Cheyenne River Sioux Tribe

2022 Tribal Transportation Safety Plan

SEPTEMBER 2022



Prepared by:

KLJ

ENGINEERING, REIMAGINED

Table of Contents

Executive Summary 1
- Education 2
- Enforcement/EMS 2
- Engineering 2
- Safety Planning/Other 2

Background 2

Historical Crash Data 3
- Location of Crash 3
- Crash Types 4
- Crash Injury Severity 4
- Safety Restraint Use 6
- Age and Gender of Occupants 6
- Tribal Law Enforcement Reported Crashes 7

2022 Tribal Transportation Management Plan 8
- Issues Causing Crashes on Cheyenne River Sioux Reservation 8

Implementation Strategies 8
- Education Strategies 8
- Enforcement Strategies 9
- Emergency Services Strategies 11
- Engineering Strategies 11
- Safety Planning and Other Strategies 19

List of Figures and Tables

Figure 1: Fatal and Incapacitating Injuries (2014-2021) 1
Figure 2: Fatal and Incapacitating Injuries by Age and Gender (2014-2021) 2
Figure 3: Cheyenne River Sioux Indian Reservation Location 2
Figure 4: Number of Reported Crashes per Year in Dewey and Ziebach County (2014-2021) 3
Figure 5: Crash Types Occurring in Dewey and Ziebach County (2014-2021) 4
Figure 6: Crash Severities Occurring within Dewey and Ziebach County (2014-2021) 4
Table 1: Crash Injury Severity Per Number of Occupants (2014-2021) 5
Figure 7: Fatal and Incapacitating Injuries (2014-2021) 5
Table 2: Safety Restraint Used for Crashes per Occupants (2014-2021) 6
Figure 8: Fatal and Incapacitating Injuries by Age and Gender (2014-2021) 6
Figure 9: Tribal Law Enforcement Reported Crashes (2016-2021) 7
Figure 10: Number of Occupant Involved Reported by Tribal Law Enforcement (2016-2021) 7
Figure 11: Example of a Speed Radar Trailer 10
Figure 12: Separated Pathway with Pedestrian Lighting 13
Figure 13: Solar Pedestrian Lighting Example 13
Figure 14: Pow Wow Grounds Pathway 14
Figure 15: Willow Street Sidewalks 15
Figure 16: Badger Development Pathway 16
Figure 17: La Plant Pathway 17
Figure 18: Existing Road Conditions on BIA 12 18

Appendices

Appendix A: Meeting Agenda
Appendix B: Meeting Participants
Appendix C: 2022 Tribal Transportation Safety Plan Presentation

EXECUTIVE SUMMARY

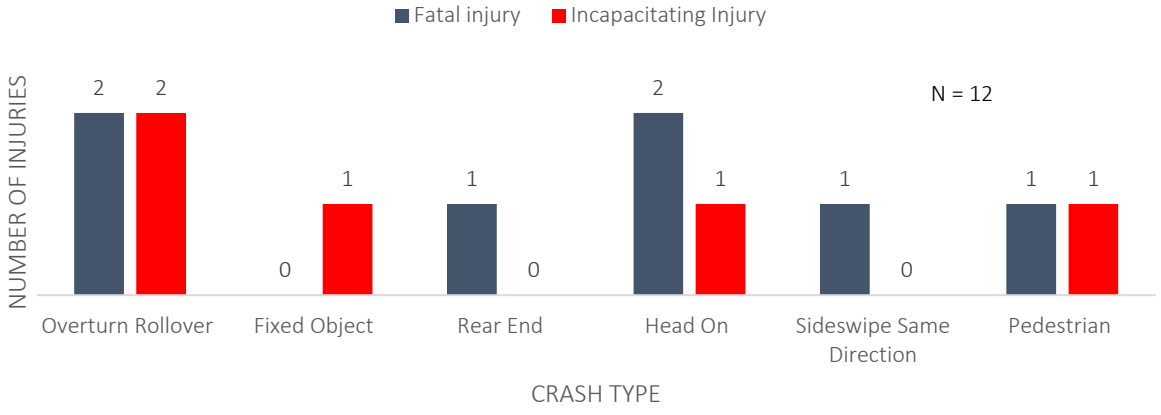
A Tribal Transportation Safety Plan is a community based, shared-disciplinary approach to identify transportation safety issues and potential implementation strategies with the goal of improving transportation safety on Tribal Lands. The FHWA describes them as:

> *"Tribal Transportation Safety Plans are a tool used to identify and address transportation risk factors that have a potential of leading to serious injury or death. Safety Plans also organize the efforts of a variety of entities to more effectively reduce risk and can cover multiple transportation modes (roads, maritime, trails, air travel, and others). Safety plans may lead to implementation of a project or program, renewed efforts in an existing program, or further study of a roadway section (using an engineering study or Road Safety Audit).*
>
> *A Tribal Safety Plan should not be developed with a focus on any one funding source. Instead, a Tribal Safety Plan should demonstrate the safety concerns in a community and the strategies that will be explored to implement the plan. To the greatest extent possible, the concerns demonstrated by a safety plan should be selected based on incident history (data). Data allows funding entities to understand the needs and may even compel the funding of the community's needs. Safety Plans can provide a forum for utilizing data sets that are not otherwise considered by funding agencies such as public testimony when formal crash data does not exist".*

Benefits of developing safety plans have been well documented and include the opportunity to leverage resources, work toward a common goal and consider all road users resulting in reduced deaths and injuries in Tribal and other communities.

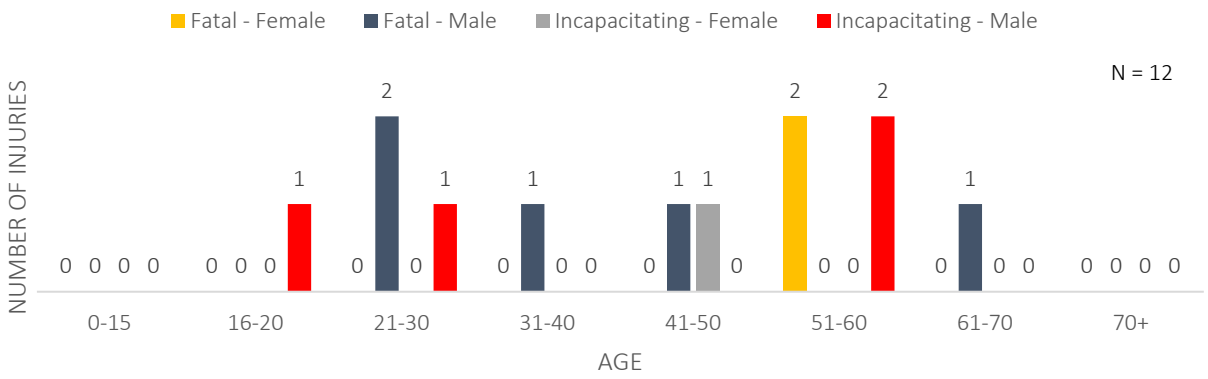
From 2014-2021, there were a reported 284 crashes or approximately 36 crashes per year within Dewey and Ziebach County as reported by the SDDPS. The 284 accidents reported involved 367 occupants, resulting in seven (7) Fatal Injuries and five (5) in incapacitating Injuries. The leading crash type resulting in fatal and incapacitating injuries occurred from overturn rollover crashes, accounting for approximately 33% of all fatal and incapacitating injuries. Below summarizes the top crash types resulting in fatal and incapacitating injuries.

Figure 1: Fatal and Incapacitating Injuries (2014-2021)



The causes of these severe crashes are varied but can be tied to a few significant factors, including a high rate of impairment, low seat belt use and a significant number of younger drivers. Of the reported 12 fatal or incapacitating injuries occurring within Dewey and Ziebach County, approximately 33.3% of the occupants were under the age of 30. The figure below summarizes the age range for number of fatal injuries occurring within the study area.

Figure 2: Fatal and Incapacitating Injuries by Age and Gender (2014-2021)



Tribal Law Enforcement was able to provide crash data from October 2, 2016, through September 29, 2021, for the Cheyenne River Sioux Reservation. During this time frame the data showed that there were a reported 994 crashes occurring on the Reservation that Tribal Law Enforcement responded to, which is approximately three and half times more than the reported crashes shown by the SDDOT database over an eight-year period; showing how under reported crashes are from the Tribal Law Enforcement. The data provided is very limited and does not provide complete information about the reported crashes. Of the 994 reported crashes, 12 crashes were reported to result in a fatal injury, 190 crashes were reported to be a crash with an injury, but the severity of the injury was not reported, and 792 crashes were reported to be crashes with no injury occurring.

In 2022 the Cheyenne River Sioux Tribe undertook efforts to develop a Tribal Transportation Safety Plan that would identify existing safety efforts, transportation safety issues and then identify strategies for implementation that would address these issues. As part of the safety plan development, Tribal, and interested parties came together to review existing data, ongoing safety efforts and to identify new or continuing strategies to improve transportation safety in tribal communities. The strategies were prioritized around the 4Es (Education, Enforcement, Emergency Response and Engineering) of safety. The 4Es are outlined below. Note that enforcement and emergency response have been combined and safety planning/other strategy have been included.

Education

- Continue and Expand the Reservation Wide Transportation Education Program

Enforcement/EMS

- Implement Electronic Crash Record System and Data Sharing Among Agencies
- Initiate Discussions on Possible use of Limited Cross Jurisdictional Agreements for Law Enforcement
- Update Tribal Traffic Code
- Incorporate the use of Speed Radar Trailers as a Deterrent
- Provide a Tribal Highway Safety Officer
- Participate in Efforts to Pass a Primary Seat Belt Law
- Child Seat Ordinance

Engineering

- Perform Road Safety Audits on BIA, Tribal and County Roadways
- Install Mileage Reference Markers and Delineation Along Routes
- Develop a Reservation-Wide Pavement Marking Project
- Identify and Replace Failing Roadway Culverts
- Develop Multi-Use Pathways and Pathway Lighting Projects
- Assess and Realign Dangerous Curves on Ziebach County Route 55
- Rehabilitate BIA 12 Cherry Creek to Highway 63

Safety Planning/Other

- Improve Roadway Maintenance

BACKGROUND

The Cheyenne River Sioux Tribe (CRST) Reservation encompasses approximately 1.4 million acres (2,188 square miles) in northcentral South Dakota in Dewey and Ziebach counties. The CRST has an estimated 15,993 enrolled tribal members with 70% (11,195) residing on the reservation. The unincorporated Tribe consists predominantly of the Minneconjou, SiHaSapa, Oohenumpa, and Itazipco bands of the Lakota or Great Sioux Nation.

Figure 3: Cheyenne River Sioux Indian Reservation Location[1]



The main uses of the land in the area are for agriculture and ranching.

Available data has indicated that injury and fatality crash rates on reservations are higher than the rest of the United States. Federal programs are available to help resolve traffic related crashes and provide safer reservation transportation routes for Tribal members and the traveling public. The Federal Highway Administration (FHWA) created the Tribal Transportation Program Safety Funds (TTPSF) to address safety issues and needs of Tribal governments for transportation and access on reservations. Each year, two percent of the total available Tribal Transportation Program (TTP) funds are awarded for safety improvements through a competitive application program.

The FHWA has emphasized the development of a Tribal Transportation Safety Plan as a first step in implementing a comprehensive safety program. This is clearly seen in the funding emphasis on safety planning and the ranking criteria that requires any safety project application be linked to a transportation safety plan.

A Tribal Transportation Safety Plan is a community based, Shared-disciplinary approach to identify transportation safety issues and potential implementation strategies with the goal of improving transportation safety on Tribal Lands. The FHWA describes them as:

> *"Tribal Transportation Safety Plans are a tool used to identify and address transportation risk factors that have a potential of leading to serious injury or death. Safety Plans also organize the efforts of a variety of entities to more effectively reduce risk and can cover multiple transportation modes (roads, maritime, trails, air travel, and others). Safety plans may lead to implementation of a project or program, renewed efforts in an existing program, or further study of a roadway section (using an engineering study or Road Safety Audit).*
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Benefits of developing safety plans have been well documented and include the opportunity to leverage resources, work toward a common goal and consider all road users resulting in reduced deaths and injuries in Tribal and other communities.

[1] https://sdtribalrelations.sd.gov/tribes/Cheyenne-River-Sioux-Tribe.aspx

HISTORICAL CRASH DATA

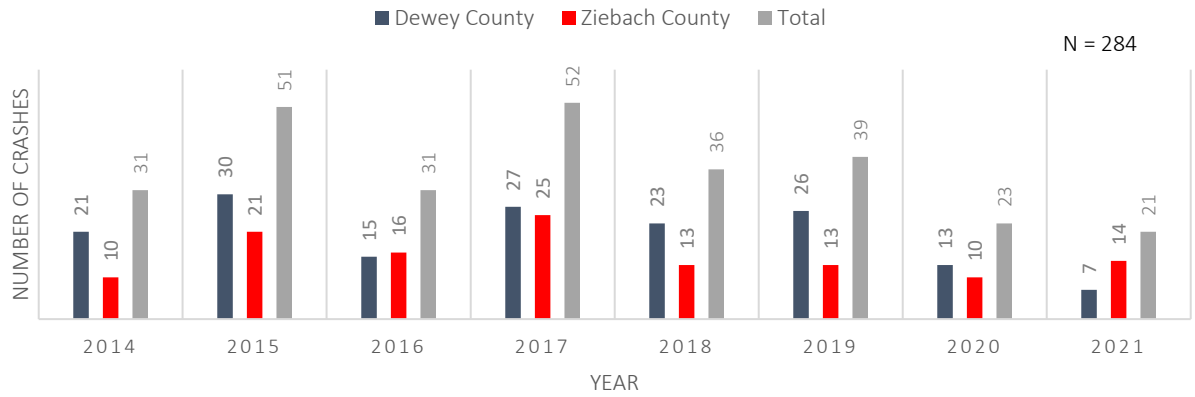
Historical crash data contained in the South Dakota Office of Highway Safety and South Dakota Department of Public Safety (SDDPS) Crash Database, occurring on the Cheyenne River Sioux Reservation on all public roads was obtained through their website for the eight-year time interval between January 1, 2014, and December 31, 2021[2]. The crash data that was collected where crashes occurred in Dewey and Ziebach County. Crash data is submitted to SDDPS Crash Database by law enforcement using the South Dakota Accident Records System (SDARS) or Traffic and Criminal Software (TraCS). Limited historical crash data was provided by Tribal Law Enforcement for the last five (5) years between October 2, 2016, and September 29, 2021. Crashes this agency respond to do not get reported to the SDDPS. Although data was provided the information that was obtain is very limited and may not show a complete picture of crashes that may be occurring throughout the Reservation. Obtaining information from Tribal Law Enforcement can be a lengthy process due to the Freedom of Information Act (FOIA), as tribal members must submit a request to release the information. Once a request is submitted the information released to the applicant can take years and redact information. This results in a long process to obtain the information. The crash data that was available from Tribal Law Enforcement is discussed later in the report under its own section.

One of the important factors in the development of a Tribal Transportation Safety Plan is the available crash data analyzed and utilized in the identification of issues and development of strategies. Adequate crash information plays a crucial role for the Tribe as this information can be used to assist in applying and securing federal and state funding and TTPSF funds for safety improvements on roadways throughout the Reservation, as these typically request data to support grant applications. Available crash data shown in this plan was analyzed to reflect contributing factors to traffic-related deaths and injuries on the Reservation.

Location of Crash

During the eight-year time interval between 2014-2021, there were a reported 284 crashes or approximately 36 crashes per year in Dewey and Ziebach County. The number of reported crashes has remained relatively consistent per-year over the eight-year time interval with exception of 2020 and 2021. Crashes in these two years were reduced by approximately 43% in 2020 and 48% in 2021, when compared to the average number of crashes between 2014-2019. The reduction in crashes may have resulted from the COVID-19 pandemic and the reduction of vehicles on the roadway networks. **Figure 4** shows the number of reported crashes per year within the two-county area.

Figure 4: Number of Reported Crashes per Year in Dewey and Ziebach County (2014-2021)



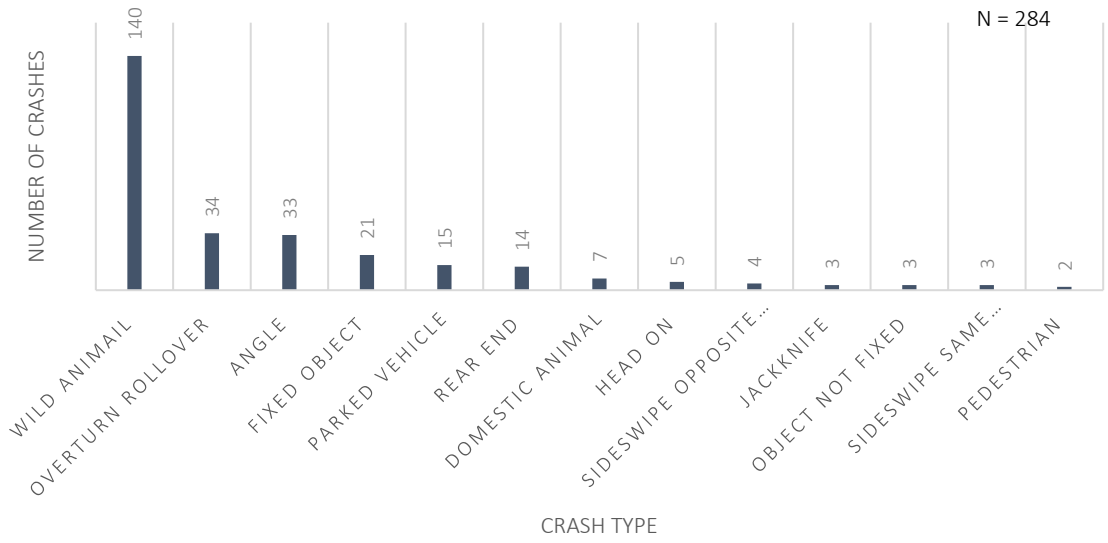
[2] http://safesd.gov/raw-data.html

Crash Types

Wild animal crashes were the most common reoccurring event in the eight-year time interval, accounting for 140 of the 284 crashes or 49.3% of all reported crashes. The other three top leading crash types observed were Overturn Rollover crashes accounting for 34 crashes or 12.0% of all reported crashes, angle crashes accounting for 33 crashes or 11.6% of all reported crashes and fixed object crashes accounting for 21 crashes or 7.4% of all reported crashes. Crash trends are consistent when compared to leading crash types from the 2015 Tribal Transportation Safety Plan. Dupree and Timber Lake, SD account for approximately 67% of angle crashes or 22 crashes.

Figure 5 shows the different crash types that occurred in Dewey and Ziebach County between 2014-2021.

Figure 5: Crash Types Occurring in Dewey and Ziebach County (2014-2021)

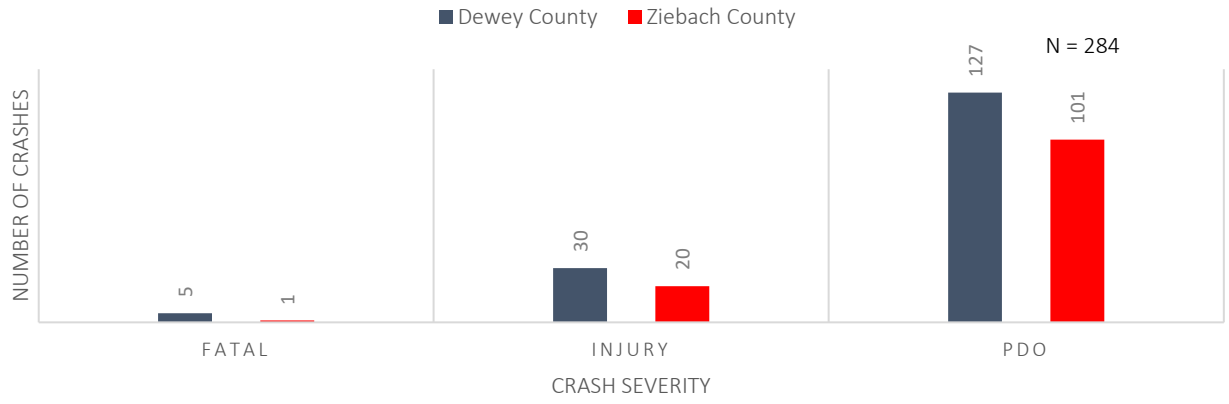


Crash Injury Severity

During the eight-year time interval, there were six (6) fatal crashes, 50 injury crashes, and 228 property damage only crashes for a total of 284 crashes in Dewey and Ziebach County.

Figure 6 shows the different crash severities reported within two county area.

Figure 6: Crash Severities Occurring within Dewey and Ziebach County (2014-2021)



The 284 crashes reported involved 367 occupants. The SDDPS[3] further analyzes crash injury severity into five different categories. These categories are:

- Fatal Injury – An injury results in death. An injury caused death that occurs within 30 days of an accident
- Incapacitating Injury – Any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities the person could perform before the injury occurred
- Non-Incapacitating Injury – Any injury, other than a fatal injury or an incapacitating injury, which is evident to observers at the accident scene
- Possible Injury – Any injury reported or claimed which is not a fatal injury, incapacitating injury, or non-incapacitating injury
- No Injury

Of the 367 occupants involved in crashes, seven (7) resulted in a Fatal Injuries and five (5) resulted in Incapacitating Injuries.

Table 1 summarizes the different crash injury severities for each occupant involved in a crash within Dewey and Ziebach County.

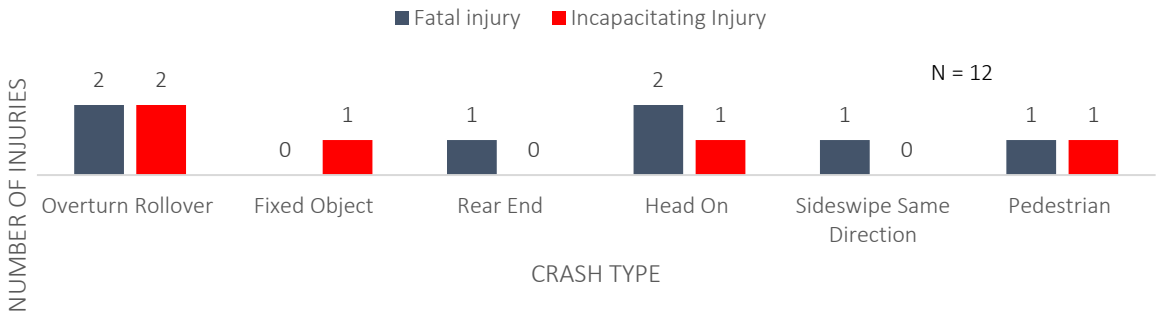
Table 1: Crash Injury Severity Per Number of Occupants (2014-2021)

Crash Injury Severity	Number of Injuries	Percentage
Fatal injury	7	1.91%
Incapacitating	5	1.36%
Non-incapacitating	29	7.90%
Possible	29	7.90%
No injury	157	42.78%
Not applicable	3	0.82%
*Not Reported	137	37.33%
Total	**367**	**100.00%**

* - Not Reported, Injuries Listed as Wild Animal Crashes

Fatal and Incapacity injury crashes stand out due to their impact on lives. Of the seven (7) fatal injuries, two (2) were the result of overturn rollover crashes, two (2) were the result of a head on crashes and one (1) each were from the result of a Rear End Crash, Sideswipe Same Direction and Pedestrian Crash. Of the five (5) incapacitating injuries, two (2) were the result of Overturn Rollover crashes and one each from a Fixed Object, Head on and Pedestrian crash. Roadway departure crashes account for approximately 19.4% of total crashes, including fixed object and overturn rollover crashes. With 12 fatal and incapacitating injuries in the analysis period (2014-2021), the average annual fatal or serious injury rate is approximately one (1) fatal and one (1) incapacitating crash per year. **Figure 7** summarizes the different crash types for Fatal and Incapacitating Injuries.

Figure 7: Fatal and Incapacitating Injuries (2014-2021)



[3] https://safety.fhwa.dot.gov/hsip/spm/conversion_tbl/pdfs/kabco_ctable_by_state.pdf

Safety Restraint Use

The use of proper safety restraints in a moving vehicle helps reduce the severity of injuries for occupants in the event of a crash. Approximately 40% of occupants within Dewey and Ziebach Counties used a proper safety restraint. This percentage may be higher as the type of safety restraint information for wild animal crashes was not reported and accounted for approximately 37% of the total reported safety restraint use. This data could be used to support increased education and seat belt initiatives.

Table 2 summarizes the frequency of safety restraints being used within two county area.

Table 2: Safety Restraint Used for Crashes per Occupants (2014-2021)

Type of Safety Equipment Used	Number of Occupants	Percentage
Helmet and eye protection	1	0.3%
Lap belt and shoulder harness used	144	39.2%
Lap belt only used	4	1.1%
None used	40	10.9%
Not applicable	15	4.1%
*Not Reported	137	37.3%
Shoulder harness only used	4	1.1%
Unknown	22	6.0%
Total	**367**	**100.0%**

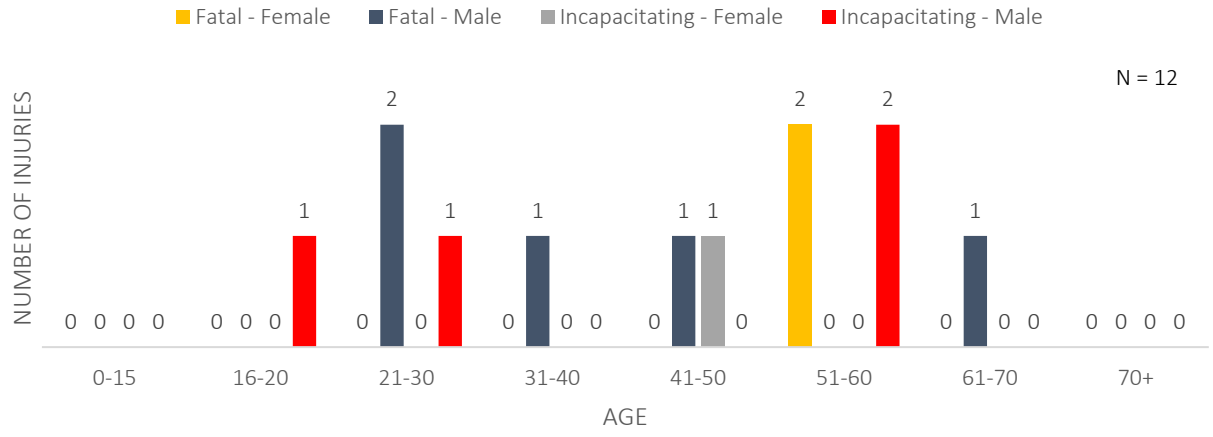
* - Not Reported, Injuries Listed as Wild Animal Crashes

Age and Gender of Occupants

Young drivers are consistently overrepresented in fatal and incapacitating crashes in all states and tribal communities in the region. This is also true for the Cheyenne River Sioux Reservation. 33.3% of all fatal and incapacitating injuries in Dewey and Ziebach County included occupants who were under the age of 30. This high rate of young inexperienced drivers supports education, enforcement, and outreach programs. In addition, of all occupants involved in crashes within the two-county area, approximately 30% were under the age on 30.

Figure 8 summarizes fatal and incapacitating injures by age group and gender.

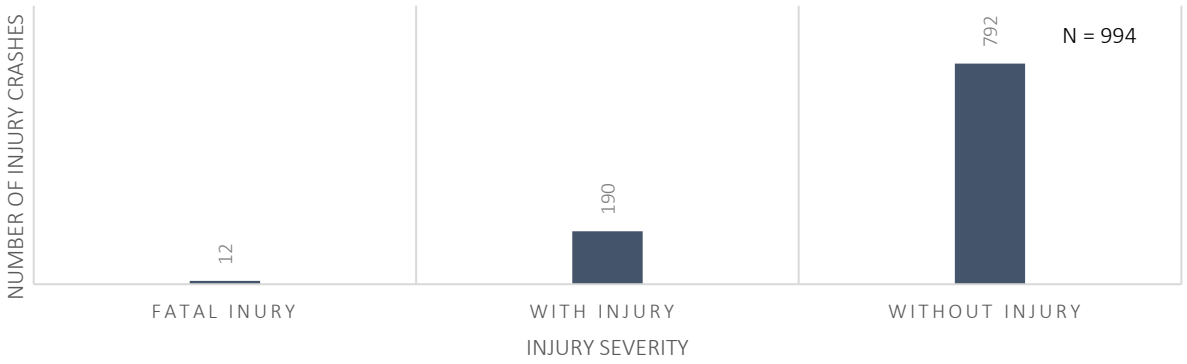
Figure 8: Fatal and Incapacitating Injuries by Age and Gender (2014-2021)



Tribal Law Enforcement Reported Crashes

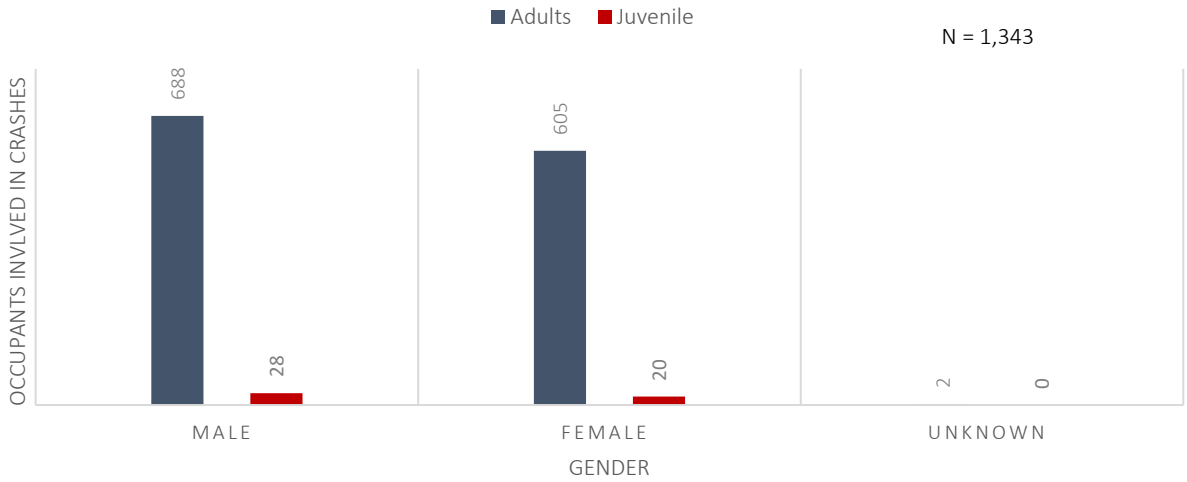
Tribal Law Enforcement was able to provide crash data from October 2, 2016, through September 29, 2021, for the Cheyenne River Sioux Reservation. During that time frame the data showed that there were a reported 994 crashes occurring on the Reservation that Tribal Law Enforcement responded to, approximately three and half times more than the reported crashes shown by the SDDOT database over an eight-year period. This exemplifies how under reported crashes are from the Tribal Law Enforcement. The data provided is very limited and does not provide complete information about reported crashes. Of the 994 reported crashes, 12 crashes were reported to be a fatal injury, 190 crashes were reported to be a crash with an injury, but the severity of the injury was not reported, and 792 crashes were reported to be crashes with no injury. Included within the data, there were a reported 11 pedestrian crashes. These crashes resulted in three (3) fatalities and eight (8) with injuries. The figure below summarizes the number of crashes and the severity type that was reported by Tribal Law Enforcement.

Figure 9: Tribal Law Enforcement Reported Crashes (2016-2021)



The data provided by Tribal Law Enforcement also gave the number of occupants involved in all reported crashes, the gender, and if the occupant was an adult or juvenile. No further information was available to break down age ranges for each of the occupants. Of the reported 994 crashes that occurred on the reservation a total of 1,343 occupants were involved. The figure below summarizes the number of occupants involved in crash, the gender of the occupant and if the occupant was an adult or juvenile.

Figure 10: Number of Occupant Involved Reported by Tribal Law Enforcement (2016-2021)



2022 Tribal Transportation Management Plan

This 2022 Plan was developed using available data and the personal knowledge and expertise of the planning meeting participants. Due to the COVID-19 Pandemic, a small group of representatives gathered to updated strategies including input from engineering, enforcement, education, and planning.

The planning group reviewed the available crash data to develop a list of issues that are currently affecting transportation safety on the reservation. The group then identified the existing programs on the reservation and identified additional strategies that needed to be implemented to address safety issues. The following sections document these discussions and the outcomes.

Issues Causing Crashes on Cheyenne River Sioux Reservation

The crash data analysis, identify several transportation safety issues that are causing crashes, increasing crash severity, or restricting complete data analysis. Those that are supported by data included:

- The Occurrence of Overturn Rollover Crashes
- Presence of Fixed Objects
- Presence of Wild Animals
- Lack of Driver Experience
- Lack of Sharing Crash Data

The group identified several other transportation safety issues based upon personal experience that are causing crashes, increasing crash severity, or are otherwise creating transportation safety concerns in the local communities. Based on these issues, the group recommended the following strategies:

- Continue and Expand the Reservation Wide Transportation Education Program
- Incorporate the use of Speed Radar Trailers as a Deterrent and for Information Gathering
- Develop Separated Pedestrian Pathways
- Improve Roadway Alignments
- Install mile reference markers and delineation along routes

Implementation Strategies

The plan's main goal is to use a multi-disciplinary approach to identify safety strategies for implementation that can address the transportation safety issues on the Cheyenne River Sioux Reservation. Strategies are intended to be implemented over the next several years and each have a Strategy Champion and Funding Opportunities identified. The strategies were developed as a comprehensive approach to safety, that includes engineering, enforcement, education, and emergency management opportunities.

Education Strategies

Continue and Expand the Reservation Wide Transportation Education Program

The Cheyenne River Sioux Tribe have begun efforts through the Department of Transportation and law enforcement to provide safety education to schools and other interested parties on the reservation. These efforts are intended to provide education on transportation safety, particularly to younger drivers including addressing behavioral issues such as seat belt use, texting and driving, impaired driving, and child restraint.

Education strategies would use and build on national safety campaign themes on impaired driving, seat belt use, texting and driving and other transportation safety issues, by using local leaders, or other easily recognizable individuals from the Tribal Community to promote these safety themes. Many safety campaigns across the country have shown a greater rate of success when they are made culturally relevant to the tribal audience and utilize local

talent to deliver the safety message. Additional funding would allow for the development and deployment of larger items such as billboards using local artistry, banners, videos, tribal safety posters and other safety education materials. These would be used in programs targeting the school system, during Pow Wows, fairs and at other community events.

Strategy Champion: CRST Department of Transportation.

Funding Opportunity: TTP Safety Funding, BIA IHSP Funding.

Enforcement Strategies

Implementation of Electronic Crash Record System and Data Sharing Among Agencies

Currently the Dewey County, Ziebach County and the Cheyenne River Sioux Tribe all collect crash data differently. Ziebach County and the Tribe both collect crash data using paper copies, while Dewey County uses the Traffic and Criminal Software (TraCS) electronic crash records system. Placing all three agencies on the same system would allow for better information sharing and developing of complete crash data for the reservation. Funding should be pursued to provide Toughbook hardware, software, and officer training at the CRST Law Enforcement and Ziebach County to implement the TraCS program. Better and more complete data could assist in developing and funding of safety programs and projects.

Strategy Champion: CRST Law Enforcement, SDDOT, South Dakota Department of Public Safety, Ziebach County and CRST Department of Transportation.

Funding Opportunity: TTP Safety Funding, BIA IHSP Funding and SDDPS Funding.

Initiate Discussions on Possible use of Limited Cross Jurisdictional Agreements for Law Enforcement

With staffing challenges faced by all enforcement agencies, many Tribes, states and local jurisdictions have entered into a cross jurisdictional agreements. Tribes such as the Crow Creek in South Dakota have entered into cross jurisdictional agreements with the SDDPS to expand their enforcement abilities. This has allowed for increased traffic enforcement during key times such as pow wow events. Currently there is no such agreement in place on the Cheyenne River Sioux Reservation. The increased traffic enforcement benefits and effects on Tribal Sovereignty of such an agreement should be presented to the Tribal Council. This may be best done by tribal council and/or tribal law enforcement from other reservations such as Crow Creek, where cross jurisdictional agreements are in place, and staff is able to discuss the benefits and some the challenges they have experienced.

Strategy Champion: CRST Law Enforcement.

Funding Opportunity: None required.

Update Tribal Traffic Code

The Cheyenne River Sioux Tribe currently has a Traffic Code for enforcement on the Reservation. While it includes many of the items from the state code, it has not been updated in several years. To ensure that the code covers all areas that could improve transportation safety and has an adequate fine structure, the Traffic Code should be reviewed and revised accordingly. Title 32 of the South Dakota Codified Laws includes a comprehensive section on motor vehicles that could be used for reference to determine what changes and updates would be beneficial and proposed to the Cheyenne River Sioux Tribal Council.

Strategy Champion: CRST Law Enforcement, CRST Tribal Council and CRST Department of Transportation.

Funding Opportunity: None Required.

Incorporate the use of Speed Radar Trailers as a Deterrent and for Speed Information

Other Tribal Law Enforcement agencies have been using Speed Trailers that use radar to provide feedback on vehicle speeds to help reduce speeds in tribal communities and around schools. These trailers can also collect and store the speed data for use in determining areas for targeted enforcement due to high speeds. With speeding noted as a major cause of crashes on the Cheyenne River Sioux Reservation and concerns expressed about speeds and safety around schools, the Tribe should purchase multiple sets of speed trailers. These could be used by law enforcement in various tribal communities as part of a targeted education and enforcement campaign to help reduce speeds.

Figure 11: Example of a Speed Radar Trailer[4]



Strategy Champion: Cheyenne River Sioux Tribal Police Department and CRST Department of Transportation.

Funding Opportunity: TTP, TTPSF or BIA IHSP

Provide a Tribal Highway Safety Officer

Currently the Tribe has two officers dedicated to highway safety enforcement and drug and safety training. With the limited staffing and the demands on time that criminal activities require, highway safety enforcement and education by necessity becomes a lower priority. To elevate the level of highway safety enforcement, Tribal Law Enforcement should pursue obtaining funding for additional safety enforcement officers.

Strategy Champion: CRST Law Enforcement.

Funding Opportunity: BIA IHSP Funding.

Participate in Efforts to Pass a Primary Seat Belt Law

Seat belt use rates in South Dakota continue to lag behind national rates, with this being especially true for fatal crashes in South Dakota. Many states currently have a primary seat belt law where drivers can be stopped solely for not being buckled. In South Dakota it is a secondary offence which requires a traffic stop for an unrelated infraction before any citation for the lack of seat belt use can be issued. To improve transportation safety, CRST should work with State Representatives and the SD Legislature to implement a Primary Seat Belt Law where drivers could be pulled over for this infraction alone. If a primary seat belt law is not passed through the State Legislature, the Tribal Council should adopt a reservation wide primary seat belt ordinance. If implemented, transportation and enforcement programs could provide education and outreach within the tribal community on the change in law.

Strategy Champion: Cheyenne River Sioux Tribal Council and CRST Law Enforcement.

Funding Opportunity: None required.

[4] https://www.fdlsheriff.com/patrol/radar-trailer

Child Seat Ordinance

In addition to seat belt use, proper restraint of children and infants was identified as an issue. While the crash data did not show a large number of injuries with unrestrained children, local participants have seen a large number of vehicles with no car seats being used. As part of a thorough reservation-wide primary seat belt ordinance, strong language on enforcement of car seats should be included. Currently the tribe has a fine of $25 for improper use of child restraints which is not a significant disincentive to use them. This effort should be combined with education and outreach within the tribal community including providing of car seats, the need for them, proper installation, and larger fines to create an incentive to use them properly. The South Dakota Department of Social Services currently offers child safety seats at no cost to families that meet income eligibility requirements to ensure that children are in the best child seat for their age and height. The tribe could partner with this program to provide child seats on the reservation. More information for the South Dakota Department of Social Services program can be found on their website at https://dss.sd.gov/childcare/childsafetyseat/ .

Strategy Champion: Cheyenne River Sioux Tribal Council, CRST Department of Transportation and CRST Law Enforcement

Funding Opportunity: TTP Safety Funding and BIA IHS Program

Emergency Services Strategies

Enhanced 911 System

Currently the Tribe does not have an enhanced 911 system, meaning when a call is received by a 911 operator, location information is unavailable within the systems. This requires the operator to get more detailed location information prior to being able to dispatch an emergency vehicle. This is further complicated in that many roads may not be signed or may be known by a local nickname that is not easily identifiable by either the dispatcher or responder. To remedy this situation, the system within the reservation should be upgraded to include location information for quicker response times. The BIA Inventory includes strip maps that may be able to be utilized as part of this effort. The Tribe has received funding to assist in the installation of intersection signing specifically to assist in emergency response.

Strategy Champion: CRST Law Enforcement, CRST Department of Transportation and EMS Agencies.

Funding Opportunity: TTP Safety Funding or BIA IHSP Funding.

Develop A Life Flight Program

Life Flights play a crucial role in allowing faster transportation of patients needing critical care to other hospitals in the area with more advanced care then what can be provided by the Indian Health Service Hospital in Eagle Butte. In addition, this service could assist in providing faster response times in life threating medical situations in remote areas throughout the reservation. EMS has expressed a need to provide this service to the Cheyenne Sioux Reservation to assist in saving lives. A helipad will need to be developed at the hospital to provide this service and staff will need to be trained.

Strategy Champion: EMS Agencies

Funding Opportunity: BIA IHSP Funding.

Engineering Strategies

Perform Road Safety Audits on BIA, Tribal and County Roadways

Road Safety Audits (RSA's) have been an important tool for many Tribes and one that CRST Department of Transportation Program could utilize. RSA's provide an opportunity to bring traffic and safety expertise in assessing the safety concerns of routes where there are high numbers or crashes or where there are specific concerns. The

goal of RSA's is to identify safety issues and then develop transportation safety improvements that may include signing, lighting, striping, pathways, intersection improvement and other activities to address them.

To continue to build on safety improvements and the use of RSA's the tribe will pursue funding to accomplish similar efforts on the BIA, Tribal, and County roadways within the Cheyenne River Sioux Reservation.

Strategy Champion: CRST Department of Transportation.

Funding Opportunity: TTP Safety Funding.

Installation of Mileage Reference Markers and Delineation Along Routes

Currently within the reservation there are no mileage reference markers (MRM), or delineators present on paved routes. MRMs assist motorists in letting drivers know how far they have traveled on a particular route, distance to their destination, and most importantly in the event of an accident or roadside emergency, a more precise location to first responders.

Delineators along the roadway are used for motorist guidance at night and during adverse weather. Delineators are also beneficial at locations where roadway alignment changes and are considered as guidance devices rather than warning devices. They come in various sizes and designs to address varying applications. Delineators are typically used on rural roadways with no street lighting and marked approaches.

It is recommended that MRMs and delineators are installed on paved BIA routes within the reservation.

Strategy Champion: CRST Department of Transportation

Funding Opportunity: TTP Safety Funding, TTP Funding.

Develop a Reservation-Wide Pavement Marking Project

There are many roadways on the Cheyenne River Sioux Reservation that do not currently have adequate pavement markings installed or on which existing markings are showing signs of deterioration with low visibility. The absence or deteriorated nature of these pavement markings can significantly impact transportation safety. With the predominance of injury or fatal crashes including single vehicles running off the road and overturning, the addition of improved pavement marking could help. The installation of pavement markings has long been identified by the FHWA as a proven low-cost safety improvement. A project should be developed to design and install new pavement markings on paved routes in compliance with the Manual of Uniform Traffic Control Devices (MUTCD).

Strategy Champion: CRST Department of Transportation

Funding Opportunity: TTP Safety Funding, TTP Funding.

Identify and Replace Failing Roadway Culverts

Most of the roadways on the Cheyenne River Reservation were constructed over fifty years ago and much of the infrastructure is in poor condition. The CRST Transportation Program completed a culvert inventory that identified current culvert locations and conditions. This inventory identified over 400 culverts on main BIA routes, and of these 90 were in a failed or failing condition. The culverts vary in size from 24 to 130 inches and about half of the sites will require major rehabilitation, with road work and culvert replacement. The remaining sites require moderate to heavy maintenance including inlet and outlet repair, slope and shoulder repair, or channel stabilization. These culverts present a safety issue to the travelling public when they fail and collapse. While not a significant statistical crash type on the reservation, they are generally a high severity crash when they occur. The Cheyenne River Sioux Tribe previously applied for grant funding and the estimated cost for repairing all these failing culvers was $10,700,000.00

Strategy Champion: CRST Department of Transportation.

Funding Opportunity: TTP Safety Funding.

Develop Multi-Use Pathways and Pathway Lighting Projects

There are locations within the Cheyenne River Sioux Reservation where there is pedestrian/bike traffic, and the Tribe has identified specific need for pathways. Pathways should be considered to separate pedestrians from vehicle traffic. The need for these pathways has been present for some time and has increased as there is a need for access to Tribal communities and schools.

Figure 12: Separated Pathway with Pedestrian Lighting



Lighting should be considered along urban or other pathways as appropriate to increase pedestrian visibility, provide for traffic calming and potentially increase security. Solar powered and/or LED lighting could be used to reduce the cost for providing power and the need for continual power usage. An example of a solar powered lighting system is shown. Several companies produce such systems.

Figure 13: Solar Pedestrian Lighting Example[5]



[5] https://www.sepco-solarlighting.com/solar-pathway-landscape-lighting

Pow Wow Grounds Pathway

This pathway would start at the end of the existing sidewalk that runs along US 212 at Lincoln Street and proceed east along the north side of the Pow Wow Grounds to the Tribal Fish and Games offices, terminating at the intersection of US 212 and Rodeo Grounds Road.

Figure 14: Pow Wow Grounds Pathway



The pathway would be 10-feet wide, approximately 0.40-miles long and could include pedestrian lighting depending on available funding. Estimated project construction cost for the pathway and pedestrian lighting are shown below:

- Pathway: $538,000.00
- Pedestrian Lighting: $122,000.00
- Construction Total: $660,000.00

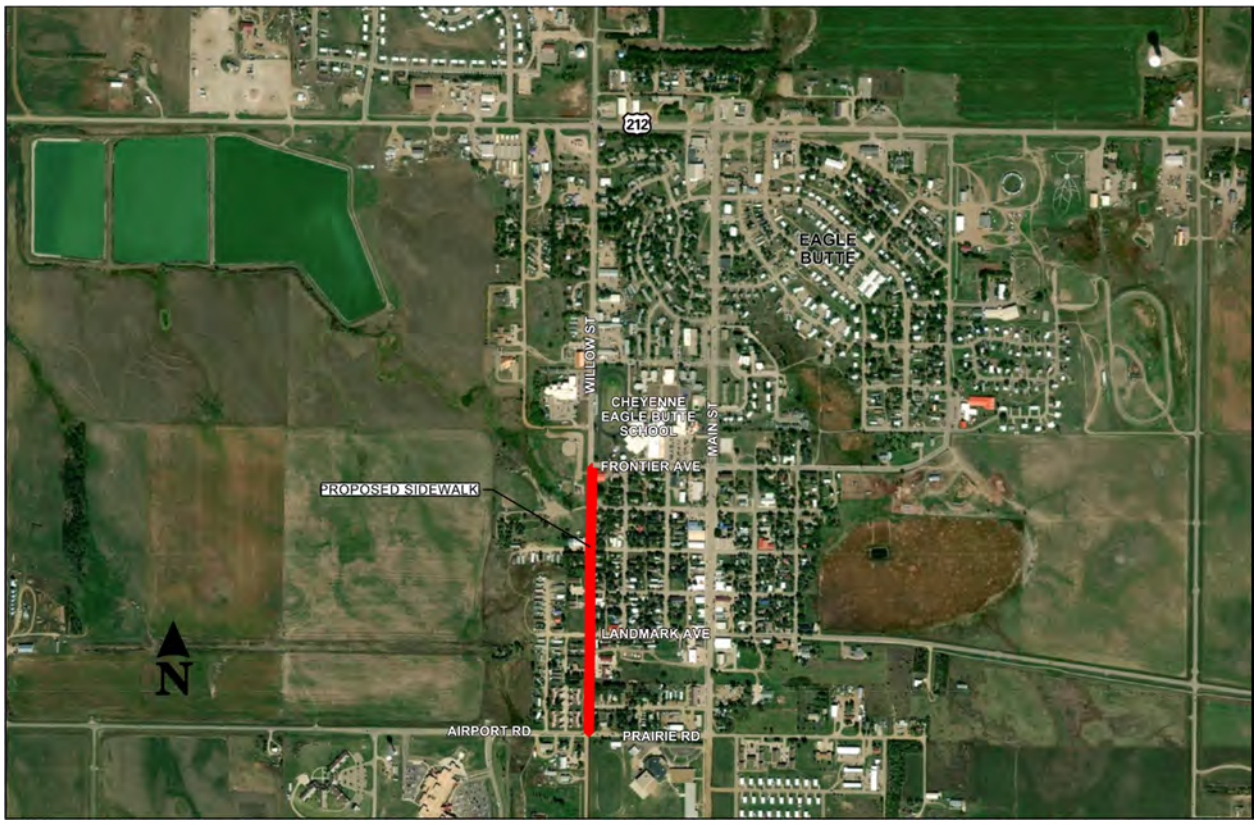
Strategy Champion: CRST Department of Transportation

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Willow Street Sidewalk

The Willow Street sidewalk extension would close a gap that exists in current pedestrian facilities in Eagle Butte. The existing sidewalk on Willow Street runs from US Highway 212 south past the public school but ends at West Frontier Street. This extension would continue the sidewalk south to connect to the sidewalks along Airport/Prairie Road. This pathway is needed to complete a full pedestrian connection within the community.

Figure 15: Willow Street Sidewalks



Proposed sidewalks would be 5-feet wide, approximately 0.45-miles long and could include pedestrian lighting depending on available funding. Estimated project construction cost for the pathway and pedestrian lighting are shown below:

- Sidewalks: $200,000.00
- Pedestrian Lighting: $137,000.00
- Construction Total: $337,000.00

Strategy Champion: CRST Department of Transportation

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Badger Development Pathway

The Badger Development Pathway would start at US Highway 212 and go north along Tower Hill Road to the northerly access to the Badger Subdivision. This pathway is needed to connect the residents in the subdivision to businesses and tribal facilities within Eagle Butte. A pedestrian crossing will need to be developed approximately half-way to the subdivision to reduce right of way impacts.

Figure 16: Badger Development Pathway



The proposed pathway would be 10-feet wide, approximately 1-mile long and could include pedestrian lighting depending on available funding. The estimated construction cost for the pathway and pedestrian lighting are shown below:

- Pathway: $1,345,000.00
- Pedestrian Lighting: $305,000.00
- Construction Total: $1,650,000.00

Strategy Champion: CRST Department of Transportation

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

La Plant Pathway

The La Plant Pathway is located in La Plant, SD and would start on US Highway 212 at the C-Store and go east following along the highway where it would then head north at the intersection of US Highway 212 and 1st Avenue. It would terminate just past the high school at the intersection of 1st Street and 1st Avenue/La Plant Road. This pathway is needed to connect the community members to the high school and other businesses within La Plant. A pedestrian crossing will need to be developed to cross US Highway 212.

Figure 17: La Plant Pathway



The proposed pathway would be 10-feet wide, approximately 1.1-miles long and could include pedestrian lighting depending on available funding. The estimated construction cost for the pathway and pedestrian lighting are shown below:

- Pathway: $1,451,000.00
- Pedestrian Lighting: $328,000.00
- Construction Total: $1,779,000.00

Strategy Champion: CRST Department of Transportation

Funding Opportunity: TTP Safety Funding, TTP Funding or SDDOT Transportation Alternatives Funding

Assess and Realign Dangerous Curves on Ziebach County Route 55

County Route 55 in Ziebach County is one of the few remaining roadways on the Cheyenne River Sioux Reservation with nearly 90-degree sharp curves. Although this roadway is a county owned road, it is a very important to the Tribe as a very high percentage of drivers using this route are tribal members. Numerous crashes have happened along this route due to the poor alignment, lack of signage, and a lack of overall engineering on the route. These curves present an extreme safety issue to the traveling public. The Tribe would like to assist the county in its assessment, design, and reconstruction of the road to bring it up to current design and safety standards allowing this through-route to be a SAFE route for the traveling public. This project would include approximately 1.23 total miles of curve flattening within a five-mile stretch of County Route 55 south of Eagle Butte, SD and end approximately just north of the Intersection of BIA 9 and County Route 55. Full engineering design will need to be completed prior to construction and the estimated cost for engineering design and construction is approximately $1.3 million.

Strategy Champion: CRST Department of Transportation and Ziebach County Commission

Funding Opportunity: TTP Safety Funding, County Funding.

BIA 12 Cherry Creek to Highway 63

BIA 12 provides access to Hwy 63, which is the primary connector to the community of Eagle Butte, approximately 40 miles away. Eagle Butte is the largest community on the Reservation (population 1,458). It is the center of Tribal government as well as the location for essential services, employment, and amenities on the Reservation. BIA 12 to Hwy 63 is approximately 18 miles in length and is the primary connecting roadway for the community of Cherry Creek.

BIA 12 is currently a gravel road in poor and deteriorating condition. It has experienced several landslides, causing, at best, unsafe roadway conditions and, at worst, partial closure of the roadway, resulting in the inability of Cherry Creek residents to access critical services in neighboring communities.

Figure 18: Existing Road Conditions on BIA 12



The Project proposes reconstruction of the existing gravel roadway to include paving of the entire 18 miles, creating 12-foot driving lanes and 2-foot shoulders. Additional safety features include slope flattening, stabilizing of the road base, installation of guardrails on bridges and in other high-risk areas, and inclusion of both center line and edge line rumble strips. Completion of the Project will provide year-round, all-weather access. Full engineering design has been previously completed and the estimated cost for construction is approximately $20 million.

Strategy Champion: CRST Department of Transportation

Funding Opportunity: TTP Safety Funding, TTP Funding, Safe Roads and Streets for All, and NSFTLP Funding.

Improve Roadway/Pedestrian Lighting and Install Community Security Cameras Throughout the Communities on the Reservation

An area of concern that was discussed was the lack of security, roadway and pedestrian lighting throughout the communities and tribal housing units within the Cheyenne River Sioux Reservation. Lighting provides a visual performance and visual comfort to assist in keeping a driver alert while on the roadway increases pedestrian visibility and could provide for traffic calming and increase safety and security.

In addition, another concern that was discussed was the overall safety and security of tribal members in public areas within the communities on the reservations. Having security cameras installed to help deter crime in areas that have been identified by Tribal Police and other community members was identified as having potential to help reduce safety concerns.

Due to the high cost that can be associated with roadway and pedestrian lighting and community security cameras, it is recommended that an engineering study be completed to identify all existing functioning and non-functioning

lighting throughout the communities. After the inventory of all existing lighting, a community outreach should be completed to identify areas of concern that tribal members may have for roadway and pedestrian lighting and community security cameras. Once these areas have been identified, a complete engineering lighting analysis should be completed. This will allow for multiple projects to come to fruition and be prioritized by the Tribe.

Strategy Champion: Cheyenne River Sioux Tribal Council, Tribal Law Enforcement and CRST Department of Transportation.

Funding Opportunity: TTP Safety Funding, TTP Funding

Safety Planning and Other Strategies

Improve Roadway Maintenance

Like many Tribes, the Cheyenne River Sioux struggle with basic roadway maintenance. The funding provided thru the Department of Interior is insufficient for the extensive road miles over which the Tribe has jurisdiction. The Tribe does currently transfer a portion of their TTP funding to the maintenance program, but this forces them to reduce or eliminate needed roadway improvement projects. With many of these routes in poor condition it has caused safety concerns for the travelling public, school buses, and emergency access to rural locations, particularly in bad weather. While assessing the impact on actual crashes is difficult to determine, the overall poor condition and lack of funding to maintain BIA and tribal roadways has caused safety concerns. Additional funding should be sought through federal programs and/or an increase in the available funding provided by DOI.

Strategy Champion: CRST Department of Transportation.

Funding Opportunity: TTP Funding.

APPENDIX A: MEETING AGENDA

Cheyenne River Sioux Tribal Safety Plan 2021 Update

Agenda

June 21, 2022

9:00 a.m.	Welcome and Introductions
9:15 a.m.	Background and Overview
	Review of Previous Safety Plan
	Crash and Safety Data Update
	Review Road Safety Audits Completed
	Questions and Discussion of Data
10:00 a.m.	Development of Activities for updated Oglala Tribal Transportation Safety Plan:
	Identification/Discussion of new safety issues and concerns
	Identify Safety Strategies completed
	Identify New Strategies to Include.
11:00 a.m.	Finalize Development of Safety Activities to include in Plan
	Sort by 4E's
	Identification of Implementation Steps
	Identification of Champions for Specific Elements
	Identification of Potential Funding Sources
	Identify Grant Opportunities
12:15 p.m.	Questions/Discussion of Process or other Items
12:30 p.m.	Adjourn

APPENDIX B: MEETING PARTICIPANTS

Cheyenne River Sioux Tribal Transportation Safety Plan		
Attendance List		
Name:	Organization:	Email:
Korey Fischer	CRST DOT	korey.crstdot@gmail.com
Rose Mandan	CRST PD	rose.mandan@crstpd.com
Craig Genzlinger	KLJ	craig.genzlinger@kljeng.com
Darin Falcon	KLJ	darin.falcon@kljeng.com
Chad Fischer	KLJ	chad.fischer@kljeng.com

APPENDIX C: 2022 TRIBAL TRANSPORTATION SAFETY PLAN PRESENTATION

Cheyenne River Sioux Tribe

Transportation Safety Plan

2022

1

Safety Planning Background

- Tribal Transportation Safety Funding
  - Previously
  - Under Infrastructure Act
- Development of Tribal Safety Plans
  - Required for TTPSF
  - Required for Safe Streets for All
- Completed initial plan in 2015
- Need to update to be competitive now.

2

Goal of Safety Planning

- Reduce the frequency of fatal and serious injury transportation incidents through coordination of efforts by:
  - Elected officials / Council
  - Public
  - Administrators
  - Educators
  - Enforcement
  - Engineers
  - Emergency Medical Responders
  - And others…

3

Safety Plan Focus

- Not focused on any one funding source or program
- Focused on the modes that are most significant to the **community Its your plan!**
  - Roads
  - Trails
  - Winter Trails
  - Air
  - ATV

4

Benefits of Safety Planning

- Opportunity for coordinated efforts & shared resources within a community toward common goal
- Establish communication & form partnerships with local, State, and Federal
- Tool to leverage funding and resources
- Action Plan

5

Safety Planning Process



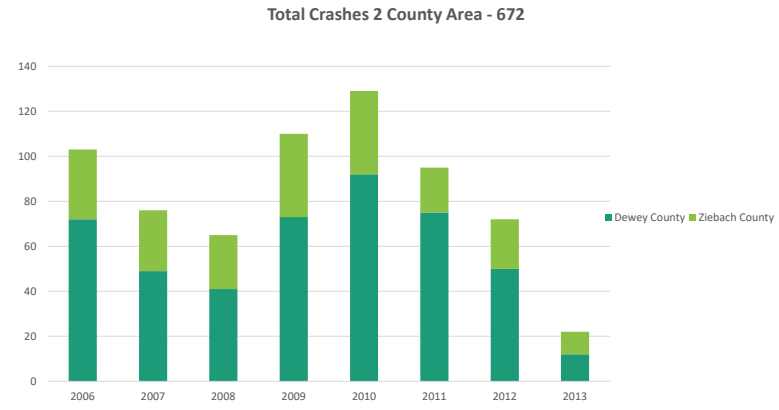


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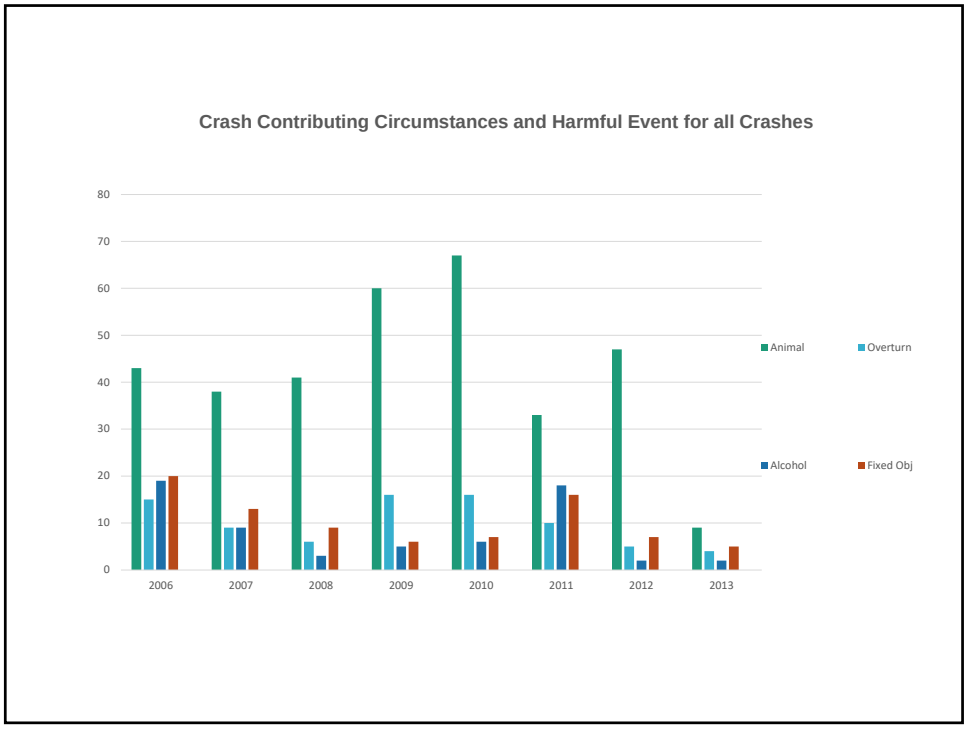
Crash Data

- SD Data
  - 2015
  - 2022 update
- Tribal Enforcement

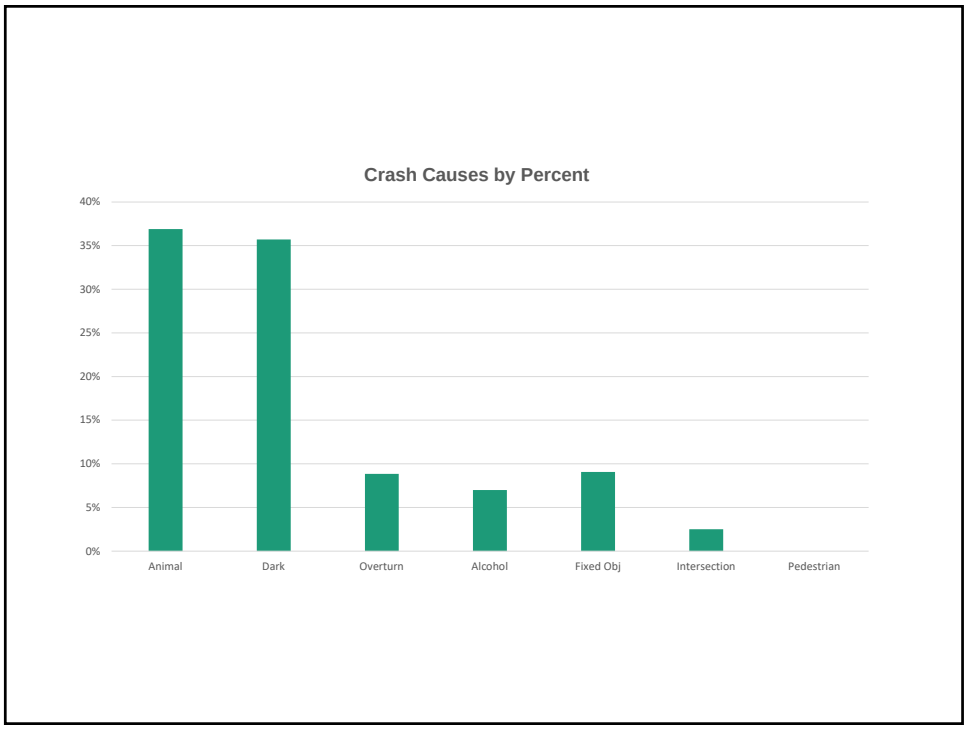
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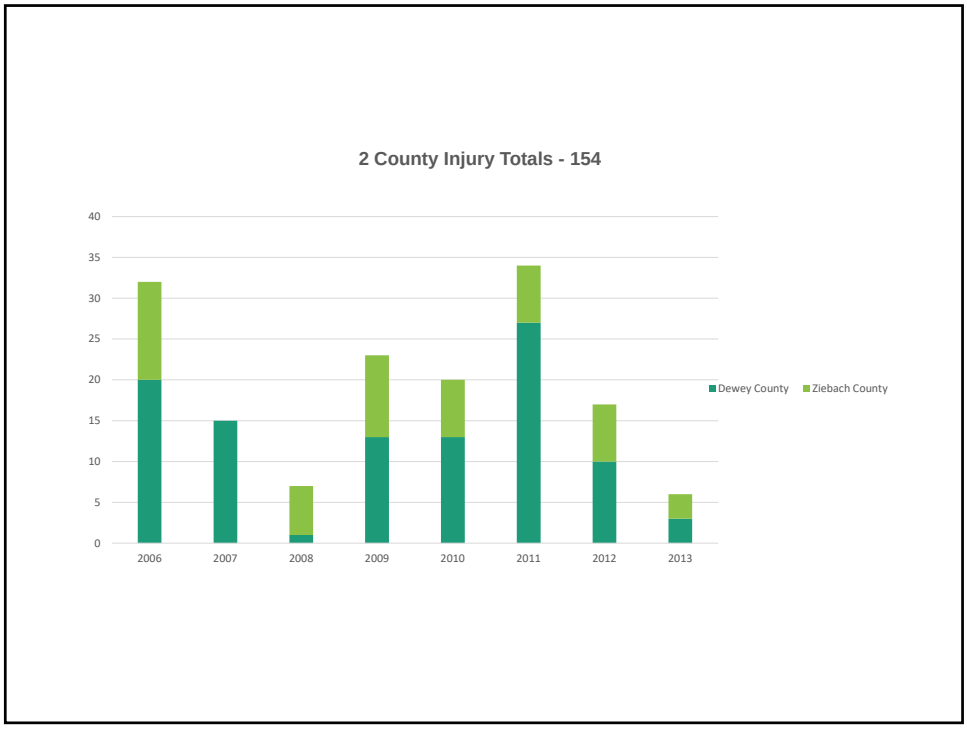
8


Crash Contributing Circumstances and Harmful Event for all Crashes
80
70
60
50
40
30
20
10
0
2006
2007
2008
2009
2010
2011
2012
2013
Animal
Overturn
Alcohol
Fixed Obj

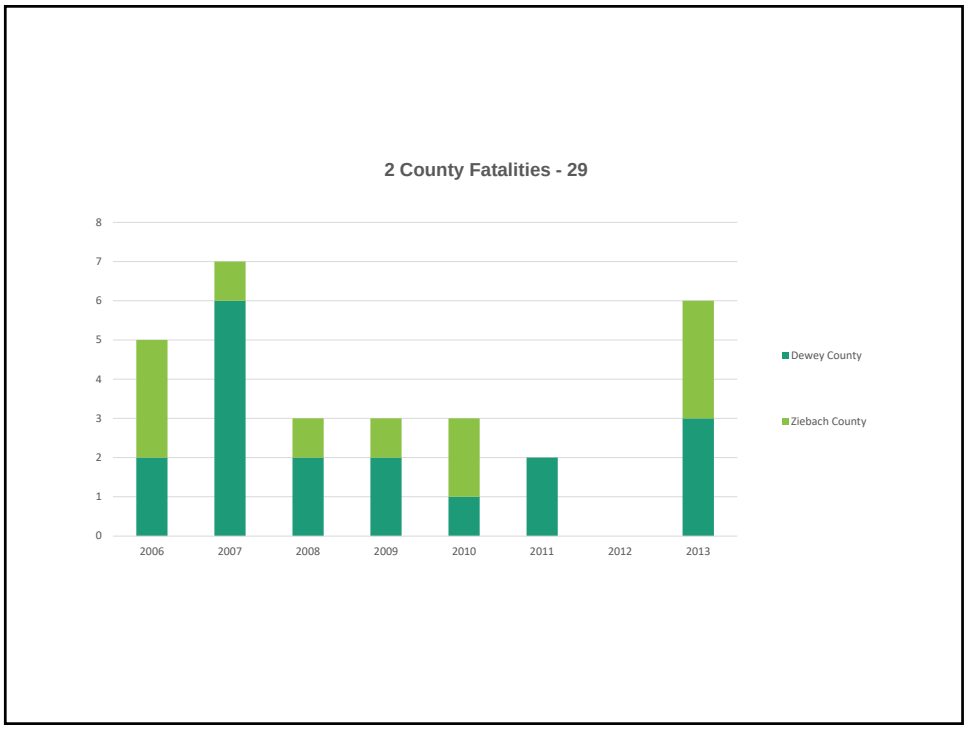
9


Crash Causes by Percent
40%
35%
30%
25%
20%
15%
10%
5%
0%
Animal
Dark
Overturn
Alcohol
Fixed Obj
Intersection
Pedestrian

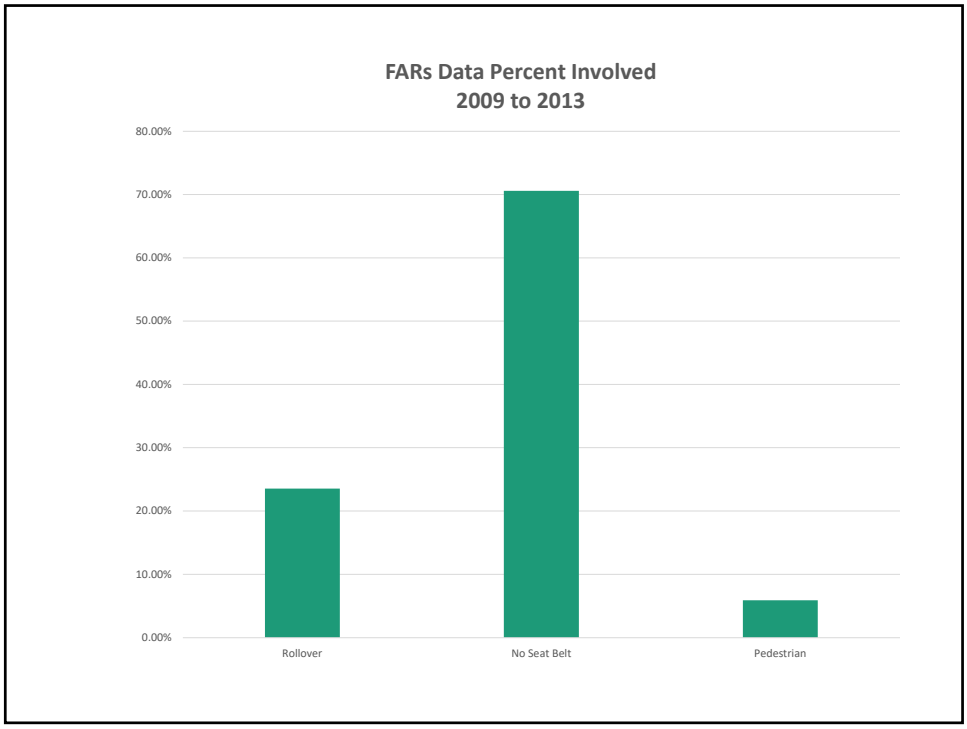
10


2 County Injury Totals - 154
40
35
30
25
20
15
10
5
0
2006
2007
2008
2009
2010
2011
2012
2013
Dewey County
Ziebach County

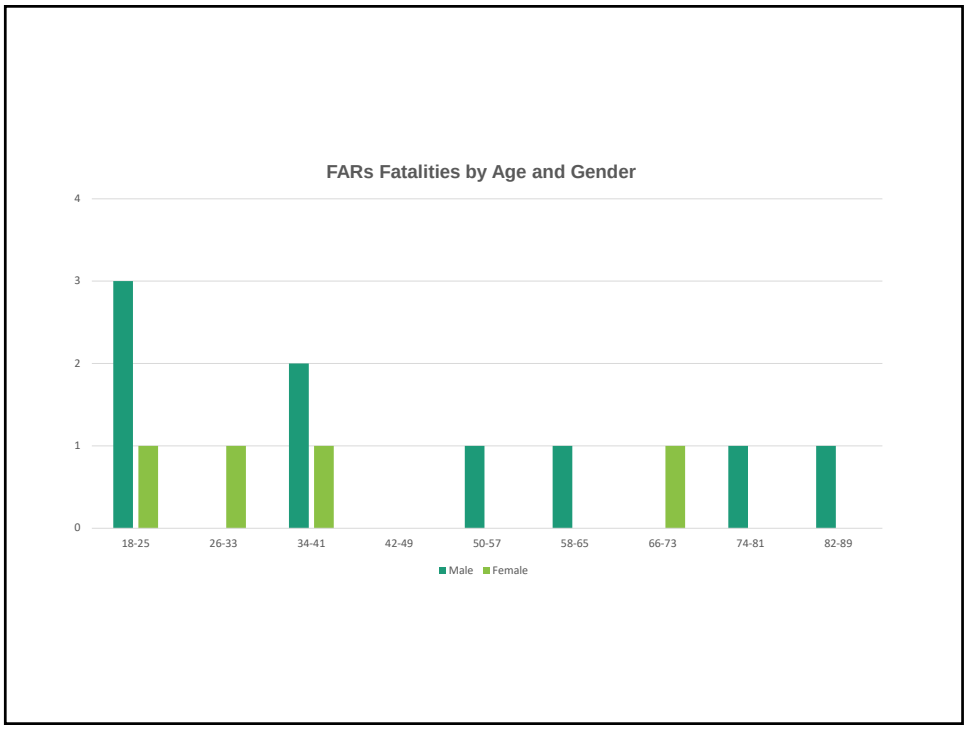
11


2 County Fatalities - 29
8
7
6
5
4
3
2
1
0
2006
2007
2008
2009
2010
2011
2012
2013
Dewey County
Ziebach County

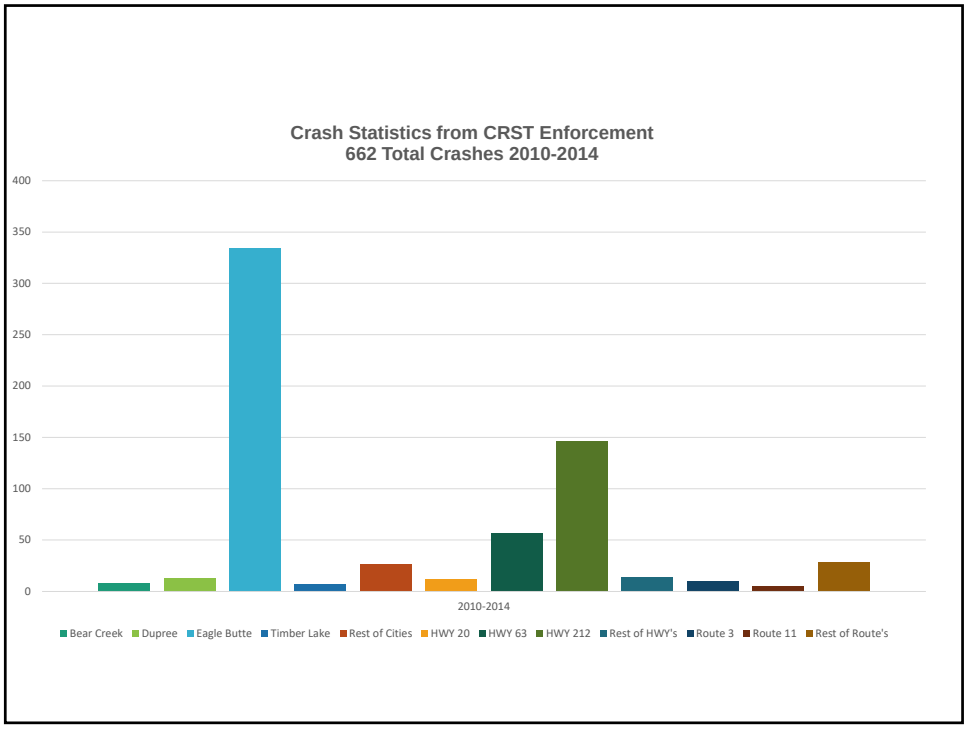
12


FARs Data Percent Involved
2009 to 2013
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Rollover
No Seat Belt
Pedestrian

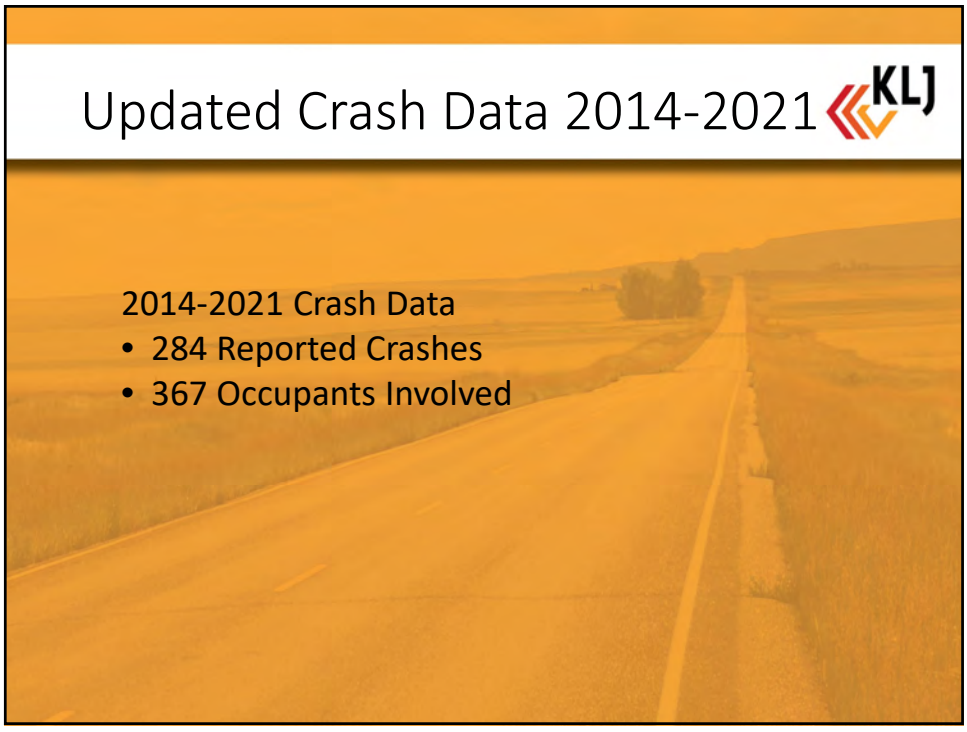
13


FARs Fatalities by Age and Gender
4
3
2
1
0
18-25
26-33
34-41
42-49
50-57
58-65
66-73
74-81
82-89
Male
Female

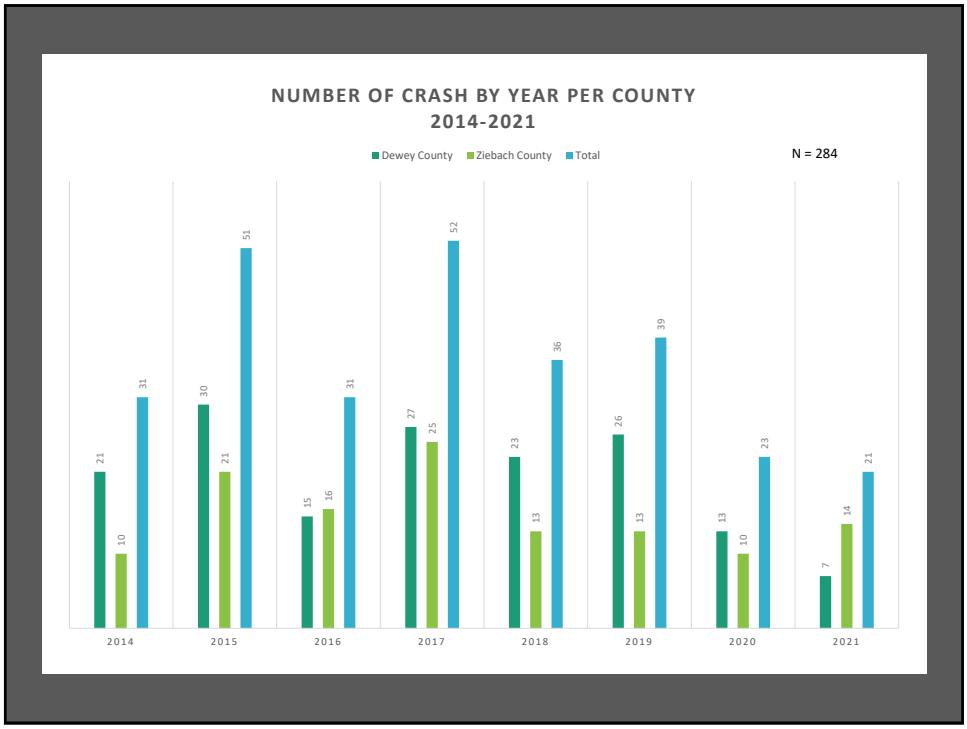
14


Crash Statistics from CRST Enforcement
662 Total Crashes 2010-2014
400
350
300
250
200
150
100
50
0
2010-2014
Bear Creek
Dupree
Eagle Butte
Timber Lake
Rest of Cities
HWY 20
HWY 63
HWY 212
Rest of HWY's
Route 3
Route 11
Rest of Route's

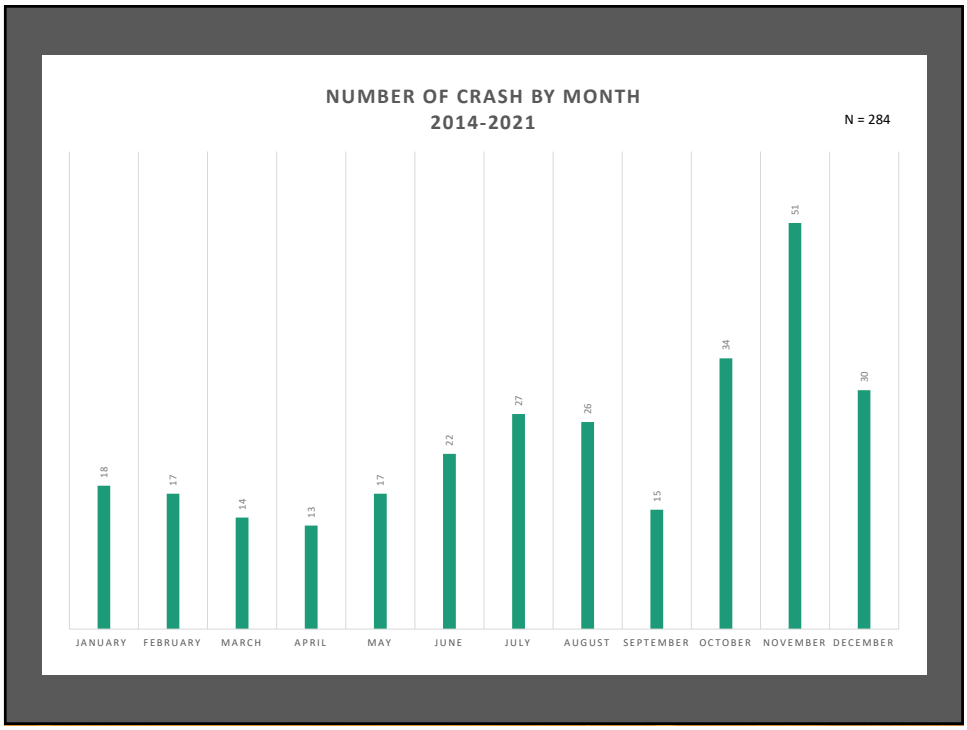
15


Updated Crash Data 2014-2021
KLJ
2014-2021 Crash Data
• 284 Reported Crashes
• 367 Occupants Involved

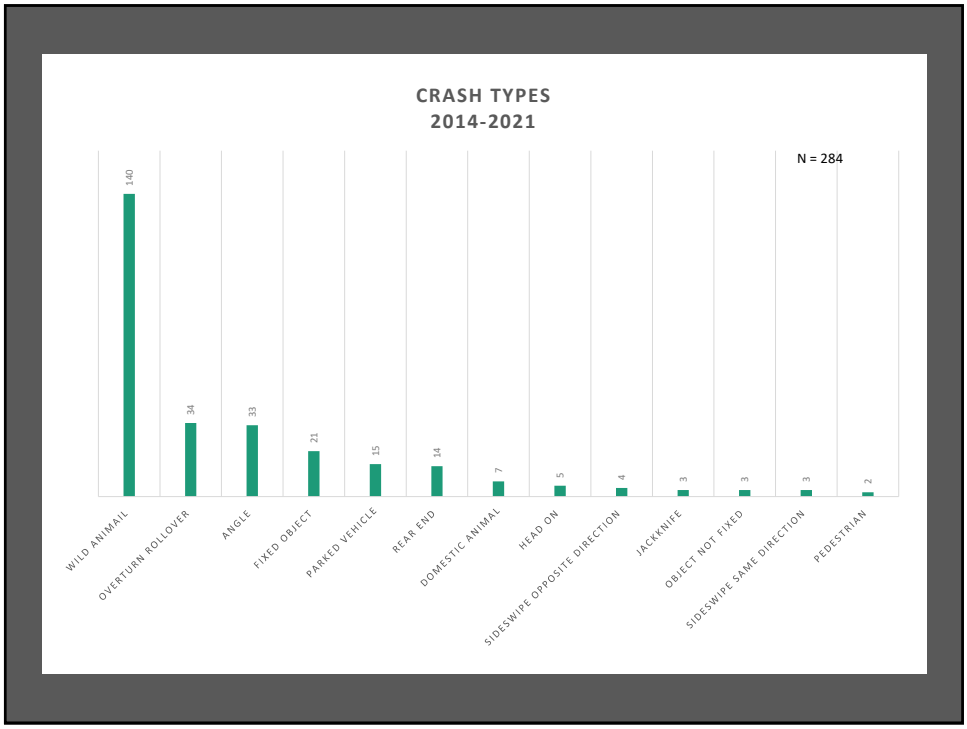
16


NUMBER OF CRASH BY YEAR PER COUNTY
2014-2021
Dewey County
Ziebach County
Total
N = 284
21
10
31
30
21
51
15
16
31
27
25
52
23
13
36
26
13
39
13
10
23
7
14
21
2014
2015
2016
2017
2018
2019
2020
2021

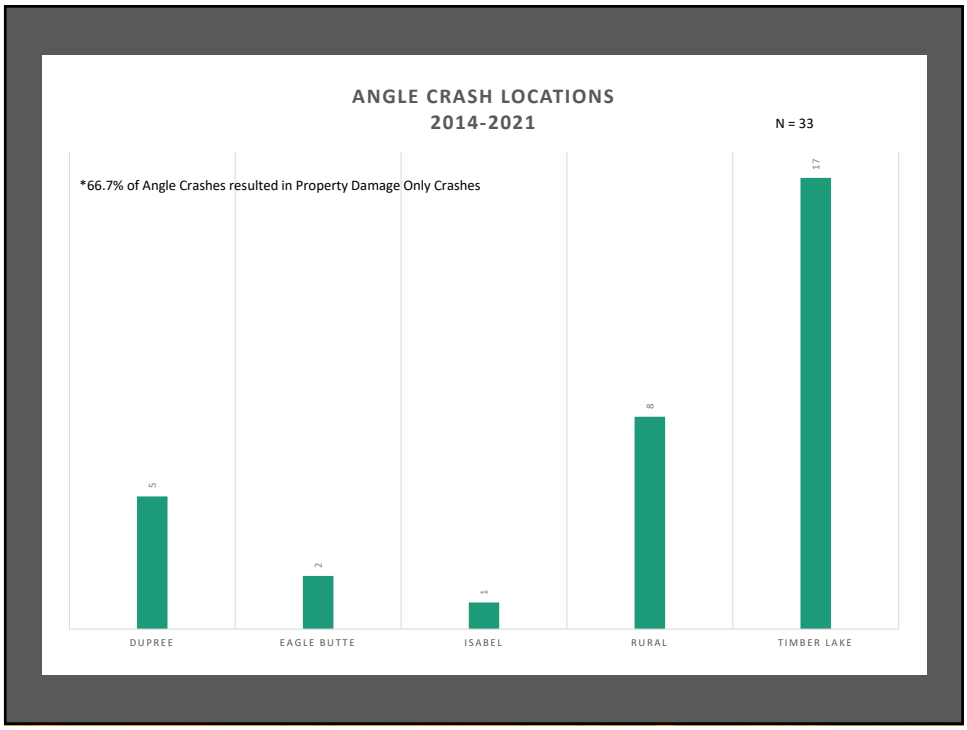
17


NUMBER OF CRASH BY MONTH
2014-2021
N = 284
18
17
14
13
17
22
27
26
15
34
51
30
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

18


CRASH TYPES
2014-2021
N = 284
140
34
33
21
15
14
7
5
4
3
3
3
2
WILD ANIMAIL
OVERTURN ROLLOVER
ANGLE
FIXED OBJECT
PARKED VEHICLE
REAR END
DOMESTIC ANIMAL
HEAD ON
SIDESWIPE OPPOSITE DIRECTION
JACKKNIFE
OBJECT NOT FIXED
SIDESWIPE SAME DIRECTION
PEDESTRIAN

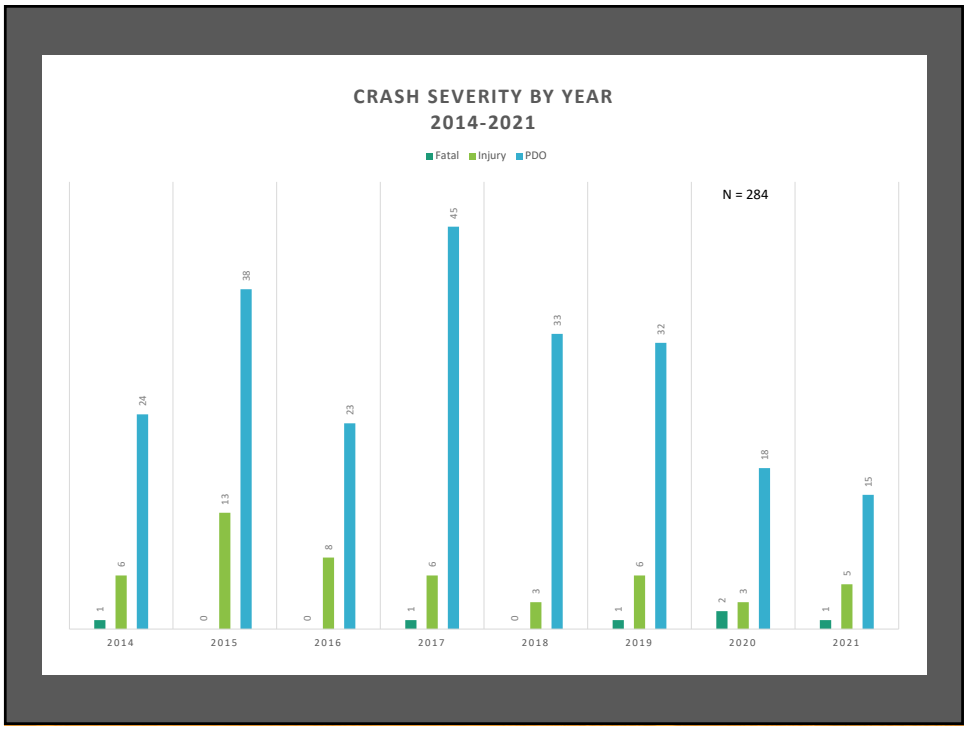
19


ANGLE CRASH LOCATIONS
2014-2021
N = 33
*66.7% of Angle Crashes resulted in Property Damage Only Crashes
5
2
1
8
17
DUPREE
EAGLE BUTTE
ISABEL
RURAL
TIMBER LAKE

20


CRAHS SEVERITY
2014-2021
N = 284
Dewey County
Ziebach County
5
1
30
20
127
101
FATAL
INJURY
PDO

21


CRASH SEVERITY BY YEAR
2014-2021
Fatal
Injury
PDO
N = 284
1
6
24
0
13
38
0
8
23
1
6
45
0
3
33
1
6
32
2
3
18
1
5
15
2014
2015
2016
2017
2018
2019
2020
2021

22

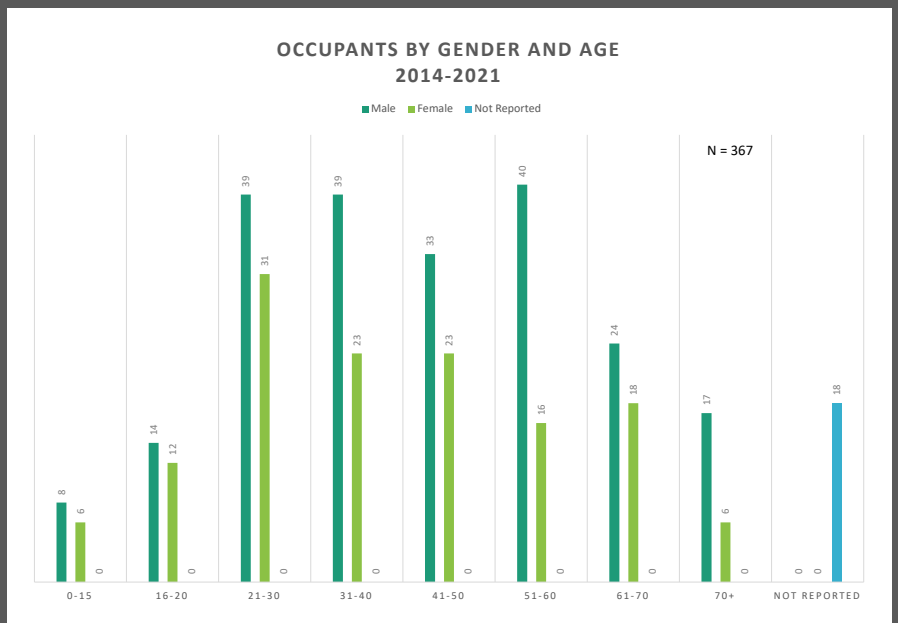
Type of Safety Equipment Used	Number of Occupants	Percentage
Helmet and eye protection	1	0.3%
Lap belt and shoulder harness used	144	39.2%
Lap belt only used	4	1.1%
None used	40	10.9%
Not applicable	15	4.1%
*Not Reported	137	37.3%
Shoulder harness only used	4	1.1%
Unknown	22	6.0%
Total	**367**	**100.0%**

*** - Not Reported, Injuries Listed as Wild Animal Crashes**

Crash Injury Severity	Number of Injuries	Percentage
Fatal injury	7	1.91%
Incapacitating	5	1.36%
Non-incapacitating	29	7.90%
Possible	29	7.90%
No injury	157	42.78%
Not applicable	3	0.82%
*Not Reported	137	37.33%
Total	**367**	**100.00%**

*** - Not Reported, Injuries Listed as Wild Animal Crashes**

23



24

2015 Strategies

- **Education**
- Develop a Reservation Wide Transportation Safety Education Program
- **Enforcement**
- Participate in Efforts to Pass a Primary Seat Belt Law
- Provide a Tribal Highway Safety Officer
- Implement Electronic Crash Record System and Data Sharing among Agencies
- Initiate Discussions on Possible use of Limited Cross Jurisdictional Agreements for Law Enforcement
- Develop a Motor Carrier Enforcement Program
- Update Tribal Traffic Code

25

2015 Strategies

- **EMS**
- Enhanced 911 System
- **Engineering**
- Perform Road Safety Audits on BIA, Tribal and County Roadways
- Replace and Upgrade Highway Signing
- Develop Sidewalks, Multi-Use Separated Paths and Trail Lighting
- Improve BIA 809 Slide Area
- Improve BIA 4 Erosion Failure
- Identify and Replace Failing Roadway Culverts
- **Safety Planning/Other**
- Improved Roadway Maintenance

26

New Countermeasures

- Strategies to carryover or add to 2022 Plan

27

Questions and Discussion

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(406) 461-2222
Craig.Genzlinger@kljeng.com

28