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Guide for Effective Tribal Crash Reporting

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Guide for Effective Tribal Crash Reporting

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TRANSPORTATION RESEARCH BOARD

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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Systematic, well-designed research provides the most effective approach to the solution of many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation develops increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

In recognition of these needs, the highway administrators of the American Association of State Highway and Transportation Officials initiated in 1962 an objective national highway research program employing modern scientific techniques. This program is supported on a continuing basis by funds from participating member states of the Association and it receives the full cooperation and support of the Federal Highway Administration, United States Department of Transportation.

The Transportation Research Board of the National Academies was requested by the Association to administer the research program because of the Board's recognized objectivity and understanding of modern research practices. The Board is uniquely suited for this purpose as it maintains an extensive committee structure from which authorities on any highway transportation subject may be drawn; it possesses avenues of communications and cooperation with federal, state and local governmental agencies, universities, and industry; its relationship to the National Research Council is an insurance of objectivity; it maintains a full-time research correlation staff of specialists in highway transportation matters to bring the findings of research directly to those who are in a position to use them.

The program is developed on the basis of research needs identified by chief administrators of the highway and transportation departments and by committees of AASHTO. Each year, specific areas of research needs to be included in the program are proposed to the National Research Council and the Board by the American Association of State Highway and Transportation Officials. Research projects to fulfill these needs are defined by the Board, and qualified research agencies are selected from those that have submitted proposals. Administration and surveillance of research contracts are the responsibilities of the National Research Council and the Transportation Research Board.

The needs for highway research are many, and the National Cooperative Highway Research Program can make significant contributions to the solution of highway transportation problems of mutual concern to many responsible groups. The program, however, is intended to complement rather than to substitute for or duplicate other highway research programs.

NOTICE

The project that is the subject of this report was a part of the National Cooperative Highway Research Program, conducted by the Transportation Research Board with the approval of the Governing Board of the National Research Council.

The members of the technical panel selected to monitor this project and to review this report were chosen for their special competencies and with regard for appropriate balance. The report was reviewed by the technical panel and accepted for publication according to procedures established and overseen by the Transportation Research Board and approved by the Governing Board of the National Research Council.

The opinions and conclusions expressed or implied in this report are those of the researchers who performed the research and are not necessarily those of the Transportation Research Board, the National Research Council, or the program sponsors.

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COOPERATIVE RESEARCH PROGRAMS

FOREWORD

By Christopher J. Hedges
Staff Officer
Transportation Research Board

This guidebook presents guidance for state agencies and tribal leaders in effective crash reporting. The guidebook is developed based on best practices, success stories, lessons learned, published literature, and data from tribes and states that were involved in the data collection and analysis phase of this project. This guidebook will provide valuable knowledge to both tribal law enforcement and state transportation agencies to better understand the extent and causes of crashes on tribal lands in order to develop more effective safety programs and countermeasures.

Safety is a major concern for roadway practitioners across the United States. In many states, the Native American population is disproportionately represented in fatalities and crash statistics. Native Americans' risk of motor-vehicle related death is about 4 times that of the general population. The risk is even higher for the population between 4 and 44 years old. Improved crash reporting by tribal law enforcement agencies would enable tribes to apply more successfully for state and federal funds for safety improvements. Some of the causes behind the underreporting include tribal law enforcement capacity (e.g., staffing shortages and turnover, and lack of equipment, software, and training), lack of standardization in crash reporting forms and protocols, and issues of relations between the state and tribes. Improving crash reporting systems requires a relationship with the state agencies built on trust and effective collaboration.

Without accurate reporting of all crashes on tribal lands, it is difficult or impossible to fully understand the nature of the problem and develop appropriate countermeasures. These may include effective transportation safety planning and programs aimed at DUI prevention, pedestrian safety, roadway safety improvements, seat belt usage, child restraints, etc.

Under NCHRP 17-49, a research team led by University of Wisconsin-Madison conducted a critical review of the root causes of the issues and deficiencies related to tribal crash reporting systems and programs as well as best practice and success stories. In addition, this review identified those methods which have been successful in any aspect, i.e., beyond crash data, and illustrated how these successes can be utilized in the area of tribal crash reporting. The research team also did a nationwide query-based data collection, which gathered first-hand data from tribes and state agencies along with their success stories and lessons learned in practicing tribal crash reporting. The research led to the development of a guidebook with three main components. Part 1 provides self-assessment tools for state agencies and tribes. The self-assessment tools are designed to provide a quick assessment of the effectiveness of existing crash data collection and management, and the current level of communication and collaboration between tribes and state agencies. Part 2 of the guidebook provides information to both states and tribes to help identify solutions to issues associated with (1) establishing

and maintaining communication and relationship between tribes and states; (2) building tribal crash data collection system; (3) implementing state-tribal crash data sharing; and (4) improving tribal traffic safety with crash data. Part 3 contains reference and source materials.

The guide is accompanied by a CD containing a supplemental report documenting the research approach and findings, as well as color PDF copies of case study flyers meant to be used as handouts and reference material at meeting, conferences, and events. The CD also contains a double-sided three-fold flyer designed to promote the use of this guidebook via graphical presentation of function and summary of the guide.

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Note: Photographs, figures, and tables in this report may have been converted from color to grayscale for printing. The electronic version of the report (posted on the web at www.trb.org) retains the color versions.

S U M M A R Y

Guide for Effective Tribal Crash Reporting

Tribal transportation safety summits held across the country consistently identify crash data as being inadequate and a significant barrier in developing effective safety programs. Underreporting (or no reporting) of crash data that involves crashes on tribal lands creates a significant void in data necessary to support state department of transportation (DOT) and tribal safety programs. Underreporting can also lead to tribes receiving disproportionate resources from state and federal programs that identify and target transportation safety issues. Comprehensive tribal crash reporting would allow tribes to gain the support and resources they need to develop necessary safety countermeasures, and enable tribes to apply more successfully for state and federal safety improvement funds when available.

Questions remain as to why crashes continue to be underreported in many tribal communities. Without accurate reporting of all crashes on tribal lands, it is difficult to fully understand the size and nature of the safety problem and develop appropriate programs and countermeasures. It is imperative to identify and facilitate the implementation of complete, accurate, and timely tribal crash reporting systems and to document how these systems can contribute to more effective transportation safety programs.

Native American Terminology

Terms used to describe Native Americans have been mixed in the literature. At least three terms can be found including Native American, American Indian, and American Indian and Alaska Native. "American Indian" has been in use for the longest time, with the first documented use of American Indian dating from the late fifteenth century (Walbert 2013). A more detailed discussion of the term American Indian is reported in *American Indian Politics and the American Political System* (Wilkins 2006). In the 1960s and 1970s, Native American was considered a more respectful and inclusive alternative to American Indian (Walbert 2013). More recently, American Indian and Alaska Native has been used by the U.S. Census Bureau as a race name in census surveys (U.S. Census Bureau 2010). To provide consistency in presentation, this guide uses Native American to represent American Indian, Native American and American Indian and Alaska Native.

Overview of the Guidebook Content

The guidebook development is based on best practices, success stories, lessons learned, published literature, and data from tribes and states that were involved in the data collection and analysis phase of this research. Figure 1 presents the general outline of the guidebook.
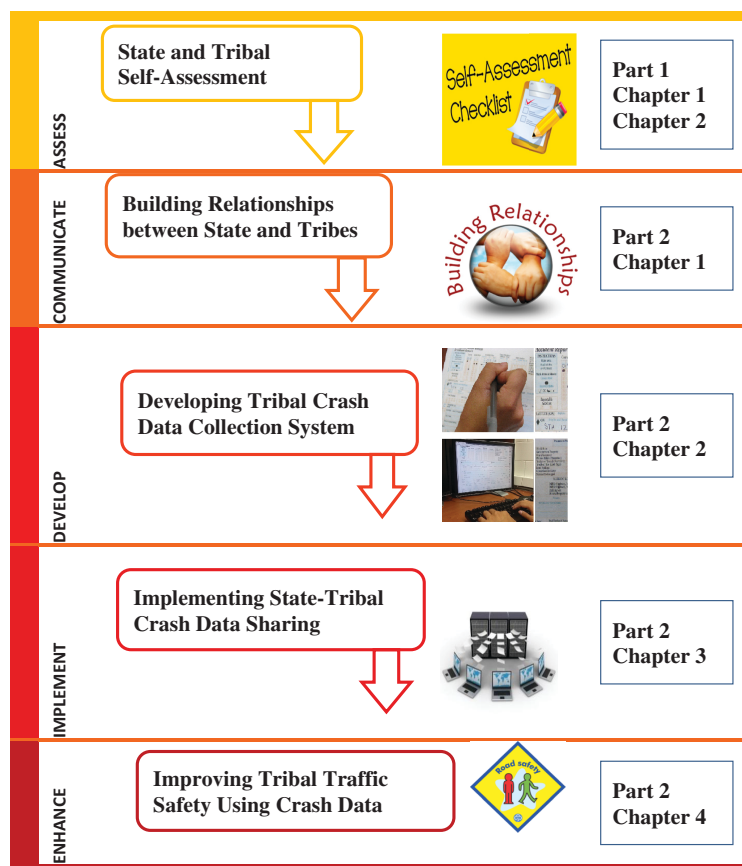
Figure 1.   Guidebook outline.

The guidebook is developed in three parts. Part 1 provides self-assessment tools for state agencies and tribes. The self-assessment tools are designed to provide a quick assessment of the effectiveness of existing crash data collection and management and the current level of communication and collaboration between tribes and state agencies. Results of the self-assessment lead users to the appropriate chapters in Part 2 of the guidebook.

Part 2 of the guidebook provides information to both states and tribes to help identify solutions to the following:

1. Root causes of the issues and deficiencies related to tribal crash reporting systems and programs;
2. Methods to convey the importance and benefits of implementing better crash reporting to tribal members;
3. Effective methods of communication, cooperation, and collaboration between state and tribal governments;
4. Recommendations on how to implement the crash reporting programs identified in this research;
5. Methods that state and federal agencies can use to assist tribes on the implementation of programs identified in this research, including methods to access appropriate funding sources;
6. Recommendations on how the implementation of effective tribal crash reporting systems can be used to improve transportation safety planning and programs, based on current best practices among tribes in the United States;
7. Applicability to tribes across the United States, taking local laws, regulations, and cultural and political differences into account; and
8. Methods to evaluate and communicate the effectiveness of the programs identified in the guide.

As outlined in Figure 1, Part 2 contains a series of chapters focused on establishing, building and maintaining communicative relationships between tribes and states, establishing an effective crash data collection system, creating a state-tribe crash data sharing system, and improving tribal traffic safety using the crash data. At the end of each chapter in Part 2, case studies are included, which can be useful to provide practical information to tribes and states during the process of implementing an effective tribal crash reporting system. The guidebook is designed to provide an easily followed step-by-step process to improving tribal crash reporting programs.

Part 3 provides references and source materials used in Parts 1 and 2.

Intended Audience for the Guidebook

The guidebook is an informational tool designed for tribal communities and state agencies that collect and process statewide crash data and use these data for funding and safety improvement decisions. The intended audience is any tribal member involved in law enforcement, crash data collection, crash data dissemination and analysis, or communication with state agencies. The intended audience also includes any member of a state DOT or crash data collection agency who is assigned to work with tribal communities in obtaining crash data and supporting safety improvements.

How to Use the Guidebook

The guidebook can be used in several different ways. It is recommended that the reader begins with completing the self-assessment tool included in Part 1. Completing the self-assessment tool simply involves answering a few questions designed to identify areas of strength and areas that need improvement when evaluating an effective tribal crash reporting system. The results of the self-assessment will also lead readers to the appropriate chapters of the guidebook. A more random approach can also be implemented by simply referring to the summary tables at the beginning of each chapter in Part 2 of the guidebook, or immediately referring to the case studies included at the end of each chapter of Part 2, and beginning to identify information that can apply. Regardless of how the guidebook is used, readers will find useful information that will lead them in a successful direction in improving crash reporting. For those who are interested in additional detailed information, a supplemental report has also been created that provides a comprehensive literature review and describes the data collection and analysis summary that provided the foundational material used in the guidebook. This is available on the accompanying CD.

Guidebook Limitations

While the guidebook is intended to provide comprehensive guidance to effective tribal crash reporting, certainly some limitations may apply. It is impossible to address every potential scenario and creative solution that may exist within each state and each tribal community. The development of this guidebook is based on data from 48 individual tribes, partial responses from approximately 10 tribes, and information from other tribal resources, state agencies, and literature. Other states and tribes may have unique and effective ways in effective tribal crash reporting that are not captured in the data collection process. Additionally, some recommendations and best practices included in the guidebook may not be effective for all tribes. Time-sensitive information presented in the guide, such as information related to grant applications and other programs, should be reconfirmed before using this guidebook.

PART 1

Overview and Self-Assessment

Self-Assessment for State Agencies

The following self-assessment tool has been developed to assist state agencies in proactively identifying strengths and weaknesses in their current tribal relationships and the sharing of crash data and information to develop an effective crash reporting system. Three dedicated checklists have been designed to identify potential issues that may be encountered during the processes of (1) effective communications with tribes; (2) state-tribal crash data sharing; and (3) tribal traffic safety improvement. Appropriate sections of the guidebook are referenced based on the results of the self-assessment questions. At the end of each chapter in Part 2, case studies are provided, which can be useful to provide first-hand information to tribes and states during the process of implementing an effective tribal crash reporting system. The guidebook is designed to provide an easily followed step-by-step process to improving tribal crash reporting programs.

Self-Assessment for Effective Communications with Tribes

Effective communication with tribes is critical to the success of effective tribal crash reporting. This section includes a checklist of three questions that the state agency can use to assess the effectiveness of their current practice of communication with tribes. Self-assessment questions are listed below.

Assessment Question 1. Does the state agency have a standard method or process for state agency/tribal interactions?	Answer	Response
	No	Part 2: Chapter 1
	Yes	Continue

Assessment Question 2. Does the state agency have a designated tribal Liaison?	Answer	Response
	No	Part 2: Chapter 1
	Yes	Continue

Assessment Question 3. Does the state agency maintain a tribal contact database?	Answer	Response
	No	Part 2: Chapter 1
	Yes	Continue

If you selected 'no' to any of the questions above, please go to Part 2, Chapter 1: Establishing and Maintaining Communication and Relationship Between Tribes and States. This chapter provides information and guidance on further improving the state's practice in communications with tribes.

Self-Assessment for State-Tribal Crash Data Sharing

State-tribal crash data sharing is regarded as the core of an effective tribal crash reporting system. This section includes a checklist of seven questions which the state agency can use to assess the effectiveness of their current practice of supporting the implementation of state-tribal crash data sharing. Self-assessment questions are listed below.

Assessment Question 1. Has the state agency conveyed the benefits of tribal crash report system and sharing crash data within the state agency and tribes?	Answer	Response
	No	Part 2: Chapter 3
	Yes	Continue

Assessment Question 2. Is there a statewide database to collect and store all crash reports?	Answer	Response
	No	Part 2: Chapter 3
	Yes	Continue

Assessment Question 3. What method(s) are supported by the state agency for tribes to submit crash records?	Answer	Response
	None	Part 2: Chapter 3
	Paper	Part 2: Chapter 3
	Electronic/ Online	Continue

Assessment Question 4. Is there a process for evaluating accuracy and completeness of submitted records?	Answer	Response
	No	Part 2: Chapter 3
	Yes	Continue

Assessment Question 5. Does the state agency provide software, equipment, and funding application assistance to tribes to help them implement the tribal crash data collection and sharing system?	Answer	Response
	No	Part 2: Chapter 2 Part 2: Chapter 3
	Yes	Continue

Assessment Question 6. Does the state agency provide training in filling out the crash report forms and use of the crash data collection and sharing software?	Answer	Response
	No	Part 2: Chapter 2 Part 2: Chapter 3
	Yes	Continue

Assessment Question 7. After a tribal crash report is submitted, does the state provide tribes with access to the submitted crash data?	Answer	Response
	No	Part 2: Chapter 3
	Yes	Continue

If you selected 'no' to any of the questions above, or have not been instructed to continue, please go to Part 2, Chapter 3: State-Tribal Crash Data Sharing. This chapter provides information and guidance on further improving the state's practice in supporting and implementing state-tribal crash data sharing. Additional information on state's assistance in improving tribal crash data collection is available in Part 2, Chapter 2: Tribal Crash Data Collection System.

Self-Assessment for Assistance in Tribal Traffic Safety Improvement

The ultimate goal of effective tribal crash data reporting is to use tribal crash data for highway safety improvement on tribal lands. This section includes a checklist of four questions that the state agency can use to assess the effectiveness of their current practice of assisting tribes in identifying and addressing traffic safety issues on tribal lands.

Assessment Question 1. Are any tribal-specific crash data analyses performed by the state agency or with assistance from the state agency?	Answer	Response
	No	Part 2: Chapter 4
	Yes	Continue

Assessment Question 2. Does the state agency actively work with tribes to evaluate and address traffic safety issues on tribal lands?	Answer	Response
	No	Part 2: Chapter 4
	Yes	Continue

Assessment Question 3. Does the state agency provide tribal agencies with shape/tailor proffered engineering solutions/countermeasures to best suit tribes?	Answer	Response
	No	Part 2: Chapter 4
	Yes	Continue

Assessment Question 4. Does the state agency have experienced and/or designated personnel to train tribe members to properly leverage the tribal crash data to obtain grants or other aid to make safety improvements?	Answer	Response
	No	Part 2: Chapter 4
	Yes	Continue

If you selected 'no' to any of the questions above, please go to Part 2, Chapter 4: Improving Tribal Traffic Safety Using Crash Data. This chapter provides information and guidance on state's assistance in identifying and addressing traffic safety issues on tribal lands.

CHAPTER 2

Self-Assessment for Tribes

The following self-assessment tool has been developed to assist tribes in proactively identifying strengths and weaknesses in their tribal crash reporting methods. Tribes have three dedicated checklists that are designed to identify potential issues that may be encountered during the processes of (1) implementing a tribal crash data collection system; (2) state-tribal crash data sharing; and (3) tribal traffic safety improvement. Appropriate sections of the guidebook are referenced based on the results of the self-assessment questions.

Self-Assessment for Implementing Tribal Crash Data Collection System

Establishing a tribal crash data collection system is the first step to implement effective tribal crash reporting. This section includes a checklist of 10 questions which the tribe can use to assess the effectiveness of their current practice of implementing the tribal crash data collection system.

	Answer	Response
Assessment Question 1. What is your current crash data collection method(s)?	Data not collected	Part 2: Chapter 2
	Paper form	Part 2: Chapter 2
	Computerized—at time of incident with laptop in vehicle	Continue
	Computerized—completed later	Continue

	Answer	Response
Assessment Question 2. Is there a crash report form used for data collection? If yes, was the form based on state's crash report form?	No	Part 2: Chapter 2
	Yes, not based on state crash form	Part 2: Chapter 2
	Yes, based on the state crash report form	Continue
	Yes, same as the state crash report form	Continue

	Answer	Response
Assessment Question 3. Does your tribe have a "mutual aid agreement," providing or receiving emergency services with neighboring law enforcement agencies?	No	Part 2: Chapter 2
	Yes	Continue

Assessment Question 4. Is the initiation and completion of a crash report form dependent on who is involved in the crash?	Answer	Response
	No	Continue
	Yes	Part 2: Chapter 2

Assessment Question 5. Is there a method documenting the location of the crash? If yes, what is it?	Answer	Response
	No, crash location not documented	Part 2: Chapter 2
	Yes, street address/ highway mile markers	Part 2: Chapter 2
	Yes, Geo-referencing latitude and longitude	Continue

Assessment Question 6. Is there formal training available for tribal police officers to fill out crash reports or to use the crash data collection software?	Answer	Response
	No	Part 2: Chapter 2
	Yes	Continue

Assessment Question 7. Does your tribe have a tribal crash report database?	Answer	Response
	No	Part 2: Chapter 2
	Yes	Continue

Assessment Question 8. Are paper copies of each crash report kept/ stored in addition to the tribal crash database?	Answer	Response
	No	Part 2: Chapter 2
	Yes	Continue

Assessment Question 9. Are there methods in place to evaluate the accuracy and completeness of crash data in the crash database?	Answer	Response
	No	Part 2: Chapter 2
	Yes	Continue

Assessment Question 10. Is your tribe involved with the state's Traffic Records Coordinating Committee?	Answer	Response
	No	Part 2: Chapter 2
	Yes	Continue

If you have not been instructed to continue, please go to Part 2, Chapter 2: Tribal Crash Data Collection System. This chapter provides information and guidance on further improving the practice of implementing a tribal crash data collection system.

Self-Assessment for State-Tribal Crash Data Sharing

State-tribal crash data sharing can facilitate state's assistance in addressing tribal traffic safety issues. This section includes a checklist of seven questions which the tribe can use to assess the effectiveness of their current practice of state-tribal crash data sharing.

Assessment Question 1. Does your tribe share the tribal crash data with the state agency?	Answer	Response
	No	Part 2: Chapter 3
	Yes	Continue

Assessment Question 2. In what format does your tribe submit the crash data to the state agency?	Answer	Response
	Paper/hard copy of the crash reports	Part 2: Chapter 3
	Electronic/database integration/online	Continue

Assessment Question 3. Is there an established timeframe requirement for submission of crash reports to the database? If yes, what is the timeframe?	Answer	Response
	No	Part 2: Chapter 3
	Yes, semi-annually or annually	Part 2: Chapter 3
	Yes, quarterly	Continue

Assessment Question 4. Does your tribe withhold any data elements from crash reports submitted to state agencies?	Answer	Response
	No	Continue
	Yes	Part 2: Chapter 3

Assessment Question 5. Is your tribe able to access the state crash database for purposes of accessing the submitted crash data at a later time?	Answer	Response
	No	Part 2: Chapter 3
	Yes, with request	Continue
	Yes, without request	Continue

Assessment Question 6. Is there an agreement (e.g., MOU) in place between your tribe and the state agency for crash data sharing?	Answer	Response
	No	Part 2: Chapter 3
	Yes	Continue

Assessment Question 7. Is government-to-government relationship and communication between your tribe and a state agency prohibiting your tribe's sharing of crash data?	Answer	Response
	No	Part 2: Chapter 1 NCHRP Report 690: Chapter 4
	Yes	Continue

For Assessment Questions 1 through 6, if you selected 'no' to any of the questions above, or have not been instructed to continue, please go to Part 2, Chapter 3: State-Tribal Crash Data Sharing. This chapter provides information and guidance on further improving the practice of implementing state-tribal crash data sharing. For Assessment Question 7, if you selected 'no,' please go to Part 2, Chapter 1: Establishing and Maintaining Communication and Relationship Between Tribes and States. Additional information on improving communication and a

supporting evaluation checklist can be found in NCHRP Report 690, Chapter 4 (ATR Institute et al. 2011).

Self-Assessment for Tribal Traffic Safety Improvement

The ultimate goal of effective tribal crash data reporting is to improve traffic safety on tribal roads. This section includes a checklist of three questions that the tribe can use to assess the effectiveness of their current practice of improving traffic safety issues on tribal roads.

Assessment Question 1. Does your tribe use crash data to identify the locations with a high number of crashes?	**Answer**	**Response**
	No	Part 2: Chapter 4
	Yes	Continue

Assessment Question 2. Does your tribe work with the state agency or other agencies to evaluate and improve the problem areas?	**Answer**	**Response**
	No	Part 2: Chapter 4
	Yes	Continue

Assessment Question 3. Has your tribe requested federal/BIA/state support for improving the traffic safety issues on tribal roads?	**Answer**	**Response**
	No	Part 2: Chapter 4
	Yes	Continue

If you selected 'no' to any of the questions above, please go to Part 2, Chapter 4: Improving Tribal Traffic Safety Using Crash Data. This chapter provides information and guidance on further improving tribe's practice of tribal traffic safety improvement using crash data.

PART 2

Guide for Effective Tribal Crash Reporting

Establishing and Maintaining Communication and Relationship Between Tribes and States

The key to an effective crash reporting system lies in the establishment and maintenance of open communication and formal relationship between tribes and the state agency. This section is dedicated to providing guidance on how a state agency and tribe can maintain effective communication and develop mutual understanding. The primary components of this first step in developing more effective crash reporting systems are presented in Table 1. In addition, a case study of tribal liaison and a case study of maintaining state-tribal partnerships are included at the end of the chapter to provide best practices that are associated with the topics covered in this chapter.

Topic 1.1: Creating Tribal Liaisons

Tribal liaisons at the state agency play an important role in building and maintaining the relationship with tribal agencies. Tribal liaisons typically serve as a point of contact for tribes within the state agency, providing policy support and coordinate with the state agency regions as well as other tribal liaisons to ensure constant and effective communications with each tribe. Tribal liaisons also assist in program development regarding tribal policies and procedures related to state agency practices and are often responsible for organizing annual consultation meetings. Based on Washington DOT's practice, typical responsibility of a tribal liaison should include (Washington DOT 2013-1):

- Serving as a point of contact for tribes within the state agency, and identifying additional decision makers and technical staff who can also assist tribes with their questions or issues.
- Recommending, in consultation with the state Office of Indian Affairs, tribes and other state and federal agencies such as BIAs, the most effective communication practices with tribes.
- Training state agency staff on best practices in working with tribes.
- Providing policy support to the agency.
- Developing, updating and helping implement state agency's centennial accord if applicable. For instance, in the state of Washington, on August 4, 1989, the accord between the federally recognized Native American tribes of Washington and the state of Washington was developed in order to better achieve mutual goals through an improved relationship between their sovereign governments. The accord provides a framework for that government-to-government relationship and implementation procedures to assure execution of that relationship.
- Assisting the state agency regions and divisions as they develop programs that impact tribal policies and procedures.
- Coordinating with the state agency regions and tribal liaisons assigned to regional and local offices to ensure constant and effective communication with tribes. When needed, the tribal liaison can facilitate meetings, negotiate intergovernmental agreements and help reconcile differences between the state agency and tribal governments.
- Coordinating tribal/state transportation conferences between the state agency and tribes.

Table 1. Steps to establish and maintain state/tribe agency communication.

Number	Topic	Objective
1.1	Creating Tribal Liaisons	Establish a state agency point of contact for tribe/state communication and cooperation.
1.2	Develop and Maintain Tribal Contact Database	Know who to contact and the roles key tribal members have related to crash reporting.
1.3	Standard Procedures for Communications and Meetings	Create a standard procedure that outlines the communication and meeting process with tribes; this is beneficial to keeping a consistent tribal communication practice within the state agency.
1.4	Communicating Interests and Concerns	Encourage tribes to express and convey their interests or concerns to the state agency through formal meetings with the state agency or informal communication with the tribal Liaisons. One of the most significant barriers in developing effective tribal crash reporting systems is a tribe's concern about sharing crash data with state agencies.
1.5	Employing the Transportation Agency/ Tribal Collaboration Guidebook	Use the principles presented in a recently developed guidebook (ATR Institute et al. 2011) to provide additional insight into successful communication, cooperation, and coordination strategies between transportation agencies and tribal communities.

Figure 2 briefly illustrates the role of the tribal liaison within the whole communication network of the state agency and tribal governments.

Some states have designated full-time tribal liaison positions while other states have personnel at different positions who serve as tribal liaisons as part of a broader job description. For example, the Director of the Montana DOT is the official tribal liaison for that state. Similar with the practice within Washington DOT, in Minnesota, the tribal liaison coordinates with the Minnesota DOT regions and tribal Liaisons located in regional offices to ensure constant and effective communication with Minnesota tribes. The tribal liaison facilitates meetings, negotiates intergovernmental agreements, and helps reconcile differences between the Minnesota DOT and tribal governments (Minnesota DOT 2013). Particularly, statewide tribes and transportation conferences were organized by the tribal liaison and were held annually at different tribal locations in Minnesota. Holding the conferences at these sites demonstrated Minnesota DOT's desire for partnership and participation. Minnesota DOT's leadership attended these conferences, along with staff from the FHWA's Minnesota Division, engineers from the BIA regional and agency offices, and county commissioners and engineers. Tribal authorities, BIA, and Minnesota DOT leaders had opportunities to communicate at administrative levels. A detailed case study of the Minnesota practice is included in the end of this chapter.

The Wisconsin DOT established a tribal liaison position in 2004 following Executive Order #39 which re-affirmed the government-to-government relationship between the state and the 11 federally recognized tribes in the state. In the first few years, several initiatives were created to facilitate communication and develop relationships with tribes including annual consultation meetings and establishing a tribal task force and a tribal historic preservation project. The tribal task force continues to meet every other month, serving as a policy advisory group for the Wisconsin DOT, and consisting of tribal government appointed representatives, tribal liaison and other state and federal employees. This forum, in addition to the annual consultation meeting, identifies many issues of concern on projects, cultural preservation, economic development, labor, and safety issues.

Like other states, Wisconsin recognized that in order to facilitate effective communication, it was necessary to designate points of contact at the regional levels. Thus, in addition to the statewide

State Transportation Agency

Technical Staff

Decision Makers

Tribal Liaisons

Communicate

Tribes and Government Agencies

Tribes

State Office of Indian Affairs

BIA Offices

Other State and Federal Agencies
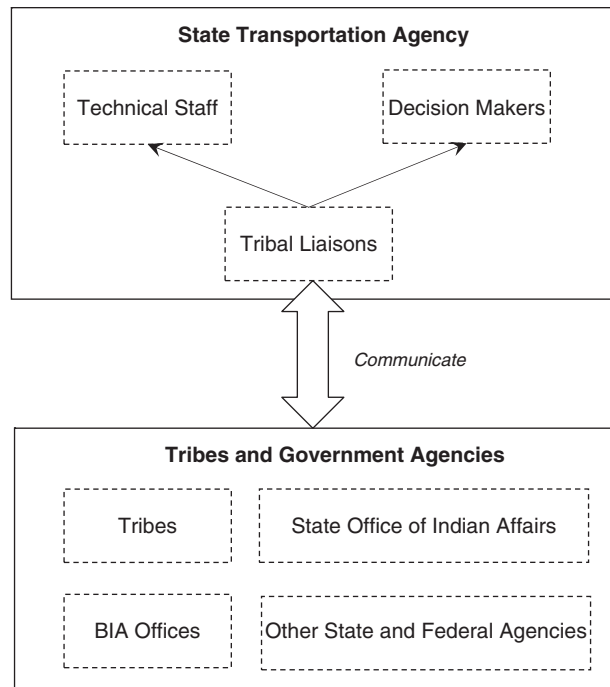
Figure 2.   Role of Tribal Liaison within the communication network.

tribal liaison, the Wisconsin DOT identified regional tribal liaisons tasked with working directly with tribes on regional issues in addition to specific duties related to their job descriptions. In instances where there are numerous tribes in a region, these responsibilities can take up significant time. In 2010, the Wisconsin DOT brought on another staff position to assist the statewide tribal liaison, creating a two-person team based in the state headquarters in Madison.

What makes the Wisconsin experience unique is that the Office of Tribal Affairs had programmatic funding to assist in the development of programs to address concerns raised through consultation efforts and other program areas. This funding was, in some cases, designated by the Secretary, in other cases, leveraged from state and federal funding resources. The Wisconsin DOT tribal affairs staff worked with tribal community partners to manage and implement projects at the local level. The tribal task force has been managed by the College of Menominee Nation since its inception. The Tribal Historic Preservation Project has been managed by the Lac du Flambeau Tribal Historic Preservation Office and the recent Transportation Safety Project by the Lac Courte Oreilles Tribal College. The liaison has significant support from the Wisconsin DOT leadership and regions.

In 2005 and again in 2010, the Wisconsin DOT, FHWA and the 11 federally recognized tribes in the state entered into a historic partnership agreement to "implement the concept of the government-to-government relationship." The partnership agreement provided all "parties with protocols to enhance collaboration, a timeline for measurable results and specific contact staff for timely communication." The partnership agreement includes both guiding principles and a dispute resolution process, both intended to facilitate communication. A copy of the partnership agreement can be found online: http://www.dot.wisconsin.gov/localgov/aid/Tribal affairs/docs/partnership.pdf.

In the partnership agreement, all parties agreed to the following:

- Reflect and support the government-to-government relationship among the tribes of Wisconsin, federal government, and the state of Wisconsin;

- Recognize the importance of collaborative partnerships and respect the knowledge, experience, perspectives, and needs of the other partners;
- Move forward the shared goals of the stakeholders and constituents through improved working relationships and partnership building;
- Work together to develop an effective and efficient consultation framework, ensuring the long-term prosperity of this agreement;
- Agree to dedicate the appropriate level of resources to achieve success;
- Recognize and support the need to engage the shared strength, skills, and expertise in a collaborative effort to achieve success in transportation related activities; and
- Pledge to work together in a proactive and cooperative manner.

Also within the partnership agreement, the parties identified "areas of partnership emphasis with the goal of defining means to measure partnership achievements." These areas include:

- Partnership;
- Transportation safety;
- Economic development;
- Building capacity of tribally run businesses;
- Native American labor development;
- Training; and
- Cultural resources.

A FHWA publication has made some general conclusions on the state Agency's tribal liaison programs (FHWA 2010):

- The role of the tribal liaison is worthwhile and is producing positive results that could not have been achieved without a liaison in this function;
- Tribal Liaisons from different states used different approaches and tools; and
- In the long-term, the functions of tribal liaison are critical and should be institutionalized within the state agency and other planning agencies to ensure that, even in the absence of current liaisons (incumbents), these functions are still carried out.

Despite many success stories, tribal liaisons often face challenges that require further consideration. These challenges can include (FHWA 2010):

- Difficulty in engaging the BIA at higher levels even though the state DOT tribal liaisons have established strong relationships with regional BIA offices;
- Exercising tribal jurisdiction in a transportation planning context as part of overall tribal transportation planning;
- Finding new methods to better advocate for getting additional funding for tribal transportation issues;
- Closing gaps in data collection;
- Methods to institutionalize the functions of the state-tribal liaisons within state DOTs and other planning agencies; and
- Challenges with coordination across other federal and state agencies.

Topic 1.2: Develop and Maintain a Tribal Contact Database

An essential step towards the effective communication with tribal agencies is developing and maintaining a tribal contact database, which includes contact information of tribes within the state agency's region. With the contact database, tribal liaisons, state traffic safety engineers, and other safety personnel can quickly locate the right persons to contact along with their phone

numbers, email addresses, and mailing addresses when they need to consult with the tribal agency. Typical practice of maintaining a tribal contact database includes:

- The state agency creates and maintains a tribal contact list, which at least includes tribe's name, the names and contact information of tribal leader, tribal environmental officials, and tribal law enforcement and safety officials.
- In case the tribal contact information is not available directly from tribes, other resources, such as BIAs, can be consulted.

The Washington DOT has had a good practice of maintaining such a tribal contact database. The database contains a contact list of chair, cultural resources, natural resources, planning, and human resources/tribal employment rights ordinance (TERO) officials of each federally and non-federally recognized tribe within the state boundary (Washington DOT 2013-2). The names in the database serve as first points of contact when the tribal liaisons or the state traffic safety engineers begin consultation with a tribe (Washington DOT 2013-2). The Washington DOT has designated a contact database coordinator, who manages updating the contact list if a tribal contact has permanently changed.

The Wisconsin DOT also maintains a statewide list of tribal contacts consisting of tribal leadership, environmental and tribal historic preservation officials, tribal planners, roads programs, law enforcement and safety contacts, transit officials, and economic development contacts. These lists are regularly updated. Typically, the statewide and regional tribal Liaisons reach out to a department contact as well as the tribal council appointed contact to facilitate communication within various departments of the tribe. While there are often similar job titles, more often than not, job responsibilities vary by tribal community.

In the event when tribal contact information is unavailable from the tribes directly, other sources may be available. For example, the Montana Governor's Office of Indian Affairs maintains a contact list of tribal leaders of tribes in Montana (Governor's Office of Indian Affairs 2013). The contact information can be used by the state transportation agency if the tribal contact information is not directly available.

An important source of tribal contacts is the Tribal Leaders Directory published on the website of the BIA (BIA 2013).

> The directory provides a tribes' name, address, phone, and fax number for each of the 566 Federally recognized tribes. There may be an email or website address listed for the tribal entity if they have provided it to the BIA. Each tribe is listed in three sections, by the BIA region that provides services to them, the state they are located in, and in alphabetical order. The directory also provides information on the BIA Regions and agency offices (BIA 2013).

The maintenance of tribal contact database based on the information from this directory can assure the consistency of information.

Topic 1.3: Standard Procedures for Communications and Meetings

A standard procedure that outlines the communication and meeting process with tribes is beneficial to keeping a consistent tribal communication practice within the state agency. Based on the practice of Washington DOT (Washington DOT 2013-3), a typical standard procedure is illustrated by a flow chart shown in Figure 3.

Some states have successfully established standard procedures. The Washington DOT maintains governmental relations with all 29 federally recognized tribes within the state and six tribes
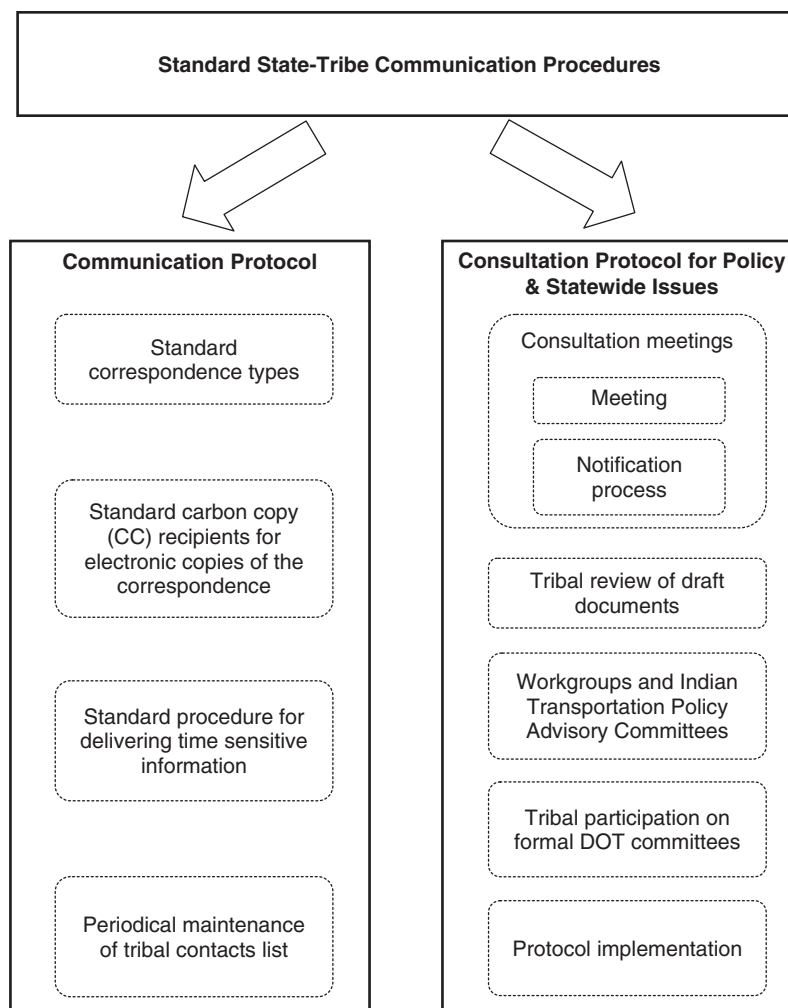
Figure 3.   Standard formal state-tribe communication and consultation procedure.

with historical ties to the state. The Washington DOT has a communication protocol that assists the DOT staff when communicating with tribal governments, and a tribal consultation protocol that directs Washington DOT staffs to consult with tribes regarding their individual rights and interests. The communication protocol applies to all formal correspondence with tribal chairs. The formal correspondence to the tribal chair can be one of the following types (Washington DOT 2013-3):

- Consultation meeting requests;
- Calls for project proposals for the Washington DOT funding programs or planning documents;
- When seeking formal input on a project, policy, plan or program;
- Submission of tribal agreements, contracts and contract amendments;
- Monitoring site visit requests for tribal contract compliance; and
- Invitations to participate in the Washington DOT sponsored public events.

The correspondence is sent with a cover letter and the electronic copies to the followings (Washington DOT 2013-3):

- The appropriate tribal staff as identified by the tribe;
- For letters regarding statewide policy issues going to all tribes, copied to Washington Indian Transportation Policy Advisory Committee (WITPAC) delegates, alternates, and designated staff members; and
- Respective Washington DOT staff according to internal protocol.

The protocol has defined the standard procedure for delivering time sensitive information, such as funding opportunities. The time sensitive information may be sent electronically to tribal chairs and appropriate staff by the Washington DOT tribal Liaisons, Regional Administrators or Division Directors (Washington DOT 2013-3). The communication protocol states that the Washington DOT tribal liaison maintains a current distribution list of all aforementioned correspondence recipients. The liaison also works with individual tribes at least once a year to identify and update contacts.

The consultation protocol demonstrates the extended efforts of providing a standard method or process as well as contact personnel to communicate effectively with tribal members and authorities. According to the Washington DOT, the consultation protocol is a set of communication protocols between the Washington DOT and tribal governments, which were signed by the Washington DOT and all involved tribes (Washington DOT 2013-3). The protocol includes the following key elements (Washington DOT 2013-3):

- Consultation meetings: Washington DOT or a tribe may schedule a formal consultation meeting to discuss a statewide or policy issue with tribal representatives;
- Tribal Review of Draft Documents: When Washington DOT seeks review of a draft document by external stakeholders on a statewide or policy issue of interest to tribes, Washington DOT will request tribal review. Washington DOT staff will follow the process below when seeking formal tribal review and comment on a draft document and a consultation meeting is not part of the consultation;
- Workgroups and WITPAC Subcommittees: Workgroups and WITPAC subcommittees may be established for discussions, problem resolution and preparation for consultation on a policy issue of interest to tribes. When issues are approached by utilizing a subcommittee or work group process, notification of any final outcomes to these meetings will be distributed to the affected Washington DOT and WITPAC delegates;
- Tribal participation on formal Washington DOT committees: When Washington DOT establishes a committee of external stakeholders on statewide or policy issues of interest to tribes, Washington DOT will include at least one Tribal representative on the committee; and
- Implementation and issue resolution: Washington DOT has incorporated these protocols into its agency Executive Order on Tribal Consultation and conducted training to ensure that they are understood by Washington DOT management and staff.

In addition to working formally (agency and tribal leadership level) with the tribal reservations, the Washington DOT also worked informally with the tribes at the staff level. Based on the standard procedure, the Washington DOT proactively worked on tribal transportation projects and on statewide policies, including Target Zero and Washington's Strategic Highway Safety Plan. Tribes also reached out to the Washington DOT for project coordination. As noted by the Washington DOT, a key to successful organization of meetings is that meetings took place at tribal reservations, which was effective to encourage tribes to attend the meetings.

Topic 1.4: Communicating Interests and Concerns

Tribes are encouraged to express and convey their interests or concerns to the state agency through formal meetings with the state agency or informal communication with the tribal liaisons. One of the most significant barriers in developing effective tribal crash reporting

systems is the tribe's concern about sharing the crash data with the state agency. These concerns include:

- Program or technical issues
- Tribal regulations and sovereignty
- Fear of 'double jeopardy'
- Political difference
- Private concerns
- Local customs

The most common reason for not sharing data is a lack of funding programs or technical resources to complete the effort. Some tribes have shown interest in sharing crash data; however, the tribes' decision was postponed due to their limited financial and technical resources. Most of the remaining reasons are the root causes of deficiencies of effective tribal crash reporting programs, such as sovereignty, political difference, and local custom concerns. In regards to privacy concerns, tribal members are often sensitive to their personal information being forwarded to state departments and used in ways other than for crash reporting data. The threat of double jeopardy could be prevalent in tribal members who fear they could face fines and/or penalties from the tribal government in addition to the state government (Redinger et al. 2010). Specific concerns identified from the tribal query data include:

- Tribal council has decided not to disseminate the crash records unless non-member is involved in the crash. This practice has been there for many years;
- Reporting crash data to the state is in contradiction with the sovereign status of the tribe;
- Council has a strict policy of sharing information including crash data;
- There is fear of eroding tribal sovereignty;
- Tribe does not have a working relationship with the state;
- State does not recognize the jurisdiction authority of the tribe; and
- Reporting to state is not a high priority, along with a lack of personnel or personnel with other priorities.

It is recommended that concerns about limited financial and technical resources are shared with state agencies by requesting assistance. Agreements can be reached between the tribe and the state in regards to technical resource and financial support provided by the state agency. Additionally, fundamental barriers such as privacy concerns, fear of double jeopardy, and tribal regulations can be discussed and potentially resolved by addressing these concerns with the state agency. Reporting redacted crash data is a potential solution to address these concerns.

Topic 1.5: Employing the Transportation Agency/Tribe Collaboration Guidebook

Recent NCHRP research developed a tribe/agency collaboration toolbox (TACT) used to select practices of communication, coordination and cooperation (3C) for implementing projects (ATR Institute et al. 2011). The toolbox process consists of six steps as depicted in Figure 4:

1. Identify the transportation project or program.
2. Utilize the checklist to identify any potential issues on the project.
3. Refer to the Ladder of Collaboration to select the appropriate level of collaboration.
4. Refer to the strategy selection matrixes to select 3C practices appropriate for addressing the project's issues.
5. Identify and review case studies as examples of strategy implementation.
6. Utilize the implementation plan, lessons learned and recommendations to implement the selected strategies.
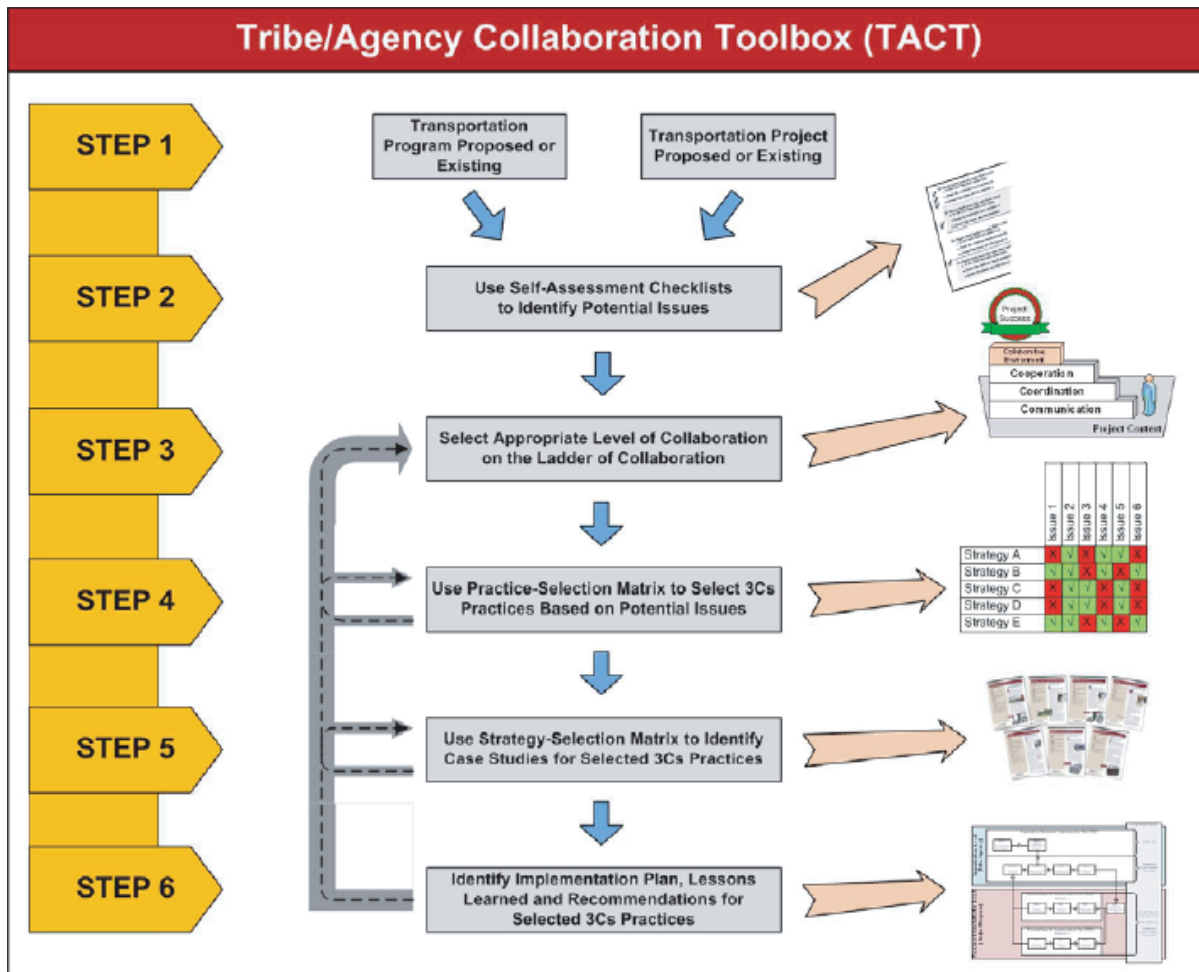
Souce: NCHRP Report 690 (ATR Institute et al. 2011)

Figure 4.   TACT process.

In addition to this toolbox, this document further identifies best collaboration practices for facilitating 3C between transportation agencies and tribes along with several processes designed to implement them. Tribes and state agencies initiating crash data reporting systems may gain additional insight in developing and maintaining the necessary communication and coopera- tion methods through the use of this document. See http://onlinepubs.trb.org/onlinepubs/ nchrp/nchrp_rpt_690.pdf for more information.

The process represented by Figure 4 can be applied to both tribes and state agencies. If a tribe noticed that issues have arisen in its government-to-government relationship with the state agency, the tribe can refer directly to Section 4.3 in the *NCHRP Report 690* (ATR Institute et al. 2011) to identify what the issue is and how to address the issue.

Case Study: Tribal Liaison

Source

Adapted from Federal Highway Administration. 2005. *Peer Exchange Report: State DOT Tribal Liaison Roundtable and Panel Discussion*, Federal Highway Administration, Washington, DC.

Situation

Minnesota has 11 recognized tribes in the state. Before the tribal liaison position was created in 2001, there was little formal state-tribal coordination, although the Minnesota DOT's Central Offices and Districts had been working with tribes on archaeological issues, equal employment opportunity efforts, and other transportation projects of tribal interest.

Identified Issues

Due to the lack of a coordinated program for dealing with state-tribal issues, many similar concerns from the tribes had to be addressed again and again in different contexts. The concerns therefore could not be fully addressed, which hindered the collaboration between Minnesota DOT and tribes.

Practice Implemented

To foster and coordinate Minnesota DOT's interactions with the state's 11 Native American tribes, the Minnesota DOT and the FHWA consulted with the tribes in creating a job description for the tribal liaison position. The following practices have been implemented by the tribal liaison to foster state-tribal relationship and interaction:

- When the tribal liaison first started, she met with the tribes to get a sense of the variety of issues and concerns they had. With the inputs from the tribes, Minnesota DOT put together a program to improve the state-tribal relationship with regards to transportation. The program resulted in an invitation from the Red Lake Tribe for the Minnesota DOT Commissioner to visit and a stated desire to form a partnership that led to the first statewide tribes and transportation summit/conference. A historic agreement was signed by Minnesota DOT and 10 of the 11 Minnesota tribes;
- Following the success of the first statewide tribes and transportation conference, the conference has been held annually in Minnesota. One of the tribal liaison's major responsibilities was planning and coordinating these conferences to attain a high level of participation from several different constituent agencies such as FHWA's Minnesota Division, BIA's regions as well as from tribes;
- Conferences were all held at tribal locations, as most tribes in Minnesota have casinos, conference centers, or hotels. Holding the conferences at these sites provided economical rates and good service while at the same time supporting tribal businesses and drawing tribes into real partnerships and participations;
- The tribal liaison included cultural as well as technical exchange at the conferences, such as tribal food and entertainment, with food labels being written in the language of the host tribe. Another example was the use of roundtables at the conferences, which respected the traditions of some tribes to sit so that participants could look at each other. The emphasis on talking with each other, rather than at an audience, was very valuable;
- The tribal liaison also coordinated to establish a Tribal Transportation Advisory Committee (TTAC), which facilitates information sharing and providing opportunities such as leverage funding;
- The tribal liaison coordinated the planning process leading to development of each tribe's Transportation Improvement Program (TIP) and the planning process leading to development of the state Transportation Improvement Program (STIP). Tribal staff had historically viewed the two programs as parallel but completely separate. Minnesota DOT

included BIA engineers in these conferences to improve state-BIA planning coordination, and simultaneously efforts were underway to improve state-tribal coordination. Having the TTAC in the conference was another way to improve coordination of tribal TIPs and the STIP; and

- Tribal liaison also coordinated trainings for Minnesota DOT staff on tribal historical perspectives, legal issues, tribal sovereignty, and tribal government. It was important for Minnesota DOT staff to understand that tribes are sovereign governments, not minorities, and a government-to-government relationship is appropriate.

Case Study: Maintaining State-Tribal Partnerships

Source

- Adapted from Arizona DOT Website of "Promoting Partnerships" (http://www.azTribal transportation.com/aztt/index.asp).
- Adapted from the state query response.

Situation

Communication and relationship between tribe and the state agency is important to the development and success of effective tribal crash reporting. Tribes usually have concerns about privacy, fear of double jeopardy, and loss of sovereignty when making decisions about sharing tribal crash data with the state agency. How to convey the benefits of the tribal crash reporting system and eliminate the concerns is an essential step towards successful tribal crash reporting. Establishment of partnership between the state agency and the tribe is an ideal solution.

Identified Issues

Issues exist to hinder tribes' working with the state agency to implement the crash reporting system. The most outstanding issue is lack of trust in the state. Another issue is lack of funding program or technical resources. Some tribes showed interest about sharing the crash data; however, tribes' decision was refrained by their limited financial, technical, and personal resources. Other issues include political concerns, fear of double jeopardy and loss of sovereignty, and lack of trust in the state.

Practice Implemented

In practice, the Arizona DOT tried to address the aforementioned issues by promoting partnerships with tribes in the state of Arizona. The Arizona DOT took the following measures to implement the promotion:

- Establishment of Arizona Tribal Strategic Partnering Team (ATSPT) as means of improving state-tribal relations in transportation. ATSPT brings together representatives from state, tribal, federal and local agencies to address tribal-related transportation issues. ATSPT encourages active participation in its partnering effort by all tribes and transportation stakeholders in Arizona who have the desire to guide implementation of transportation policies and processes between Native nations, tribal governments and the state of Arizona;

- Organization of state-tribal workshops to discuss funding opportunities such as Highway Safety Improvement Program (HSIP), Planning Assistance for Rural Areas (PARA) program, Tribal Transit Program, etc. These workshops invite tribe officials, BIA representatives, and FHWA and Arizona DOT officers;
- Organization of quarterly meetings by ATSPT to (1) update the progress in partnership with tribes in the previous quarter; (2) create plan for the next quarter; (3) identify future ATSPT opportunities; and (4) complete and review Partnering Evaluation Program (PEP) ratings;
- Establishment of Promoting Partnerships website to document all meeting notes and detailed partnership process with multiple Native American reservations; and
- Organization of annual meetings with each partnered tribal agency. Meeting notes and agenda are posted on the specific partnership website established for the individual patterned tribal agency.

CHAPTER 2

Tribal Crash Data Collection System

Tribal crash data collection system is a system used by tribes to effectively document and analyze crash records. In general, the data collection system should meet the following criteria:

- The system uses a standard crash report form such as the state crash report form or a form specifically developed based on the state crash report form. NHTSA's Model Minimum Uniform Crash Criteria (MMUCC) can be consulted during the development of such standard crash report form.
- Initiation and completion of a crash report form is not dependent on who is involved in the crash.
- Location of the crash should be documented accurately by street addresses, highway mile markers, or ideally geo-referencing latitudes and longitudes, and be conforming to the state crash locating system;
- Tribal law enforcement officers should be well trained in completing crash report forms.
- Methods should be in place for evaluating the completeness of the completed crash reports.
- A crash report database is recommended to be used for archiving and managing all crash records; however, is not required for all tribes due to varied resource availability by tribes with different sizes. If a crash database is used, methods should be in place to evaluate the completeness and accuracy of the crash records.

This section presents topics related to establishing a tribal crash data collection system that meets the above mentioned criteria. The primary components of this second step in developing more effective crash reporting systems are presented in Table 2. In addition, a case study of tribal crash report form filing is included at the end of the chapter to provide best practice associated with the topics covered in this chapter.

Topic 2.1: Benefits of a Crash Data Collection System

Establishing a crash data collection system is the first step towards an effective crash reporting system. For states with tribes that have not started collecting crash data or have not been using any standard crash report forms, the state agency is responsible of explaining the benefits of implementing a standard crash report filing mechanism in order to encourage the tribes to establish the data collection system. Previous sections have discussed the benefits of an effective crash reporting system, and can be summarized as:

- Better documentation of crash records;
- Easier crash data management;
- Better understanding of hot spots and causes of crashes using the accurate and complete crash datasets;

Table 2. **Developing a tribal crash data collection system.**

Number	Topic	Objective
2.1	Benefits of Crash Data Collection System	State agencies may need to demonstrate the benefits of a crash data collection system and provide the data collection tools
2.2	Tribal Concerns with Collecting Crash Data	State agencies must be aware of the common concerns that tribes have with crash reporting and work with tribes to resolve these concerns
2.3	Law Enforcement Assistance Agreements on Tribal Roads	Law enforcement assistance agreements (mutual aid) can overcome a lack of law enforcement resource under emergency conditions and provide additional resources for crash reporting
2.4	Funding for Implementing the Crash Data Collection System	State agencies should work with tribes in generating the resources needed to implement the crash data collection system and program
2.5	Implementing the Tribal Crash Data Collection System	Tribes start to implement the tribal crash data collection system after resources have been obtained
2.6	Creating a Tribal Crash Database	A tribal crash database that can store, archive, query, and share crash records will assist tribes in future safety analyses and grant applications

- Basis for safety improvements and reductions in crashes; and
- More opportunities of leveraging funding for addressing traffic safety issues on tribal lands with the collected crash datasets.

A good example of conveying the benefits of crash reporting can be found with the Montana DOT. The Montana DOT promotes the use of the Montana Web-based Crash Reporting (WBCR) system and demonstrates how crash data collection and analysis can be done using WBCR to improve highway safety on tribal roads. The WBCR system allows police officers at the scene to log in via the Internet and complete the crash report form. The system allows Geographic Information Systems (GIS) mapping of the crash location, reduces errors through a built-in edit rules, allows for more accurate injury reporting through Emergency Medical Services (EMS) records, and increases the timeliness of the data input and analysis. Perhaps more significantly, the WBCR supports the expansion of tribal data collection and data sharing (currently only fatal crashes are reported). The WBCR system is provided to all tribal governments with explanation of the benefits including greater success in securing funding for safety improvements with complete crash data. Funding is available for tribes that need computer equipment. Common concerns with the WBCR system are training for tribal officers, reliable Internet access, potential sovereignty issues, and personal identifiers in the data.

The South Dakota Department of Public Safety (SDDPS) is another example of a state agency that works closely with tribes to demonstrate the benefits of greater tribal participation in crash reporting and the importance of implementing crash reporting systems. In practice, SDDPS staff promotes the sharing of crash report information between BIA/Federal Bureau of Investigation (FBI) and tribes/state Accident Records programs. Clearly, an effective crash data collection system is a prerequisite for building an effective tribal crash reporting system.

Furthermore, only a tribal crash data collection system with "quality crash data" can bring benefits to improving traffic safety on tribal roads, as the crash data is meaningful only when it is complete and accurate. Complete and accurate tribal crash data is fundamental for engineers to identify crash causes and hot spots, and eventually for securing funding to improve tribal road safety. Therefore, law enforcement officers must be aware of the importance of quality crash data to end users such as engineers, planners, educators, EMS personnel, and law enforcement personnel themselves, and the profound benefit can be brought by high quality crash data. In

practice, the completeness and accuracy of tribal crash data can be improved by training provided to tribal law enforcement officers and via data collection software as well as crash database. Related discussion can be found in Topics 2.5, 2.6 and the case study at the end of this chapter.

The ultimate benefit of tribal crash data collection is identifying and addressing traffic safety issues on tribal lands based on the collected crash data. A real example is that Wisconsin conducted Road Safety Audits (RSA) for several tribes based on the reported tribal crash data and the outcome showed improved traffic safety on tribal roads (Ceifetz 2012). An RSA is a formal safety performance of an existing or future road or intersection based on existing crash data. One success story is that based on recommendations from an RSA conducted in the Menominee Nation in 2009; traffic safety on State Trunk Highway 55 and 47 was improved by treatments that reduce number of lane departure crashes (Ceifetz 2012).

Topic 2.2: Tribal Concerns with Collecting Crash Data

Most tribes have concerns about sharing data with the state agency, even though many of these same tribes want to or have established a crash data collection system. A common concern with establishing a tribal crash data collection system is simply the lack of resources and well-trained personnel to initiate and maintain the crash data collection system. Through communication, state agencies are usually willing to provide financial assistance and support to tribes in the form of equipment, software, and training. Discussion on state assistance on funding application and training is covered in Topics 2.4 and 2.5. Additional concerns noted include:

1. Understanding the standard crash data collection procedure used by the state;
2. Access to the state crash report form;
3. Training about how to fill out the crash report form and associated software;
4. Funding opportunities for establishing the data collection systems; and
5. Law enforcement support under emergency conditions due to the lack of law enforcement personnel.

Concerns 1 and 3 can be addressed via training provided by the state agency, which is covered in Topic 2.5. Regarding Concern 2, the state agency usually provides access to the state crash report form, which is discussed in detail in Topic 2.5. Topic 2.4 discusses available funding opportunities to establish tribal crash data collection systems, which addresses Concern 4. Concern 5 on law enforcement support is specifically discussed in Topic 2.3.

Here again, the communication, cooperation, and coordination process may be effective in expressing the needs from both perspectives. States need to communicate information about funding opportunities for implementing and associated training for a crash data collection system.

Topic 2.3: Law Enforcement Assistance Agreements on Tribal Roads

One of the concerns of tribes in establishing and maintaining a crash data collection system is the lack of law enforcement resources under emergency conditions on tribal roads. As a solution, some tribes have a mutual aid agreement with neighboring law enforcement agencies to provide or receive emergency service. The neighboring agencies include other tribes, cities, counties, and state agencies.

Tribes with mutual aid agreements typically have them with surrounding county law enforcement and medical/fire services. Some tribes have concurrent jurisdiction with the city and the

state. The law enforcement responsibility is then shared by the tribe, the city, and the state. Some other tribes do not have a formal mutual aid agreement with neighboring agencies; however, requests can be made by having good relationships. A specific tribe has mentioned that the mutual aid or commission authority exists; however, it is not specifically for crashes, as who handles the crash depends on whether a tribal member is involved.

Wisconsin is an example of a state that has full mutual aid request authority under Wisconsin law. The following Wisconsin practice can be a model for addressing the mutual aid agreement needs from tribes (Redinger et al. 2010):

- Tribal police agencies respond to crashes located within the reservation boundaries. If the tribe does not have available officers at the time of dispatch, county officers will respond to, and handle, the crash reporting (applies to most tribes).
- Both the tribal and county police officers will respond to a crash on the reservation. Whether the participants of the collision are tribal members or non-tribal members dictates which agency handles the crash reporting. If a tribal member is part of the collision, the tribal police department will handle the reporting. Non-tribal citizens are handled by the county officer.
- In communities without a tribal police department, the local or county enforcement agency responds and completes the crash reporting. These tribes rely solely on the county for crash reporting.

Topic 2.4: Funding for Implementing the Crash Data Collection System

States and local agencies must be sensitive to the fact that most tribes lack sufficient resources to initiate large crash data collection systems. Tribes are encouraged to work with state partners and apply for federal and state grants to support their development and implementation of a crash data collection system. State and local agencies are encouraged to make tribes aware of funding opportunities and provide assistance in this process, as necessary.

NHTSA funding is one of the directly related funding sources for implementing a tribal crash data collection system in many states. The Traffic Records Coordinating Committee (TRCC) in the state DOT usually leads this effort. Tribes are encouraged to be actively involved in the state TRCC meetings in order to obtain first-hand information about NHTSA funding opportunities. In some states, NHTSA funding application is delegated to the region offices. A South Dakota study has summarized the TRCC funding information, as presented in Table 3 (Quick and Bailey 2007). NHTSA Section 408 funds are often available for implementing tribal crash data collection systems. Other funding opportunities for tribal highway safety improvement may be indirectly used for implementing tribal crash data collection, such as the Indian Reservation Roads (IRR) funding under the Federal Lands Highway Program, 23 United States Code (USC) 204.

The state agency is encouraged to provide assistance to the tribal leaders for funding application assistance, including grant writing support. Other methods of assistance may exist. For example, the state of Montana discusses available funding resources with tribes at various venues including the Annual Tribal Safety Summit. The Arizona DOT continuously monitors federal, state, and other sources of funding and notifies tribal officials of available opportunities using a current tribal contact database. Opportunities also are reported to tribal officials at various meetings. In Wisconsin, the state also assists tribes in the grant writing process. The Wisconsin tribal liaison works with tribes closely to obtain the data needed to apply for grants that the tribe would be qualified for.

Table 3.   Potential federal funding opportunity for implementing the tribal crash data collection system.

Program	Funding Requirements	Funding
NHTSA State Traffic Information System Improvements Grants (Section 408)	• Funding must be used to adopt and implement data improvement programs: • To improve the timeliness, accuracy, completeness, uniformity, integration, and accessibility of state data; • To evaluate the effectiveness of these efforts; • To link these state data systems, including traffic records, with other data systems within the state; and • To improve the compatibility of the state data system with national data systems and data systems of other states to improve the ability to observe and analyze national trends in crash occurrences, rates, outcomes, and circumstances.	The federal share of programs funded by this section shall not exceed 80%. NHTSA funding typically allows a soft match.
BIA and the FHWA Federal Lands Highway Program, 23 United States Code (USC) 204	• Collecting data on traffic-related deaths, injuries and accidents can be eligible for this funding; • Tribal communities prepare a TIP, a 5-year plan for improvements on each reservation; and • Once the TIP is approved by the FHWA, there are projects that costs can be charged to. All projects using BIA funding have to be on the approved TIP.	

Future federal legislation is likely to create new and/or expanded funding opportunities for the development, crash data collection, and maintenance of tribal crash data. Communication with state and federal partners is critical in identifying these funding sources.

Topic 2.5: Implementing the Tribal Crash Data Collection System

Once funds are in place, the tribe can start to establish or implement the crash data collection system. As noted, the tribal crash data collection system should meet the following criteria:

- The system uses a standard crash report form such as the state crash report form or a form specifically developed based on the state crash report form. NHTSA's MMUCC should be consulted during development of such standard crash report form.
- Initiation and completion of a crash report form is not dependent on who is involved.
- Location of crash should be documented accurately by street addresses, highway mile markers, or geo-referencing latitudes and longitudes, and be conforming to the state crash locating system.
- Tribal law enforcement officers should be well trained in filling out the crash report forms.
- Methods should be in place for evaluating the completeness of the completed crash reports.
- A crash report database is recommended to be used for archiving and managing all crash records. However, it is not required for all tribes due to varied resource availability by tribes of different sizes. If a crash database is used, methods should be in place to evaluate the completeness and accuracy of the crash records.

Crash Report Form and Equipment

Almost all states encourage tribes to use the state crash report form to collect crash data on tribal lands. For example, the crash report form used by tribal police departments and county

sheriff departments in Wisconsin is the standard MV4000 Wisconsin report form in its paper form, or through the electronic version called Badger Traffic and Criminal Software (TraCS). The MV4000 crash report form and Badger TraCS software are compliant with NHTSA's MMUCC. All tribes use one or both form types except the Menominee Nation, which is a non-PL 280 tribe (Ceifetz 2012).

Tribes in some states are equipped with electronic portable crash reporting systems, which is considered to be able to increase data consistency. For example, in Montana, tribal police officers and BIA officers have handheld devices into which the responding officer enters the data. Crash data can be downloaded at the police station and submitted electronically to the Montana DOT (FHWA 2005).

For tribes located in remote areas where law enforcement officers are not always able to get to the crash scene, a self-filed crash report form can be provided to drivers. For example, in Alaska, a driver crash report form 12-209 can be completed by crash participants when the police do not or cannot respond.

It is important that the crash report form and equipment must have the ability to accurately capture or document the location of the crash. Having accurate locations is significant and can be incorporated into GIS that could be connected to roadway inventories. GIS-based roadway inventories provide more specific information on roadway geometrics, pavement conditions, and many other roadway related information that can be included in the crash analysis (Shinstine and Ksaibati, 2013-1). Availability of accurate crash locations is essential for identifying crash hot spots, which helps tribal decision makers prioritize improvements so that limited funds can be used on the problem areas with the highest crash risk.

Crash Reporting Software

Different states use different crash data collection and management software. One of the most widely used crash records software programs is TraCS, which has been deployed in 18 states across the country as of 2011 (North Dakota DOT 2013). TraCS is an application developed by the state of Iowa in partnership with the FHWA (Wisconsin DOT 2013) and serves as a national model for the development of automated reporting systems for law enforcement. TraCS is designed with modular architecture capable of sharing and incorporating common data among forms, such as crash, citation, operating while intoxicated (OWI), commercial motor vehicle inspection, and incident forms. Technologies such as bar code scanners, digital camera, and Global Positioning Systems (GPS) enhance the use of TraCS. Automated reporting improves the accuracy, timeliness and ease with which incident data is collected and made available for analysis. TraCS also provides the following additional features to facilitate the easiness of use:

- Data validation and completeness checking;
- Diagramming; and
- Printing.

The North Dakota DOT has had success in implementing TraCS with North Dakota tribes. Hardware was provided to the tribes through Federal Lands Resources funding while the software and related trainings were provided by funding from the North Dakota DOT and through a NHTSA grant. To implement TraCS, a MOU was developed and signed individually for each tribe (North Dakota DOT 2012).

In addition to TraCS, many other crash data collection and management software programs were used in various states. In practice, the software program provided by the state agency to the tribes varies by states. For example:

- The state of Idaho provided eIMPACT, Idaho's data collection software to tribes free of charge;
- South Dakota provided the TraCS electronic crash reporting software free with installation and training;
- The Arizona DOT provided TraCS software to any law enforcement agency within the state of Arizona including tribes;
- The Washington DOT had a crash reporting system available to tribes for their usage, which is called the Collision Data Analysis Tool (CDAT). This tool involves querying and reporting crash data;
- Wyoming provides a tool called 'ReportBeam' to tribes with training;
- Tribes in the state of Utah used the tool called the DI-9 to record crashes; and
- Montana planned to present WBCR to tribes once the system was fully operational in that state. The state will provide additional funding to assist tribes in implementing WBCR.

Trainings and Technical Support Provided by the State Agency

The state agency typically provides trainings and technical support on the crash data collection software. For example:

- North Dakota provides assistance with funding to support training and maintenance of data collection equipment;
- The state of Utah provides tribes with training that includes an overview of the existing tools available for use, such as the crash forms and electronic submission;
- The Minnesota Department of Public Safety offers training on completing the crash forms as well as research staff to assist with data requests. Idaho also provides installation and training support to tribes for the eIMPACT software;
- Oregon suggested that the Division of Motor Vehicles (DMV) could possibly provide this assistance service if a particular tribe requested training in crash data collection. The Oregon Driver's Manual provides basics of filling out crash reports and the filing process to follow when involved in a crash;
- Montana provides training and technical support on the use of their database system (WBCR). Funding for the WBCR trainer employed by Montana Highway Patrol (MHP) is provided by the Montana DOT; and
- In Wisconsin, the majority of tribal police officers responsible for completing the crash reports obtain their training in the state police academy.

A two-phase training procedure carried out in the state of South Dakota is recommended as one of the best practices. Specifically, the training was provided in two phases, depending on the needs of the tribal authority: (1) on-site training and (2) train-the-trainer program. The training was at no cost to tribes and was approximately 3 hours long. The SDDPS was responsible for the delivery of the report curriculum (Bailey and Huft 2008). Although in the South Dakota case the training session consumed approximately three hours, the guide does not recommend three hours as the standard length for training sessions. The length of training session should be determined based on the content covered in the training.

Topic 2.6: Creating a Tribal Crash Database

A crash database is an further improvement beyond the standard crash data collection system. A tribal crash database is a database that tribes can use to store, archive, query, and share crash records. Unfortunately, most queried tribes do not have a tribal crash database. Only eight out

of the 48 queried tribes have a crash database in place. Seven of these eight tribes have methods in place to evaluate the completeness (absence of blank fields) of submitted crash reports. Six of the tribes have an established time frame requirement for the submission of crash reports to the database. The timeframe requirement ranges from three to 10 days from the crash date. In addition to having a timeframe requirement for submission, five of the eight tribes have methods in place to evaluate the timeliness of submitted crash reports. All these facts indicate that tribal crash databases have not yet been widely implemented in tribes across the United States. In most states, recourses are available to support the creation, installation, and associated training for a crash database. Many states, such as Idaho and North Dakota, provide tribes with free installation and trainings of the recommended crash database.

Most data collection software mentioned provides the option of saving the crash records in a local (offline) database. For example, TraCS can save crash data on its local crash database. The eIMPACT software used by tribes in Idaho also includes a local crash database for storing crash records. If software tools are not used in the tribal crash data collection process, tribes can keep and file paper copies of the crash reports or implement a manual database in which individual crash data is manually coded. The further sharing of crash data with the state agency can be done via submission of hard paper copies of the crash report with or without additional coded information. Clearly, this method is time consuming and inconvenient for querying and analyzing crash patterns and causes. This issue can be addressed by creating the tribe's own localized electronic data management systems.

One of the benefits of using a tribal crash database is that the completeness and accuracy of completed crash report forms can be checked when these crash reports are input into the database. For example, in South Dakota, the state crash database has the function of validating the accuracy and completeness of the entered crash reports. Electronic records from TraCS systems are typically logged in the state database compatibly. Every crash report to be entered in the database, including electronic and paper submissions, is required to meet database or South Dakota Accident Records System (SDARS) certification and validation standards in order to ensure accuracy and completeness of records; this process is standard irrespective of the agency submitting the crash report (Bailey and Huft, 2008).

Case Study: Tribal Crash Report Form Completion

Source

Adapted from Bailey, L. and Huft, D. 2008. "Improving Crash Reporting: Study of Crash Reporting Practice on Nine Indian Reservations." In *Transportation Research Record: Journal of the Transportation Research Board, No. 2078*, Transportation Research Board of the National Academies, Washington, D.C., 2008, pp. 72–79.

Situation

Crashes on Native American reservations in South Dakota were significantly underreported. For example, 737 crashes were documented by tribal and BIA law enforcement agencies for nine reservations in 2005. However, only 52 crashes were reported with enough detail to be included in the South Dakota Accident Reporting System. The first phase in the tribal crash reporting process is filling out tribal crash report forms at the crash scene. In this phase, an officer visits the scene of a crash and fills out one or more reports on the crash. Issues happened or originated in the crash data collection phase.

Identified Issues

The issues involved in the crash data collection phase were identified to be the following:

- Issue 1: Inconsistent training for officers who work on reservations through BIA. The inconsistency also was due to the lack of communication about new forms and procedures in place at the SDDPS. As a result, law enforcement officers on tribal lands were sometimes unfamiliar with the South Dakota crash forms. Also personal ties between tribal or BIA officers and state officials, which could otherwise improve crash reporting, may be missing. This situation can be remedied in part through training and in part through extended outreach from the SDDPS and from tribal and BIA law enforcement.
- Issue 2: Removal of a vehicle from a crash scene to avoid documentation. There was a lack of public awareness of the need to preserve a crash scene.
- Issue 3: Understaffed low enforcement. Officers who are short of time may put off writing reports because of other pressing needs.

Practice Implemented

Practice has been implemented to address the tribal crash data collection issues:

- Practice to address Issue 1: Provision of training. Law enforcement officers must be trained in basic crash reconstruction, supervisors must prioritize and make time for forms to be filled out, and BIA must implement full crash reporting as part of its mission in reservation law enforcement. The law enforcement officers are trained at the South Dakota Police Academy operated by the Division of Criminal Investigation in the Office of the Attorney General. By undergoing training specific to South Dakota law enforcement, the officers are more familiar with the state's crash report form.
- Practice to address Issue 2: Special training on crash reconstruction. Several tribes in South Dakota have received grants from the Indian Highway Safety office of the BIA. These grants generally provide funds for a highway safety officer who has special training in crash reconstruction and reporting. For example, at the Cheyenne River Sioux Tribe, the highway safety officer is certified in full crash reconstruction. At the Rosebud Sioux Tribe, the highway safety officer also reviews crash reports made by other police officers.
- Practice to address Issue 3: Law enforcement mutual aid with neighboring agencies. For example, the Flandreau Santee Sioux Tribe fully reports its crashes to the state. The tribal police force operates under special circumstances, however. The tribe and the City of Flandreau have formed a combined police department that provides law enforcement services to both the city and the reservation.

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CHAPTER 3

State-Tribal Crash Data Sharing

An essential component of an effective crash reporting system is tribes' sharing the collected crash data with the state agency, even when certain information on the crash report may be redacted (e.g., removal of names of the tribal members or other identifying information from a crash report). On the other hand, the state agency offers access of the state crash database to tribes for retrieval of the shared crash data for analysis purpose. This section presents topics related to state-tribal crash data sharing. The primary components of this third step in developing more effective crash reporting systems are presented in Table 4. In addition, a case study of tribal crash data processing and sharing is included at the end of the chapter to provide best practice associated with the topics covered in this chapter.

Topic 3.1: Concerns and Benefits of Sharing Crash Data

The tribal query data indicates that only 25% of the queried tribes share crash data with their associated state agency. The reasons why tribes refused to share data are numerous. One of the concerns of sharing data is tribe's fear of losing tribal sovereignty by reporting crashes to the state agency. Furthermore, tribes may withhold data because of concerns with double jeopardy of their tribal members. Another concern that cause tribes' hesitance to provide crash data is that tribes do not understand or know how the crash data will be used (Shinstine and Ksaibati 2013-1). Because of these concerns, some tribes implemented tribal laws that prohibit crash data sharing.

Tribal sovereignty has been in jeopardy before (Shinstine and Ksaibati 2013-1). Therefore, tribes must be assured by the state agency that they will remain sovereign. Building trust between tribes and the state government is critical to this success. It is important to keep in mind that this trust must be built among the leadership (Shinstine and Ksaibati 2013-1). State leaders can reach out to tribes to change the culture to improve the safety on their roadways by getting the agencies to cooperate and provide the required crash data. Key steps for building and maintaining relationship between tribes and the state are included in Part 2, Chapter 1 of this guidebook.

The benefits of tribal crash reporting must be weighed against these concerns. State agencies must develop policies that will not affect the tribe's sovereignty with the sharing of crash data. Data should only be used to address traffic safety issues on tribal lands and to identify and improve problem areas on tribal roads. Tribes need to be assured that the data collection is essential to improving traffic safety and that the information would not be used to adversely impact the tribe or the individual driver involved in a crash (Shinstine and Ksaibati 2013-1). The use of crash data to improve the safety of tribal roads needs to be conveyed to and understood by tribal governments. Performing crash analysis can take on many forms and provides tribal decision makers critical information on what improvements or programs should be initiated.

Table 4.   Establishing the state-tribal crash data sharing system.

Number	Topic	Objective
3.1	Concerns and Benefits of Sharing Crash Data	Tribes and state agencies must be aware of the concerns and the benefits with sharing crash data
3.2	Crash Data Sharing Agreement	Creating a crash data sharing agreement, or MOU, defines the problem both the state agency and the tribe intend to solve, states the goal and objective, and includes both the tribe's and state agency's agreement.
3.3	Establishing a State-Tribal Crash Data Sharing System	Once an MOU is signed between the state agency and the tribe, the tribe may seek assistance from the state to implement the crash data sharing system
3.4	Providing Access to the State Crash Database	Crash data sharing is mutually beneficial between tribes and the state agency

Accurate and complete crash data can be confidently used to develop safety models that can provide specific information on problem areas, causal factors, and behavioral factors involved and how they affect the severity of crashes (Shinstine and Ksaibati 2013-1).

Specifically, the double jeopardy issue can be overcome by accepting redacted crash data with tribal members' names redacted or removed. Redacted data also helps address the tribal law concerns as no tribal members' information is disclosed. The Montana DOT, like several others, has agreed to accept tribal crash reports with all personal information, including names and social security numbers, removed (FHWA 2005).

Conveying the benefits to the tribes is another essential step to take by the state agency. As the state reaches out to the tribes, key benefits and the available assistance that can be provided must be conveyed and understood by tribal governments. The importance of complete and proper crash reporting is recognized as inadequate among tribal communities (Herbel and Kleiner 2009). The state agency needs to clearly articulate the benefits of sharing the crash data. Specifically, by sharing crash data, tribes can work more closely with state agencies and request the state's assistance in:

- Identifying problem areas;
- Improving tribal road safety;
- Expanding resources including more funding opportunities; and
- Improving data collection.

Some tribes showed their interest in sharing crash data with the state agency. The following specific benefits have been identified from the tribal queries:

- Better understanding of the causes and patterns of crashes on tribal lands;
- Effective implementation of the ideas brought up in tribal safety meetings/plans in future road safety projects of the state;
- Assistance from the state in identifying problem areas;
- Assistance from the state in improving tribal road safety;
- Tribal law enforcement department receiving more training from the state;
- More assistance from the state in data collection;
- Assistance from the state in expanding resources;
- More opportunities of funding leveraged to address safety issues on tribal lands; and
- Law enforcement support from the state.

Approximately 33% of the queried tribes were aware of the benefits of an effective tribal crash reporting system by noting one or more of the benefits listed above. For example, a tribal law enforcement officer stated, "An effective crash reporting system can help implement ideas from the safety plan. So many times we see new construction with no implementation of the ideas brought up in our meetings and/or safety plan." An officer from another tribe noted, "The benefit is the improvement of high traffic areas which have blind spots." Another tribal officer said, "Establishing a crash reporting system can reduce accidents, plan for future expansions, and changing current problems areas."

In terms of suggestions from tribes, one tribe indicated that the state should make tribes more aware of the benefits, and provide seminars or trainings. Another tribe noted: "If the state would take redacted data we would be able to provide it." In this case, tribal Liaisons play a key role in communicating the concerns and benefits. Effective communication is critical to addressing most all of the concerns and conveying benefits to the tribes. A tribal official indicated in their query dataset, "The problem is a lack of communication with the state, although we have a willingness to work together."

The Minnesota tribal liaison had a good practice in coordinating the organization of statewide tribes and transportation conferences. Roundtable sessions were organized, which promoted direct communication and discussion between tribal leaders and the state's high-level staff (Minnesota DOT 2013). These roundtables are a good location for tribes to express concerns, as well as for the state to convey benefits of reporting crashes. The Wisconsin DOT instituted a transportation safety project focusing on tribal lands and held Tribal Transportation Safety Summits where DOT staff was able to share information about the benefits of crash data sharing.

Topic 3.2: Crash Data Sharing Agreement

Once consensus is reached via communications between the state agency and a tribe, they often create and sign a crash data sharing agreement, commonly referred to as a memorandum of understanding (MOU). A MOU defines the problem both the state agency and the tribe intend to solve, states the goal and objective, and clearly describes both the tribe's and the state agency's agreement. Tribe agreements often include the following items:

- Provision of contact information of tribal law enforcement officer;
- Agreement of sharing the tribal crash data with full or redacted information;
- Timeframe to send tribal crash data;
- Partnership with the state agency to evaluate problematic areas; and
- Partnership with the state agency to address safety concerns identified from the crash data.

State agency agreements often include the following:

- Provision of standard state crash report form;
- Provision of assistance in installing and maintaining the crash data collection software;
- Provision of trainings in filing the crash reports, supporting the use of data collection and sharing software;
- Allowance of tribe's accessing the shared crash data;
- Provision of assistance in funding search and application;
- Partnership with the tribe to evaluate problematic areas; and
- Partnership with the tribe to address safety concerns identified from the crash data.

MOUs may be more important for non-PL 280 tribes and the corresponding state agency. Data sharing agreements are pre-established PL 280 tribes. PL 280 (an abbreviation for Public

Law 280) is a federal law mandating a transfer of federal law enforcement authority within certain tribal nations to state governments. There are six states in the country that utilize PL 280 to guide their relationships with tribes located in their state. Other states were allowed to elect similar transfers of power if the tribes affected gave their consent. Therefore, states may have tribes that are both PL 280 and non-PL 280. The tribes that do not fall into that category of PL 280 have independent jurisdiction and are not required to meet a state's request for tribal matters. For example, Wisconsin is a PL 280 state with the exception of the Menominee Nation. Thus, an MOU is needed and was signed between the Menominee Nation and the Wisconsin DOT in terms of agreement of crash data sharing.

The New Mexico DOT and South Dakota DOT have a strong history of developing and signing MOUs with tribal agencies. In New Mexico, MOUs were signed between New Mexico DOT and several New Mexico tribes. These MOUs, though not legally binding, required a working group consisting of representatives of the New Mexico DOT (usually including the District Engineer) and of a tribal government to meet in person at regular intervals to "establish goals, objectives and delineation of tasks relating to implementation of projects of mutual concern, and to identify and seek to remove obstacles to the achievement of those goals, objectives, and tasks." When projects were identified as objectives, the working group was required to meet at least quarterly to work towards a project-specific agreement. The first MOU was signed with Acoma Pueblo in 2002, and as of November 2004, similar agreements had been signed with four other pueblos including the Jicarilla Apache Nation and the Navajo Nation (the state's largest tribe with over 80,000 members in New Mexico) (FHWA 2005).

In South Dakota, the MOU was signed between the state agency, the Indian Highway Safety Program, and BIA Road Departments. The agencies have jointly developed a model MOU as an agreement to exchange crash data between the tribe and the state to improve highway safety. The goal of the agreement is to support engineering solutions to hazardous areas of the roadway, and the agreement specifies that the crash data submitted will be used to address roadway hazards (Quick and Bailey 2007). Appendix A presents a copy of the South Dakota MOU example.

Topic 3.3: Establishing the State-Tribal Crash Data Sharing System

Once an MOU is signed between the state agency and the tribe, the tribe may seek assistance from the state to implement the crash data sharing system. Crash data sharing has two basic elements: method of data sharing and timeframe of reporting crashes.

Method of Data Sharing

For many tribes, especially tribes that use a paper-based method for collecting crash data, the crash data are included in the paper copies of the crash report mailed to the state agency. For tribes that use crash data collection software, data sharing is usually implemented by the same software for crash data collection. In addition to electronic submission, some states (such as Minnesota) also allow tribes to report crashes via the web with registration on the website. Direct crash database integration with the state crash database is another method of sharing tribal crash data. Among the 16 queried states, Minnesota is the only state that has tribal crash data submitted via an integrated tribal crash database. Trainings on methods for submitting crash data to the state agency are typically provided to tribes by the state agency. During the data share process, the completeness of completed crash report forms is typically checked when inputting or transferring tribal crash reports into the state crash database.

Tribes may choose to withhold certain information from the crash data when reporting the crash data to the state agency. Whether the information is withheld should be stated in the MOU.

Timeframe of Reporting Crashes

The timeframe of crash data submission varies by states and tribes. Nine of the 16 states queried reported that they received shared crash data from tribes. Among the nine states, six states received data yearly, two received data semi-annually, and one received quarterly. According to the tribal query data, of the 12 tribes that provide crash data to the state agency, four tribes provide the data on an annual basis, three tribes on a quarter basis, and the remaining five tribes did not specify how often they provide the data. It is suggested that tribal crash data be submitted to the state agency at least semi-annually. This frequency can assure the timely identification of problem areas on tribal roads. These traffic safety issues can in turn be addressed in a timely manner.

Process for PL 280 Tribes

Figure 5 illustrates a standard crash data collection and sharing process for non-PL 280 tribes (Ceifetz 2012).

Using Wisconsin practice as an example, upon completion of the crash report by a PL 280 tribe law enforcement officer, the crash report is submitted to the state for processing. Quality Assurance/Quality Control (QA/QC) methods were consistent in being reviewed either by an administrative professional, another officer, or upper management. Upon completion of the review, the report is filed with a hard copy or in an electronic filing system used by tribal law enforcement agencies. According to all agencies that submit data, they comply with the state regulation of the report being submitted within 10 days of the crash. Overall, the reporting process for all of the agencies seemed to be thorough and timely with adequate oversight for quality (Ceifetz 2012).

Process for Non-PL 280 Tribes

Wisconsin also has practice in developing processes for non-PL 280 tribes. Menominee Nation is the only non-PL 280 tribe in the state of Wisconsin (located within Menominee County).
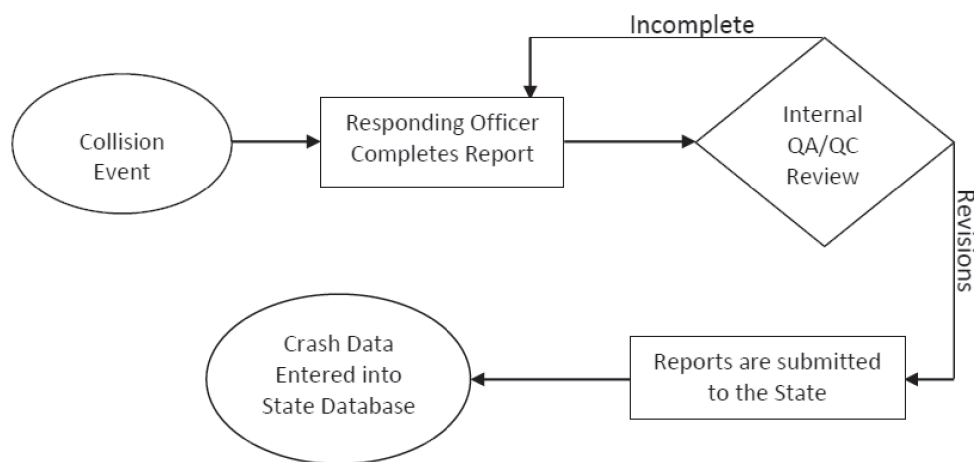
Souce: Ceifetz 2012

Figure 5.   Standard crash data collection and sharing process.

Menominee County contains two law enforcement agencies, the Menominee County Sheriff Department and the Menominee Nation Tribal Police Department.

When a crash occurs in Menominee County, the Menominee Tribal Police Department conducts the investigation and writes the report of any tribal members involved in the crash. Menominee County Sheriff's officers investigate and write the crash report of non-tribal members involved. Due to this arrangement, information regarding tribal members involved in the crash is handled by the Menominee Tribal Police Department. This arrangement keeps private information of tribal members from being forwarded to the state. Menominee County Sheriff's Department reported that there is a concern from tribal members that information from their crash data could be used against the tribe and this is a reason for not sharing this information with the state; conversely, the state will not accept crash reports without personal identifiers (Ceifetz 2012).

As a solution, Menominee Nation has a separate confidentiality agreement with the Wisconsin DOT regional office staff to report their crash data directly to them for use in the identification of safety issues. This agreement between the Menominee Nation and the Wisconsin DOT is renewed annually (Ceifetz 2012).

Process with BIA Involved

In some states, BIA is involved in the tribal crash reporting process. For states with this common practice, the South Dakota model has proven to be effective.

In South Dakota, crash reports of crashes on tribal roads are initiated by both tribal law enforcement and BIA law enforcement. For all nine reservations, law enforcement services are supported by BIA. Five tribes administer their own law enforcement directly under PL 96-638. For the remaining four tribes, the BIA provides law enforcement directly. The SDDPS collects all crash reports within the state, as prescribed by state statute. Counties and cities in South Dakota are required to submit the crash reports to the SDDPS within 3 days (Bailey and Huft 2008). Figure 6 shows the current tribal crash reporting process used in South Dakota.
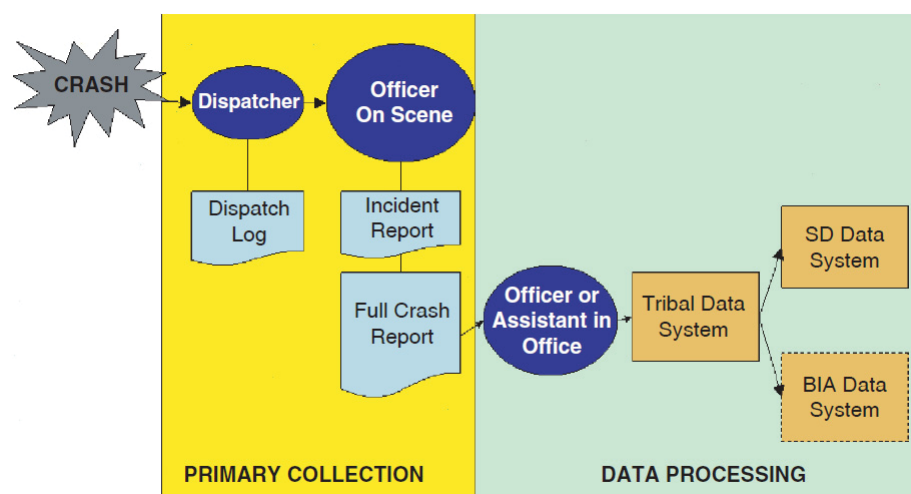
Souce: Bailey and Huft 2008

Figure 6.   Tribal crash reporting process in South Dakota with BIA involved.

As sovereign nations, the tribes in South Dakota have a formal relationship with the federal government, not the state. Therefore, conflicts have arisen during the process of reporting crashes to the SDDPS. Typical conflicts are:

- Due to different training received, tribal and BIA law enforcement officers are unfamiliar with South Dakota crash forms.
- Crash reports are not standard practice at BIA. The BIA does not currently require full crash reports, although it does require incident reports.
- Tribes are not under the same obligations as cities and counties to report crashes to the SDDPS. Although BIA law enforcement supports sharing crash data between tribes and SDDPS, only four tribes in South Dakota have BIA law enforcement services, and other tribes can choose whether to report or not (Bailey and Huft 2008).

The South Dakota model introduces solutions to the aforementioned conflicts. These solutions include:

- Tribal and BIA law enforcement officers can be trained to get familiar with the state crash reporting form.
- BIA law enforcement must implement full crash reporting as part of its mission in reservation law enforcement.
- To stimulate better reporting from tribes, the SDDPS and the South Dakota DOT can outreach to tribes explaining how crash data collection systems can benefit tribes. Tribes need assurance that the only use of crash data collected on tribal lands will be to improve traffic safety, not to criticize crash rates or to support criminal investigation or any other effort (Bailey and Huft 2008).

Topic 3.4: Providing Access to the State Crash Database

Crash data sharing provides obvious benefits to both the state agency and the tribe. Tribes must have access to the state crash database to retrieve the submitted crash data for the purpose of identifying locations with traffic safety problems and for obtaining the necessary data for grant applications. Furthermore, data sharing provides a level of trust between agencies. According to the state query data, six states allow tribes to access the submitted crash data via database access, nine states allow the access by request, and one state currently does not allow tribes to access their submitted crash data at a later time.

Many states allow tribes to access the crash data electronically. In Arizona, tribes are able to access their data in the Safety Data Mart once the tribes have signed the Data Access/Exchange Agreement with the Arizona DOT. In Idaho, tribes can perform crash analysis through the Web Crash Analysis Reporting System (WebCARS) after they have requested and obtained an account. Minnesota maintains the Minnesota Crash Mapping Analysis Tool (MnCMAT) program that allows tribes to access the crash data. A data file would be provided upon request. Some other states such as Alaska, California, North Dakota, New Mexico, South Dakota, Wisconsin and Utah provide crash data back to the reporting tribal agency per request. Data access agreements requested by most of the states can also be included in the MOU between the state agency and the tribe.

In some states, the state agency collects some crash data for tribes, such as crashes on roads with concurrent jurisdiction by the tribe and the state. Tribes should also be able to access these crash data in order to perform a complete crash analysis. As a solution, the state agency usually provides tribes with access to these data. For example, crash data collected by the Oregon DOT on tribal lands can be made available to tribes in many forms and the ability to download from the web or receive data for their own systems can be arranged. In Oklahoma, all tribal roads are

owned by the state. Therefore the state is responsible for crash reporting on all the tribal roads. The Southern Plains Tribal Technical Assistance Program (TTAP) Center offers a Crash Data Collection class that provides trainings to tribal officers on how to log in to the Oklahoma's Safe-T System so they can access crash data for their area. Tribal officers can learn how to access the crash data on tribal lands, which were collected by the state (Southern Plains TTAP Center 2013).

Case Study: Tribal Crash Data Processing and Sharing with the State Agency

Source

- Adapted from Bailey, L. and Huft, D. 2008. "Improving Crash Reporting: Study of Crash Reporting Practice on Nine Indian Reservations." In *Transportation Research Record: Journal of the Transportation Research Board, No. 2078*, Transportation Research Board of the National Academies, Washington, D.C., 2008, pp. 72–79.
- Adapted from the state query response.

Situation

Crashes on Native American reservations in South Dakota were significantly underreported. Seven hundred thirty-seven crashes were documented by tribal and BIA law enforcement agencies for nine reservations in 2005. However, only 52 crashes were reported with enough detail to be included in the South Dakota Accident Reporting System. Therefore, the first phase of the tribal crash reporting process focused on enhancing primary data collection. The second phase in the tribal crash reporting process focused on tribal crash data processing and sharing with the SDDPS. A tribal law enforcement assistant enters the information into the data storage system. Some tribal law enforcement offices have software systems, such as Cisco or the Criminal Records Information System (CRIS), to record crash data electronically. Others keep crash reports or copies of each crash report in a paper file. Some tribal law enforcement offices do not keep copies of full crash reports and simply submit those that are collected to the SDDPS.

Identified Issues

The issues involved in the crash data collection phase were identified to be the following:

- Issue 1: Lack of feedback regarding the completeness or accuracy of the crash form after submitting the crash reports to the SDDPS. Tribal law enforcement agency could benefit from additional feedback about how forms were filled out.
- Issue 2: Incompatible electronic crash data collection system with the state system. Software systems for crash records do not conform to a standard across the United States.
- Issue 3: Lack of software technical support for the software for crash data collection and sharing as well as lack of trained personnel to work with the software.
- Issue 4: Tribal sovereignty and political concerns. Historically in South Dakota, statistical data have sometimes been used to support criticism of tribal governments and members. Tribes may need assurance that the only use of crash data collected on tribal lands will be to improve traffic safety, not to criticize accident rates or to support criminal investigation or any other effort. The political barriers were also caused by not receiving South Dakota DOT funds from tribal traffic safety improvement after reporting the crash data. Tribes are not under the same obligations as cities and counties to report crashes to the SDDPS. Several tribal councils did not support submitting crash reports with personal identification of the people involved.

Practice Implemented

Practice has been implemented to address the tribal crash data processing and sharing issues:

- Practice to address Issue 1: The state crash database has the function of validating the accuracy and completeness of the entered crash reports. Electronic records from TraCS systems are typically logged in the state database compatibly. Every crash report to be entered in the database, including electronic and paper submissions, is required to meet database or SDARS certification and validation standards in order to ensure accuracy and completeness of records; this process is standard irrespective of the agency submitting the crash report. The SDARS database is able to be integrated with other state databases. The SDDPS makes crash data available for download to any government agency that requests it; as a result, tribes have access to crash data that they can, in turn, use to improve transportation safety and planning on tribal lands.
- Practice to address Issue 2: The SDDPS started to use TraCS as software for tracking crashes. Compatibility of TraCS with other criminal justice databases was the key to creating data files that can be directly transferred. By the time of returning the state query, the SDDPS was aware of one of the three tribes in South Dakota having and using TraCS. TraCS is provided by the Office of Highway Safety (Accident Records) under DPS at no cost, including installation and training. Although specific computer equipment for crash reporting is not provided in addition to the TraCS software, it is important that TraCS is available to all law enforcement, including tribal agencies. Additionally, SDDPS has a professional contractor available to help state agencies with installation and other IT/software questions.
- Practice to address Issue 3: Training from the software provider. For example, The Rosebud Sioux Tribe received software support from Cisco, which has been helpful in the implementation of the system. This system is user-friendly and has a number of built-in reports that have helped the tribe to apply for grants, make safety plans, and track progress on safety measures.
- Practice to address Issue 4: To encourage better reporting from tribes, the SDDPS started to explain how its crash data collection system can benefit tribes.

CHAPTER 4

Improving Tribal Traffic Safety Using Crash Data

The ultimate purpose of implementing the tribal crash reporting system is to fully utilize the collected tribal crash data in identifying and addressing traffic safety issues on tribal roads. This section covers topics related to how tribes and the state collaborate to improve tribal traffic safety using the reported tribal crash data. The primary components of this fourth step in developing more effective crash reporting systems are presented in Table 5. In addition, a case study of a cooperative rural road safety program for tribal roads and a case study of developing a statewide tribal transportation safety initiative are included at the end of this chapter to demonstrate best practices related to the topic of this chapter.

Topic 4.1: Engineering Studies to Identify and Address Tribal Traffic Safety Issues

Comprehensive tribal crash data allows for crash studies to be completed, such as RSA, to identify tribal traffic safety issues. Tribes often lack the expertise needed to perform safety studies based on the crash data or field evaluations in order to identify and address traffic safety issues on tribal lands. Safety stakeholders such as state DOTs, FHWA, TTAP, and local technical assistance programs (LTAP) can provide resources and technical expertise to assist tribes in performing traffic safety studies (Shinstine and Ksaibati, 2013-1; 2013-2).

TTAP was created by FHWA in 1991 to assist tribes with the management of their transportation networks (Sullivan IV and Martin 2009). TTAP has seven regional centers across the country. They provide the tribes with training, information, updates on new technology and personalized assistance with their transportation programs and are helping tribes improve their roadway safety. TTAPs work closely with FHWA to provide assistance with the many federal programs available to improving tribal traffic safety.

The state agency is usually involved in this process to provide engineering support and funding assistance. Most states have tools to perform different crash analyses. Some states, such as Idaho and Oregon, provide access to safety tools and GIS interactive maps for tribes to analyze the crash patterns by themselves. Other states directly perform tribal-specific crash data analyses or hire contracted researchers to conduct the analysis. For example:

- The Arizona DOT contracts with consultants to conduct crash analyses on tribal road systems when tribes are approved for assistance to conduct transportation studies under Arizona DOT's PARA program. Specifically, tribes are approved by the state to receive assistance from Arizona DOT via the PARA program. The PARA program is sponsored by the Arizona DOT and provides federal funds to assist tribal governments and counties, cities and towns located outside the Transportation Management Area (TMA) planning boundaries with multimodal transportation planning needs.

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Table 5.   Improving tribal traffic safety.

Number	Topic	Objective
4.1	Engineering Studies to Identify and Address Tribal Traffic Safety Issues	Comprehensive tribal crash data allows for crash studies to be completed, such as the road safety audit, to identify tribal traffic safety issues
4.2	Grants (funding) for Tribal Roadway Safety Improvements	After safety issues are identified on tribal roads, tribes can seek grants or funding to support their roadway safety improvement projects

- Montana conducts Native American crash data analysis annually with available data.
- The North Dakota DOT provides assistance to tribes in mapping the crashes using the data;
- The Washington DOT conducts general tribal crash analysis. The analysis is normally done by providing a crash history with a particular type of focus, i.e., contributing circumstances or pedestrian involvement.
- The Wisconsin DOT commissions a statewide report that analyzed crash data on tribal lands providing a starting point for addressing safety issues. RSAs also were conducted in several tribal communities.
- In Wyoming, analyses are performed in the state for tribes that request the analyses.
- New Mexico directly provides statistical and analytical data to the tribes based on crashes on tribal lands if the tribes can properly collect the tribal crash data.

States usually assist tribes in evaluating or directly evaluate the safety improvement of the problem areas. Such evaluations can be implemented via programs such as the HSIP. For example:

- The North Dakota DOT works with tribes through the STIP and HSIP processes;
- South Dakota reviews road safety projects for tribal roads every year;
- In Montana, HSIP nominations are solicited from tribal nations and evaluated against other needs across the state. Montana DOT has worked with other agencies to develop safety plans and evaluate safety problems. The Safe On All Roads (SOAR) program does involve tribal traffic safety evaluation; and
- The Arizona DOT works with tribal communities to develop safety projects using high-risk rural roads (HRRR) Funds, based on the Arizona DOT screening of the system.

Tribes are encouraged to get involved in safety evaluation projects in order to make sure that the engineering solutions are proffered to best suit the tribes. For example:

- In the RSA process and the PARA planning process in Arizona, tribal and BIA planners/engineers provide decision-making authority on the proper solutions/counter measures to be used within the respective tribal community;
- In Montana, safety projects/improvements on tribal roadways are coordinated with tribal officials. In South Dakota, tribal officials are involved in public meetings and direct meetings on STIP.
- South Dakota DOT works with other agencies to review road safety projects on tribal lands on an annual basis. Such projects, as well as other solutions and countermeasures to crash problems are discussed openly with tribes at public meetings to gather tribal input; additional meetings are held to address these meetings on STIP.
- Washington DOT consulted with tribes on the update of the plan to incorporate tribal-specific countermeasures.
- California DOT (Caltrans) has established a Native American Advisory Committee (NAAC) with the purpose to ensure that Caltrans management receives direct advice on planning,

developing, and implementing transportation projects and services from the Native American community (California DOT 2013). Membership of NAAC consists of persons who are nominated by tribes and Native American organizations throughout the state, recommended by the NAAC and appointed by the Director. Members serve as "at large" members to the tribes in their geographic regions (northern, central, and southern) as drawn by the BIA regional map. Members are advocates for all Native Americans of California.

A key practice program that assists the tribes in traffic safety improvement is a four-task model process developed in Arizona in 2004 (Mickelson and Corbett 2004). The four tasks included in the process are:

1. Determine whether a tribe has a highway safety problem;
2. Select funding sources;
3. Plan for a tribal highway safety improvement project (THSIP) or highway safety project; and
4. Implement the tribal Hazard Elimination Safety (HES) program project based on the plan.

The first three tasks are administrative in nature and are designed to help tribes incorporate traffic safety into their government structure (Shinstine and Ksaibati 2013-1). The HES in the fourth task was replaced by HSIP from SAFETEA-LU, which was later replaced by the new transportation law, MAP-21.

A most recent practice in terms of assisting tribes in identifying and addressing traffic safety issues is a five-step methodology developed by Wyoming Technology Transfer Center (WYT[2]) in cooperation with the Wyoming DOT (Shinstine and Ksaibati 2013-1). As most IRR routes are similar to rural local roads, the five-step methodology was specifically adapted from the Wyoming Rural Road Safety Program (WRRSP) that was developed to assist counties across Wyoming to overcome the challenges in meeting the criteria of the HRRR funding. The objective of the five-step methodology is to identify high-risk locations on IRRs and eventually implement a low-cost safety improvement program (Shinstine and Ksaibati, 2013-1). This methodology also helps tribes use funds for safety improvements on their roadway systems.

The methodology is based on available crash data on tribal roads. A combination of data-driven field verification and trend analysis is used. Figure 7 illustrates the entire procedure of this methodology. Specifically, the five steps included in the methodology are as follows:

- Step 1: Crash Data Analysis: performed to determine high-risk crash location based on analysis of tribal crash data. The analysis should cover a period of 5 to 10 years to identify trends or hot spots. Crash rates can be used to replace crash frequency if traffic volume data is available. However, considering tribes often lack complete and accurate crash data, number of crashes are often used. On the basis of the number of crashes per one-mile segment, the routes are assigned a crash rank from greatest number of crashes per hot spot to least. The top 15 to 25 high crash routes are selected to be investigated in Step 2.
- Step 2: Level I Field Evaluation: conducted on the high crash segments. These routes are evaluated by a team comprised of tribal members, and transportation experts from LTAP, TTAP, or BIA. Tribal personnel are essential as they have site expertise and knowledge of the problem areas. Evaluation applies to five categories: (1) general, (2) intersections, (3) signage and pavement markings, (4) fixed objects and clear zones, and (5) shoulder and right-of-way. Each segment receives a total score, which is the sum of the score of each category. All segments from all routes that were evaluated are ranked from lowest to highest score. The segment with the lowest rank value is considered to have the highest risk.
- Step 3: Combined Ranking to Identify Potential High-Risk Locations on the Basis of Steps 1 and 2: the crash ranking is combined with the Level I ranking (simply added). The segments with the smallest numbers are considered the most hazardous. The top 10 to 15 roads should be selected for Step 4: Level II evaluation.
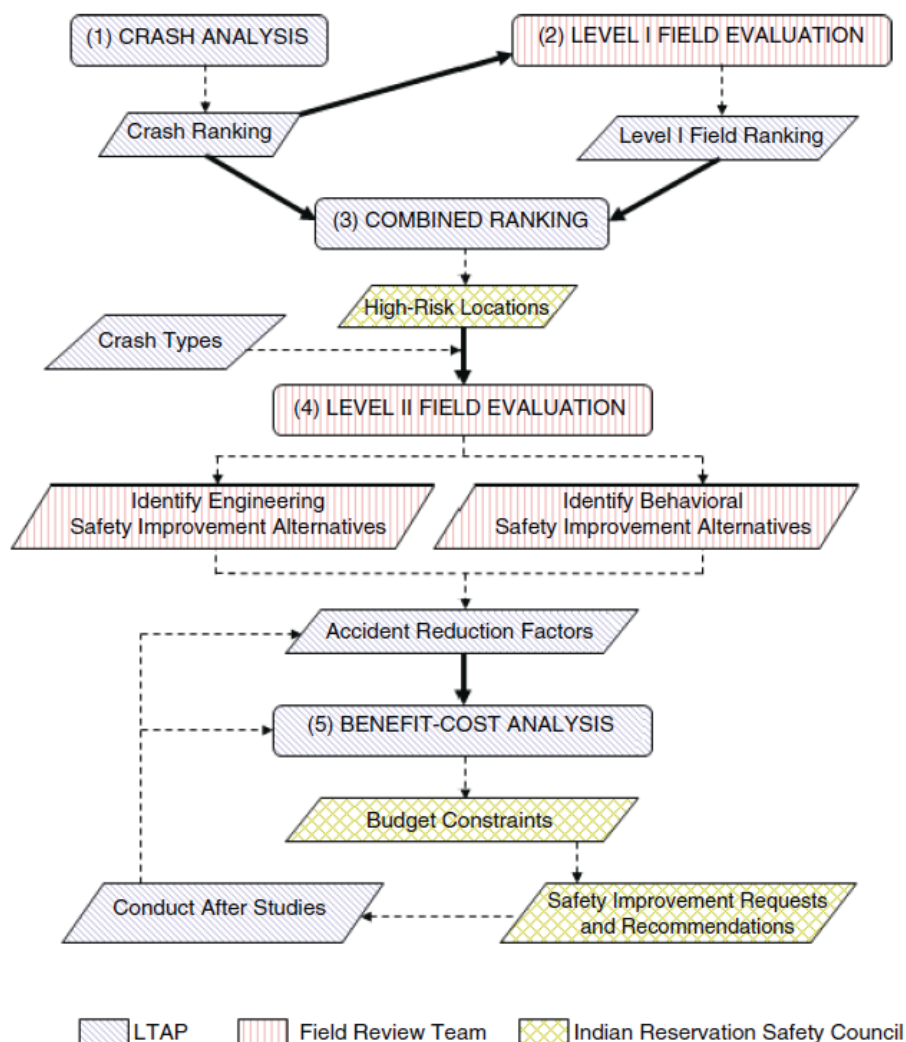
Figure 7. Five-step process for identifying and addressing high-risk locations on tribal roads.

- Step 4: Level II Field Evaluation to Identify Countermeasures: performed to determine proper countermeasures. The evaluation teams should be determined by the tribes and should include tribal personnel and transportation experts. The team reviews each road and revisits the sites as needed to determine the proper countermeasures. Crash reduction factors (CRFs) are assigned for countermeasures using the FHWA safety tool (Bahar et al. 2013) or individual state's own CRFs for specific countermeasures. Each site is assigned one or more counter-measures and a cost of implementation is estimated.
- Step 5: Benefit–Cost Analysis: performed to provide the tribes with information on the most effective safety improvements. Construction costs are estimated. The benefit associated with each improvement is calculated based on the CRFs and societal cost of crashes and the ratio of benefit-to-cost is calculated. The list of benefit-to-cost ratios provides a prioritized list of improvements and tribes must review and approve the list. Once the tribes have decided which improvements they desire, they can determine what resources they want to allocate to the safety improvement project.

The application of this methodology requires collaboration among safety stakeholders, which possibly include DOT, tribal leadership, LTAP, TTAP, BIA, and local and tribal law enforcement programs for tribes. Flexibility is needed so that the tribes can adjust the process to fit their unique operations. A program that fits the tribes' specific needs can make the task of safety improvement manageable as well as encourage the tribes.

In addition to identifying crash locations, analysis of tribal crash data also helps identify crash causation and improvement alternatives to enhance behavioral safety. Crash data can identify contributing variables such as driver impairment or lack of safety belt use. For example, based on the analysis of collected crash data, the Ho-Chunk Nation in Wisconsin launched a culturally tailored motor vehicle injury presentation program that conducts child safety seat clinics and performs safety seat checks. After the program was implemented, driver and passenger seat belt use and the use of child safety seats increased substantially (Ceifetz 2012). This case shows the benefit of using tribal crash data to improve driver behavioral safety on tribal lands.

Topic 4.2: Grants (funding) for Tribal Roadway Safety Improvements

After safety issues are identified on tribal roads, tribes are asked to seek grants or funding to support their roadway safety improvement project. At this time, tribes can ask for state's assistance in seeking funding opportunities. In addition to the state, TTAPs usually provide assistance to tribes in applying funding for tribal traffic safety improvement.

Topic 2.2 of Part 2 provided information about funding for implementing a tribal crash data collection system. For tribal roadway safety improvement, a number of funding opportunities from federal, state, and location governments are available.

A Wisconsin report provides detailed information about available funding opportunities (Ceifetz 2012). The most common funding that tribes can apply is for IRR.

> The IRR is part of the Federal-Aid Highway Program and is funded from the Highway Trust Fund. It is authorized under the Federal Lands Highway Program, 23 USC 204. Use of IRR Program funds is defined in 23 USC. This program is jointly administered by the BIA and the Federal Highway Administration. Tribal communities prepare a TIP, a 5-year plan for improvements on each reservation. The TIP is then submitted to the BIA Division of Transportation (BIADOT) for review and approval. BIADOT reviews, approves, and forwards the TIP to FHWA Federal Lands Highway Office (FLHO) for approval. Once the TIP is approved by the FHWA, there are projects that costs can be charged to. All projects using BIA funding have to be on the approved TIP (Ceifetz 2012).

Safety projects eligible for IRR funding could include:

- Highway alignment improvement;
- Bridge widening;
- Pedestrian paths/sidewalks and bus shelters;
- Installation and replacement of signs when designated as, or made part of, a highway safety project;
- Construction improvements that enhance and promote safe travel on IRRs, such as guardrail construction and traffic markings;
- Development of a safety management system;
- Education and outreach highway safety programs, such as use of child safety seats, defensive driving, and Mothers Against Drunk Drivers;

- Development of a highway safety plan designed to reduce traffic accidents and deaths, injuries, and property damage;
- Collecting data on traffic-related deaths, injuries and accidents;
- Impaired driver initiatives;
- Child safety seat programs; and
- Purchasing necessary specific traffic enforcement equipment, such as radar equipment, breath analyzer, or video cameras.

Some other major funding opportunities from the federal government include HSIP, HRRR offered by MAP-21, and the state and Community Highway Safety Grants Program (Section 402) offered by NHTSA. Table 6 summarizes the detailed information of the three funding sources.

The State and Community Highway Safety Formula Grant Program (Section 402, NHTSA) was developed to provide funding to implement initiatives targeted at improving safety. Section 402 funds are typically used to fund safety projects related to enforcement, education, and EMS, and can be used for a variety of safety initiatives including conducting data analyses, developing safety education programs, and conducting community-wide pedestrian safety campaigns (Ceifetz 2012).

Table 6.   Potential Federal funding opportunities: adapted from a South Dakota study.

Program	Funding Requirements	Funding
FHWA Highway Safety Improvement Program (HSIP)	• Planning: collecting and maintaining data, establishing project priorities, conducting engineering studies, identification of hazardous locations and elements. • Implementation: scheduling and implementing projects. • Evaluation: determining the effect of safety improvements.	The federal share is 90%, subject to the sliding scale adjustment, except that the federal share is 100% for certain safety improvements listed.
FHWA High Risk Rural Road (HRRR) HRRRs are eligible for HSIP funding.	• Roads that are classified as rural major and minor collectors and rural local roads "with significant safety risks" will become the roadways designated as HRRR. • States are required to define HRRR in their updated state Strategic Highway Safety Plans (SHSPs).	The Special Rule requires states with an increase in fatality rates on rural roads to obligate a specified amount of HSIP funds on HRRRs.
NHTSA State and Community Highway Safety Grants Program (Section 402)	• Funding must be used to support state highway safety programs designed to reduce traffic crashes and resulting deaths, injuries, and property damage. • A state may use these grant funds only for highway safety purposes.	Ninety-five percent of the funds apportioned to the Secretary of the Interior shall be expended by Native American tribes to carry out highway safety programs within their jurisdictions.

Souce: Quick and Bailey 2007

Federal funds within the HSIP may be used to implement the infrastructure based improvements identified within a safety plan. HSIP funding is administered by each state's DOT. In most states there is an application process required to secure funding to make improvements or fund various safety initiatives. This funding is intended to assist agencies in implementing safety improvements to their transportation system (Ceifetz 2012).

Additional federal and local funding opportunities are provided in a FHWA publication (FHWA 2011) and the Wisconsin report (Ceifetz 2012). These additional funding programs include:

- U.S. Department of Health and Human Services (HHS)
  - Funding for highway safety activities.
- Indian Highway Safety Program 25 Code of Federal Regulations (CFR) 181;
- FHWA funds, administered by the states for safety only, include:
  - Highway-rail grade (public) crossings.
- FHWA funds, administered by the states for activities, including safety:
  - Surface Transportation Program (STP);
  - Interstate Maintenance (IM);
  - Highway Bridge Replacement and Rehabilitation Program (HBRRP);
  - Intelligent Transportation System (ITS); and
  - State Planning and Research (SPR).
  - Tribal Transportation Safety Funds
- U.S.DOT sponsored training programs, including safety topics:
  - National Highway Institute (NHI); and
  - TTAP.
- NHTSA funds administered by the states through the Governor's representative (safety only):
  - State and Community Highway Safety Grant;
  - Intoxicated Driver Prevention Program;
  - Alcohol-impaired Driving Countermeasures Incentive Grants;
  - Safety Incentive Grants for the Use of Seat Belts;
  - Occupant Protection Incentive Grants;
  - State Highway Safety Data Improvement Grants;
  - Child Passenger Education Program;
  - Research and Demonstration Grants; and
  - Training.
- Highway Safety Programs administered by BIA Highway Safety Office program (BIAHSO) and funded by NHTSA (safety only):
  - State and Community Highway Safety Grant;
  - State Highway Safety Data Improvement Grants; and
  - Child Passenger Education Program.
- State funded and administered (not all states):
  - State Highway Funds State Safety Funds;
  - Transportation Loan Programs; and
  - LTAP.

Utah, Washington, and South Dakota have good practices in place for tribes' obtaining funding from the state. In Utah, tribes can apply for funding for implementing their crash data collection system through the state's Highway Safety Grant process. Washington tribes are eligible for grants administered by the Washington Traffic Safety Commission under Washington's Strategic Highway Safety Plan: Target Zero. The SDDPS makes financial resources available to tribes via grants from the Office of Highway Safety to help improve safety on tribal lands through the use of crash data.

Unlike the state and federal agencies, city, county, and local government may not be able to provide direct funding opportunities to tribes. However, they usually offer assistance in funding

searches. For example, in Michigan, the local safety initiative does help tribal agencies determine which funding sources are available based on roadway classification and crash data.

The Arizona DOT also published a Tribal Traffic Safety Funding Guide for Tribes in Arizona in 2006 (Arizona DOT 2006). The funding source information provided in that publication may be outdated, but it still can be helpful in funding a source search.

Case Study: A Cooperative Rural Road Safety Program for Tribal Roads

Source

Adapted from Shinstine, D. S., and Ksaibati, K. 2013-2. "Indian Reservation Safety Improvement Program." In *Transportation Research Record: Journal of the Transportation Research Board, No. 2364*, Transportation Research Board of the National Academies, Washington, D.C., pp. 80–89.

Situation

Wyoming has developed the WRRSP through the Wyoming Technology Transfer Center–Local Technical Assistance Program (WYT[2]-LTAP) to assist counties across the state to overcome the challenges of meeting the criteria of the HRRR. The WRRSP is a five-step methodology that includes the analysis of crash data, field evaluation, and benefit–cost analysis to identify and prioritize low-cost safety improvements. Although IRRs are similar to rural local roads, Native American tribes have not been provided with such comprehensive tools to do the same. Native American nations are different from their rural counterparts in that they are sovereign and do not fall under the jurisdiction of the states. They need some mechanism to assist in identifying sites for improvement. This will help them assess their priorities and determine how they can allocate resources for safety improvements.

Identified Issues

Native American tribes are different from their rural counterparts as they are sovereign and do not fall under the jurisdiction of the states. Therefore, in Wyoming, there were no specific tools designed for tribes for implementing traffic safety improvement. Tribes need some tools to assist in identifying sites for improvement. These tools will help the tribes assess their priorities and determine how they can allocate resources for safety improvements.

Practice Implemented

- WYT[2]-LTAP has converted WRRSP into a similar five-step procedure specifically for tribes to identify traffic safety issues and prioritize their improvements. The whole procedure is discussed in detail in Part 2, Topic 4.1. The procedure has been implemented at Wind River Indian Reservation (WRIR) in Wyoming.
- Before implementing the process, several meetings were held between transportation officials from WRIR, Wyoming DOT, Northern Plains Tribal Technical Assistance, WYT[2]-LTAP, BIA, and Wind River law enforcement. The meetings proved productive and established the protocols necessary for proceeding. Early meetings opened the lines of communication and identified the expectations of all the parties. WRIR is eager to expand its abilities to address transportation safety on the reservation and extended the scope of the collaboration to the development of a strategic transportation safety plan. WRIR transportation personnel agreed that the field evaluation teams needed to include various tribal stakeholders.

- Three areas of responsibility were assigned to the process. WYT²-LTAP was responsible for performing the crash analysis, crash ranking, Level I field ranking, and combined ranking; identifying crash types; determining accident reduction factors; and performing the benefit-cost analysis. The field review team was selected by the tribes to include WYT²-LTAP, tribal transportation and its consultant, and tribal law enforcement. This review team was responsible for conducting the Level I and II field evaluations and identifying engineering improvement alternatives.
- A tribal safety council was not formally organized, but tribal transportation officials coordinate review of field results and program status with other tribal leadership for their input and concurrence. The tribal safety council's involvement began with input on high-risk locations. The council completed the project review by identifying budget constraints and determining what safety improvement projects to recommend for funding.
- After the first three steps were completed, 12 high-risk roads were selected for evaluation for countermeasures. WRIR transportation reviewed the list and decided to proceed with a similar evaluation for 15 additional IRRs. Countermeasures were identified for each road. This exercise was collaborative and entailed making decisions as a team on what should be done for the various locations. Many of the countermeasures included pavement markings and signage. Future long-term improvements for narrow roads were also proposed. These types of projects would require acquisition of right-of-way and major reconstruction. Such projects are not within the scope of the HRRR, which is designed to provide funding for low-cost improvements. However, several were noted for future consideration by the tribes and so that the tribes could pursue other funding sources.
- Eventually, benefit-to-cost ratios were calculated for all proposed safety improvement projects. Particularly, cost estimates were developed on the basis of Wyoming DOT 2011 bid tabs and WYT²-LTAP resources from other similar safety improvements and were categorized by the selected countermeasures. The total cost was calculated for each road and compared with an overall benefit in crash reduction for the entire roadway.

Case Study: Development of a Statewide Tribal Transportation Safety Initiative

Source

- Adapted from the Wisconsin DOT Tribal Affairs website (http://www.dot.wi.gov/localgov/aid/Tribalaffairs/i-tsafety.htm)
- Adapted from Redinger, C., Woods, M., Bagdade, J. S., and N. Bowman. 2010. *Improving Crash Reporting On Wisconsin Indian Reservations Phase 1: Review of Crash Reporting Procedures*, Wisconsin Department of Transportation, Madison, WI.
- Adapted from Ceifetz, A. H. 2012. *Crashes on Wisconsin Indian Reservations: Reporting, Conclusions, and Recommendations.* Wisconsin Department of Transportation, Madison, WI.
- Adapted from phone interview.

Situation

Wisconsin has 11 federally recognized tribes in the state and holds an annual consultation meeting with tribes that provides an opportunity for exchange between tribally elected officials and DOT officials. Early in the department's consultation efforts, tribes raised safety as one of their primary concerns, citing crashes on tribal lands, engineering issues, and EMS services. As a result of concerns raised, the tribal Affairs office initiated a series of RSAs and a statewide crash data study. The efforts were initiated to help the department better understand current tribal crash data efforts, needs, and crashes within Wisconsin's tribal communities.

The first phase of the report titled "Improving crash reporting on Wisconsin Indian Reservations, Phase 1: Review of crash reporting procedures" was intended to provide the department with a better understanding of how crash reporting was being conducted within tribal communities in the state. The second phase titled "Crashes on Wisconsin Indian reservations: Reporting, conclusions and recommendations" looked at the crash data available for the tribes in the state, analyzed the data to determine safety issues and made recommendations.

Identified Issues

- The Phase 1 report indicated that tribal police departments predominantly utilized the standard Wisconsin report form, the MV4000, in its paper form or through electronic submitting. The only tribe not utilizing this format was the Menominee Nation.
- The Phase 1 report noted that network screening was done manually for several tribal departments due to lack of funding to obtain GPS and GIS systems to plot data. These network screening efforts often consisted of a map of the jurisdiction with push-pins indicating location of crashes.
- The Phase 1 report summary states that all agencies appear to report crash data to the state as required per the PL 280 agreement. The only exception is the Menominee Nation Tribal Police Department who is a non-PL 280 tribe.
- The Phase 2 report data analysis identified that BIA roads are not included in the Wisconsin Information System for Local Roads (WISLR). As a result, crashes occurring on these roads are difficult to identify. The report noted that this may cause delay in the data appearing in the state records.
- Both Phase 1 and Phase 2 found that stakeholders feel that their crash reporting process is working efficiently and accurately.

Practice Implemented

- To address the lack of crash data from the Menominee Nation, a MOU was signed between the tribe and the Wisconsin DOT Regional Office to share data. The tribe shares crash data with retracted information (primarily name) for use in the identification of safety issues. The agreement between the tribe and the department is renewed annually.
- In 2009 and again in 2011, the Wisconsin DOT, along with state and federal partners, hosted Tribal Safety Summits. The summits were designed to bring stakeholders together from the tribes and various agencies to discuss, collaborate, and work towards solutions in the 4 E's of transportation safety efforts (education, enforcement, engineering, and emergency). Each summit generated a written report on the conference proceedings. Tribal transportation safety topics have been incorporated into annual tribal transportation conferences organized by the department.

PART 3

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Abbreviations, Acronyms, Initialisms, and Symbols

3C	Communication, Cooperation and Coordination
ATSPT	Arizona Tribal Strategic Partnering Team
BIA	Bureau of Indian Affairs
BIADOT	BIA Division of Transportation
BIAHSO	BIA Highway Safety Office program
Caltrans	California Department of Transportation
CC	Carbon Copy
CDAT	Collision Data Analysis Tool
CFR	Code of Federal Regulations
CRF	Crash Reduction Factor
CRIS	Criminal Records Information System
DMV	Division of Motor Vehicles
DOT	Department of Transportation
EMS	Emergency Medical Services
FBI	Federal Bureau of Investigation
FHWA	Federal Highway Administration
FLHO	Federal Lands Highway Office
GIS	Geographic Information Systems
GPS	Global Positioning Systems
HBRRP	Highway Bridge Replacement and Rehabilitation Program
HES	Hazard Elimination Safety
HHS	Health and Human Services
HPR	Highway Planning and Research
HRRR	High Risk Rural Roads
HSIP	Highway Safety Improvement Program
IM	Interstate Maintenance
IRR	Indian Reservation Road
ITS	Intelligent Transportation System
LTAP	Local Technical Assistance Program
MAP-21	Moving Ahead for Progress in the 21st Century Act
MHP	Montana Highway Patrol
MMUCC	Model Minimum Uniform Crash Criteria
MnCMAT	Minnesota Crash Mapping Analysis Tool
MOU	Memorandum of Understanding
NAAC	Native American Advisory Committee
NCHRP	National Cooperative Highway Research Program
NHI	National Highway Institute

NHTSA	National Highway Traffic Safety Administration
OWI	Operating While Intoxicated
PARA	Planning Assistance for Rural Areas
PEP	Partnering Evaluation Program
PL 280	Public Law 280
QA	Quality Assurance
QC	Quality Control
RSA	Road Safety Audit
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SDARS	South Dakota Accident Records System
SDDPS	South Dakota Department of Public Safety
SHSP	Strategic Highway Safety Plan
SOAR	Safe On All Roads
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
TACT	Tribe/Agency Collaboration Toolbox
TERO	Tribal Employment Rights Ordinance
THSIP	Tribal Highway Safety Improvement Project
TIP	Transportation Improvement Program
TOPS	Traffic Operations and Safety
TraCS	Traffic and Criminal Software
TRCC	Traffic Records Coordinating Committee
TTAC	Tribal Transportation Advisory Committee
TTAP	Tribal Technical Assistance Program
USC	United States Code
WBCR	Web-based Crash Reporting
WebCARS	Web Crash Analysis Reporting System
WISLR	Wisconsin Information System for Local Roads
WITPAC	Washington Indian Transportation Policy Advisory Committee
WRIR	Wind River Indian Reservation
WRRSP	Wyoming Rural Road Safety Program
WYT^2	Wyoming Technology Transfer Center
WYT^2-LTAP	Wyoming Technology Transfer Center–Local Technical Assistance Program

APPENDIX A

Memorandum of Understanding Example

An example of MOU between a tribe and state agencies is well documented in a South Dakota study (Quick and Bailey 2007). In the example, three parties are involved in the agreement, which are the tribe, South Dakota DOT, and SDDPS. This example intends to give a general idea about how an MOU for tribal crash reporting between a tribe and the state agencies is formatted and what basic information should be included.

Exhibit A.1. MOU Example

This agreement is between the South Dakota Department of Transportation (the "DOT"), the South Dakota Department of Public Safety (the "DPS") and the [*Tribe Name*] Tribe (the "Tribe").

The DOT, DPS and the Tribe believe it is mutually beneficial to enter into this agreement for the safety of the traveling public and improvement of highway systems that lie within the exterior boundaries of the [*Reservation Name*] Reservation.

The parties agree as follows:

1) The success of this agreement is predicated upon all parties acting in accord with the following principles:

    a) All parties state that they are interested in:
        i) ensuring that the motor vehicle crash data will be used for data analysis and generating supporting documentation for highway improvements only,
        ii) providing reports and data analysis,
        iii) eliminating high hazard areas on the highway system within the reservation.

    b) Compliance is a responsibility of all parties and all activities in this regard will be conducted with mutual respect for each other's responsibilities. To this end, neither party will impose additional requirements or standards without giving advanced notice to the other parties and do encourage informal resolution of problems involving all interested parties.

    c) The Tribe agrees to the following:
        i) provide motor vehicle crash reporting data on the DPS report form or compatible reporting format with the DPS system,
        ii) agree that no other motor vehicle crash reporting form other than the DPS format or compatible system will be used to report motor vehicle crash reporting data
        iii) will provide motor vehicle crash reporting data on a monthly basis to DPS or more frequently if there is a high number of motor vehicle crashes in a time period,

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iv)   provide complete motor vehicle crash reports and follow the standards and requirements for reporting established by DPS

d)   The DPS agrees to the following:
   i)   collect all motor vehicle crash reporting data and will only use the information for analysis of motor vehicle crash analysis and reporting purposes.
   ii)   provide reports and data collected to Tribe on a quarterly basis and as requested,
   iii)   provide training to Tribal law enforcement and support personnel on motor vehicle crash reporting,
   iv)   provide technical support to Tribal law enforcement and support personnel on motor vehicle crash report,
   v)   maintain highest levels of confidentiality of motor vehicle crash reporting data received.

e)   The DOT agrees to the following:
   i)   analyze motor vehicle crash reporting data and use information to support adding projects to the Five-Year STIP to improve highway safety within the reservation boundaries,
   ii)   conduct research projects and other technical analysis of motor vehicle crash data,
   iii)   provide reports and technical analysis to Tribe,
   iv)   provide technical assistance to Tribal planning and/or highway departments,

2)   To provide for stability and predictability in the motor vehicle crash reporting analysis all parties agree to maintain this agreement through the term specified below. Modifications or changes in the agreement *[or any of the attachments]* therein can be made through mutual consent and will be effective after being reduced to writing and signed by officials for each party.

3)   It is the intent of all parties that this agreement shall be implemented on a cooperative basis without regard to jurisdictional issues. It is further agreed that all parties will encourage informal resolution of problems prior to instituting litigation. It is also agreed that nothing herein shall prevent the Tribe, DOT or DPS from instituting any litigation pertaining to any jurisdictional issue with regard to motor vehicle crash reporting or any other matter.

By signature below, the [*Tribe Name]* Tribe, the State of South Dakota, Department of Transportation, and the State of South Dakota, Department of Public Safety agree to adhere to this agreement and *[the attached documents]:*

The Tribe, DOT, BIA, and DPS further agree *[the above-referenced attachments and]* this agreement shall be applicable for the period of March 1, 2007 to December 31, 2012.

[Tribe Name] TRIBE   STATE OF SOUTH DAKOTA

_____   _____
[Tribal President/Chairman Name]   Tom Dravland
Tribal Chairman/President   Secretary
*[Tribe Name]*Tribe   Department of Public Safety

Date _____   Date _____

_____   _____
[BIA Representative]   *[Name]*
[Title]   Secretary
Bureau of Indian Affairs   Department of Transportation

Date _____   Date _____

Souce: Quick and Bailey 2007

APPENDIX B

Case Study Flyers

This appendix contains six one-page flyers that were created to complement the six case studies in the guidebook. They are available on the accompanying CD.

Promotional Flyer

This double-sided, three-fold flyer is designed to promote the use of this guidebook and is available on the accompanying CD.

APPENDIX D

Useful References

Lists of useful references that may be informational for Tribes and States when implementing the effective Tribal crash reporting are provided in this appendix. The references are categorized by topics of State-Tribal communication and relationship, funding application guide, crash data collection and sharing, and Tribal traffic safety improvement.

State-Tribal Communication and Relationship

- ATR Institute, Migliaccio, G. C., Knoebel, G., Martinez, R., Albert, D., and J. Hurd. 2011. *NCHRP Report 690 : A Guidebook for Successful Communication, Cooperation, and Coordination Strategies Between Transportation Agencies and Tribal Communities*, Transportation Research Board of the National Academies, Washington, DC.
- Federal Highway Administration. 2005. *Peer Exchange Report: State DOT Tribal Liaison Roundtable and Panel Discussion*, Washington, DC.
- Federal Highway Administration. 2010. *Peer Exchange Report: State Department of Transportation Tribal Liaison Roundtable and Panel Discussion*, Washington, DC.
- Ceifetz, A. H. 2012. *Crashes on Wisconsin Indian Reservations: Reporting, Conclusions, and Recommendations.* Wisconsin Department of Transportation, Madison, WI.

Funding Application Guide

- Mickelson, R. and Corbett, E. 2004. *Tribal Highway Safety Improvement Program Model and Implementation Plan for Hazard Elimination Projects Guide.* Federal Highway Administration, Washington D.C. http://www.fhwa.dot.gov/tribal/topics/safety/saf_ack/ (As of September 11, 2013).
- Federal Highway Administration. 2011. *Tribal Highway Safety Improvement Implementation Guide*, Federal Highway Administration, Washington, DC.
- Arizona Department of Transportation. 2006. *Tribal Traffic Safety Funding Guide, A Supplement to the SPR 592 Building Tribal Traffic Safety Capacity Projec*t, Arizona Department of Transportation.
- Ceifetz, A. H. 2012. *Crashes on Wisconsin Indian Reservations: Reporting, Conclusions, and Recommendations.* Wisconsin Department of Transportation, Madison, WI.

Crash Data Collection and Sharing

- Quick, P. and Bailey, L. 2007. Improving Motor Vehicle Crash Reporting on Nine South Dakota Indian Reservations, Final Report SD2005-14-F, South Dakota Department of Transportation.

- Redinger, C., Woods, M., Bagdade, J. S., and N. Bowman. 2010. Improving Crash Reporting On Wisconsin Indian Reservations Phase 1: Review of Crash Reporting Procedures, Wisconsin Department of Transportation, Madison, WI.
- Ceifetz, A. H. 2012. Crashes on Wisconsin Indian Reservations: Reporting, Conclusions, and Recommendations. Wisconsin Department of Transportation, Madison, WI.

Tribal Traffic Safety Improvement

- Mickelson, R. and Corbett, E. 2004. *Tribal Highway Safety Improvement Program Model and Implementation Plan for Hazard Elimination Projects Guide.* Federal Highway Administration, Washington D.C. http://www.fhwa.dot.gov/tribal/topics/safety/saf_ack/ (As of September 11, 2013).
- Federal Highway Administration. 2010. *Peer Exchange Report: State Department of Transportation Tribal Liaison Roundtable and Panel Discussion*, Washington, DC.
- Ceifetz, A. H. 2012. *Crashes on Wisconsin Indian Reservations: Reporting, Conclusions, and Recommendations.* Wisconsin Department of Transportation, Madison, WI.
- Shinstine, D. S. and Ksaibati, K. 2013. *Indian Reservation Safety Improvement Program: A Methodology and Case Study, Final Report FHWA-WY-13/07F*, Wyoming Department of Transportation.

Abbreviations and acronyms used without definitions in TRB publications:

A4A	Airlines for America
AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
MAP-21	Moving Ahead for Progress in the 21st Century Act (2012)
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation