TRANSPORTATION DECISIONMAKING

Information Tools for Tribal Governments

Developing a Transportation Safety Plan

U.S. Department of Transportation
Federal Highway Administration

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Developing a Transportation Safety Plan

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U.S. Department of Transportation
Federal Highway Administration

ABBREVIATIONS

BIA	Bureau of Indian Affairs
AASHTO	American Association of State Highway and Transportation Officials
CMF	Crash Modification Factor
DOT	Department of Transportation
EMS	Emergency Medical Service
FARS	Fatality Analysis Reporting System
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HSIP	Highway Safety Improvement Program
HSM	Highway Safety Manual
IHSDM	Interactive Highway Safety Design Model
IHSP	Indian Highway Safety Program
MAP-21	Moving Ahead for Progress in the 21st Century Act
MPO	Metropolitan Planning Organization
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
RSA	Road Safety Audit
SHSP	Strategic Highway Transportation Safety Plan
TTAP	Tribal Technical Assistance Program
usRAP	U.S. Road Assessment Programm

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I. OVERVIEW

This training is sponsored by the U.S. Department of Transportation Federal Highway Administration (FHWA). It is part of a continuing educational series designed for tribal governments entitled Transportation Decision-making: Information Tools for Tribal Governments. The series offers modules in transportation planning, transportation programming, intergovernmental relations, and safety and asset management. This is shown in Figure 1.

This module topic is Developing a Transportation Safety Plan, where you will learn how to conduct transportation safety planning and develop Transportation Safety Plans.

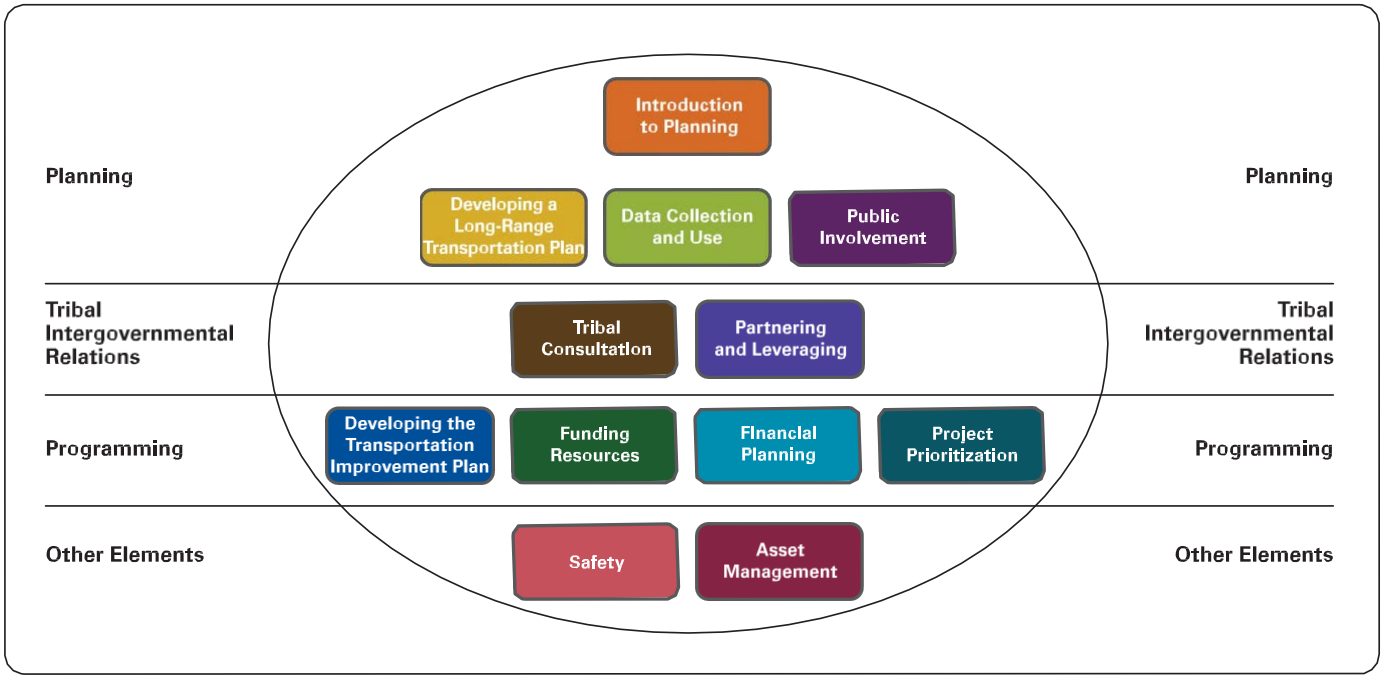

Figure 1. Transportation Decisionmaking: Information Tools for Tribal Governments

What is Transportation Safety Planning? Transportation safety planning uses data and information about transportation system safety to guide transportation investment decisions that reduce injuries and fatalities. A Transportation Safety Plan is a mechanism for a tribe to coordinate its safety efforts, which can include engaging leadership and stakeholders, collecting and analyzing data, determining emphasis areas for safety, identifying strategies to improve safety, prioritizing and funding priority safety projects, and evaluating their results. Developing a Transportation Safety Plan allows a tribe to proactively address the safety of the transportation system, which is often one of the most critical issues facing tribal transportation planners.

Why is this important? Transportation planning with safety in mind saves lives. Transportation safety planning ensures that your tribe is able to address the most critical safety needs by investing in the strategies and projects that will have the greatest reductions of injuries and fatalities.

Who should participate in this training? This module is intended for use by tribal transportation planners and tribal leaders and decisionmakers.

This module has five parts:

- **I.** Overview. Topic description and Practice While You Learn!
- **II.** What Is Transportation Safety Planning? Overview, data, funding, and resources.
- **III.** Step-by-Step Transportation Safety Planning. Seven basic steps.
- **IV.** Additional Resources. Links for more information.
- **Appendix** Continued reading and worksheets.

How will I benefit? This module will teach you how to answer the questions "What data can I collect to support transportation safety planning efforts?" and "What goes into developing a Transportation Safety Plan?" Also, you will learn "How does transportation safety planning fit into the broader planning process?"

How does this module relate to other modules in the training series? This module describes how tribes can collect and analyze transportation safety data, use it to identify emphasis areas, and prioritize transportation safety projects. Transportation safety is related to many other modules in this training series:

- The Public Involvement module can help tribes in reaching out to stakeholders throughout the transportation safety planning process.
- The goal-setting aspects of this module relate closely to the Developing a Long-Range Transportation Plan module.
- The Data Collection and Use module provides general information about the importance of data, where to find existing data, and how to collect new data.
- The programming aspects of this module are closely related to the Developing the Tribal Transportation Improvement Program and Project Prioritization modules.
- The funding of transportation safety planning and projects is closely related to the Funding Resources and Financial Planning modules.

What can I expect from this module? This module will introduce you to concepts related to developing a Transportation Safety Plan, including establishing a transportation safety leadership framework, collecting and analyzing safety data, determining safety emphasis areas, and identifying strategies to improve safety. The "Practice While You Learn!" section will help you apply what you have learned to a practical example. Several text boxes and side notes explain terminology or answer frequently asked questions.

Practice While You Learn!

The purpose of *Practice While You Learn! i*s to apply your learning to a hypothetical problem as you study the contents of this module. The hypothetical scenario below is referenced throughout the module to help you "Practice While You Learn" how to develop a transportation safety plan. You will find useful information and tools in your reading. At certain points, you will see text boxes showing how the example of the Wind Lake Tribe applies to what you have just learned.

A Transportation Safety Plan for the Wind Lake Tribe

In 2010, a group of concerned tribal members organized an informal gathering to discuss opportunities for improving transportation safety on the Wind Lake Reservation. Based on evidence of recent crashes involving pedestrians and reports of reckless driving among younger drivers, the group of tribal members decided to take action on these important safety issues. During preliminary discussions, a tribal law enforcement officer with experience in driver safety education programs volunteered to help organize the development of a Transportation Safety Plan to address these safety issues, prevent injuries, and save lives.

In Chapter 3, a series of Practice While You Learn! text boxes will explain how the Wind Lake Tribe developed and implemented a Transportation Safety Plan and, ultimately, improved transportation safety.

With the right information and tools, transportation safety issues can be predictable and preventable. Tribes can prevent or reduce the severity of motor vehicle crashes and other transportation safety hazards through transportation safety planning efforts that include data analysis. Transportation safety planning is especially critical for improving safety and quality of life for Native Americans.

What is a Transportation Safety Plan?

A Transportation Safety Plan is a collaborative and comprehensive document that identifies transportation safety issues and strategies to address them. Effective Transportation Safety Plans lead to projects that make the transportation system safer.

Tip: Refer to the Long-Range Transportation Plan and Developing the Tribal Transportation Improvement Program Tribal Transportation Planning Modules for more information on the transportation planning and programming processes!

Fatal crash rates for Native Americans are increasing while rates for the overall U.S. population have declined. Between 2007 and 2011, 2,752 Native Americans were killed in motor vehicle crashes.[1] Of those fatalities, 20 percent were under the age of 21, 34 percent resulted from speed-related crashes, and 49 percent resulted from alcohol-related crashes. Additionally, motor vehicle crashes are the leading cause of unintentional injury for Native Americans under the age of 44.[2]

Transportation safety planning allows tribes to take a proactive approach to prevent crashes and improve unsafe transportation conditions. Transportation safety planning helps to integrate safety considerations into the transportation planning process, including the development of Long-Range Transportation Plans and Transportation Improvement Programs. By doing so, tribes may consider how a potential project will address safety issues in the area, and tribes can consider safety in their decisions about whether or not to fund a project. Safety should remain an important consideration during the project development and operations phases of transportation planning as well.

The Importance of Developing a Transportation Safety Plan

Tribes can develop Transportation Safety Plans, which are documents that identify transportation safety issues and strategies to address them. Transportation Safety Plans can cover multiple transportation modes (driving, bicycling, boating, etc.) and multiple types of facilities (roads, trails, water transportation, etc.). Transportation Safety Plans may lead to new projects or programs, renewed efforts within an existing program, or further study of specific locations or safety issues. Some benefits to developing Transportation Safety Plans include:

- Taking a Proactive Approach: A Transportation Safety Plan offers a proactive approach for tribes to address

1. National Highway Traffic Safety Administration (NHTSA): Fatality Analysis Reporting System 2007-2011: Native American Traffic Safety Facts (http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/NA_Report.htm)

2. Centers for Disease Control and Prevention (CDC): Injuries among American Indians and Alaska Natives: Fact Sheet. (http://www.cdc.gov/motorvehiclesafety/native/factsheet.html)

transportation safety issues. A Transportation Safety Plan can show the Tribal Council and tribal members what is being done (or needs to be done) to improve transportation safety.

- Developing Partnerships: A Transportation Safety Plan provides tribal planners an opportunity to improve relationships with tribal members, stakeholders, and government agencies (including tribal, Federal, State, regional, and local agencies) through a collaborative work process. Improving transportation safety is a benefit for everyone involved.
- Fostering Multidisciplinary Cooperation: A Transportation Safety Plan is a multidisciplinary approach to addressing safety. Tribes can develop more effective solutions and leverage resources by considering and coordinating engineering, enforcement, education, and emergency services strategies. The Transportation Safety Plan may also lead to the development of a multidisciplinary transportation safety management committee that oversees implementation of the plan.
- Safer Roadways: A Transportation Safety Plan is a comprehensive approach to addressing road safety that, if successfully implemented, can lead to projects that improve transportation safety across all modes.
- Increased Access to Safety Funding: A Transportation Safety Plan can help tribes justify funding requests by documenting specific safety needs. A Transportation Safety Plan can help tribes compete more effectively for limited funding.

By collaborating with partner agencies, tribes can combine their experiences on tribal roads with expertise on transportation safety planning at the State and regional levels. Tribes may benefit from collaborating with partners who can provide and analyze safety data, research strategies to improve safety, communicate with stakeholders, and assist with the implementation of the Transportation Safety Plan. Working with State DOTs, MPOs, and RPOs may also help tribes secure new sources of funding to support transportation safety programs.

The Four E's of Safety

Successful Transportation Safety Plans incorporate the "4 E's" of safety:

- **Education** gives drivers information about making good choices, such as not texting while driving, avoiding alcohol or medications that affect awareness of the road, and wearing a seatbelt. Education can also inform people about the rules of the road.
- **Enforcement** of traffic laws and a visible police presence may deter motorists from unsafe driving behavior.
- **Engineering** addresses roadway infrastructure improvements to prevent crashes or reduce the severity of collisions when they occur.
- **Emergency** services provide rapid response and quality of care when responding to collisions causing injury by stabilizing victims and transporting them to medical facilities.

The 4 E's are essential for improving roadway safety in a comprehensive manner. The elements complement one another, so tribes should consider applying all four areas to maximize the safety benefits of their investments. Chapter 3 explains in detail how tribes can integrate the 4 E's into their transportation safety planning process.

Data- and Evidence-Driven Decisionmaking

To the greatest extent possible, a Transportation Safety Plan should draw upon traffic, roadway, and crash data to identify the specific locations where safety issues exist. Anecdotal evidence can also help identify transportation safety needs. A data- and evidence-driven approach to improving transportation safety maximizes the effectiveness of Transportation Safety Plans. Tribes use data in the development of Transportation Safety Plans to:

- **Identify Problem Areas:** Data can help tribes develop priorities by identifying the locations with the most serious safety problems and the greatest potential for improvement.
- **Evaluate Safety Strategies:** Data can be used to track or measure progress by creating and comparing "before" and "after" conditions at a project or community-wide level.
- **Assess Outcomes:** Data is essential for tracking progress and evaluating the outcomes of projects and programs to understand their effectiveness.
- **Justify Funding:** Tribes often have to demonstrate that a safety problem exists to be eligible for grant funding under Federal safety programs.

Chapter 3 provides detailed information about data collection and analysis.

Funding Opportunities for Transportation Safety Planning

Limited funding is a common concern for tribes that seek to plan for and implement roadway safety improvements. However, Transportation Safety Plans are very important because they may increase a tribe's ability to secure grant funding to implement its safety strategies. A Transportation Safety Plan can also be useful for leveraging private funds from local businesses and corporations interested in investing in transportation safety. Several options for funding the development and implementation of a Transportation Safety Plan are discussed below.

Highway Safety Improvement Program (HSIP): The HSIP is a core funding program for safety projects under the Moving Ahead for Progress in the 21st Century Act (MAP-21). HSIP funding is administered by each State DOT, and the process to access this funding varies by State. While HSIP funding typically supports infrastructure improvements, HSIP funds can also be used for non-infrastructure safety projects. For example, tribes may seek HSIP funding to develop or implement Transportation Safety

In addition to funding limitations, some tribes may lack the personnel to develop a Transportation Safety Plan. **Tribal Technical Assistance Program (TTAP) Centers**, universities, and other partners at the State, regional, and local levels may be available to provide assistance in the development of a Transportation Safety Plan.

Plans, collect and analyze safety data, or conduct safety enforcement programs. To use HSIP funds, all highway safety improvement projects must meet HSIP eligibility criteria (such as inclusion as a priority or strategy in a State's Strategic Highway Transportation Safety Plan). Tribes can work with State DOTs, MPOs, or other partners to see if HSIP funding is available for programs on tribal lands. For more information, visit http://safety.fhwa.dot.gov/hsip/.

Tribal Transportation Program Safety Fund: MAP-21 authorized FHWA's Tribal Transportation Program, which includes funding set aside specifically for tribal transportation safety. The Tribal Transportation Program Safety Fund has grant funding for projects that improve transportation safety on tribal lands, including funds to support tribal transportation safety planning. For more information, visit http://flh.fhwa.dot.gov/programs/ttp/safety/ttpsf.htm.

Indian Highway Safety Program (IHSP): The Bureau of Indian Affairs (BIA) manages funding from the National Highway Traffic Safety Administration's (NHTSA) behavioral safety programs for Indian Country. The fund can address data improvement, behavioral activities, and law enforcement in coordination with Tribal Governments. For more information, visit http://www.nhtsa.gov/links/StateDocs/FY14/FY14HSPs/BIA_FY14HSP.pdf.

State and Community Highway Safety Grant Program: This program provides Federal funding to implement initiatives that aim to improve safety. State DOTs or State highway safety offices administer these funds and typically use them for safety projects related to enforcement, education, and emergency services. Tribes are encouraged to contact State DOTs or county and local transportation agencies to identify other funding opportunities for transportation safety planning or projects. A Metropolitan or Rural Planning Organization may be able to allocate financial or technical assistance for developing a Transportation Safety Plan. For more information, visit http://safety.fhwa.dot.gov/legislationandpolicy/.

Tip: Refer to the Funding Resources and Financial Planning Tribal Transportation Planning Modules for more information on funding programs and financing strategies that tribes can use to support transportation safety planning!

Developing a Transportation Safety Plan consists of a seven-step process, which is described in depth in this chapter. The process is cyclical; when a tribe completes the last step of the plan, the process starts over again. While this approach provides an overview of the key steps in developing a Transportation Safety Plan, each tribe should tailor the process to its unique needs and circumstances.

Why Establish Leadership?

Establishing leadership is critical to initiating a Transportation Safety Plan. The champion and working group guide the development of the plan, engage stakeholders, and secure Tribal Council support. Once the Transportation Safety Plan is in place, the champion and working group put the plan into action.

Step 1: Establish a Safety Leadership Framework

1 As with any major undertaking, it is important to identify a leader or leaders to ensure that Transportation Safety Plans are developed and implemented as intended. For Transportation Safety Plans, this includes identifying a champion; convening a working group; identifying and contacting safety stakeholders; developing a vision, mission statement, and goals; and gaining Tribal Council support.

a. Identify a Champion

A safety champion is a person who can promote the successful development, implementation, and evaluation of the Transportation Safety Plan. The champion does not necessarily write the Transportation Safety Plan or lead the transportation safety planning effort. Rather, the champion should have the influence necessary to facilitate collaboration and motivate stakeholders to develop and implement the Transportation Safety Plan. The champion should help convene the working group that develops and implements the Transportation Safety Plan (working groups are described in Section 1b below).

Safety champions typically have a keen understanding of the importance of Transportation Safety Plans and the availability of safety resources, as well as influence among tribal leaders and stakeholders. A champion could come from anywhere; they may be Tribal Council members, public works officials, tribal engineers or transportation officials, law enforcement officers, or other tribal members.

b. Convene a Working Group

The champion should establish a working group to develop and implement the Transportation Safety Plan. This often begins with an informal meeting of known supporters of tribal safety, such as interested community members, transportation planners and engineers, law enforcement officials, and tribal leaders. Participants in such a

meeting may eventually form the foundation of a Transportation Safety Plan working group. Bringing the right people together to be part of the working group will help foster a long-term commitment and build momentum to implement the plan. The responsibilities of this group may include:

- Engaging relevant safety stakeholders throughout the process;
- Analyzing safety data, including crash, traffic volume, and roadway data to look for trends or potential problem areas on the tribal road network;
- Recommending and prioritizing emphasis areas to include in the Transportation Safety Plan;
- Identifying funding sources to develop and/or implement the Transportation Safety Plan;
- Writing the Transportation Safety Plan;
- Reporting to tribal leadership to gain their support for the Transportation Safety Plan; and
- Participating in Transportation Safety Plan implementation efforts and tracking progress after the plan is developed.

A Transportation Safety Plan kick-off meeting can provide an opportunity for making introductions, defining elements of the Transportation Safety Plan and describing its benefits, identifying agencies or participants to invite to the working group, and planning for regular meetings. In addition, the kick-off meeting is an appropriate venue for working group members to discuss the tribe's safety challenges. The most important outcome of the kick-off meeting is to establish a commitment to create the plan and to set a meeting schedule for the future. Following the kick-off meeting, the working group should meet regularly to develop and implement the Transportation Safety Plan. Regular meetings are especially important in the early stages of development, as progress reporting can help maintain momentum and focus.

A sample agenda for a working group kickoff meeting is provided in Appendix A. Meeting organizers should tailor the kickoff meeting agenda to the tribe's unique safety needs and goals.

c. Identify and Contact Stakeholders

When developing a Transportation Safety Plan, the working group should identify and contact safety stakeholders, who are people or organizations that are concerned about, affected by, or involved in transportation safety within the tribe. Stakeholders could include tribal, State, and regional transportation and health staff; law enforcement officials; emergency medical service (EMS) responders; local government representatives; and tribal members. In particular, the working group

> The working group should engage stakeholders early in the development of a Transportation Safety Plan. Stakeholders are typically the individuals and organizations that would be most affected by the implementation of the Transportation Safety Plan, so they should be involved in the process to make sure that they buy into the Transportation Safety Plan's vision, goals, and strategies.

would benefit from collaborating with stakeholders who can provide safety data, research strategies, and assist with the implementation of the Transportation Safety Plan.

Tip: Refer to the Public Involvement Tribal Transportation Planning Module for more information on engaging stakeholders and getting public input into transportation decisionmaking!

Some stakeholders may also wish to serve as working group members in order to help shape the Transportation Safety Plan. These stakeholders are often decisionmakers who can further the Transportation Safety Plan process by helping to plan, implement, and evaluate progress toward achieving safety goals. Other stakeholders may be more interested in providing information and data as needed, and/or helping to implement the Transportation Safety Plan if the safety measures relate to their areas of interest. Regardless of their level of involvement, all stakeholders should be given the opportunity to participate in the development and implementation of the Transportation Safety Plan.

While reaching out to stakeholders, the working group should document existing safety-related efforts that that stakeholders are undertaking in order to coordinate existing transportation safety efforts. By understanding existing tribal safety efforts and integrating theminto the Transportation Safety Plan, the working group can eliminate redundancy, increase program efficiency, and leverage resources.

Active communication between the working group and safety stakeholders can create an environment that allows them to share expertise and unique ideas. Consistent, effective communication is necessary to share key information with stakeholders and to relay key messages to the community. Also, a collaborative environment between the involved stakeholders is required to develop consensus on which safety challenges to address.

d. Develop a Vision, Mission Statement, and Goals

A Transportation Safety Plan is driven by its vision, mission statement, and goals, all of which relate to one another. When developing the vision, mission statement, and goals, the working group should consider the tribe's other strategic goals, such as those outlined in the Long-Range Transportation Plan. The Transportation Safety Plan should complement those goals.

A vision is a clear description of the desired outcome or future for safety in a tribe. The vision should be a simple statement that motivates stakeholders and the community to support improved transportation safety. Vision statements vary from tribe to tribe based on community priorities. A sample vision statement is "to improve transportation safety within our tribe in order to significantly reduce the number of people being killed and seriously injured."

A mission statement supports the Transportation Safety Plan's vision and generally describes how the plan will achieve the vision. It may list categories of strategies that the tribe will employ to improve safety, including, for example, education campaigns, increased traffic law enforcement, construction projects that mitigate safety issues, and improved emergency response. A sample mission statement is "to implement cost-effective engineering projects, education campaigns, law enforcement efforts, and EMS strategies that improve safety for drivers, pedestrians, cyclists, and other road users in our community."

Tip: Refer to the Developing a Long-Range Transportation Plan Tribal Transportation Planning Module for more information on setting a vision, mission statement, and goals!

Goals are set to help the working group achieve the vision and mission statement. Goals should promote action, be realistic, and make a clear connection to the mission statement. For example, "reducing fatal crashes and serious injuries on our tribal roads by 10 percent each year over the next decade" is concise, easily understood, and measurable.

e. Gain Tribal Council Support

The working group should keep the Tribal Council engaged throughout the development of the Transportation Safety Plan. Tribal Council members that are involved in developing a plan will feel a greater sense of ownership of the final product and will be stronger advocates for implementing the completed plan. While developing a Transportation Safety Plan can be a grassroots community effort, gaining support from the Tribal Council will aid in the development of the plan and improve the likelihood of safety improvements being funded and implemented.

Practice While You Learn!

A Transportation Safety Plan for the Wind Lake Tribe

In early 2010, a tribal law enforcement officer (the designated champion) convened a meeting of several members of the Wind Lake Tribe to discuss transportation safety. During the discussion, the group decided to form a working group to develop a Transportation Safety Plan. The working group consisted of tribal transportation planners, law enforcement officials, tribal leaders, and concerned tribal members. The working group held a kick-off meeting where they discussed the tribe's most pressing safety issues and crash history, including pedestrian safety and crashes involving younger drivers. The Working Group set a schedule for developing the Transportation Safety Plan and got to work.

One of the working group's first tasks was to identify and contact stakeholders to involve in the Transportation Safety Plan, including emergency responders, tribal health officials, State DOT staff, and local government representatives. The working group also gathered information from the stakeholders for the Transportation Safety Plan. In particular, the working group learned from emergency responders that the majority of serious injuries on tribal roads involved drivers who weren't wearing a seatbelt. Through this outreach, the working group also gained a commitment from the State DOT to provide traffic data on tribal roads.

With these stakeholders engaged, the champion facilitated the development of the Transportation Safety Plan's vision, mission statement, and goals. The working group looked to the tribe's Long-Range Transportation Plan to help craft a coordinated safety vision and mission statement and solicited the input of tribal members. Ultimately, the working group decided on the following statements:

- Vision: Provide a safe transportation system for all travelers by creating programs that work toward zero deaths and zero injuries for drivers, pedestrians, cyclists, motorcyclists, and off-road vehicle users.
- Mission Statement: Develop, implement, and evaluate a community-supported, data-driven plan for maximizing transportation safety through widespread collaboration with law enforcement, community members, tribal leaders, and other partners that can help implement education, engineering, enforcement, and emergency services strategies.
- Goals:
  - Reduce the number of fatal crashes by 15 percent by 2015.
  - Reduce the number of non-fatal injury crashes by 20 percent by 2015.
  - Enhance tribal members' awareness of traffic safety.

The Working Group presented the vision, mission statement, and goals to the Wind Lake Tribal Council and secured their support. Tribal Council members agreed that the Transportation Safety Plan would be beneficial for the tribe and committed to serving as strong advocates for the completed plan.

Step 2: Collect and Analyze Safety Data

2 Analysis of safety data allows the working group to identify ways to reduce fatal and serious injury crashes on tribal roadways. Crash, traffic, roadway, and other data, including data on pedestrians and cyclists, can help the working group identify safety issues, select appropriate strategies to address them, and evaluate their performance. The analysis used in the development of a Transportation Safety Plan usually considers safety issues across the roadway network rather than analyzing data for a specific site.

a. Gather Data

The working group should work to collect the most recent available crash, roadway, and traffic data in order to understand the location and extent of safety issues in the transportation system. While crash data are especially useful for identifying safety issues, crash analysis typically requires at least three years of crash data. Fortunately, tribes may be able to find data from existing sources. For example, data on crashes, traffic volumes, injuries, enforcement, and other aspects of transportation safety may be accessed from a number of sources such as:

- Tribal law enforcement databases
- State, regional, or tribal crash reporting databases or fact sheets
- State Strategic Highway Safety Plans (SHSPs)[3]
- State or local traffic volume data
- EMS search and rescue logs
- Hospital records
- Insurance claims

In addition to these data sources, NHTSA's Fatality Analysis Reporting System (FARS) can be a useful source of crash data for tribes. FARS is an online, publicly available, nationwide database that provides yearly data regarding fatal injuries that result from motor vehicle traffic crashes.[4] Tribes may also find helpful data in the Centers for Disease Control and Prevention's **Web-based Injury Statistics Query and Reporting System** and the Indian Health Service's **GIS system.**

If the available data are insufficient, the plan could include strategies that will lead to better data for future transportation safety planning. By including data collection as an emphasis area within a Transportation Safety Plan, a tribe can begin to assess gaps in data, develop strategies for improvement, and access funding for improved data collection. A useful self-assessment tool is available in the National Cooperative Highway Research Program

3 A Strategic Highway Safety Plan is a statewide transportation safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads in a State. More information about the use of SHSPs in transportation safety plans is included in Step 2c. Additional information on the SHSP can be found at *http://safety.fhwa.dot.gov/hsip/shsp/*.

4 FARS includes only fatal injuries from motor vehicle crashes that are formally reported. More information about FARS can be found at *http://www.nhtsa.gov/FARS*.

5 NCHRP Report 788 can be found at *http://www.trb.org/Main/Blurbs/171540.aspx*.

(NCHRP) Report 788, Guide for Effective Tribal Crash Reporting.[5] Tribes may use FHWA's Roadway Safety Information Analysis: A Manual for Local Rural Road Owners to learn about strategies in the collection and analysis of crash and other roadway data to consider including in a Transportation Safety Plan.[6] Tribes may also use existing State and regional databases as a model for developing and implementing a data collection program. To find out if a State DOT may be able to provide this information, visit http://www.dottrcc.gov.

Types of Data

Three types of data are commonly used for transportation safety planning: data on crashes, roadway characteristics, and traffic volume.

Crash Data

Crash data are usually extracted from police crash reports, which contain information on the people involved in a crash, including age, gender, and ethnicity. They also have information on whether the drivers and occupants were wearing safety belts and whether the driver was impaired. Finally, the reports contain information on the circumstances of the crash such as condition or type of roadway. Some States compile this information and make it available to other organizations and the public. Be sure to check with your State to see if your tribe can make use of obtain this information.

In addition to data from crash reports, insurance companies may provide data on crash characteristics. Emergency service providers may also be able to provide data such as ambulance run times to crashes and degree of injury. Medical facilities sometimes collect information on treatment costs that is useful in determining the costs of crash-related injuries.

Roadway Data

Tribes can use roadway data, including information about speed limits, roadway design characteristics, and locations and condition of sidewalks and crosswalks to determine the root cause of safety problems and identify engineering solutions to improve safety. By incorporating roadway data into transportation safety planning, tribes can develop a more in-depth understanding of the roadway characteristics that increase crash risk, such as sharp curves or unlighted roads. It is important that tribes communicate with State DOTs to determine what roadway data may be available to support the development of the Transportation Safety Plan.

Traffic Volume Data

Traffic volume data help tribes calculate crash rates that account for the number of drivers using different roadway segments. Traffic volume data can help tribes focus their transportation safety planning efforts by identifying which locations are most dangerous given traffic volumes.

Whatever data are used in the Transportation Safety Plan, the plan should clearly explain its data sources so that the tribe and others interested in safety can use those sources in the future. A clear understanding of the crash data source is critical information to some funding entities.

6 The Manual for Local Rural Road Owners document can be found at http://safety.fhwa.dot.gov/local_rural/training/fhwasaxx1210/.

Tribes can also take advantage of existing programs and risk assessment processes that help identify safety issues and concerns. For example, the U.S. Road Assessment Program (usRAP) provides a method to identify major safety shortcomings through a program of systematic assessment of risk based on roadway design.[7] usRAP rates roadway safety for specific road segments based on each segment's specific designs and traffic control features. Tribes can use these ratings to assess crash risk.

> Tip: Refer to the Data Collection and Use Tribal Transportation Planning Module for more information on how data can be collected and analyzed!

A tribe may also conduct an observational study or a road safety audit (RSA) to gain a better understanding of safety issues. An RSA is a formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. Tribes may conduct RSAs to identify safety concerns at a single location or along a corridor.[8]

b. Supplement Limited Data

If gathering data is difficult, the working group can reach out to safety stakeholders or the community at large to provide anecdotal evidence to supplement insufficient crash, traffic, and roadway data. This information can be helpful in identifying the concerns of stakeholders and tribal members as they relate to transportation safety. Methods to reach out to stakeholders and tribal members may include community surveys, public forums, open-house meetings, or requests for comments advertised in a newspaper or newsletter. Questions to ask may include:

- How many miles do you commute to work or school each day?
- Do you know any details about a crash that occurred in the past?
- What is your biggest concern for road safety in our community? What could make our roadways safer?
- Where are the unsafe roadways and intersections in your neighborhood? What contributes to them being unsafe?
- Are there areas that are unsafe for pedestrians or cyclists? Why?
- Where is speeding a concern? Why?

A survey with questions such as these can shed light on the community's particular safety concerns. For example, answers to the question "Where is speeding a concern?" could identify locations that could benefit from increased traffic law enforcement or roadway improvements like the addition of a walkway or bikeway that is off of the road. Also, answers to the question "What is your biggest concern for road safety in our community?" could provide insight into what areas of transportation safety to emphasize, such as distracted driving or speeding. Based on the results of a community survey, the working group can focus its attention on key safety issues or dangerous locations.

7 More information about the usRAP process and methodology can be found at http://www.usrap.us.

8 More information about RSAs can be found at http://safety.fhwa.dot.gov/rsa/.

c. Analyze Data

Once you've gathered transportation safety data, the next step is to analyze it in order to understand what the data can tell you about transportation safety in your tribe. The analysis of crash data allows tribes to use crashes to tell a story that reveals opportunities to improve safety on tribal roads. One simple way to start this story is by simply marking crash locations on a map to see where crashes have occurred most frequently in the past. After looking for problem locations, the second part of the story should consider other patterns in the data, such as driver impairment, time of day, roadway characteristics, traffic volumes, and other contributing factors, which may include restraint use (seat belts, car seats), alcohol or drug use, and distracted driving. This analysis would begin by categorizing recent crashes according to these factors and characteristics.

If your tribe has accurate traffic volume data in place, tribes can use spreadsheet software such as Microsoft Excel to compare crash data to roadway volumes to determine crash rates, or the number of crashes per 1,000 or more vehicles. A high crash frequency at a site may indicate that there is a safety issue and an opportunity to improve the site, particularly if the crashes are occurring at a site with low traffic volumes. The Highway Safety Manual[9] provides crash prediction models called Safety Performance Functions that can be used to compare actual crash rates to expected crash rates for an advanced roadway network screening.

As mentioned above, even if your tribe has limited data resources, you can still analyze anecdotal information about transportation safety. Information about transportation safety gathered through a community survey can help the working group identify, for example, locations where pedestrians and bicyclists feel unsafe, or types of roadway conditions that drivers feel reduce safety.

Data Analysis Resources

Access to technology such as safety data analysis software or geospatial mapping tools may support the development of Transportation Safety Plans. If your tribe does not own these kinds of tools, State DOTs, MPOs, Tribal Technical Assistance Program (TTAP) Centers, and local transportation agencies may be able to provide tribes with technical support. These technologies may be helpful for tribes, but they are not required. The ability to communicate, collaborate, and coordinate with State DOTs and other partner agencies is a much more important aspect of developing Transportation Safety Plans. Tribes should work with partner agencies to share data, identify safety issues, leverage existing resources, develop safety strategies, and schedule the implementation of the Transportation Safety Plan.

Tribes may rely on existing regional or national reports to support tribal data analysis efforts. The State SHSP is an excellent starting point for tribes working on a Transportation Safety Plan.[10] Some SHSPs use data analysis to identify safety issues on tribal roads.

9 For more information about the Highway Safety Manual, visit http://www.highwaysafetymanual.org.

10 For more information about SHSPs, visit FHWA's Safety Program website at http://safety.fhwa.dot.gov/hsip/shsp/.

Each SHSP typically lists the office or person responsible for the plan and explains the data analysis taken to support the plan. A wide variety of resources are available to support data analysis ranging from simple to very complex. Chapter 4 includes a list of introductory and advanced crash analysis resources to consider using to analyze data.

Practice While You Learn!

A Transportation Safety Plan for the Wind Lake Tribe

With the vision, mission statement, and goals in place, the working group set about gathering and analyzing data to inform their development of the Transportation Safety Plan. Through working with the identified stakeholders, the working group was able to gather crash, injury, and traffic data from hospital records, law enforcement reports, and State DOT databases. The working group analyzed this data, which helped them identify high-crash locations and assess common factors contributing to crashes. The data revealed that sharp curves and unsafe weather conditions contributed to many serious roadway departure crashes, that the lack of seat belt use was common in fatal crashes, and that young drivers were disproportionately represented in serious-injury crashes.

However, the tribe and its partners wanted to collect additional information on several issues, such as pedestrian injuries, so the working group decided to supplement the available data with a survey of community members. The working group advertised the survey through an open-house meeting. The survey revealed valuable anecdotal information such as common walking routes for pedestrians and a list of intersections that were perceived by the community as unsafe for pedestrians. The survey also identified an injury crash between a pedestrian and a car that wasn't recorded in the formal crash database.

Step 3: Determine Emphasis Areas

3 Once the working group has finished analyzing the safety data and information, the next step is to identify emphasis areas for the Transportation Safety Plan. Emphasis areas help the plan achieve its vision, mission statement, and goals by identifying safety issues that could be resolved through specific strategies. Emphasis areas reflect the results of the data analysis, in addition to the input of the working group, community members, and other stakeholders.

a. Identify Potential Emphasis Areas

Developing a draft list of emphasis areas is one of the working group's most important functions. The emphasis areas in a Transportation Safety Plan should relate to the Transportation Safety Plan's vision, mission statement, and goals, and also address the key safety issues identified by the working group through data analysis and/or outreach to tribal leaders, stakeholders, and members. Examples of emphasis areas within these categories include:

- Distracted and drowsy driving
- Seat-belt use
- Impaired driving
- Speed management

- Young driver safety
- Hazardous locations
- Roadway and lane departures
- Intersection safety
- Pedestrian and bicyclist safety
- Motorcycle safety
- Incident response
- Nighttime crashes
- Commercial vehicles
- Crash data collection improvement

Table 1 provides a few samples of issues that a tribe could identify through data analysis and/or outreach, along with a corresponding emphasis area on which to focus.

Table 1. **Sample Issues and Related Emphasis Areas**

Issue Identified Through Data Analysis and/or Outreach	*Possible Emphasis Area*
High percentage of crashes relating to distracted driving	Distracted driving
Three intersections with high crash rates	Intersection safety
Tribal members identify unsafe locations for pedestrians	Pedestrian safety
Roadway segments with large numbers of speeding tickets issued	Speed management

What is an emphasis area and why is it necessary?

Emphasis areas, such as pedestrian safety or distracted driving, identify the safety issues that the Transportation Safety Plan addresses by recommending specific strategies. The working group should identify emphasis areas to give shape to the overall plan.

Appendix B provides additional examples of emphasis areas and strategies, which are discussed in Step 4. Not all of the potential emphasis areas and strategies are applicable to all locations; their effectiveness, if applied, may vary. For other examples of emphasis areas, consider reviewing the American Association of State Highway and Transportation Officials (AASHTO) document Toward Zero Deaths: National Strategy on Highway Safety,[11] which focuses on key emphasis areas and contains strategies designed to advance effective safety practices.

b. Prioritize Emphasis Areas

Once the working group has developed a draft list of emphasis areas, they should prioritize them to determine which are the most important to include in the Transportation Safety Plan. It is important to narrow down the list of emphasis areas to a number that the tribe can reasonably address based on funding and staffing availability. Limiting the number of emphasis areas helps to focus resources on the tribe's most pressing transportation safety issues. For example, if the data show that there have been several deaths resulting from crashes involving pedestrians or bicyclists, but no deaths resulting from distracted driving (though it may be an identified issue), the working group may choose pedestrian and bicyclist safety as an emphasis area, but not choose distracted driving.

The working group should choose the emphasis areas that it feels address the most important needs, based on the tribe's safety goals and the data analysis conducted in Step 2. If the working group identifies emphasis areas based on anecdotal evidence and stakeholder input, then it may be necessary to engage the stakeholders to help prioritize the emphasis areas.

11 For more information, visit http://www.towardzerodeaths.org/strategy.php.

Whatever emphasis areas the working group selects, it is important to ensure that each emphasis area addresses the vision, mission statement, and goals of the Transportation Safety Plan and that the working group can clearly explain why each emphasis area was selected.

Practice While You Learn!

A Transportation Safety Plan for the Wind Lake Tribe

Based on the results of the data analysis and the community survey, the working group identified a list of twelve possible emphasis areas for the transportation safety plan. The working group created sub-teams to discuss each of the emphasis areas. After a series of meetings and outreach with stakeholders, the working group agreed that seatbelt use, pedestrian safety, young drivers, and roadway departures were the tribe's most serious transportation safety problems. As such, the working group decided to prioritize these four emphasis areas.

Step 4: Research and Identify Potential Strategies

4 Strategies are actions that the Transportation Safety Plan working group identifies and tribal safety staff implements to achieve the goals for each emphasis area. The working group should identify potential strategies based on their effectiveness and available financial and staff resources.

a. Research Strategies

Before deciding on which strategies to include in the Transportation Safety Plan, the working group should consult various national, State, regional, and local resources that provide information about the effectiveness of various transportation safety strategies. The State SHSP, for example, may provide effective examples of strategies for a tribe to include in its Transportation Safety Plan. The TTAP Centers can also provide assistance in identifying relevant safety strategies for a tribe's particular needs. Chapter 4 includes a list of additional resources that may help tribes identify potential transportation safety strategies.

b. Identify Potential Strategies

A Transportation Safety Plan should include a list of strategies focused on addressing the emphasis areas identified in Step 3. Strategies should identify corridors and intersections where safety improvements and countermeasures can best achieve the goals of the Transportation Safety Plan.

Why identify strategies?

Strategies are where the rubber meets the road; they define specific actions that the tribe can take to achieve safety improvements within each emphasis area. Strategies should be achievable and effective.

Why prioritize strategies?

Financial and/or staffing restraints may limit the number or scope of strategies that the working group can include in the Transportation Safety Plan. Part of deciding which strategies to include involves deciding which strategies will be best for the tribe, considering the potential benefits, financial cost, staff availability, schedule for implementation, and stakeholder buy-in.

Strategies do not necessarily need to be engineering solutions. When selecting strategies, the working group should consider effective practices within each of the "4 E's" of roadway safety (for more information about the 4 E's, see Chapter 2).[12] Public education programs, increased law enforcement, and improvements to emergency services may stand alone or supplement engineering solutions to meet the performance measures of the emphasis areas.

For example, if reducing speed-related crashes is an emphasis area in a Transportation Safety Plan, a tribe may consider the following strategies, which relate to the 4 E's:

Emphasis Area: Speed-related crashes

- Explanation: Excessive speed was reported as a factor in 55 percent of all fatal and serious injury crashes
- Strategies:
  - Education: Establish a public awareness campaign about the dangers of speeding
  - Enforcement: Increase police patrols aimed at enforcing speed limits
  - Engineering: Install signs that show drivers' speeds in real time
  - Emergency services: Purchase additional ambulances to reduce responses times for first responders, thus increasing the chance of survival for a person involved in a speed-related crash

Combining the efforts of multiple strategies to address one emphasis area can increase the likelihood that these strategies will resolve the safety issues that the emphasis area addresses.

12 For more information on strategies that address each of the "4 E's," consult the NCHRP 500 Series Guidance Documents, available at www.safety.transportation.org. Strategies for rural roadway networks can be found on FHWA's website: http://safety.fhwa.dot.gov/local_rural/training/.

c. Identify Target Outcomes

The working group should consider target outcomes for each strategy. Each strategy should correspond to a target outcome that explains how the strategy is going to address the safety concerns reflected in each emphasis area. Target outcomes should relate directly to the Transportation Safety Plan's goals and reflect the concerns of the tribe's safety stakeholders. A possible target outcome for the enforcement strategy for the speed-related crashes emphasis area listed above might be "drivers become aware that speeding is likely to result in a speeding violation and reduce their speeds to avoid fees."

Practice While You Learn!

A Transportation Safety Plan for the Wind Lake Tribe

With the emphasis areas in place, the working group began researching potential strategies for improving safety in each area. The working group identified strategies based on input from safety stakeholders and best practice ideas from nationally available resources such as FHWA's Roadway Safety Noteworthy Practices Database. The working group considered the financial and staff resources available to implement these strategies and developed a list of possible strategies for each emphasis area. For the pedestrian safety emphasis area, for example, the working group suggested the following strategies to achieve the associated target outcomes:

Strategy	***Target Outcome***
Conduct public education and outreach sessions to raise motorists' awareness of pedestrian and bicyclist safety needs	Awareness of the risks faced by pedestrians and cyclists, and strategies for reducing this risk
Strictly enforce laws regarding yielding to pedestrians	Reduction in incidence of crosswalk violations
Implement effective engineering countermeasures, such as pedestrian crossing islands	Reduced risk for pedestrians through increased visibility
Improve the response time of emergency services in the case of pedestrian crashes	Increased response time to pedestrian crashes

Step 5: Prioritize and Incorporate Strategies

5 The next step in the development of a Transportation Safety Plan is to prioritize the identified strategies for each emphasis area in order to develop a final list of strategies. This process helps the working group decide which strategies to implement, given limited funding and staff resources.

a. Prioritize and Select Final Strategies

The working group should prioritize the identified strategies by comparing the potential benefits and costs to implement each strategy. This comparison can help to identify strategies that provide the highest safety benefit (e.g., reduction in crashes) for the least cost. However, costs and benefits are not the only considerations in prioritizing strategies. Other factors include staff availability (e.g., whether maintenance staff have time available to trim hazard vegetation over the summer), the schedule for implementation (e.g., whether strategies can be implemented in a realistic timeframe), and the relative importance of each emphasis area to your tribe. The availability of specific stakeholders to promote or execute each of these strategies is also an important component of prioritizing strategies. For example, the working group should seek agreement from law enforcement officials about a strategy for expanding speeding enforcement. The working group should prioritize strategies with all of these considerations in mind.

b. Identify Responsibilities for Each Strategy

Once the list of strategies is finalized, the working group should identify the stakeholders that will be responsible for implementing each strategy. Each strategy should be assigned a specific, named individual or organization to help ensure that the strategy is implemented. Some strategies may fit into a routine improvement process, such as the installation of rumble strips as part of an annual summer paving program. Others may require a one-time effort or spot improvement program, such as a police enforcement blitz or the establishment of protected left-turn signal phasing at critical intersections.

Practice While You Learn!

A Transportation Safety Plan for the Wind Lake Tribe

The working group prioritized strategies for each emphasis area and settled on the ones that they thought would provide the highest safety benefit at the most reasonable cost. The table below summarizes the working group's strategies and target outcomes for each strategy assigned within the pedestrian safety emphasis area. The strategies address each of the "4 E's" of safety. The working group also identified a target date of completion and responsible organizations or individuals for each strategy.

Emphasis Area: Pedestrian Safety

Strategic Linkage/Explanation: Between 2010 and 2013, two conflicts between a vehicle and a pedestrian walking along the roadway have resulted in serious injury. The Tribal Council and Transportation Safety Plan working group are very concerned with pedestrian safety as a result.

	Strategies	***Target Outcomes***	***Organizations and Individuals Responsible***	***Target Date of Completion***
Education	Conduct public education and outreach sessions to raise motorists' awareness of pedestrian and bicyclist safety needs	Awareness of the risks faced by pedestrians and cyclists, and strategies for reducing this risk	The Wind Lake Tribal Council's communications specialist	Dec. 2014
Enforcement	Strictly enforce laws regarding yielding to pedestrians	Reduction in incidence of crosswalk violations	The Transportation Safety Plan champion (a Wind Lake Tribe law enforcement officer)	Ongoing
Engineering	Implement effective engineering countermeasures, such as pedestrian crossing islands	Reduced risk for pedestrians through increased visibility	The Wind Lake Traffic Engineering Chief Safety Engineer	Dec. 2014
EMS	Improve the response time of emergency services in the case of pedestrian crashes	Increased response time to pedestrian crashes	The Wind Lake Reservation EMS Coordinator	Ongoing

Step 6: Draft the Plan

6 Once the working group has identified strategies and selected responsible parties and completion dates, all of the components of the Transportation Safety Plan are in place. Now it is time for the working group to draft the plan. The Transportation Safety Plan serves to document the working group's decisionmaking processes for Steps 1–6 and lays out next steps for implementing the safety improvements. An ideal Transportation Safety Plan would address the elements discussed below:

- **Introduction:** provide a brief introduction that includes a general overview of transportation safety within the tribe.
  - **Vision:** Include the working group's vision for the Transportation Safety Plan as determined in Step 1d.
  - **Mission Statement:** Include the working group's mission statement for the Transportation Safety Plan as determined in Step 1d.
  - **Goals:** Include the working group's goals for the Transportation Safety Plan as determined in Step 1d.
- **Transportation Safety Plan Process:** Describe the overall process that the working group took to develop the Transportation Safety Plan.
- **Safety Stakeholders:** List the individuals and agencies that were involved in the creation and implementation of the plan, including tribal, Federal, State, county, and local government partners as identified in Step 1c.
- **Existing Safety Efforts:** Discuss the activities, programs, and policies to address transportation safety that were already in place prior to the development of the Transportation Safety Plan as determined in Step 1c.
- **Data Analysis:** Summarize the data collection and analysis that the working group conducted in support of the plan during Step 2. This should list the data sources that support the Transportation Safety Plan and clarify how data supported the selection of the plan's emphasis areas.
- **Emphasis Areas:** List the Transportation Safety Plan's emphasis areas and explain the importance of each as determined in Steps 3a and 3b.
- **Strategies:** For each emphasis area, list the strategies that will be implemented to improve safety as determined in Steps 4 and 5a. Include the responsible parties and timelines for implementation.
- **Next Steps:** Summarize the actions that need to occur to implement the Transportation Safety Plan.
- **References:** List all references used to develop the Transportation Safety Plan.

To the greatest extent possible, the Transportation Safety Plan should include supporting information, such as tables or charts of the crash data analysis results, maps detailing the tribe's transportation network, and photos showing areas of concern.

Once the Transportation Safety Plan is drafted, the working group should share it with stakeholders, including tribal leadership, for review and comment. The working group should incorporate the comments and finalize the plan to prepare for implementing it.

Practice While You Learn!

A Transportation Safety Plan for the Wind Lake Tribe

After months of visioning, goal setting, data collection and analysis, stakeholder involvement, and prioritization, the working group gathered the information they learned and the decisions they made to draft the Transportation Safety Plan. The draft plan documented the working group's decisionmaking processes and clearly laid out next steps for tribal safety improvements. The working group solicited comments on the Transportation Safety Plan from the stakeholders that it had worked with previously, including the Tribal Council. After revising the initial draft, the working group collaborated with the Tribal Council to release the plan and distributed it to interested tribal members and other safety stakeholders and partners, such as State DOT staff.

Step 7: Evaluate and Update the Transportation Safety Plan

7 After the working group finalizes the Transportation Safety Plan and puts it into place, it is important to evaluate and update it to reflect the changing transportation safety conditions within the tribe. As time goes on, some safety issues may be resolved and others may grow in importance, so it is important to keep the Transportation Safety Plan up to date.

a. Evaluate the Transportation Safety Plan

Why evaluate the plan?

A Transportation Safety Plan is a living document. Regular reviews of the Transportation Safety Plan allow tribes to identify what is working well and what needs improvement. Updating the Transportation Safety Plan helps tribes to address changing conditions.

During implementation, the working group should set milestones to measure the progress of the Transportation Safety Plan and keep a record of successes and challenges. This data will be essential in evaluating the implemented strategies to determine their effectiveness. To start, the working group should monitor the implementation of the Transportation Safety Plan's strategies to ensure their success. Monitoring helps to provide accountability, keep stakeholders engaged, and identify opportunities for collaboration.

The working group should meet with stakeholders who were tasked with implementing strategies to ensure that they are on track. This could include data collection that may be similar to what the working group conducted in Step 2. The timeframe for evaluating strategies depends on the type of strategies in the Transportation Safety Plan. For strategies related to speeding and seat-belt use, for example, the evaluations can take place as soon as the strategy is applied. For strategies related to overall crash frequency, evaluations typically need at least three years of before and after data, so it may be necessary to track those projects over a longer period of time.

If sufficient crash data are available for evaluation, a simple before-and-after study that compares the number of crashes before implementation to the number of crashes after implementation can determine the effectiveness of implemented strategies. A decrease in crashes may indicate that the strategies have successfully improved safety. Comparing the decrease in crashes to the costs associated with each strategy can provide a simple benefit-cost analysis that may help demonstrate the success and cost effectiveness of the transportation safety plan.

However, a before-and-after study may not be feasible due to a lack of crash data. When sufficient crash data are not available, other measures can help evaluate the safety performance of an implemented strategy. The measures should be observed both before and after implementation. Some measures include the following:

- Number and type of public comments and concerns
- Numbers and types of police citations
- Number of fence/wall/sign impacts

Whether or not sufficient crash data are available, tribes should compare the effectiveness of each strategy to the goals for each emphasis area. Achieving the plan's goals is the ultimate measure of the Transportation Safety Plan's effectiveness in improving tribal road safety.

b. Update the Transportation Safety Plan

With the results of the ongoing evaluation of the Transportation Safety Plan, the working group should make changes or modifications to the plan as necessary. The working group should keep the Transportation Safety Plan up to date based on the results of its evaluation of the Transportation Safety Plan and any changes in the tribe's transportation network. Regularly scheduled updates of the Transportation Safety Plan allow the working group to review what is working well, adjust what needs improvement, and identify new emphasis areas and/or strategies to implement. Establishing a regular evaluation and update cycle can assure routine examination of the plan and maximize the plan's effectiveness.

Practice While You Learn!

A Transportation Safety Plan for the Wind Lake Tribe

Since finalizing the plan in 2013, the working group has carefully monitored the progress of the plan and evaluated its success. The working group has checked in with each of the individuals responsible for strategies in the Transportation Safety Plan and ensured that they were implemented. The working group also evaluated recent conditions based on the performance measures and revisited the overall goals for the TransportationSafety Plan. They found that the plan succeeded in improving seat-belt use, but has not made a significant impact on the behavior of younger drivers. Not enough time has passed for the working group to evaluate the impact of the Transportation Safety Plan on the frequency of roadway departure or pedestrian crashes. In response to these findings, the Working Group plans to revise the plan and release an updated version within the next two years.

IV. ADDITIONAL RESOURCES

The following resources may assist tribes in developing Transportation Safety Plans.

Data Collection and Analysis Resources

The following items are other data analysis resources that are available to tribes.

Introductory Crash Data Collection Resources – The following resource offers procedures for collecting crash data on tribal roads.

- NCHRP 788 Guide for Effective Tribal Crash Reporting: This guidebook presents guidance for tribal leaders on effective crash reporting, based on best practices, published literature, and data from tribes. For more information, visit http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_788.pdf.

Introductory Crash Analysis Resources – Several resources offer procedures for analyzing crash data. Each of the following resources presents useful introductory information on data analysis, as well as advanced methodologies for analyzing different road types:

- Roadway Safety Information Analysis: A Manual for Local Rural Road Owners: This report provides processes and examples for typical information needs and analyses that practitioners can use to help improve the safety of rural roads. For more information, visit http://safety.fhwa.dot.gov/local_rural/training/fhwasaxx1210/.
- NCHRP Report 500, Volume 21: Safety Data and Analysis in Developing Emphasis Areas: This report provides guidance on sources for safety data and the procedures for selecting strategies within a given emphasis area. For more information, visit http://www.trb.org/Main/Blurbs/160164.aspx.
- TTAP Centers: The TTAP centers can serve as resources for training on methods of crash data storage, maintenance, integration, and evaluation. For more information, visit http://www.ltap.org/centers/.

Advanced Crash Analysis Resources – The following resources are for more advanced users of safety data and may require additional training. Nonetheless, they may be helpful in analyzing safety data:

- Highway Safety Manual (HSM): The HSM provides information and tools to facilitate roadway planning, design, operations, and maintenance decisions based on the consideration of safety. It also includes training on applying the HSM. For more information, visit http://www.highwaysafetymanual.org/Pages/default.aspx.
- Interactive Highway Safety Design Model (IHSDM): The IHSDM features six safety evaluation modules: Crash Prediction, Policy Review, Design Consistency, Traffic Analysis, Driver/Vehicle Review, and Intersection Review. The Crash Prediction Module implements part of the HSM for evaluating rural two-lane highways, rural multilane highways and urban/suburban arterials. For more information, visit http://www.fhwa.dot.gov/research/tfhrc/projects/safety/comprehensive/ihsdm/.
- SafetyAnalyst: SafetyAnalyst is a complex set of technical analytical tools that incorporate state-of-the-art safety management approaches into the decisionmaking process. It helps users identify safety improvement needs and develop a system wide program of site-specific improvement projects. For more information, visit http://www.safetyanalyst.org.

Strategy Identification Resources

A variety of resources are available for identifying effective strategies, including:

- Roadway Safety Information Analysis: This report provides processes and examples for typical information needs and analyses that practitioners can use to help improve the safety of rural roads. For more information, visit http://safety.fhwa.dot.gov/local_rural/training/fhwasaxx1210/.
- Crash Modification Factor (CMF) Clearinghouse: The CMF Clearinghouse is a useful resource for selecting the most appropriate strategies to address specific needs and transportation safety issues. The website includes an online database of CMFs and connects users to training on applying CMFs. For more information, visit http://www.cmfclearinghouse.org.
- FHWA Proven Countermeasures: The FHWA Proven Countermeasures website provides information about nine transportation safety strategies that address crashes that occur at intersections, involve pedestrians, or result from roadway departures. For more information, visit http://safety.fhwa.dot.gov/provencountermeasures/.
- NCHRP 500 Series: This series of documents assists transportation safety professionals in reducing injuries and fatalities that relate to the emphasis areas outlined in the AASHTO Strategic Highway Transportation Safety Plan. For more information, visit http://www.trb.org/Main/Blurbs/152868.aspx.
- NHTSA Countermeasures that Work: This document serves as a reference to assist those tasked with addressing transportation safety in selecting effective strategies for resolving traffic safety problems. For more information, visit http://www.ghsa.org/html/publications/countermeasures.html.
- HSIP Manual: This manual provides transportation safety professionals with technologies and noteworthy practices regarding highway safety improvement programs and related activities. It addresses the planning, implementation, and evaluation components of safety. For more information, visit http://safety.fhwa.dot.gov/hsip/resources/fhwasa09029/.
- Roadway Safety Noteworthy Practices Database: This searchable database allows users to find noteworthy practices in roadway safety planning by State. For more information, visit http://rspcb.safety.fhwa.dot.gov/noteworthy/.
- Intersection Safety — A Manual for Local Rural Road Owners: This document provides information on identifying intersection safety issues, choosing the strategies that address them, and evaluating the benefits of those treatments. For more information, visit http://safety.fhwa.dot.gov/local_rural/training/fhwasa1108/.
- Roadway Departure Safety — A Manual for Local Rural Road Owners: This document provides information on identifying roadway departure safety issues, choosing the strategies that address them, and evaluating the benefits of those treatments. For more information, visit http://safety.fhwa.dot.gov/local_rural/training/fhwasa1109/.
- Toward Zero Deaths: A National Strategy on Highway Safety: This document provides a platform of consistency for state agencies, private industry, national organizations, and others to develop transportation safety plans that prioritize traffic safety culture and promote the national Toward Zero Deaths vision. For more information, visit http://safety.fhwa.dot.gov/tzd/.

Other Resources

There are a number of supporting resources available to assist tribal transportation agencies in improving safety through a Transportation Safety Plan, including the following offices and agencies:

- Tribal Technical Assistance Programs (http://www.ltap.org/about/ttap.php)
- FHWA Office of Federal Lands Highway (http://flh.fhwa.dot.gov)
  - Tribal Transportation Program (http://flh.fhwa.dot.gov/programs/ttp/)
  - Tribal Technical Assistance Program (http://flh.fhwa.dot.gov/programs/ttp/ttap.htm)
  - Eastern Federal Lands (http://www.efl.fhwa.dot.gov)
  - Central Federal Lands (http://www.cflhd.gov)
  - Western Federal Lands (http://www.wfl.fhwa.dot.gov)
- FHWA Office of Safety (http://safety.fhwa.dot.gov)
  - Local and Rural Road Safety Program (http://safety.fhwa.dot.gov/local_rural/)
  - Local and Rural Roads Safety Peer-to-Peer Program (http://safety.fhwa.dot.gov/local_rural/training/p2p/)
- FHWA Division Offices (http://www.fhwa.dot.gov/about/field.cfm)
- National Highway Traffic Safety Administration (NHTSA) (http://www.nhtsa.gov)
- NHTSA Fatality Analysis Reporting System (FARS) (http://www-fars.nhtsa.dot.gov/Main/index.aspx)
- Bureau of Indian Affairs Indian Highway Safety Program (BIA IHSP) (http://www.bia.gov/WhoWeAre/BIA/OJS/who/fieldops/ojs-dhs/index.htm)
- Centers for Disease Control (CDC) (http://www.cdc.gov)
- Indian Health Service (http://www.ihs.gov)

The following documents may also be useful in developing Transportation Safety Plans:

- Strategic Transportation Safety Plan Toolkit for Tribal Governments FLH, 2014. (http://flh.fhwa.dot.gov/programs/ttp/safety/stsp-toolkit.htm)
- Developing Tribal Safety Plans Webinar. FHWA, 2013. (https://connectdot.connectsolutions.com/p1gur74ksfs/)
- Indian Highway Safety Plan. BIA, 2014. (http://www.nhtsa.gov/links/StateDocs/FY14/FY14HSPs/BIA_FY14HSP.pdf.)
- Developing Safety Plans: A Manual for Local Rural Road Owners. FHWA, 2012. (http://safety.fhwa.dot.gov/local_rural/training/fhwasa12017/)

- Fundamental Elements and Effective Steps for SHSP Implementation. FHWA, 2010. (http://safety.fhwa.dot.gov/hsip/shsp/fhwasa10024/)
- Strategic Transportation Safety Plan Toolkit for Tribal Governments. FLH, 2014. (http://flh.fhwa.dot.gov/programs/ttp/safety/stsp-toolkit.htm)
- Tribal Safety Management System Implementation Plan, FLH, 2011. (http://flh.fhwa.dot.gov/programs/ttp/safety/documents/sms-implementation.pdf)
- Tribal HSIP Model and Implementation Plan for HEP Guide. FHWA, 2004. (http://www.fhwa.dot.gov/tribal/topics/safety/saf_ack/)
- Strategic Highway Safety Plan - Evaluation Process Model. FHWA, 2012. (http://safety.fhwa.dot.gov/hsip/shsp/epm/pdf/shsp_epm_report.pdf)

[INSERT AGENCY NAME] Transportation Safety Plan

Kick-off Meeting

Date and Time: [INSERT DATE AND TIME]

Location: [INSERT MEETING LOCATION AND ADDRESS]

1. Welcome remarks by the Tribal Transportation Safety Plan coordinator or champion

2. Introductions

3. What is a Tribal Transportation Safety Plan and what are its benefits?

4. Identify other agencies or individuals who should be invited to join the working group.

5. Existing safety problems. If applicable, summarize prior analysis of crash data or safety problems.

6. Begin Identifying Emphasis Areas for the Plan

7. Next Meeting. Schedule a date for a follow-up meeting

8. Adjourn

9. Meeting Contact: [INSERT PHONE NUMBER AND EMAIL FOR MEETING ORGANIZER]

Emphasis Area	*Measure(s)*	*Potential Strategies*
Distracted Driving	• Reduce annual distracted driving crashes from 100 in 2010 to 90 or fewer in 2020 (a 10% reduction). • Reduce annual distracted driving injuries from 40 in 2010 to fewer than 36 in 2010 (a 10% reduction).	• Develop a public outreach campaign that coincides with other jurisdictions' efforts to raise awareness about distracted driving. • Reduce roadside distractions. • Pass and enforce legislation that specifically penalizes distracted driving, including making distracted driving a subsection of negligent driving. • Increase the use of techniques that limit the frequency and severity.
Occupant Protection	• Reduce annual unrestrained crashes from 20 in 2008 to 5 or fewer in 2018 (a 75% reduction). • Reduce annual unrestrained injuries from 16 in 2008 to fewer than 4 in 2018 (a 75% reduction). • Increase seat-belt use from 75% in 2008 to 90% or greater in 2018 (a 17% increase).	• Develop an incentive/ recognition program for law enforcement efforts. • Conduct an enforcement program that targets pickup truck drivers and passengers. • Conduct sustained high-visibility enforcement initiatives. • Continue current best practice enforcement and educational programs (e.g., Chiefs' Challenge, Click It or Ticket). • Provide more paid media campaigns in local publications. • Conduct outreach to teens.
Impaired Driving	• Reduce annual alcohol-related crashes from 9 in 2009 to 3 or fewer in 2014 (a 67% reduction). • Reduce annual impaired driving injuries from 10 in 2009 to fewer than 2 in 2014 (an 80% reduction).	• Increase the number and effectiveness of sobriety check-points and targeted enforcement. • Enact stronger and more effective legislation, such as license suspension or mandatory ignition interlocks for first time offenders. • Develop educational programs targeting specific audiences, such as elementary and middle school students, or the 18-to-34 year-old age group. • Create effective media campaigns in both visual and print media.

Emphasis Area	*Measure(s)*	*Potential Strategies*
Speed Management	• Reduce annual aggressive driving injuries from 24 in 2009 to fewer than 20 in 2014 (a 17% reduction). • Reduce annual fatalities involving excessive speed from 15 in 2009 to 10 or fewer in 2014 (a 50% reduction). • Reduce annual injuries involving excessive speed from 100 in 2009 to fewer than 75 in 2014 (a 25% reduction).	• Change the driving culture by conducting and supporting public education and outreach activities that elevate the awareness of the dangers of aggressive driving. • Educate the Tribal Council and tribal members on the risks associated with aggressive driving. • Communicate the factors associated with aggressive driving to the transportation engineering and planning communities. • Increase enforcement targeting aggressive driving.
Safe Teen Drivers	• Reduce annual crashes involving teen drivers from 200 in 2009 to 150 or fewer in 2020 (a 25% reduction). • Reduce annual injuries involving teen drivers from 50 in 2009 to fewer than 25 in 2020 (a 50% reduction).	• Review, evaluate, and improve the driver preparation program. • Develop a program to increase enforcement, prosecution, and adjudication of young driver traffic law violations. • Identify opportunities for engineering solutions to prevent young driver crashes through road safety audits and other measures.
Roadway/Lane Departures	• Reduce annual run-off-the-road fatalities from 8 in 2009 to 4 or fewer in 2020 (a 50% reduction). • Reduce annual run-off-the-road injuries from 40 in 2009 to fewer than 30 in 2020 (a 25% reduction).	• Implement stricter law enforcement of motor vehicle laws and increase fines for serious violations that result in run-off-the-road crashes (e.g., driving too fast for conditions). • Improve data collection and analysis for fatal and injury run-off-the-road crashes to provide critical information to transportation planners and engineers. • Evaluate pavement strategies to reduce speed and increase friction (e.g., pavement type, pavement application method, pavement marking spacing). • Improve traffic control strategies to provide positive guidance to keep vehicles on the road. • Implement forgiving roadway designs that mitigate the impact of cars leaving the road.

Emphasis Area	*Measure(s)*	*Potential Strategies*
Incident Response	• Reduce crash injury mortality by 10% or greater by 2015.	• Improve electronic data and voice communications for emergency response. • Improve resource deployment for emergency service response. • Develop a safer, faster EMS response. • Improve crash scene safety. • Improve patient care.
Intersection Safety	• Reduce annual intersection-related fatalities from 12 in 2009 to 6 or fewer in 2020 (a 50% reduction). • Reduce annual intersection-related injuries from 60 in 2009 to fewer than 45 in 2020 (a 25% reduction).	• Reduce the number of conflict points and provide better guidance for motorists at intersections. • Develop a system to track and evaluate countermeasure effectiveness at high-crash intersections. • Encourage more multidisciplinary collaboration at the State and local level on intersection safety. • Create intersection safety checklists for existing conditions and new design.
Nonmotorized Road User Safety	• Reduce annual pedestrian injuries from 15 in 2009 to fewer than 10 in 2015 (a 33% reduction).	• Conduct public education and outreach to motorists to raise their awareness of pedestrian and bicyclist safety needs. • Conduct periodic roadway safety assessments of locations with growing traffic and pedestrian volumes and locations at greatest risk for pedestrian fatalities and injuries, and share information with other local partners. • Implement effective countermeasures for problem areas as determined by roadway safety assessments. • Educate the judiciary on the importance of penalties for violation of pedestrian laws. • Identify opportunities for alternate funding; for instance, the Safe Routes to School Program.

Emphasis Area	*Measure(s)*	*Potential Strategies*
Safe Driving Behaviors in Older Drivers	• Reduce annual fatalities involving drivers 65 years or older from 12 in 2009 to 8 or fewer in 2020 (a 33% reduction). • Reduce annual injuries involving drivers 65 years or older from 120 in 2009 to less than 100 in 2015 (a 17% reduction).	• Develop effective methods to identify at-risk older drivers. • Develop enhanced training for emergency service personnel on the proper assessment and triage of older persons at crash scenes. • Incorporate the Federal Highway Administration's (FHWA) Older Driver and Pedestrian Guidelines into the local design guidelines.
Nighttime Crashes	• Reduce annual nighttime fatalities from 36 in 2009 to 32 or fewer in 2015 (an 11% reduction). • Reduce annual nighttime injuries from 96 in 2009 to fewer than 80 in 2015 (a 17% reduction).	• Review, evaluate, and replace signage showing wear or reduced retro-reflectivity. • Review and evaluate locations exhibiting higher incidence of nighttime crashes for possible supplementary lighting.
Crash Data Reporting	• Improve crash report submission time from 90 days to 30 days.	• Identify best practices in crash reporting, as well as barriers to complete, accurate, and timely information. • Standardize crash reporting policies and protocols for all agencies operating within the jurisdiction. • Identify tools to increase timely and accurate reporting (e.g., GPS devices and laptops).

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