safety countermeasures, which generally are treatments proven effective at reducing fatalities and serious injuries. Each state is required to submit an annual report to the Secretary of Transportation that describes progress on safety improvement projects funded with HSIP funds, their effectiveness, and their contribution to reducing multimodal fatalities, injuries, and crashes. This can provide a general assessment of the effectiveness of the improvements across the state.

Figure 3.14 Piedmont Triad Speed Management Study Results



Source: Piedmont Triad RPO Speed Management Action Plan for Randolph County, 2013.

Planners may also want to take a high-level quantitative look at each of the safety objectives in planning documents to understand to what extent they are being implemented. Table 3.7 provides an example tracking template, which planners can use to comment on objectives or document the specific actions implemented to achieve the objectives.

Table 3.7 Sample Tracking Template for Individual Safety Objectives

Goal. Reduce Intersection Crashes.	
Performance Measure. Number of Fatalities and Serious Injuries at Intersections.	
Objectives	Implementation Status
Improve Crash Data and accuracy and usability.	
Conduct local training on road safety audits and develop a road safety audit program.	
Pursue a local policy for the consideration of roundabouts at local intersections.	
Pursue traffic calming strategies at intersection, where appropriate.	

Table 3.8 Priority Planning Area Work Sheet
Monitoring and Evaluation

Strengths	Responses
What processes are already in place to monitor and evaluate safety performance?	
What data are available to inform the monitoring and evaluation process?	
Weaknesses	
What resources are needed to monitor and evaluate safety performance?	
What data and analysis limitations exist?	
What other limitations exist?	
Opportunities	
What trends exist that enable monitoring and evaluation?	
Based on your identified strengths and weaknesses, what strategies would you identify to include monitoring and evaluation in the transportation planning process?	

3.9 DEVELOPING A SAFETY PLAN

This section breaks down the core planning tasks and describes strategies to integrate safety into each part of the transportation planning process. However, some RPOs may be interested in developing a comprehensive safety plan to guide safety programs, policies, and projects for the region. The safety plan should be a living document, with a focus on implementation and with regular updates to ensure strategies match the greatest safety needs. The planning tasks outlined above can be used to develop a safety plan.¹⁷

Public Involvement. Engage the public and stakeholders specifically on safety issues, which could include online/print surveys or maps to allow participants to identify what the safety problems are and/or where they are most problematic. If feasible, hosting a safety workshop or summit is valuable to gather input from the community and stakeholders on safety issues in the region. Breakout groups by key issue areas could be used to seek input from participants on strategies and actions to address the problems. Developing a public involvement plan for a safety plan can assist agencies develop a framework early

¹⁷ For more information, use *Developing Safety Plans: A Manual for Local Rural Road Owners*, http://safety.fhwa.dot.gov/local_rural/training/fhwasa12017/.

in the process for which transportation safety stakeholders to engage, specific tools and ideas to solicit input, as well as opportunities to provide input as well.

Multidisciplinary Coordination. A new safety committee, with regional representation from multimodal planning, engineering, enforcement, education, and emergency response, could be created to oversee and develop the safety plan. If it is not feasible to develop a new committee, an existing RPO committee, such as the TAC, could be tasked with overseeing the development of the safety plan. If the latter approach is taken, consider temporarily adding safety stakeholders to the committee to provide input of the non-engineering aspects of safety. The roles of the planning committee can include reviewing available crash and other safety data; developing transportation safety goals, key objectives, and performance measures; prioritizing programs and projects eligible for funding; identify opportunities to include safety in the context of all transportation projects; acting as champions for transportation safety; and providing updates on transportation safety activities to the Policy Board. Upon plan adoption, this committee should continue to meet regularly to discuss implementation and evaluation activities.

Data and Analysis. Available state and local crash and roadway data for available modes should be collected and analyzed to characterize total, fatal, and serious injury crash trends. Crash characteristics defined by geographic area, road type, age, crash type, road user, environmental conditions, and behavioral factors also could be reviewed. GIS can be used to pinpoint crash locations and clusters and display them spatially. Data are shared with the multidisciplinary committee to inform the development of goals and objectives and with the public during outreach activities to increase their safety awareness and dispel mistaken assumptions.

Goals and Objectives. Based on a review of the data analysis, the goals and objectives in the SHSP, and public input, the multidisciplinary committee should identify short-, medium-, and long-term safety goals/emphasis areas and objectives/strategies. Some RPOs may decide to develop safety goal area teams (e.g., intersection safety team, bicycle safety team), with members from the multidisciplinary committee and other stakeholders. Each team would be tasked with identifying objectives and specific actions to meet the goal in the Plan and would also monitor and evaluate activities over the longer term. It is a useful approach to keep stakeholders interested and engaged in safety planning after the plan is developed.

**Sample Emphasis Areas and Strategies –
Missoula Area Community Transportation
Safety Plan**

Emphasis Area. Intersection Crashes.

Strategies. Improve safety at intersection with an above average number of crashes, fatalities and serious injuries through appropriate infrastructure improvements based on best practices.

Conduct education campaign on safe driving practices with a focus on intersection safety.

Improve pedestrian crossings and increase pavement markings for pedestrians at high-volume roadway intersections as warranted.

Full plan can be found at:
http://www.mdt.mt.gov/pubinvolve/missoulactsp/docs/mis_ctsp_final_09_2013.pdf.

Performance Measures. To determine the effectiveness of regional safety programs, policies, and/or projects in both the short and long term, the identified goal(s) should include performance measures, method(s), and a detailed game plan for measuring progress/success for all stakeholders and partners to follow. Performance measures also will be valuable for reporting purposes when briefing public officials and for progress reporting to the Policy Board. Appropriate RPO performance measures should be coordinated with those identified in the SHSP.

Prioritization and Programming. Outputs of the crash data analysis will provide the multidisciplinary committee with a list of safety strategies, actions, and/or projects to identify future safety projects (i.e., conduct road safety audits). Using a combination of committee input and project prioritization, these projects can be scored and ranked. Typically, state DOTs have a prioritization process in place, which the RPO may choose to adopt. Identifying potential funding sources for safety projects is another important component of this phase. Most notable are HSIP funds allocated by the state DOT, but all sources should be discussed.

Monitoring and Evaluation. Upon adoption of the safety plan, the multidisciplinary committee and the goal area teams should continue to meet to review progress on implementing the safety plan and to track performance. Some RPOs develop annual reports, so a section on transportation safety progress could be added.

Coordinating Transportation and Safety Plans

The LRTP is the overarching transportation planning document for a region, describing how the local area transportation system should evolve over the next 20 years, so providing guidance on transportation safety over that timeframe is imperative. Including elements of the safety plan, such as safety goals, emphasis areas, longer-term strategies, and policies in a LRTP will provide direction to RPO staff and member agencies, as well as local elected officials on suitable methods for incorporating safety in the context of all transportation projects.

A benefit of developing a transportation safety plan is the opportunity to feed the LRTP process with specifics on safety. Linking the LRTP and the safety plan through a dedicated safety chapter/section in the LRTP could provide specifics to concisely summarize the regional crash trends; the transportation safety goals, objectives, performance measures, and policies; an overview of the SHSP and regional safety plan (if any) and how they relate to the LRTP; and an overview of other transportation safety activities, policies or programs, occurring in the region. The chapter also could include a list of transportation safety stakeholders or programmatic/project “highlights,” which document regional successes.

4.0 Linking RPO Planning Documents

RPOs looking to institutionalize safety into the planning process should begin by seeking opportunities to link other plans with an RPO's existing planning work, such as utilizing appropriate concepts and strategies from the state's strategic highway safety plans to feed the rural regional long-range planning process. In rural areas that currently do not complete a regional long-range plan, safety strategies can be addressed and become institutionalized policies through integration into other plans, such as local comprehensive plans and other modal plans.

4.1 STRATEGIC HIGHWAY SAFETY PLANS

A strategic highway safety plan is a statewide-coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads. States should update SHSPs at least every five years, and they must include several characteristics:

- Developed in consultation with a multidisciplinary group of stakeholders;
- Coordinated with other plans, such as the highway safety plan, commercial vehicle plan, state and regional long-range plans, and local and regional safety plans;
- Data-driven, using fatality and serious injury crash data, roadway data, and traffic data to identify safety problems;
- Consider other factors that may be available in their area, such as the findings of RSAs, crash location and crash risk data, rural roadway issues, other transportation modes, and more;
- Adopt performance-based goals;
- Identify emphasis areas across the "4 Es" of safety – engineering, education, enforcement, and emergency services.

Based on data, each state's SHSP establishes statewide goals, objectives, emphasis areas and strategies within the document. Those emphasis areas and strategies guide the initiatives that state, regional, and local safety stakeholders take to improve safety. The emphasis areas also determine the ranges of activities that a state can spend its Federal Highway Safety Improvement Program (HSIP) dollars on.

The overall goals and emphasis areas of an SHSP can be informative for shaping an RPO's conversation about safety within the region and eventually safety goals

and objectives in the LRTP. Several questions an RPO might ask itself about the SHSP include:

- Do the state emphasis areas mirror problems within the region?
- Are there other issues not represented in the SHSP?
- If an RPO's resources for data analysis within the region are constrained, is the statewide data analysis completed for the SHSP helpful in discussing the region's safety problems in its regional plan?
- Can the SHSP's direction guide the vision and goals that are developed in the RPO's plans?
- Can the emphasis areas and strategies guide the identification and ranking of potential infrastructure projects within the region?
- Would safety practitioners (such as the various multidisciplinary stakeholders that develop the SHSP) currently not engaged in the RPO be interested and helpful additions on an advisory committee, engaged stakeholder group, or even an occasional invited attendee at transportation meetings for the rural region?
- Can/should the RPO become more engaged in facilitating safety education and outreach to its member local governments and the public?
- Is the state developing any safety outreach tools (videos, infographics, articles) the RPO could disseminate to increase the number of people who see it, with little required labor from RPO staff?

Implementing State Safety Efforts within a Rural Region

The Meramec Regional Planning Commission in Missouri staffs a roadway safety coalition that localizes larger-scale efforts by promoting safety messaging, encouraging the use of seat belts and booster seats, discouraging drinking and driving, and discouraging distracted driving.

Law enforcement, fire departments, EMS personnel, educators, healthcare professionals, and the public are invited to participate in the coalition and learn more about its efforts to reduce fatalities and accidents.

The coalition's activities include working with area businesses to stencil safety messaging in business parking lots, encouraging teens to drive safely, and increasing child restraint inspection stations within the region. These efforts are conducted in support of achieving a statewide target of reducing annual fatalities to 700 by 2016.

These questions provide a starting point for adopting the SHSP in the RPO regional planning process. The SHSP may provide useful information and a framework for the LRTP, but even regions without a long-range plan can consider how its statewide strategies fit in with a region's vision for safety, how to better engage safety stakeholders in the transportation needs identification process, and how to communicate safety information to decision-makers and stakeholders, who also are transportation users.

4.2 LOCAL COMPREHENSIVE PLANS

Local comprehensive plans are generally visionary, with defined goals and objectives developed at the community level rather than regional transportation planning level. The comprehensive plan sets local policy for transportation, land use, utilities, recreation, housing, and other issues by connecting physical design and development of a place with its social and economic goals. Most importantly, the comprehensive plans provide a glimpse into future land use. Accounting for this element in transportation plans is extremely critical as a transportation system that does not adequately serve the evolving land use will undoubtedly have safety issues.

As RPOs develop their regional plan, it is useful to consult the existing local comprehensive plans to ensure as much consistency as possible among the local government plans in the region and the regional transportation vision, goals, objectives, and strategies. Complete agreement is not always possible, but having mutually supportive planning documents to any extent is beneficial in achieving the goals of these plans that are created at overlapping scales.

Many RPOs and other regional planning and economic development organizations assist with local comprehensive planning on a periodic basis. Transportation is typically included as an element of a comprehensive plan, and RPOs might complete the transportation chapter or an entire comprehensive plan for the local governments, either through their work program with the state DOT, through local government member dues, or as a fee-for-service option. Serving in this consultant role gives RPOs the opportunity to raise questions and issues about safety with the leadership of the entity developing the plan. For example, a locality might be interested in exploring the concept of Complete Streets to adopt a local policy, and an RPO's planning staff could provide information on how Complete Streets affect safety for all users of the transportation facilities in the area.

An RPO might also analyze the connection of land use to transportation, for instance, analyzing where parking exists in the plan, where access points exist, where pedestrian facilities exist, where are likely destinations for travelers in an area and how are they likely to get around, and how people can safely access destinations. Even without a travel demand model, discussing how land use decisions and access management might affect traffic and traffic safety is a topic planners can initiate with localities as they undergo a comprehensive planning process.

4.3 OTHER MODAL PLANS

In addition to the Federally required plans for states and MPOs, many other plans could be referenced in RPO plans or developed with safety in mind. For example, Title 23, U.S.C. encourages states to develop state freight advisory committees and to adopt state freight plans. At this point, most RPOs are not involved in state freight advisory committees, but they might have a role to play in commenting on how implementation of a state freight plan would affect the safety of freight movement and the traveling public in their region.

Bicyclist and pedestrian safety is very important, given the relative risk to non-motorists traveling in a transportation network with limited sidewalks and bike paths common in many rural areas and small towns. Bicycling and walking also are low-cost forms of transportation for short trips, and many transit users cycle or walk to complete their door-to-door travel to a destination, making their safety for the trip a multimodal issue. Rural tourism in many places includes nonmotorized travel to access destinations, making safety of bicyclists and pedestrians an economic issue as well.

As a result, RPOs are increasingly developing regional bicycle and pedestrian plans as part of their overall work program, or assisting localities with developing their own nonmotorized transportation plans. Safety is an integral aspect of these plans, including determining the appropriate kinds of facilities for cyclists and pedestrians in different rural contexts, depending on land use and traffic levels.

RPOs often complete coordinated human services – public transportation plans, as well as assist with other public and community transportation planning as needed in their region or state. In the course of conducting outreach to transportation providers in coordinated planning, RPOs often take the opportunity assess safety related to transit travel. Transit operators are an important stakeholder group for identifying potential safety issues, for the vehicles, location of bus stops, appropriate pull off areas, and passengers, as they

Bicycle and Pedestrian Safety

The Albemarle Rural Planning Organization in North Carolina completed a bicycle plan in 2013 that will improve opportunity for and safety of traveling by nonmotorized modes as it is implemented within the region.

The plan analyzes current conditions of the bicycle transportation network, a recommended network, prioritized strategies and low-cost improvements, tools for integrating bicycle considerations into codes and local ordinances, and recommendations for programming. The current conditions section analyzes not only the existing transportation network, but also regional land use patterns and settlement types. In addition, the RPO conducted an equity analysis to identify where underrepresented populations reside to target public involvement there.

The impetus for the plan included improved public health, transportation options, and support for tourism-related activities, since this region includes the tourism sector-reliant Outer Banks and other coastal communities. Safety was also analyzed, given a number of crashes in rural areas outside municipalities.

The plan identifies goals and objectives, with many of the objectives crafted to be measurable outputs and outcomes.

travel door to door. The information can guide the development of safety-related goals, objectives, and strategies in the regional plan, or methods for improving the safety of coordinating services.

5.0 Conclusion

Regional Planning Organizations are poised to play an active role in transportation safety. Their current activities including facilitating input from a variety of stakeholders, identifying regional priorities, and encouraging investments provides the tools and resources to integrate and implement transportation safety planning activities. By working with both the state and local safety stakeholders and serving as conveners of various interests, RPOs are strategically positioned to integrate safety into planning and programming and improve safety analysis and outcomes in their regions.

In transportation safety planning, safety data is important to effectively determine and address the safety issues, and evaluate applied strategies. As a result, the availability and access to efficient safety data is essential. There are several sources of safety data planners can use including national resources, such as FARS; state databases or generated reports; localized data from law enforcement agencies; other planning documents, such as the SHSP and HSP; and public and stakeholder input.

Although integrating safety in the existing transportation planning processes and plans can be effective in reducing fatalities and serious injuries on the regional roadway network, oftentimes a standalone safety plan can produce added incites to regional safety issues. Engaging non-traditional planning partners and safety stakeholders in the safety planning process can provide a more comprehensive identification of issues and strategies to address them.

In nonmetropolitan areas, where crashes are occurring at higher rates, RPOs are in place in about 30 states to assist state DOTs and work with the public and local officials to understand the transportation needs for the region. Several states have recognized the benefits of engaging RPOs in achieving safety goals and objectives. With the methods and case studies outlined in this technical report, RPOs have a starting point for increasing their consideration of safety and helping to decrease traffic fatalities and serious injuries within their regions.

A. Case Studies

Iowa Multidisciplinary Safety Teams

In Iowa, Regional Planning Affiliations (RPA) are key participants in the formation and ongoing success of Multidisciplinary Safety Teams (MDST). MDSTs are local safety teams that convene to coordinate local expertise, priorities, perspectives, and recommendations for safety improvements. Several of Iowa's 18 RPAs have MDSTs and the other RPAs have been encouraged to form MDSTs. This unique partnership with RPAs allows all cities and counties to benefit from the MDST initiatives. RPA staff play a key role in the teams by working with diverse groups to help them understand issues, helping stakeholders work together, providing input and experience on the long-range planning process, promoting transportation safety planning concepts, and providing access to and analysis of crash data.

MDST meetings are often hosted by the RPAs with initial assistance from Iowa DOT and the Institute for Transportation (InTrans) staff. Key objectives can vary by region, depending on goals and most pressing issues but objectives almost always include the identification of potential safety projects and programs. Meeting activities include facilitated discussions on issues, crash analysis workshops, construction zone management, safety audits, safety corridor evaluation, local media and marketing campaign efforts, and other multimodal planning topics. Ultimately, all applicable activities are incorporated into the RPA planning and programming process.

The MDSTs have helped RPAs successfully integrate safety into their planning processes and provide invaluable multidisciplinary input for planning and programming safety improvement projects and implementing safety programs. This approach incorporates local safety issues into the process and helps Iowa DOT work to reduce fatal and serious injuries (nearly 50 percent of all fatal and serious injury crashes occur on local roads in Iowa).

In general, safety activities have been an integral part of the planning activities at Iowa's 27 RPAs and MPOs.

Vermont Highway Safety Forums

The Vermont Highway Safety Alliance partners with Vermont's regional planning commissions to host Regional Highway Safety Forums.¹⁸ The purpose of the safety forums were to establish relationships between regional safety stakeholders, begin discussions on sharing resources, and identify highway safety issues specific to each region. Key participants at each forum included local and regional law enforcement, emergency management services, fire departments, planners, engineers, driver's education professionals, and other highway traffic safety stakeholders in the region.

Forum participants are introduced to the Vermont Strategic Highway Safety Plan, statewide safety initiatives, and the local roads program. Sessions on topics in engineering, education, enforcement, and emergency services are offered to educate participants on Vermont's seven critical SHSP emphasis areas. VTrans shared information on data available to the local agencies for decision-making. An afternoon breakout session included a discussion exploring regional data provided by VTrans. Participants were expected to discuss any data commonalities, local groups or personnel to be mobilized to address issues, outside sources that can be leveraged to assist, and strategies to consider for next steps.

The Regional Highway Safety Forums served as an opportunity to engage a larger group of partners in the SHSP process and to personalize the experience for local agencies. The initiative gives local agencies better access to crash data, more knowledge of funding for safety programs, and better understanding of statewide safety initiatives.

¹⁸The oversight and development of the Strategic Highway Safety Plan is accomplished through the Vermont Highway Safety Alliance which consists of the Executive Committee, the Board, and five Focus Teams.

Figure A.1a Vermont Highway Safety Forum Registration Flyer

Registration OPTIONS:

- Online at www.vermontlocalroads.org, under Workshops/Registration – it's quick and easy!
- By mail: complete the form and mail it to the Vermont Local Roads Program (Make additional copies as needed).
- By fax: send this form to 802.654.2555.
- By telephone or for more information call: 800.462.6555 (in Vermont) or 802.654.2652.

Register by Tuesday September 4, 2012.

Please call if you have any questions about your registration. We do not send acknowledgement of its receipt, but will send a reminder email a few days before the SAFETY FORUM.



For more information call Rita Seto at 802.457.3188 or rseto@trorc.org.



The Vermont Local Roads Program is offering 6 hours of Safety Training to anyone enrolled in the Roads Scholar Program!

Lake Morey Inn DIRECTIONS

From the south: Take I-91 North (in White River Jct., VT). Take Exit 15. Turn left on exit ramp. Take first right (granite Lake Morey Resort sign on corner). Follow the golf course (on left) and take your first left onto Clubhouse Rd. Resort is on the right.

From the north: Take I-89 South to Exit 7 (Berlin/Barre). Take RT302 east through Barre to Orange. Take RT25 south to Bradford. Take I-91 south to Exit 15. Turn right off exit ramp. Take next right (granite Lake Morey Resort sign on corner). Follow the golf course (on left) and take your first left onto Clubhouse Rd. Resort is on the right.



Vermont's Strategic Highway Safety Plan (SHSP) was established in 2006 through a collaborative effort between over a hundred highway safety stakeholders. The primary goal of the SHSP is to minimize the occurrence and severity of highway crashes and the associated deaths, injuries and suffering.



HIGHWAY SAFETY FORUM

highwaysafety.vermont.gov



You are invited!

The Two Rivers-Ottawaquechee Regional Commission invites you to participate in a Highway Safety Forum. The forum will provide information on programs and best practices that enhance safety along state and local roads in a collaborative setting to help us work together in improving highway safety.

Source: Two Rivers-Ottawaquechee Regional Commission.

Figure A.2b Vermont Highway Safety Forum Registration Flyer (continued)

- AGENDA**
- I. Safety—Who Cares? Towards Zero Deaths
~ Ted Minall, Vice Chair, VT Highway Safety Alliance, Governor's Highway Safety Program
- II. Statewide Initiatives
~ Kevin Marshia, Chair, VT Highway Safety Alliance, VTrans
- III. VT Local Roads Program
~ David Antone, Director
- Safety Efforts
 - Road Safety 365 Workshop
 - Technical Assistance
- IV. Education
- DMV
 - Motorcycle Safety
 - School Bus Safety
 - Child Passenger Safety
 - Driver Education Materials
 - Youth Safety Council of VT
~ Jeff Vigne, President
 - VT Bike + Ped Coalition
~ Nancy Schulz, Executive Director
 - Senior Driver Programs
~ Dave Peters, Driver Safety Program, AARP VT
- BREAK and EXHIBITS —
- V. Data
~ Mary Spicer, Highway Research, VTrans
- Data Central: Where Is It?
 - What Can Data Do For Me?
 - Who To Call?

- AGENDA continued...**
- VI. Enforcement
~ Lt. John Flannigan, VSP Traffic Safety Unit + Tom Fields, Governor's Highway Safety
- Targeted Speed Enforcements
 - Seat Belts (Click It or Ticket)
 - DUI Check Points
- VII. VTrans Programs
- High Risk Rural Roads Program
 - Highway Safety Improvement Program
~ Josh Schultz, Traffic Design + Safety Project Manager, VTrans
 - Bike + Pedestrian Program
~ Jon Kaplan, Program Manager, VTrans
 - Safe Routes to Schools
 - Commercial Vehicle Issues
~ Adam Pockeite, DMV
- VIII. Emergency Services
- New Reporting System
- LUNCH PROVIDED —
- Break-out sessions — Case Studies***
*Corridors within your region will be used.
- Questions:**
- What safety issues can you identify?
 - What local resources can be utilized to address the issue?
 - What regional/state resources can be added to the effort?
 - What obstacles can you identify that might impede implementation of the plan including policy makers and community leaders?'
- WRAP UP —
- SAFE TRAVEL HOME!**

**Tuesday Sept. 11
8AM to 2:30PM**

**@ Lake Morey Inn
Fairlee, VT**

Attend free of charge

Name: _____

Affiliation: _____

Title: _____

Address: _____

Phone: _____

Email: _____

See registration options on back!



Source: Two Rivers-Ottawaquechee Regional Commission.

Virginia's Rural Project Prioritization

Virginia DOT has developed a process for ranking and prioritizing projects in rural regions served by the State's Planning District Commissions. The process is used to rank all rural LRTP projects based on performance measures. The Lynchburg District LRTP project selection and prioritization process, as an example, can be found at: <http://www.region2000.org/assets/files/Transportation/Project Prioritization Process and Methodology 2013 Update.pdf>. Transportation projects were selected for the LRTP based on the following criteria: safety, operations and maintenance, and capacity. The prioritization process involves using key roadway attributes, based on the five transportation goals of the VTrans 2035 Plan to calculate a weighted score for each project. Data was collected from the Statewide Planning System, VDOT's on-line GIS tool and VDOT's Traffic Management System (TMS). The goal of the project was to rank each LRTP project for each county in the Lynchburg District based on a series of weighted technical road attributes. A detailed prioritization matrix was used to score and rank each project based on the roadway characteristics outlined in Table A.1.

Table A.1 Weighted Transportation Attributes Used for Ranking Recommended Projects in the Prioritization Matrix

Roadway Element/ Attribute	Description	Weight Relative to Prioritization Goals
Proposed Number of Lanes	Number of recommended lanes from transportation plans that propose additional lanes, if applicable.	N/A
Length of Project	Total length in miles of the proposed recommendation. Intersection recommendations receive a default value of 0.5 miles.	N/A
2009 Level of Service	Measure used to determine the effectiveness and operational level of the roadway in 2009.	33%
2009 V/C Ratio	Volume-to-Capacity Ratio is an index to assess traffic conditions and level of congestion of the roadway.	33%
2011 AADT	2011 Average Annual Daily Traffic is the total volume of vehicle traffic on a roadway for 1 year divided by 365 days.	N/A
2035 AADT	Projected 2035 Average Annual Daily Traffic rates.	N/A
Flow Rate (pcphpl)	The maximum rate of flow reasonably expected on an existing roadway while maintaining a certain LOS in passenger cars per hour per lane.	33%
Fatal+Injury Crash Rate per Mile (2006 to 2010)	Total number of aggregate injuries and fatalities on the roadway per mile from 2006 to 2010.	100%
Number of Heavy Trucks	Total number of heavy trucks in 2011 on a select roadway segment which equates to the estimated percent heavy trucks.	50%
Cultural Resources	Total number of historic properties and cultural resources in close proximity to the right-of-way of a select roadway.	N/A

Roadway Element/ Attribute	Description	Weight Relative to Prioritization Goals
T&E Species	Threatened and Endangered Species considerations.	50%
R/W Impact	Any impacts on the right-of-way considered here (such as environmental or social).	50%
Include HOV, Bike/Ped, other Modes	Any special accommodation features for HOV, bicycle, pedestrian, or transit are considered here.	25%
Structurally Deficient Bridge (square feet)	Total square footage of a structurally deficient bridge from the 2035 Rural LRTP.	25%
Total Cost	Estimated cost of the recommended project from the 2035 Rural LRTP.	25%

Source: Virginia Department of Transportation *Project Prioritization Process and Methodology 2013 Update*.

Developing a prioritization process and ranking for road improvement projects have several benefits:

- Brings more transparency to the project selection process;
- Provide a common basis with which to rank planning transportation projects of different types, purposes, and origins;
- Streamlines the project development process across the state;
- Encourages decision-makers to focus limited transportation funds;
- Strengthens the link between planning and programming; and
- Provides a better assessment of system performance using transparent data.

North Central Pennsylvania RPDC Safety Study

The North Central Pennsylvania RPDC developed a Regional Safety Study to evaluate the safety-related issues along the Core Roadway System in their region. The Core Roadway System connects the region's most important economic centers and the transportation facilities and businesses that serve them. The study examined existing and historic information related to highway safety, including crash data, characteristics of the roadways and input on motorist, pedestrian, transit, and bicyclist safety from the public and project stakeholders. Roadway safety related to economic development and important connections to air and rail transportation were also evaluated. The region's transit agencies were included as part of the study to determine roadway safety conditions relative to public transportation and to identify resultant mobility, accessibility, and safety improvements.

The corridor safety analysis was conducted to determine which areas presented the greatest safety concern in the region. Data collected from PennDOT Crash Reporting System (CDART), North Central Pennsylvania RPDC Top 25 Crash Locations List, Pennsylvania DOT's Top 20 Intersection Safety Concern List, and input from local officials and stakeholders was used to inform the site selection identification process. This list of sites was prioritized or ranked using qualitative and quantitative (benefit-cost analysis) methods that evaluated the improvement's effectiveness. The goal was to develop a final list that reflected priorities of the stakeholders and the public while taking economic factors into account. A comprehensive list of proposed safety improvements was developed and included both project-specific improvements and systematic improvements. The proposed safety improvements were integrated into PennDOT's highway planning process with the development and submission of Linking Planning and NEPA (LPN) Level I Screening Forms. The plan also identified the proper funding source for each proposed site improvement.

For additional information, see: http://www.ncentral.com/trans/wp-content/uploads/2014/01/NCentral_Final_Report_March2012.pdf.

B. Resources

Table B.1 presents key resources to advance RPO transportation safety planning.

Table B.1 Key Resources to Advance RPO Transportation Safety Planning

Title	Notes
<i>Transportation Planning Processes</i>	
Federal Highway Administration and Federal Transit Administration (2007). The Transportation Planning Process Key Issues: A Briefing Book for Transportation Decision-Makers, Officials, and Staff. Transportation Planning Capacity Building Program. FHWA, Washington, D.C. http://www.planning.dot.gov/documents/briefingbook/bbook_07.pdf	The publication provides an overview of transportation planning and contains a summary of key concepts in statewide and metropolitan transportation planning, along with references for additional information. RPOs would benefit from the process diagrams and explanation of the elements of the transportation planning process, since many RPO structures follow the FHWA process for transportation planning.
<i>Federal Safety and Planning Web Sites</i>	
FHWA Local and Rural Safety Program, http://safety.fhwa.dot.gov/local_rural/	This web site provides a number of resources to local and RPO planners, including national information on crash facts, funding and policy guidance, safety programs, publications, and peer-to-peer assistance opportunities.
FHWA Safety Program, http://safety.fhwa.dot.gov/	This web site is intended to provide transportation planners with programs, publications, and technologies to improve safety performance.
FHWA Planning Program, http://www.fhwa.dot.gov/planning/	This web site is intended to provide transportation planners with programs, publications, and technologies to improve transportation planning.
FHWA Web-Links to State SHSPs, http://safety.fhwa.dot.gov/hsip/shsp/state_links.cfm	This web site provides links to the SHSPs for every state.
NHTSA Web-Links to State HSPs, http://www.nhtsa.gov/nhtsa/whatsup/safeteaweb/pages/SafetyPlans.htm	This web site provides links to the HSPs for every state.
<i>Countermeasures</i>	
NCHRP (2011), Report 500: Guidance for Implementation of the AASHTO Strategic Highway Safety Plan, http://safety.transportation.org/guides.aspx	This project developed a series of guides to assist state and local agencies in reducing injuries and fatalities in targeted emphasis areas. The guides correspond to the emphasis areas outlined in the AASHTO Strategic Highway Safety Plan. Each guide includes strategies/countermeasures to address the problem.

Title	Notes
Countermeasures (continued)	
FHWA Office of Safety (2012), Proven Safety Countermeasures, http://safety.fhwa.dot.gov/provencountermeasures/	FHWA has provided information and fact sheets on a group of countermeasures that have shown great effectiveness in improving safety.
FHWA, Crash Modification Factors Clearinghouse, http://www.cmfclearinghouse.org/	The Crash Modification Factors Clearinghouse houses a web-based database of CMFs along with supporting documentation to help transportation engineers identify the most appropriate countermeasure for their safety needs.
NHTSA (2013), Countermeasures That Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices, http://www.ghsa.org/html/publications/countermeasures.html	The guide is a basic reference is selecting evidence-based countermeasures, mainly for behavioral initiatives.
FHWA Office of Safety (2006), Implementing the High Risk Rural Roads Program, http://safety.fhwa.dot.gov/local_rural/training/fhwasa10012/index.cfm	This document contains resources and practices for consideration in implementing the HRRRP, including crash data, analysis and use, and project selection.
Transportation Safety Planning	
NCHRP (2006), Report 05-46, Incorporating Safety into Long-Range Transportation Planning, http://www.nap.edu/catalog.php?record_id=13891	Report 546 was a first step in providing MPO and DOT transportation planners with tools and strategies to consider safety in the planning process. Although geared toward urban agencies, many of the processes and strategies outlined in the document are relevant to RPO practitioners.
NCHRP (2011), Report 08-76, Institutionalizing Safety in the Transportation Planning Process, http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=2502	Report 876 created a seven-principle transportation safety planning framework (TSP Framework) demonstrating how planners could integrate safety into every step of the traditional planning process. Although geared toward urban agencies, many of the processes and strategies outlined in the document are relevant to RPO practitioners.
NCHRP (Project Underway), Report B08-76, Implementing, Testing, and Evaluating the Transportation Safety Planning Framework, http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=2502	Report B876 is ongoing and has focused research on five lead states, working with them to identify approaches for integrating safety throughout the entire planning process based on their own unique planning environments. One of the lead states, Maine, has RPOs and provided guidance on how to better integrate safety into regional planning processes.
FHWA (2012), Developing Safety Plans: A Manual for Local Rural Road Owners, http://safety.fhwa.dot.gov/local_rural/training/fhwasa12017/	This document guides the development of a Local Road Safety Plan, providing local practitioners with a framework to take a proactive stance to identify the specific or unique conditions that contribute to crashes within their jurisdictions.

Title	Notes
<i>SHSP Guidance</i>	
FHWA (2012), <i>Strategic Highway Safety Plans: A Champion's Guide to Saving Lives</i> , Second Edition. http://safety.fhwa.dot.gov/hsip/shsp/guidebook	This document promotes best practices and serves as guidance to state DOTs and their safety partners for the development and implementation of the state SHSP; assists state DOTs in creating an SHSP that meets the requirements of Title 23, U.S.C.; and assists states in understanding the relationship between the SHSP and existing transportation planning and programming processes. For RPOs looking to engage in their state's SHSP process, this guide is useful.
<i>Performance Measures</i>	
California Department of Transportation (2006), <i>Performance Measures for Rural Transportation Systems</i> , http://www.dot.ca.gov/perf/library/pdf/RSPMTechnicalDocument.pdf	This publication provides guidance to rural areas regarding a standardized and supportable performance measurement process for transportation systems.
FHWA (2009), <i>A Primer on Safety Performance Measures for the Transportation Planning Process</i> , http://safety.fhwa.dot.gov/tsp/fhwahep09043/	This Primer is a tool to help State and local practitioners, transportation planners, and decision-makers identify, select, and use safety performance measures as a part of the transportation planning process.
<i>Project Prioritization</i>	
NADO (2013), <i>Webinar Materials: Strategic Prioritization in North Carolina</i> , http://www.nado.org/webinar-materials-strategic-prioritization-in-north-carolina/	These materials outline the process used in North Carolina to prioritize transportation projects, which incorporates input from rural practitioners. The prioritization also includes safety considerations for every project.
NADO (2011). <i>Transportation Project Prioritization and Performance-Based Planning Efforts in Rural and Small Metropolitan Regions</i> , http://www.nado.org/transportation-project-prioritization-and-performance-based-planning-efforts-in-rural-and-small-metropolitan-regions/	This report provides an overview of the state of the practice in nonmetro regional transportation planning, including the contract amounts, RPO tasks, and committee structures. The research also examines rural long-range planning efforts and criteria used to rank regional priority projects.
<i>RPO Transportation Planning Documents</i>	
Piedmont Triad RPO (2013), <i>Speed Management Action Plan for Randolph County</i> , http://www.ptrc.org/modules/showdocument.aspx?documentid=2183	This plan was developed for one of the counties in the Piedmont Triad Regional Council planning area. It characterizes Randolph County's speeding and speed management issues, identifies appropriate countermeasures and strategies, and describes implementation actions to reduce speeding and speed-related fatal and injury crashes.

Title	Notes
<i>RPO Transportation Planning Documents (continued)</i>	
North Central Pennsylvania RPDC (2012), North Central Regional Safety Study, http://www.ncentral.com/trans/wp-content/uploads/2014/01/NCentral_Final_Report_March2012.pdf	The North Central Regional Corridor Safety Improvement Study represents a focused evaluation of safety-related issues along the Core System Roadways that provide key transportation links to critical economic centers and recreational assets throughout the region. It examines safety related to motorists, pedestrians, bicyclists, and transit services with the goal to outline specific safety improvements within the six-county region that best accommodates multiple modes of travel.
Virginia DOT (2012), Rural Regional Long-Range Plans, http://www.virginiadot.org/projects/rural_regional_long-range_plans.asp	Virginia DOT partnered with all the rural planning agencies in the State (called planning district commissions in Virginia) to evaluate the State's rural transportation system and to recommend a range of transportation improvements that best satisfy existing and future needs. The partnership resulted in the development of regional transportation plans for each PDC.
<i>Planning/Policy Manuals</i>	
VTrans (2014), Transportation Planning Initiative Annual Work Program Guidance, http://www.acrpc.info/transportation/TPI/FFY2014_TPI_Guidance_Final_201305.pdf	This document provides guidance to Vermont's RPCs' to assist them with developing their annual Transportation Planning Initiative (TPI) work program and budget for Federal Fiscal Year 2014. The document also outlines opportunities for the RPCs to engage in safety planning activities. This document may be useful to DOTs, interested in formalizing RTPO work programs.
<i>Data and Analysis</i>	
FHWA Road Safety Information Analysis: A Manual for Local Rural Road Owners, http://safety.fhwa.dot.gov/local_rural/training/fhwasaxx1210/lrro_data.pdf	This manual provides information on crash data collection and analysis techniques specifically applicable to local practitioners with limited resources.
FHWA (Project Underway), Toolkit: Improving Safety on Rural Local and Tribal Roads	This toolkit will help rural agency practitioners effectively integrate road safety into their existing array of responsibilities. It provides practitioners with an easy to use safety analysis process, a set of tools, examples, and links to resources appropriate to their needs.
AASHTO Highway Safety Manual (2010), http://safety.fhwa.dot.gov/hsm/	The first edition of the HSM provides the best factual information and tools to facilitate roadway planning, design, operations, and maintenance decisions based on precise consideration of their safety consequences. The primary focus of the HSM is the introduction and development of analytical tools for predicting the impact of transportation project and program decisions on road safety.

Title	Notes
<i>Data and Analysis (continued)</i>	
FHWA Systemic Safety Project Selection Tool (2013), http://safety.fhwa.dot.gov/systemic/fhwasa13019/	The FHWA Office of Safety developed the Systemic Safety Project Selection Tool guidebook to provide practitioners a step-by-step process for conducting systemic safety planning, considerations for balancing investments in spot-specific and systemic safety improvements, and analytical techniques for quantifying the benefits of a systemic safety program.

C. Implementation Plan

C.1 INTRODUCTION

This tool is designed to help you move from a broad safety goal to effective and strategic action planning. This template will aid in the development of an effective implementation plan in which specific, measurable objectives, strategies, and action steps are identified to assist regional planners begin or better integrate safety in the planning process.

C.2 HOW TO USE THIS TOOL

The strengths, weaknesses and opportunities identified in each planning area worksheet identified a preliminary list of strategies your organization can implement to enhance the integration of safety in the RPO transportation planning process. Moving forward, consider forming a small, focused team to select priority safety planning tasks, refine strategies for addressing the tasks, and completing the process by identifying specific action steps for accomplishing the strategies. The below Implementation Plan will assist with action step development.

C.3 INSTRUCTIONS

An Implementation Plan template is provided to help you create goals, objectives, and action steps for each planning task. The Public Involvement planning task is intended to provide an example and guidance for using the tool. The following table provides definitions of key terms used in the Implementation Plan.

Table C.1 Implementation Worksheet

Term	Description/Definition
Priority Planning Task	Enter the priority planning task to be addressed (e.g., Public Involvement, Multidisciplinary Coordination, Goals and Objectives, Performance Measures, Data Collection and Analysis, Project Prioritization and Programming, or Monitoring and Evaluation).
Goal	Create a statement outlining the desired end state, i.e., what you hope to accomplish related to this priority area.
Opportunity (Strategies)	List one opportunity (i.e., strategy) identified from the planning task worksheet.
Background	Provide a brief description of the specific strategies you plan to achieve.
Action Steps	Outline the steps you will take to achieve each strategy. Place each action step in a separate row, arranged chronologically.
Timeline	Establish a time period for each action step to be accomplished (number of months, years, etc.).
Lead Person/ Organization	Identify the person or organization responsible for initiating/implementing the activity, providing direction for the work, and monitoring progress. The leaders are not expected to accomplish all the work; however, they will ensure the activities are carried out.
Anticipated Result	Describe the specific, expected results of the activity. This statement should operationalize the goal.
Monitoring and Evaluation	Track and regularly report progress on each activity. Evaluate the effectiveness of the strategies and activities and recommend course corrections where appropriate.

Figure C.1 Example Completed Implementation Worksheet

Date Created: _____ **Date Reviewed/Updated:** _____

PRIORITY TASK: Public Involvement				
GOAL: Gain a better understanding of the public's perception of regional safety priorities.				
OPPORTUNITY/STRATEGY No. 1: Identify three to four questions to ask the public about safety in the survey being used to solicit input on the long-range transportation plan (LRTP).				
ACTION PLAN				
Action Step	Target Date	Lead Person/ Organization	Anticipated Result	Progress Notes
Review available regional crash data to identify areas where crashes are trending up to ask the public specifically about those areas (e.g., bike/ped, older drivers)	July	RPO Staff	Safety issues are addressed regularly in public discussions.	
Ask DOT safety staff to provide insight into regional crash trends to better understand priority areas	July	DOT RPO Liaison	Compare DOT's perception to the data analysis results and correct the priority issues as appropriate. Information is provided to the public for discussion.	
Write survey questions	July	RPO Staff	Questions are included in the LRTP public survey.	
Tabulate results and share the information in a survey report	September	RPO Staff	The survey report is used to guide LRTP development and the public's sentiment is reflected in the Plan.	
NOTES				

Source: Sample worksheet created for purposes of this report.

Figure C.2 Sample Blank Action Plan Worksheet for Opportunity/Strategy #2

OPPORTUNITY/STRATEGY No. 2:				
ACTION PLAN				
Action Step	Target Date	Lead Person/ Organization	Anticipated Result	Progress Notes
NOTES				

Source: Sample worksheet created for purposes of this report.

Figure C.3 Sample Blank Action Plan Worksheet for Opportunity/Strategy #3

OPPORTUNITY/STRATEGY No. 3:				
ACTION PLAN				
Action Step	Target Date	Lead Person/ Organization	Anticipated Result	Progress Notes
NOTES				

Source: Sample worksheet created for purposes of this report.



U.S. Department of Transportation
Federal Highway Administration

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