

Wind River Indian Reservation Strategic Safety Management Plan

Debbie S. Shinstine, P.E.
Research Engineer
Wyoming Technology Transfer Center
1000 E. University Avenue
Department 3295
Laramie, WY 82071
(307) 766-6743
Fax: (307) 766-6784
e-mail: dshinsti@uwyo.edu

Khaled Ksaibati, Ph.D., P.E.
Director, Wyoming Technology Transfer Center
1000 E. University Avenue
Department 3295
Laramie, WY 82071
(307) 766-6230
Fax: (307) 766-6784
e-mail: khaled@uwyo.edu

Frank Gross, Ph.D., P.E.
Highway Safety Engineer
VHB Engineering NC, P.C.
333 Fayetteville Street, Suite 1450
Raleigh, NC 27601
(919) 334-5602
e-mail: fgross@vhb.com

Craig Genzlinger
Transportation Specialist
USDOT – Indian Reservation Roads Program
585 Shepard Way
Helena, MT 59601
(406) 441-3910
Fax: (406) 449-5314
e-mail: Craig.Genzlinger@dot.gov

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45 **ABSTRACT**

46 Fatal and injury crashes have been documented for years to be higher among Native Americans
47 than any other groups across the United States. Studies have been performed to determine the
48 trends and to identify ways to assist Tribes to improve their traffic safety. Tribal transportation
49 stakeholders have recognized the many factors that have contributed to this problem including
50 lack of resources, lack of crash data and crash data accuracy. Their sovereignty presents a
51 challenge with working across jurisdictional lines with state and local agencies.

52 Strategic highway safety plans are required for states and provide an opportunity for
53 Tribes as well to accomplish their goals to reduce fatal and serious injury crashes.
54 Communication and collaboration across jurisdictional lines is vital to the success of a strategic
55 highway safety plan for Tribal governments. The Wind River Indian Reservation (WRIR) was
56 selected for a pilot (one of three) Tribal Transportation Safety Management Plan (TSMP), a
57 program instituted by the Federal Highway Administration (FHWA) to assist tribes in
58 developing their own strategic plan.

59 The WRIR has had great success in establishing cooperation among stakeholders and
60 with the support of committed Tribal leadership, is working toward the goal of reducing fatal and
61 serious injury crashes. Key to the success of the TSMP is collaboration among safety
62 stakeholders, namely the state departments of transportation, Tribal leadership, Local Technical
63 Assistance Program (LTAP), Tribal Technical Assistance Program (TTAP), Bureau of Indian
64 Affairs (BIA), and local and Tribal law enforcement, and Indian Health Services (IHS) and
65 others.

66

67 INTRODUCTION

68 The Native American community has suffered greatly over the years with higher fatality rates on
69 their roadways than the general population across the U.S. In a report by the National Center for
70 Statistics & Analysis, fatal crashes in the United States dropped at a rate of 2.2 percent between
71 1975 and 2002 but on Indian reservations they increased more than 50 percent. Nearly 63
72 percent of these fatalities involved persons aged 35 years or younger. In 2002, 38 percent of
73 passenger occupant fatalities across the nation were restrained whereas only 16 percent were
74 restrained on Indian reservations. 42 percent of fatal crashes on Indian reservations were related
75 to speeding. Alcohol accounted for 65 percent of fatal crashes since 1982 on reservations (1).
76 The National Tribal Transportation Safety Summit Report also indicates that among the many
77 safety concerns facing Native Americans on reservation roadways, impaired driving and the use
78 of seat belts/child safety seats are the highest concerns (2). The report also notes that crash data
79 are inadequate for many Indian reservations.

80 Although fatal crashes in the U.S. have dropped over the past several years, fatal crashes
81 are still a leading cause of death. The mission of the FHWA Office of Safety is to reduce
82 highway fatalities providing information and resources to safety decision-makers and champions.
83 Under the previous highway transportation bill, Safe Accountable, Flexible, Efficient
84 Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the Highway Safety
85 Improvement Program (HSIP) was established. This program was designed to address the high
86 rate of fatal and serious injury crashes on roadways across the U.S. A major component of the
87 program is a Strategic Highway Safety Plan (SHSP), which is required for all states. The SHSP
88 is a statewide plan that is comprehensive and driven by crash data. It sets goals and objectives,
89 identifying key focus areas and integrating the four E's of safety (Engineering, Education,
90 Enforcement and Emergency response) (3). This plan is a collaborative process involving the
91 state DOT and other local, state, and federal safety stakeholders.

92 The Federal Lands Highways (FLH) under the FHWA provides tribal safety initiatives to
93 support the Tribes in their highway safety improvement efforts. The Tribal Transportation Safety
94 Management System (SMS) is a program that encourages communication, coordination,
95 collaboration and cooperation among the safety stakeholders committed to Tribal transportation
96 safety with the goal of implementing effective transportation safety programs to save lives while
97 respecting the American Indian culture and traditions (4). This program includes a SHSP for
98 Indian Lands. It is a model for all tribes to follow and addresses the common concerns found
99 among tribes across the country. The following eight emphasis areas address the safety concerns
100 of reducing fatal and serious injury crashes:

- 101 1. Decision making process
- 102 2. Data Collection
- 103 3. Run off the road crashes
- 104 4. Occupant protection/child restraint
- 105 5. Alcohol/drug impaired driving
- 106 6. Other driver behavioral and awareness
- 107 7. Drivers under the age of 35
- 108 8. Pedestrian safety

109 Each of these emphasis areas contains goals and strategies to accomplish them through
110 physical and behavioral solutions. The first emphasis area (decision making process) can be
111 challenging for tribes as they may have to work with safety stakeholders across jurisdictions.

112 Tribes also need better data collection (second emphasis area). The remaining emphasis areas
113 are data driven

114 The State of Wyoming is committed to reducing the number of fatal and serious injury
115 crashes and has established priorities in their Wyoming Strategic Highway Safety Plan (WSHSP)
116 to accomplish this goal. They have established six focus areas based on analysis of crash data
117 which include lane departure, safety equipment use/non-use, young drivers (25 years and
118 younger), curve crashes, speeding and impaired driving. The state is committed to working with
119 local governments to meet this goal and expect all local level partners to implement the plan to
120 the degree possible based on their resources and needs. The coordination efforts set forth in the
121 strategic plan allow the local partners to identify their own specific safety concerns and the best
122 countermeasures for them (5).

123 Among the local partners in Wyoming is the WRIR. Both tribal leadership and state
124 officials recognize the need for the reservation to adopt its own safety program that addresses
125 their unique challenges to reduce fatal and serious injury crashes. The emphasis areas identified
126 in the WSHSP, which include roadway departure crashes, use of safety restraints, impaired
127 driving and speeding are also priorities for the WRIR. High risk rural roads, a special safety area
128 addressed in the plan, are a primary focus for the reservation since virtually all of their roadway
129 system is rural.

130 The WRIR consists of the Eastern Shoshone and Northern Arapaho Tribes who operate
131 their own transportation program and contract with the Bureau of Indian Affairs (BIA) for some
132 transportation functions (6). The reservation has a land area of approximately 2.2 million acres
133 which encompasses about one third of Fremont County and one fifth of Hot Springs County.
134 The Wind River 2011 Road Inventory Summary lists a total BIA inventory of 1,227.8 miles of
135 roadway, of which 174.7 miles is paved. Like many other Tribal governments, they work with
136 limited resources to manage and maintain their roadway system. Many of the county roads (over
137 400 miles) are jointly maintained by WRIR transportation and the County Road and Bridge
138 Department. The state maintains roughly 200 miles of U.S. and state highways on the
139 reservation.

140 The transportation director of the WRIR has worked extensively to coordinate with
141 various government agencies to access funding and resources available to improve the WRIR
142 roadway safety. Efforts between the WRIR transportation authorities, WYDOT and
143 WYT²/LTAP became more focused in the fall of 2011 when meetings were held to develop a
144 safety improvement program for high risk crash locations on the reservation. From this several
145 efforts were launched between the agencies to further develop the WRIR safety program.

146 The FHWA sent out applications in 2011 to all tribes across the country to participate in a
147 pilot Tribal TSMP. This program was set up by FHWA to assist Tribes with the implementation
148 of a comprehensive safety program in partnership with their involved safety organizations.
149 WYT²/LTAP provided assistance with the application and the WRIR was selected as one of
150 three pilots.

151 152 **OBJECTIVE**

153 The objective of this paper is to provide an overview of the process necessary to develop a
154 strategic highway safety plan for Indian reservations in order for them to fulfill their goals of
155 reducing fatal and serious injury crashes on Tribal lands. This research is following the
156 development of the pilot Tribal TSMP for the WRIR located in Wyoming. By identifying the

157 unique challenges Tribal communities face, this research will provide a template for other Tribes
158 to follow in developing their own strategic highway safety plan.

159

160 **WRIR CRASH ANALYSIS**

161 The analysis of crash data is one of the first steps in developing a roadway safety program.
162 Safety goals and strategies are driven by data that documents the safety problems. Many factors
163 must be reviewed to determine appropriate safety measures. The four E's of safety must be
164 considered.

165 A preliminary crash analysis was performed by WYT²/LTAP and compared to statewide
166 local roads and counties of similar size. A similar report presented by the Montana Department
167 of Transportation (7) was utilized in the development of the preliminary analysis. Crash data for
168 the WRIR were analyzed over an eleven year period (2000-2010) and the categories included
169 severity, driver age group, driver gender, first harmful event (FHE), FHE location, safety
170 devices, and driver impairment.

171 The preliminary analysis revealed several weaknesses with the data. Of the BIA
172 inventory, a total of 245 crashes including county roads were extracted from the database for the
173 eleven year period. Only six roads contained crash data and only 79 crashes were identified with
174 these roads. Crash data on 166 crashes on Indian Reservation Roads (IRR) did not have roadway
175 locations. The low number of reported crashes was determined to be a result of crash reports not
176 being entered into the system. The total number of crashes reported annually for the WRIR
177 dropped sharply after 2006. 36 crashes were reported in 2006, while only 9 were reported in
178 2010. This indicated that crashes were not being reported properly or somehow not being
179 received by WYDOT.

180 Efforts among the Tribal transportation personnel, Wind River law enforcement,
181 WYDOT and WYT²/LTAP have resulted in the inclusion of all crash reports from the WRIR.
182 Through the communications developed in the early meetings, it was discovered that the WRIR
183 law enforcement had crash reports on file for the past several years but lacked the ability to
184 transfer these data to WYDOT. The coordinated efforts resulted in inclusion of the back log of
185 reports into the database.

186 With the additional crash data added to the WYDOT database, crash analysis was again
187 performed. During the time the data were being added, the crash database system was revised
188 and new data sets were released. These data sets began in 2002 and include data through the
189 present. The new analysis was performed for the WRIR and compared to the statewide rural
190 local roads and in some cases all crashes statewide, for a ten year period from 2002 through
191 2011. Although the numbers were greater, the trends were similar to those found in the
192 preliminary analysis. There were a total of 673 crashes reported for the WRIR and 5316 for
193 statewide rural local roads. The following provide a summary of the crash analysis with respect
194 to crash severity, driver information, causal factors, and other factors.

195

196 **Crash Severity**

197 The severity of crashes is divided into three categories: critical, serious and property damage
198 only (PDO). Critical crashes include fatalities and incapacitating injuries. Serious crashes
199 include non-incapacitating, minor and possible injuries. PDO crashes include those crashes that
200 had no injuries and incurred damage to the vehicle only. As shown in Figure 1, the statewide
201 trend for severe crashes (critical and serious injury) was slightly lower than that for the WRIR at

202 31 percent and 37 percent respectively. When the statewide and WRIR crashes are compared,
 203 the WRIR had more than two times as many critical crashes.

204

205 **Driver Information**

206 More women were involved in crashes on the WRIR compared to the state (Figure 2). Young
 207 drivers ages 34 and younger are significantly high for both the state and the WRIR (55 percent
 208 and 58 percent respectively). However, the WRIR had a greater number of young drivers
 209 between the ages of 25 and 34 (Figure 3). Alcohol was involved in a greater number of WRIR
 210 crashes compared to the state at 23 percent and 13 percent respectively (Figure 4). When
 211 comparing the WRIR to all crashes in the state, alcohol was involved more than three times more
 212 on the reservation than the state as a whole.

213

214 **Causal Factors**

215 The FHE had similar trends with the exception of a significantly greater number of animal
 216 collisions at 24 percent for the WRIR compared to 10 percent for the state (Figure 5). When
 217 these were broken down by animal type, farm (cows, horses, pigs, etc.), domestic (dogs and
 218 others) and wildlife (deer, elk, moose, etc.), over half of the animal crashes on the WRIR involve
 219 farm animals (Table 1). Both farm and wildlife are a significant problem on the reservation.
 220 Finally, The FHE location revealed that the state and WRIR trend the same for on- and off-road
 221 crashes (Figure 6).

222

223 **Other Factors**

224 Because of the revisions to the crash data sets described previously, speeding and safety
 225 equipment use could not be directly analyzed but should be included in future analysis.
 226 However, safety equipment use was analyzed under the preliminary analysis (2000-2010) which
 227 revealed that state use was much higher than WRIR at 60 percent compared to 34 percent (Figure
 228 7) but a greater number of crashes on the WRIR had an unknown value for use at 40 percent. As
 229 safety equipment use relates to critical crashes, the WRIR had a higher rate of critical crashes for
 230 non-use than the state (Figure 8).

231 The revised analysis also revealed that there were no additional crashes on IRR roads and
 232 only county roads within the reservation had locations. This reveals that there is still a disparity
 233 with the state crash reporting system and the reservation's ability to capture all crashes in their
 234 reporting.

235 The main issues remain, crash severity is higher on the reservation than throughout the
 236 state, alcohol related crashes account for almost a quarter of all crashes, and fixed objects are the
 237 highest first harmful event with animals being the greatest risk, and most crashes are occurring
 238 off the roadway.

239

240 **WRIR STRATEGIC SAFETY PLAN**

241 The WRIR received notification from FHWA in February, 2012 that they were selected to
 242 participate in the pilot Tribal TSMP. The kickoff meeting for the development of the TSMP was
 243 conducted in April, 2012. FHWA, Tribal leaders, BIA, WYDOT, WYT²/LTAP and the National
 244 Highway Transportation Safety Administration (NHTSA) were among the participants.
 245 Although participation was high, some key stakeholders were not present including, law
 246 enforcement, emergency and health services, and Fremont County. The meeting proceeded with
 247 input from Tribal leadership and transportation personnel on the importance of recognizing

248 safety needs. A vision and mission were established, safety issues were identified, strategies
 249 were developed to target the issues, and a partnership agreement was drafted. The following
 250 provides an overview of each step.

251

252 **Vision, Mission and Goals**

253 The Tribal community was very engaged in the process of developing a vision, mission and
 254 goals. They understand the problems they face and were decisive in what they want out of this
 255 program. The draft vision is to “foster safety awareness and provide safe access throughout the
 256 Wind River Indian Reservation for all users and modes of travel”. The mission is “to improve
 257 and sustain safety for all modes of transportation through education, enforcement, engineering
 258 and emergency medical services strategies”. Three goals were set for the program:

- 259 • Raise awareness of transportation safety challenges to promote a positive change in our
 260 safety culture.
- 261 • Reduce the emotional and physical burden inflicted upon families because of a fatality or
 262 serious injury that occur on our transportation system.
- 263 • Promote non-motorized travel by improving safety, security, and infrastructure.

264 These and other versions are still being considered and should be finalized at the next
 265 stakeholders meeting. A common theme that is evident in the vision, mission and goals is the
 266 concern for pedestrian safety and one emphasis area is dedicated to the safety of the walking
 267 community.

268

269 **Communication, Coordination and Cooperation**

270 In order for any tribal transportation program to be a success, there must be open
 271 communication, extensive coordination efforts as well as full cooperation among the many
 272 agencies involved. “Cooperation on transportation issues is affected by complex issues such as
 273 tribal sovereignty, intergovernmental agreements, jurisdiction, regional planning efforts, right-of-
 274 way acquisition, funding, and maintenance. Similarly, planning, design, and implementation of
 275 transportation projects require collaboration among tribal, federal, and state agencies.” (8).
 276 Collaboration is essential among the tribal, federal, state and local governments to implement a
 277 comprehensive safety program. This is why so many stakeholders are necessary in the
 278 development of the strategic plan. Buy-in is absolutely necessary by every stakeholder.

279 One of the first steps in developing the strategic plan was to identify the many
 280 stakeholders and how much communication and coordination has taken place in the past. By
 281 identifying these levels of communication, the strengths and weaknesses could be easily
 282 identified. The stakeholders were grouped into eight categories:

- 283 • Transportation safety advocates which included tribal leadership
- 284 • Traffic engineering/safety professionals
- 285 • Traffic law adjudication professionals
- 286 • Driver education curriculum management
- 287 • Traffic law enforcement professionals
- 288 • Health department professionals
- 289 • Emergency Medical Services (EMS) professionals
- 290 • Other safety stakeholders

291 There is strong coordination among the traffic engineering/safety professionals and
 292 between them and the safety advocates, the driver education curriculum management and traffic

293 law enforcement professionals. However, very little communication exists between the various
294 groups and the health and EMS professionals. This was evidenced by the lack of participation
295 from these groups. Also, more cooperation and coordination is needed between the tribal law
296 enforcement and the state and county counterparts.

297

298 **Identification of Safety Issues and Concerns**

299 The safety stakeholders were asked to identify safety issues and concerns during the initial part
300 of the kickoff meeting. They included such issues as behavioral, roadway, vehicle, weather, non-
301 motorized and others.

302 Among the many issues and concerns by the WRIR, behavioral safety issues were by far
303 their greatest concern. Speed, restraint use, distracted and impaired driving, underage,
304 unlicensed, and young drivers were the focus of the behavioral issues. These are major concerns
305 that have been identified throughout the Indian nations across the country as previously reported
306 from the National Tribal Transportation Safety Summit (2). As a primary concern, the
307 stakeholders recognized that in order to tackle the behavioral issues, the safety culture must
308 change. This was addressed in the strategies as well as identified as a primary goal of the TSMP.

309 The other issues identified in the plan are roadway safety, vehicle safety, weather and
310 environmental, non-motorized (bicycle and pedestrian) and other issues which include EMS
311 response and limited resources. Pedestrian safety on their rural roadways is a primary concern
312 because many residents walk. Limited facilities are available and many walk along the rural
313 highways unprotected.

314

315 **Emphasis Areas and Strategies**

316 From the above safety issues, specific emphasis areas were identified and strategies were
317 developed to address them. These strategies were grouped into eight emphasis areas:

- 318 1. Safety data
- 319 2. Emergency services
- 320 3. Roadway infrastructure
- 321 4. Safety restraints
- 322 5. Impaired driving
- 323 6. Speeding
- 324 7. Pedestrians and bicycles
- 325 8. Young driver safety

326 These focus areas are complimentary to the WSHSP. Lane departures and curve crashes
327 in the WSHSP is comparable to roadway infrastructure in the WRIR TSMP. Safety equipment,
328 young drivers, speeding and impaired driving directly correlate with the state strategies. See
329 Table 2 for these comparisons. These strategies are data driven. As discussed previously, with
330 the exception of speeding, crash data analysis supports these emphasis areas (Table 3).
331 However, speeding is a well-documented problem that can be verified through the citation
332 records of law enforcement.

333 The goal established for safety data is to improve the completeness and accuracy of
334 safety data to support the decision-making process. There are major discrepancies in the
335 reporting of crashes and strategies are being developed to improve crash reporting. Improving
336 the communication and collaboration among law enforcement is a key element in capturing all
337 crashes. Integration of data through GIS is underway to link roadway, traffic volume and crash
338 data. These elements are identified in the plan.

339 Improving the quality and efficiency of emergency services is the goal of the second
340 emphasis area, emergency services. Response time has been a major problem for the WRIR.
341 Information on EMS response times within the WRIR indicates a 40-60 minute response time
342 from the responder location within the highway network to the accidents and then to the medical
343 service provider. Factors which influence this response time are: 1.) Fremont County Fire
344 District is comprised of rural volunteer fire departments and must be summoned by siren and/or
345 pagers to respond for duty, and 2.) The WRIR does not have a fire station house within its
346 boundary. EMS responders come from Fort Washakie, Milford, Kinnear, or Riverton fire
347 stations, which are, at a minimum, 20 miles from the geographic center of the WRIR. The same
348 20 miles must then be traveled back to either Riverton Memorial Hospital or Lander Medical
349 Center for emergency care/Life Flight services. A 30-minute increase means half that time is
350 wasted on driving. A review and modification of the dispatch protocols is one strategy that will
351 improve this situation. Another strategy that will require greater resources is the addition of
352 medical facilities or dispatch stations.

353 The goal for the roadway infrastructure is to improve the design and maintenance
354 practices to reduce the frequency and severity of crashes. WYT²/LTAP has been working on
355 developing a safety improvement program to assist the WRIR to identify and prioritize low cost
356 safety improvements on their roadways. This program, known as the Indian Reservation
357 Roadway Safety Program (IRRSP), is currently underway and initial implementation should be
358 completed by fall 2012. By implementing the IRRSP, many low-cost safety improvements can
359 be identified. Coordination with Fremont County is also necessary to establish maintenance
360 responsibilities and possibly transfer ownership of county roads on the reservation to the WRIR
361 transportation agency. County representatives were not present at the initial meeting.

362 For the two emphasis areas, safety restraint and impaired driving, changing the safety
363 culture was determined to be the primary strategy to employ to increase restraint use and reduce
364 the prevalence of impaired driving. Educational campaigns are ongoing and will continue that
365 are directed to the Indian community. Media campaigns, targeted enforcement, more education
366 partnering with Injury Prevention Resources, and imposing stronger sentences to offenders in a
367 blitz type manor will begin to impact the cultural attitude of transportation safety.

368 Reducing speeds to minimize the severity of crashes is the goal of the sixth emphasis
369 area. A review of the existing posted speeds and a comprehensive speed study throughout the
370 reservation will help determine appropriate speeds and identify where traffic calming measures
371 could be employed.

372 Pedestrian and bicycles are an emphasis area for which strategies are identified to reduce
373 the conflict between these users and vehicles by providing designated facilities. The WRIR is in
374 the process of implementing a Pedestrian and Walkway Long Range Transportation Plan.
375 Including it in the strategic plan will help ensure that it will receive the needed attention. Other
376 strategies are identified to achieve the goal for pedestrians and bicyclists which include the
377 addition of crossings, promotion of bike rodeos and education efforts in the schools.

378 Young driver safety is the last emphasis area with the goal to reduce the prevalence of
379 crashes involving young drivers. As identified from the crash data, 33 percent of all crashes on
380 the reservation between 2001 and 2010 were drivers under the age of 25. Including those under
381 the age of 35 increases it to 58 percent. Education and enforcement of distracted driving are the
382 main strategies to address this.

383
384

385 **Roles and Responsibilities**

386 In order to carry out the TSMP successfully, roles and responsibilities need to be identified and
387 assigned to the appropriate stakeholders. This is an integral part of coordination and
388 collaboration. The following areas of responsibility were identified:

- 389 • Traffic engineering
- 390 • Driver education
- 391 • Law enforcement
- 392 • Fire/emergency medical services
- 393 • Data management

394 The traffic engineering partners include the Shoshone and Arapaho Department of
395 Transportation (SADOT), WYT²/LTAP, TTAP, WYDOT, BIA and consultants. SADOT will
396 obtain and provide traffic, crash and roadway data. WYT²/LTAP will provide evaluation of high
397 risk locations, BIA will provide technical assistance and consultants will provide engineering
398 services.

399 The driver education partners include SADOT, WYT²/LTAP, TTAP, WYDOT, BIA law
400 enforcement, injury prevention resources, school superintendents and children advisory groups.
401 WYT²/LTAP will provide crash analysis and recommendations for behavioral safety
402 improvements to SADOT and BIA. SADOT and BIA will provide the educational opportunities
403 for drivers. Partners will team with WYDOT as necessary for media and educational campaigns.

404 Law enforcement partners include the Wind River Police Department (WRPD),
405 WYDOT, local law enforcement, tribal courts, BIA law enforcement, County Coroner and State
406 Highway Patrol. WRPD will provide law enforcement, teaming with WYDOT to improve crash
407 reporting and strengthen partnerships with local law enforcement. Tribal courts will support law
408 enforcement and enforce penalties.

409 Fire and emergency medical services partners include the Wind River Indian Health
410 Services (WRIHS), Fremont County Fire Department, and first responders. WRIHS and
411 Fremont County Fire Department provide the emergency medical services. The need to improve
412 response time is recognized.

413 Lastly, the data management partners are SADOT, WYDOT, WRPD, WYT²/LTAP, BIA
414 law enforcement and the County Coroner. WYDOT manages the crash data. WRPD submits
415 crash data directly to WYDOT and is working to improve the process. WYT²/LTAP coordinates
416 with BIA and WYDOT to retrieve any records not submitted electronically.

417 As recognized under the communications section of the TSMP, the roles and
418 responsibilities require great cooperation and collaboration. Many weaknesses were identified in
419 the communication among the various stakeholders and further development is necessary to
420 ensure the roles and responsibilities are carried out successfully.

422 **Next Steps**

423 In order to move forward in the implementation of the TSMP, additional coordination is
424 necessary. The stakeholders will meet again to finalize and sign the partnering agreement. The
425 benefit of the partnering agreement is the development of lasting relationships and
426 responsibilities. These can last beyond specific personnel that may change jobs or retire and it
427 sets up long-term partnerships by defining roles and responsibilities. The agreement includes the
428 vision, mission and goals of the plan. It identifies the executive committee responsible to
429 commit to the plan and includes all major stakeholders, including the Joint Tribal Business

430 Council. The plan must be reviewed, responsible stakeholders assigned, funding options
431 identified and opportunities to enhance the communication, coordination and cooperation must
432 be sought.

433 Tremendous progress has been made, but there is still much to do in order to have a
434 functional and effective TSMP. The Tribal community and many of the safety stakeholders are
435 optimistic in being able to carry it out. The greatest challenges are to foster the cooperation and
436 collaboration of all stakeholders and secure the resources necessary to carry it out.

437

438 **SUMMARY AND CONCLUSIONS**

439 Reducing fatal and serious injury crashes is a primary transportation safety goal for the federal,
440 state, local, and Tribal governments. There has been extensive research and data collected on the
441 higher crash fatality rates among American Indians on Tribal lands. Although efforts have been
442 made to assist Tribes with improving roadway safety on reservations, they have not been to the
443 level needed to realize significant decrease in fatal and serious injuries. As sovereign nations,
444 they face different challenges than a typical American community. However, there are many
445 similarities in the crash statistics between rural local roads and tribal roads. Crash trends on
446 Indian reservations indicate that speeding, impaired driving and safety equipment use are the
447 highest concerns among American Indians.

448 A strategic highway safety plan is required of all states and is just as necessary for Tribal
449 governments. Federal Lands Highways under the FHWA has developed an SHSP for Indian
450 Lands that addresses the unique safety concerns for Native Americans. The FHWA has provided
451 a pilot program to invite three tribes across the country to participate in the development of a
452 Tribal TSMP for their roadways. The WRIR was selected for the pilot program and work has
453 begun on their TSMP. These plans require communication, cooperation and collaboration of all
454 safety stakeholders. The success of their safety programs is dependent on coordination across
455 jurisdictional lines.

456 Crash data are essential to the development of a strategic plan to identify the weaknesses
457 and safety issues that are resulting in fatal and injury crashes. Tribal leadership has recognized
458 for some time the lack and incompleteness of crash data. Improving crash data collection and
459 management has become an emphasis area SHSPs for Tribal lands.

460 The WRIR held its first stakeholders meeting and has a TSMP drafted. Strong support
461 from the Tribal leadership as well as many of the safety stakeholders was demonstrated. The
462 group was engaged and extremely focused on developing a vision, mission and goals. Emphasis
463 areas were developed and strategies were identified to address specific issues and concerns.
464 Based on crash data, use of safety equipment, impaired driving and young drivers were targeted
465 for behavioral improvements. The group recognized that the success of implementing behavioral
466 improvements is dependent of successfully changing the safety culture. Pedestrian access is a
467 major concern for the WRIR and they were resolute in including their pedestrian long range plan
468 as an emphasis area to implement and carry it out. Work has been ongoing in improving crash
469 reporting and is an emphasis area in the plan to continue the efforts. The main weakness
470 recognized was some stakeholders have not been involved and communications need to be
471 improved.

472 Safety partners working together can make these strategic plans a reality for Tribal
473 governments across the country. The federal and state governments have extensive resources in
474 expertise and personnel that can facilitate the development of these plans. As states include
475 Tribal lands in their strategic plans, it commits them to a partnership necessary to improve traffic

476 safety on all roadways within their state including those on Tribal lands. Tribal leadership
 477 recognizes the safety concerns and the limited resources they have to work with to fulfill their
 478 goal of reducing fatal and serious injury crashes; strategic plans are one opportunity to help
 479 direct limited resources efficiently to address the identified road safety issues.

480

481 **ACKNOWLEDGEMENTS**

482 The work to develop the TSMP has been a collaborative effort between WYT²/LTAP, WYDOT,
 483 SADOT and FHWA. The many safety stakeholders have committed much time to its success.
 484 The Tribal leadership from the Eastern Shoshone and the Northern Arapaho tribes has been very
 485 supportive and active in its development.

486

487

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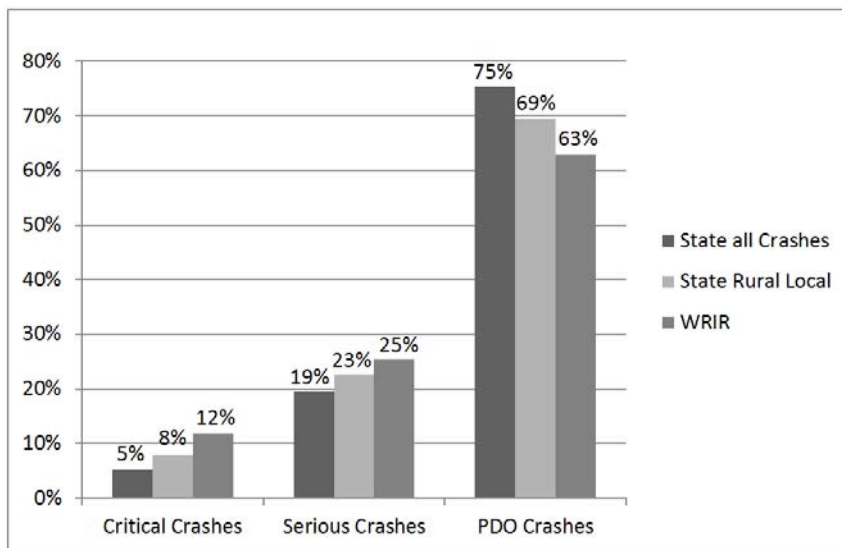


Figure 1: Crash Severity 2002-2011

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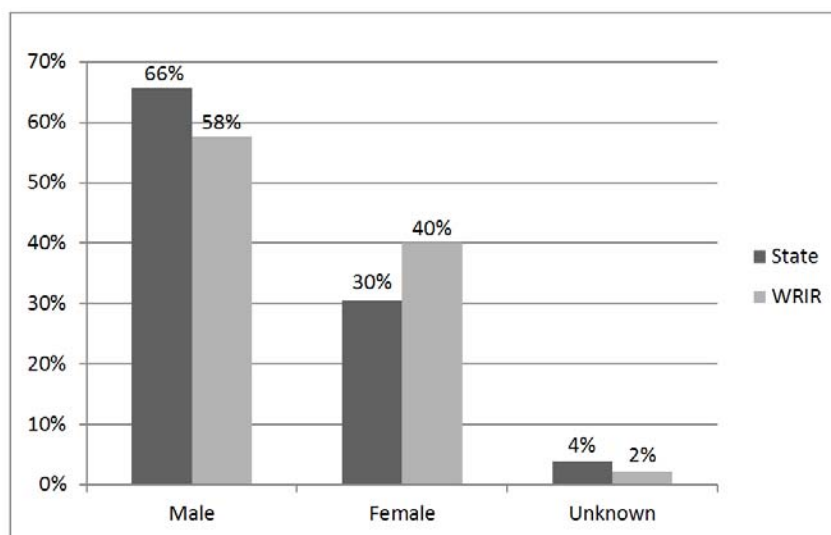


Figure 2: Driver Gender 2002-2011

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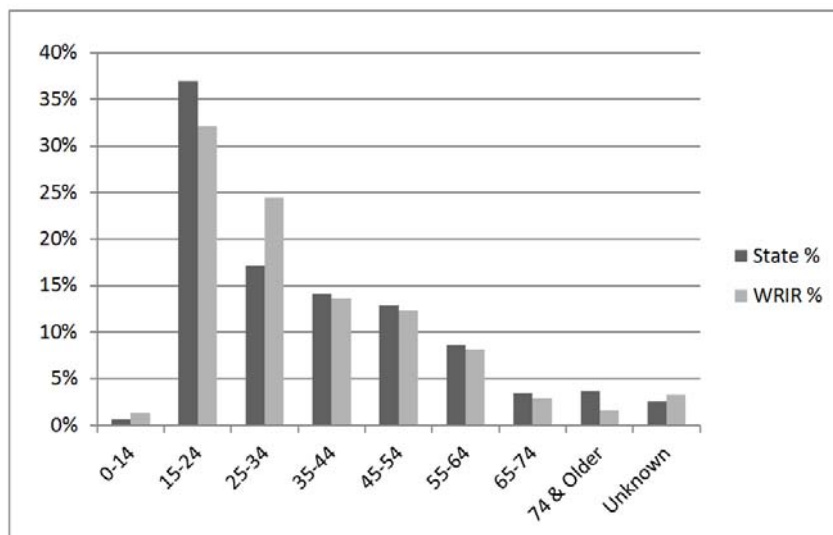


Figure 3: Age of Driver 2002-2011

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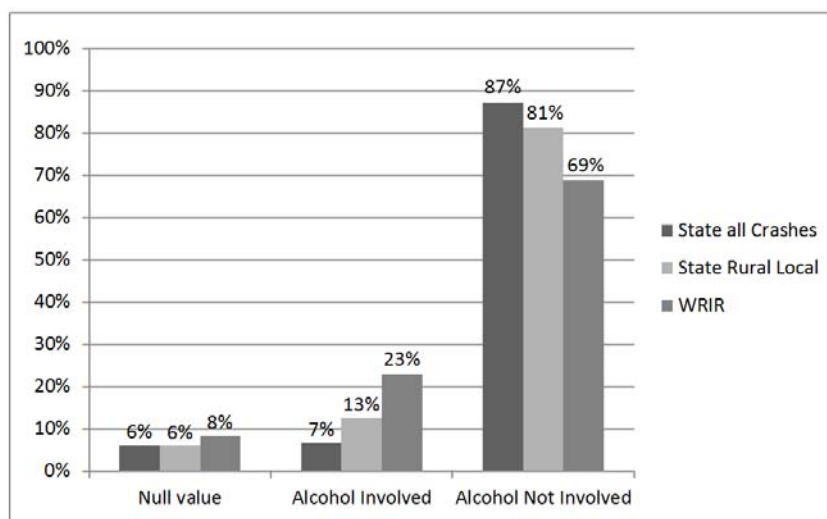


Figure 4: Alcohol Involvement 2002-2011

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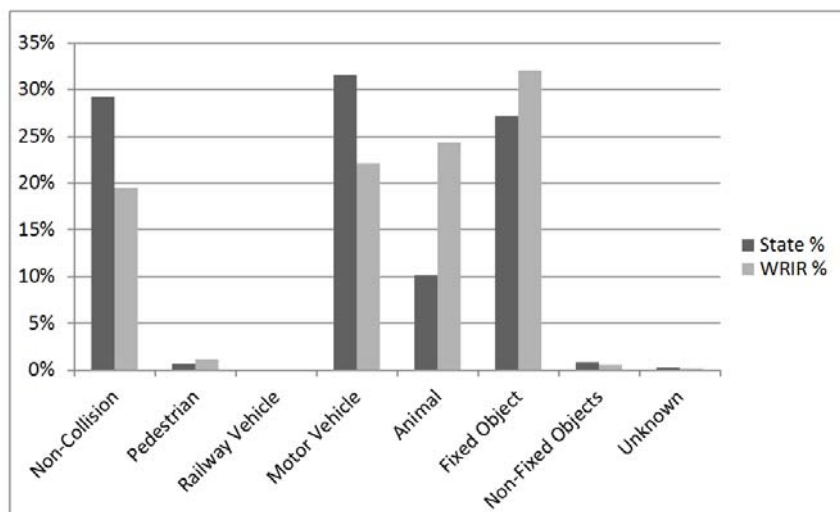


Figure 5: First Harmful Event 2002-2011

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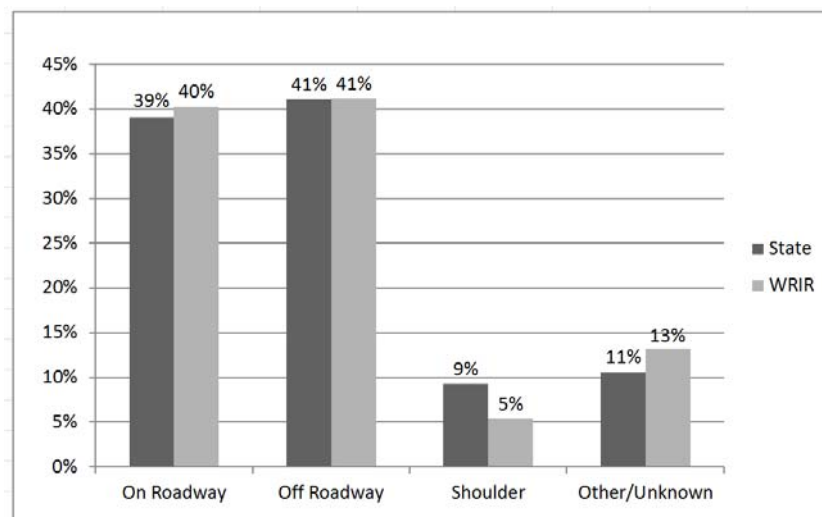


Figure 6: First Harmful Event Location 2002-2011

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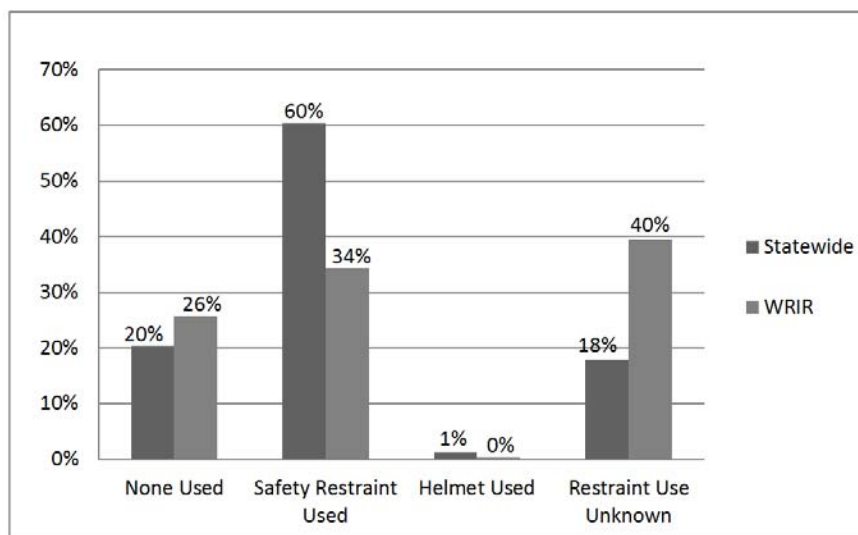


Figure 7: Safety Equipment Use 2000-2010

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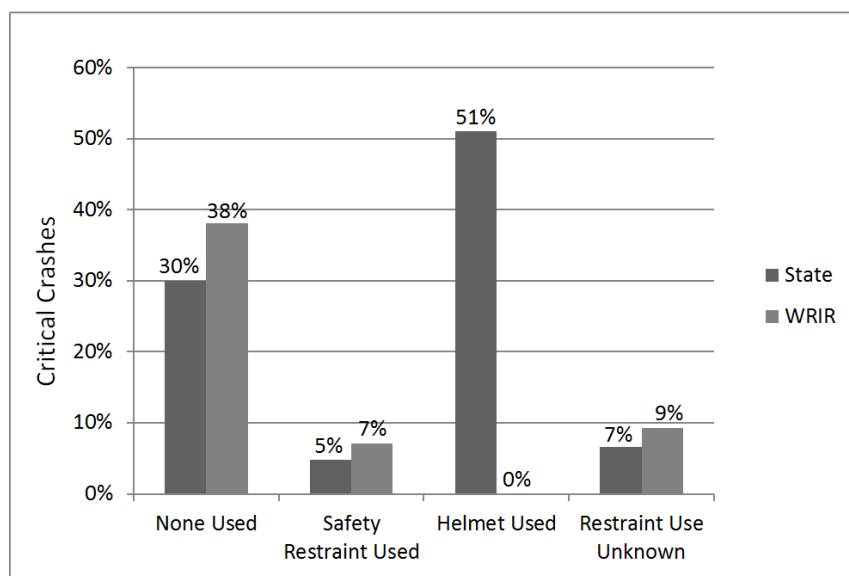


Figure 8: Safety Equipment Use related to Critical Crashes 2000-2010

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Table 1: Animal Crashes

FHE Animal Crashes		
Animal Type	State 10% of all crashes	WRIR 24% of all crashes
Farm	37%	55%
Domestic	1%	4%
Wild	62%	41%

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Table 2: Strategic Highway Safety Plan Focus Areas Comparison

Focus Areas	
WSHSP	WRIR
Lane Departure	
Safety Equipment	Safety Equipment
Young Drivers	Young Drivers
Curve Crashes	Roadway Infrastructure
Speeding	Speeding
Impaired Driving	Impaired Driving
	Safety Data
	Emergency Services
	Pedestrian and Bicycles

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Table 3: Crash Data Results for Focus Areas

Focus Areas	WRIR Crashes 2002-2011
Run Off Road/Lane Departure	41%
Use of Safety Restraint*	26%
Alcohol Involved	23%
Speeding/Driving too fast	Not yet analyzed
Young Drivers	33%

* From preliminary analysis for 2000-2010, 40% reported unknown

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