Rosebud Sioux Tribe
2021 Tribal Transportation Safety Plan

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KLJ

ENGINEERING, REIMAGINED

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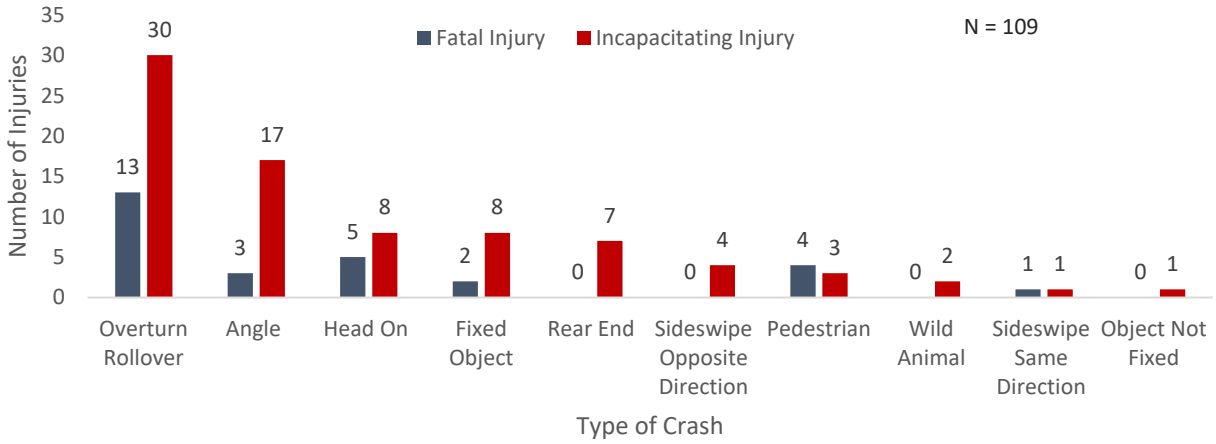
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EXECUTIVE SUMMARY

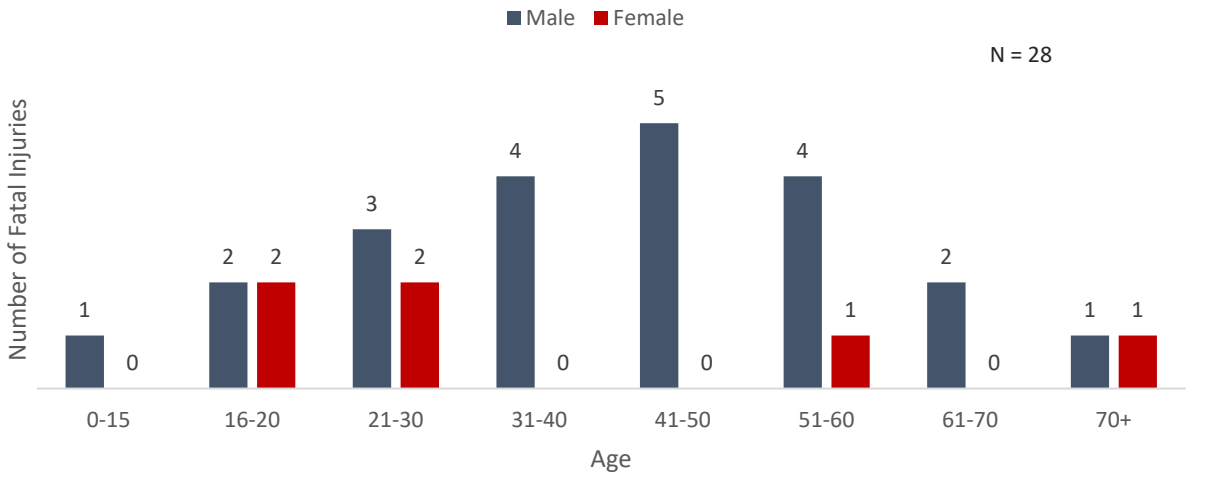
From 2013 to 2020, there were 1,606 reported crashes occurring in Gregory, Mellette, Todd, and Tripp Counties. These 1,606 reported crashes involved 2,037 occupants, resulting in 28 fatal injuries and 81 incapacitating injuries. The leading crash type resulting in fatal and incapacitating injuries occurred from overturn rollover crashes, accounting for approximately 39% of all fatal and incapacitating injuries. Below summarizes the top crash types resulting in fatal and incapacitating injures.

Figure 1: Fatal and Incapacitating Injuries (2013-2020)



The causes of these severe crashes are varied but can be tied to a number of significant factors, including a high rate of impairment, low seat belt use and a significant number or younger drivers. Of the reported 28 fatal injuries occurring within the study area, approximately 36% of the occupants are 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 Injuries by Age and Gender (2013-2020)



In 2021 the Rosebud 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 the Tribal Motor Vehicle Injury Prevention Program (TMVIPP)

Enforcement/EMS

- Develop Stronger Partnership Between Rosebud Tribal Law Enforcement, Tribal Council, and Tribal Transportation Program
- Initiate Discussion on Possible use of Cross Jurisdictional Agreements for Law Enforcement
- Develop a Comprehensive Tribal Traffic Code
- Establish a Motor Carrier Safety (MCS) Program
- Develop a Livestock Ordinance
- Incorporate the use of Speed Radar Trailers as a Deterrent

Engineering

- Designate School Crosswalks and School Bus Stop Locations
- Mileage Reference Markers and Delineation Along Routes
- High-Performance Pavement Marking Tape on BIA 1 within the Community of Rosebud
- Roadway Intersection Improvements
- Develop Multi-Use Paths and Pathway Lighting Projects

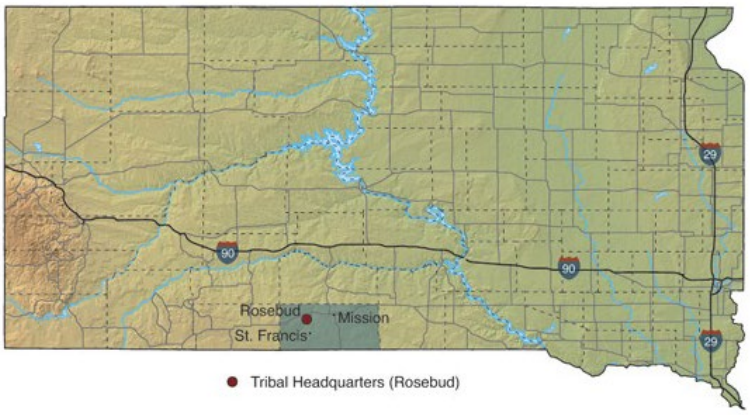
Safety Planning/Other

- No other strategies were prioritized for implementation

BACKGROUND

The Rosebud Indian Reservation encompasses nearly one million acres in south central South Dakota and is home to the Sicangu Oyate Nation. The Reservation was established in 1889 and includes all of Todd County, South Dakota. The Tribe also has communities and extensive lands and population in Lyman, Mellette, Gregory and Tripp Counties. Mellette County in particular has large Tribal Trust Lands and a significant portion of the nearly 32,505 enrolled members live there.

Figure 3: Rosebud Indian Reservation Location[1]



The Oyate capital is the town of Rosebud, established when the Spotted Tail Indian Agency was moved from northwestern Nebraska to the banks of Rosebud Creek near its confluence with the Little White River. The largest town on the Reservation is Mission, located at the intersections of US Highways 18 and 83. Mission's nearby neighbor of Antelope is one of the many tribal communities established in the late 1870's and has been growing ever since. Another major town on the Reservation is Saint Francis, located southwest of Rosebud and home of the Saint Francis Indian School. Saint Francis, with a current population of about 2,000, is the largest incorporated town in South Dakota without a state highway for access. While much of the traffic volume is from agriculture operations, there is a considerable amount of tourist and truck traffic that cross the Reservation each year, with the Black Hills to the west and two US highways traversing the Reservation. With approximately 3,500 miles of Indian Reservation roads, the safety of the tribal transportation system is an important factor for these visitors and residents.

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) aimed at addressing 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.

FHWA has emphasized the development of a Tribal Transportation Safety Management Plan (TSMP) 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 TSMP is a community based, multi-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:

[1] https://sdtribalrelations.sd.gov/images/rst.jpg

"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.

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 Rosebud Indian Reservation on all public roads was obtained through their website for the eight-year time interval covering January 1, 2013 through December 31, 2020[2]. The crash data that was collected where crashes were occurring in Gregory, Mellette, Todd, and Tripp County. Crash data from Lyman County was excluded from this analysis as majority of the crashes reported occurred on Interstate 90. 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). Historical crash data was not available from Tribal Law Enforcement. Crashes this agency respond to do not get reported to the SDDPS. 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 with redacted information. Thus, resulting in a long process to obtain the information.

One of the important factors in the development of a Tribal Safety Management 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 many request data to support the grant application. 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

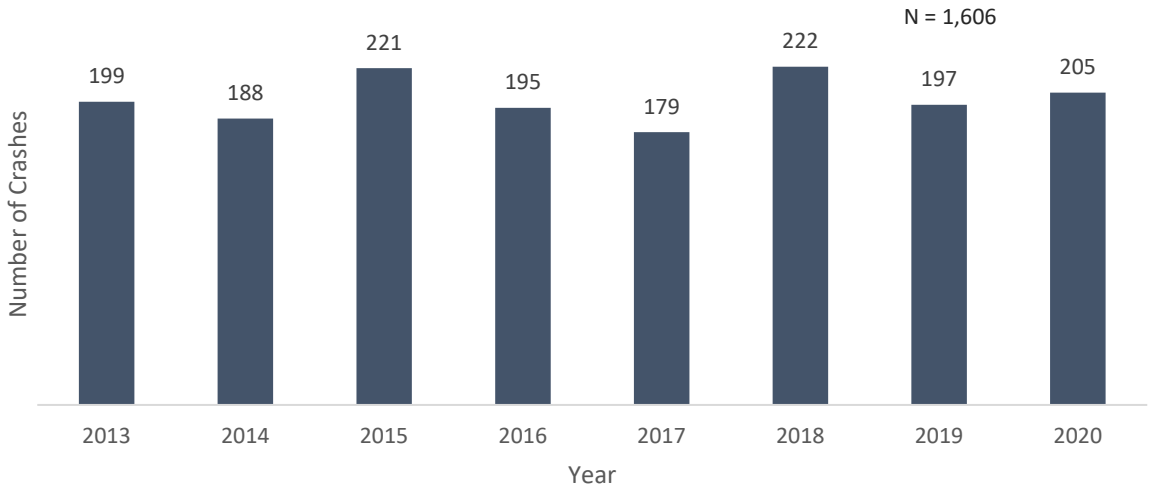
During the studied eight-year time interval between 2013-2020, there were a reported 1,606 crashes or approximately 201 crashes per year within the four-county area. Of the reported 1,606 crashes, 66 crashes occurred in Todd County, 142 crashes occurred in Mellette County, 273 crashes occurred in Gregory County and 1,125 crashes occurred in Tripp County. The number of reported crashes has remained relatively consistent per-year over the eight-year time interval.

With crash data only being limited to what was reported to the SDDPS Crash Database, the data only shows a small portion of crashes that occur throughout the Rosebud Indian Reservation. The 1,606 crashes that were reported

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

could be higher if crash information was available through Tribal Law Enforcement. As current crash data shows crashes are primarily occurring on State and U.S. routes. **Figure 4** shows the number of crashes reported per year in the four-county area.

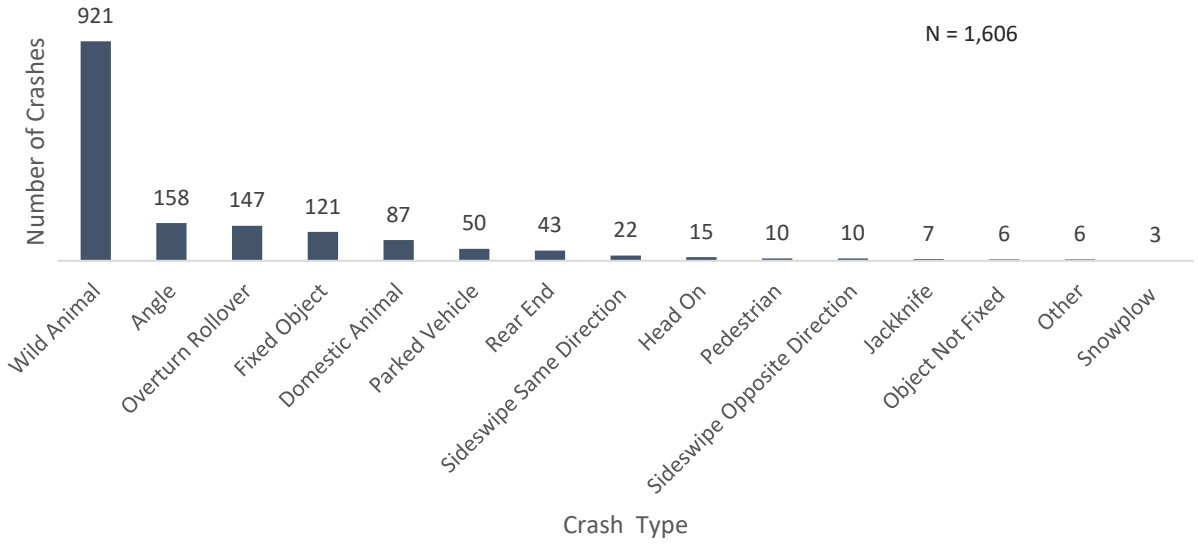
Figure 4: Number of Crashes Reported Per Year (2013-2020)



Crash Types

Wild Animal crashes were the most common reoccurring event throughout the eight-year time interval, accounting for 921 of the 1,606 crashes or 57.3% of all reported crashes. The other three top leading crash types observed are Angle crashes accounting for 158 crashes or 9.8% of all reported crashes, Overturn Rollover crashes accounting for 147 crashes or 9.2% of all reported crashes and Fixed Object crashes accounting for 121 crashes or 7.5% of all reported crashes. These top crash trends are consistent when comparing them to the leading crash types from the 2014 Tribal Transportation Safety Plan. Gregory and Winner, SD account for approximately 49% of angle crashes or 78 crashes. **Figure 5** shows the different crash types that occurred within the four-counties from 2013-2020.

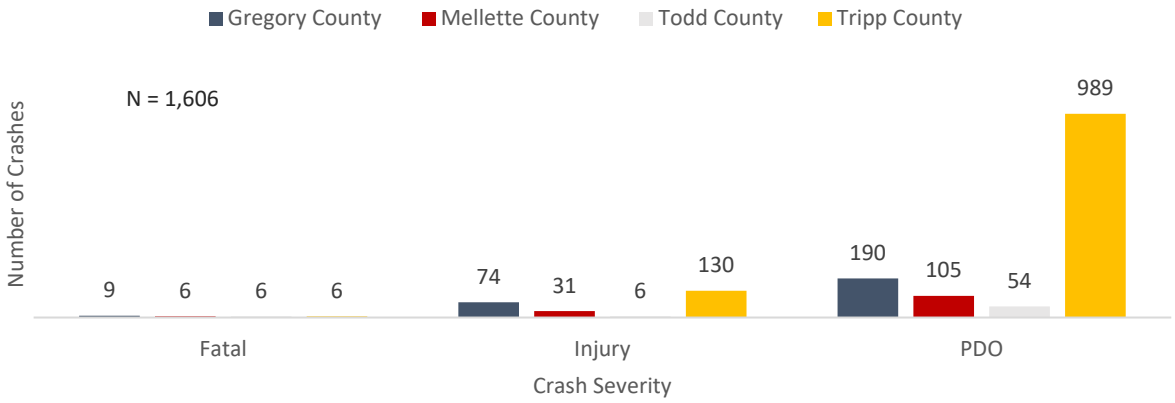
Figure 5: Crash Types (2013-2020)



Crash Injury Severity

During the studied eight-year time interval, there were 27 fatal accidents, 241 injury accidents and 1,338 property damage only accidents for a total of 1,606 accidents within the four-county area. **Figure 7** shows the crash severity for each county.

Figure 6: Crash Severity per County (2013-2020)



The 1,606 accidents reported involved 2,037 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 was capable of performing 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 2,037 occupants involved in crashes, 28 resulted in a Fatal Injury and 81 resulted in an Incapacitating Injury. **Table 1** summarizes the different crash injury severities for each occupant involved in a crash within the four-county area.

Crash Injury Severity	Number of Injuries	Percentage
Fatal injury	28	1.4%
Incapacitating Injury	81	4.0%
No injury	852	41.8%
Non-incapacitating Injury	117	5.7%
Not applicable	3	0.1%
Possible Injury	168	8.2%
*Not Reported	788	38.7%
Total	**2,037**	**100.0%**

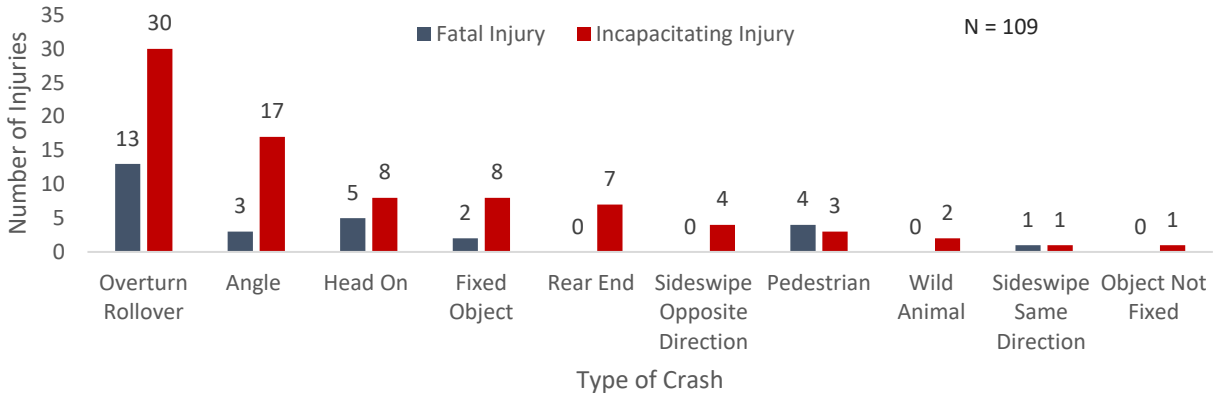
* - Not Reported, Injuries Listed as Wild Animal Crashes

Table 1: Crash Injury Severity Per Number of Occupants (2013-2020)

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

Fatal and Incapacity injury crashes stand out due to their impact on lives. Of the 28 fatal injuries, 13 were from the result of Overturn Rollover crashes, five were Head On crashes, four were Pedestrian crashes, three were Angle crashes, two Fixed Object crashes, and one Sideswipe Same Direction crash. Of the 81 incapacitating injuries, 30 were from the result of Overturn Rollover crashes, 17 from Angle crashes, eight each of Head On and Fixed Object Crashes, seven from Rear End crashes, four from Sideswipe Opposite Direction crashes, three from Pedestrian crashes, two from Wild Animal crashes and one each from Object Not Fixed and Sideswipe Same Direction crashes. **Figure 7** summarizes the different crash types for Fatal and Incapacitating Injuries.

Figure 7: Fatal and Incapacitating Injuries (2013-2020)



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 27% of occupants within the four-county area used a proper safety restraint. This percentage maybe higher as the type of safety restraint used information for Wild Animal crashes was not reported and account for approximately 45% 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 in the four-county area.

Type of Safety Equipment Used	Number of Occupants	Percentage
Child/Youth restraint system used properly	2	0.1%
Helmet and eye protection	7	0.3%
Helmet only	2	0.1%
Lap belt and shoulder harness used	544	26.7%
Lap belt only used	21	1.0%
None used	198	9.7%
Not applicable	69	3.4%
Shoulder harness only used	12	0.6%
Unknown	273	13.4%
*Not Reported	909	44.6%
Total	**2,037**	**100.0%**

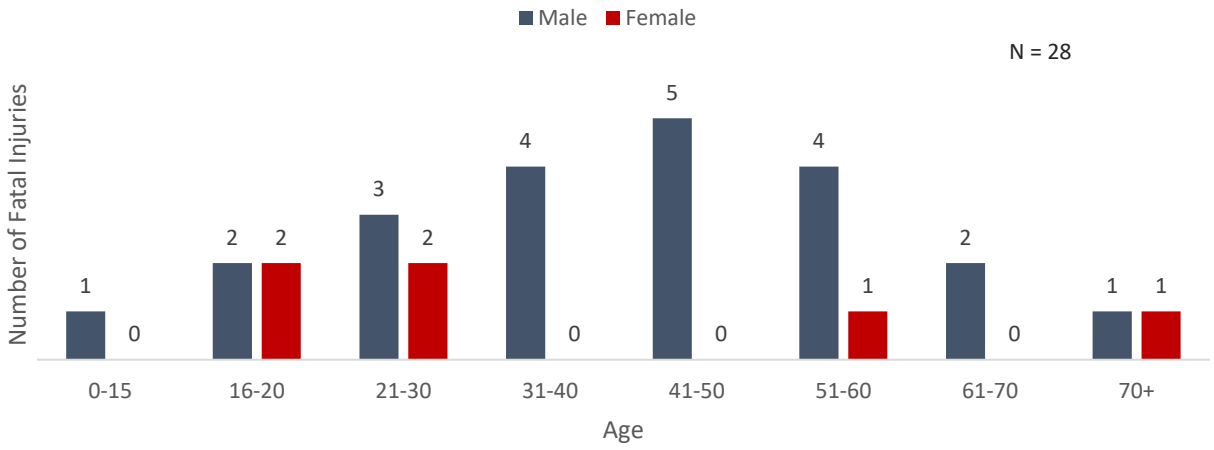
* - Not Reported, Injuries Listed as Wild Animal Crashes

Table 2: Safety Restraint Used for Crashes per Occupants (2013-2020)

Age and Gender of Occupants

Young drivers are consistently overrepresented in fatal crashes in all states and tribal communities in the region. This is also true for the Rosebud Indian Reservation, 35.7% of all fatalities within the four-county area were under the age of 30. What is significant is that the data for the area shows that approximately 18% are under the age of 20. This high rate of young inexperienced drivers, education, enforcement, and outreach programs may be needed. **Figure 8** summarizes fatal injures by age group and gender.

Figure 8: Fatal Injuries by Age and Gender (2013-2020)



2021 TRIBAL TRANSPORTATION SAFETY MANAGEMENT PLAN

This 2021 plan was developed using available data and the personal knowledge and expertise of the planning meeting participants. The group included Tribal safety representatives from engineering and planning. A list of participants is included in the appendices.

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 need to be implemented to address safety issues. The following sections document these discussions and the outcomes.

Issues Causing Crashes on Rosebud Sioux Indian 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 the data included:

- Wild and domestic animal crashes
- Crashes with fixed objects
- Overturn Rollover crashes
- Alcohol impaired driving
- Lack of seat belt use
- Lack of car seat use
- Departure from roadway
- 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. These include:

- Establish School Crosswalks and School Bus Stop Locations
- Need for intersection improvements (sight distance, lighting, advance warnings)
- Speeding
- Separated Pathways
- Improve Pavement Markings
- No mile reference markers and delineation along routes

EXISTING SAFETY PROGRAMS

The Tribe has implemented or is working on a number of safety projects and programs to address transportation safety issues on the Reservation. The list is not all inclusive, but documents programs that the group participating in the development of the safety plan were aware of.

- School District has installed strobe lights on school buses to increase visibility
- Advance Warning Signs have been installed at school bus stop locations
- The Rosebud Sioux Tribal Transportation Program has completed a Road Safety Audit (RSA) to identify safety deficiencies on BIA roadways within the reservation
- Indian Health Service (IHS) has completed a Severe Injury Surveillance Profiles
- Implemented a Primary Seat Belt Law on the reservation
- Rosebud Sioux Tribe Law Enforcement and IHS make community presentations on transportation safety
- Community Health Representatives provide car seat inspection stations

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 Rosebud Sioux Indian Reservation. The 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, including engineering, enforcement, education, and emergency management opportunities.

Education Strategies

Continue the Tribal Motor Vehicle Injury Prevention Program (TMVIPP)

One of the leading transportation safety successes on the Rosebud Reservation in recent years has been the establishment of the TMVIPP. This program has been successful increasing seat belt use through education, enforcement activities, and community outreach. With the lack of seat belt use being cited in over 90% of the fatalities and a low seat belt use rates compared to the statewide average, the continuation of this program is the cornerstone to reducing fatalities and serious injuries on the reservation. It is recommended that the data shown in this plan should be utilized and education, enforcement activities, and community outreach be continued throughout the reservation.

Figure 9: Buckle Up Poster



Strategy Champion: Rosebud TMVIPP Coordinator and Rosebud Sioux Tribe Transportation Program.

Funding Opportunity: TTP Safety Funding, National Highway Traffic Safety Administration (NHTSA) 402 funds through the BIA Indian Highway Safety Program (IHSP) or SDDOT.

Enforcement Strategies

Develop Stronger Partnership Between Rosebud Tribal Law Enforcement, Tribal Council, and Tribal Transportation Program

According to the available safety restraint data listed in this plan, enforcement activities have a significant impact on transportation safety. The Rosebud Sioux Tribe Law Enforcement Services were unable to attend the safety planning session that was held to develop this plan. An active, robust relationship between law enforcement, tribal leadership and tribal transportation is essential to a comprehensive safety program. Without enforcement action, transportation education activities have a much lower impact on driver behavior. During the planning meeting there was considerable discussion regarding the need for increased enforcement presence. Issues such as passing school buses, lack of car seat and seat belt use, speeding and impaired driving exist in the community, and a strong traffic enforcement presence could reduce crashes, injuries and fatalities.

Figure 10: Rosebud Tribal Law Enforcement Vehicle



Strategy Champion: Rosebud Tribal Council and Rosebud Sioux Tribe Law Enforcement Services.

Funding Opportunity: None needed.

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

With over 4,000 miles of road in the four-county area, adequate staffing to provide traffic enforcement is a challenge on the reservation. Other Tribes, such as 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 Rosebud Indian 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.

Strategy Champion: Rosebud Sioux Tribe Law Enforcement, SDDPS, and Rosebud Sioux Tribal Council.

Funding Opportunity: None Required.

Develop a Comprehensive Tribal Traffic Code

Title 6 of the Rosebud Sioux Tribe's Law and Order Code outlines a Traffic Code for enforcement on the Reservation. While it includes five chapters: driving under the influence, reckless driving, exhibition driving, driving while suspended and portions of the South Dakota motor vehicle and traffic law. 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 Rosebud Sioux Tribal Council.

Strategy Champion: Rosebud Sioux Tribal Transportation Program, Rosebud Sioux Tribe Attorney General, Rosebud Sioux Tribe Judiciary Committee and Rosebud Sioux Tribal Council.

Funding Opportunity: None Required.

Establish a Motor Carrier Safety (MCS) Program

With the presence of US 83 and US 18 both bisecting the Rosebud Reservation and the agricultural activity in the area, there is a substantial presence of large trucks. According to SDDOT data, there were over 32 million vehicle

miles travelled by heavy trucks in the four-county area in 2020[4]. Currently there are no weigh stations within the reservation and the Tribe is concerned with overweight and/or unsafe trucks operating on the roadways. Other tribes, such as Fort Berthold and Blackfeet have established motor carrier enforcement programs that have the ability to regulate trucking activities and use portable scales to check vehicle weights. With this presence of heavy trucks, the Rosebud Sioux Tribe should implement ordinances that could be used to regulate trucks, obtain funding for MCS Officer(s), and acquire portable scales that could be used on the reservation. To assist with training and calibration, when portable scales are purchased, consideration should be given to obtaining similar equipment to what the State of South Dakota uses.

Strategy Champion: Rosebud Sioux Tribal Transportation Program, Rosebud Sioux Tribe Law Enforcement Services, Rosebud Sioux Tribe Road Department and SDDOT.

Funding Opportunity: TTPSF, BIA IHSP.

Develop a Livestock Ordinance

With the rural nature of much of the land on the Rosebud Indian Reservation and the large amount of open range, crashes with domestic livestock are in the top five leading causes of crashes. Many of the animals, including horses that get loose, wander along the roadway corridors grazing or moving from field to field. Other tribes have had similar issues and have implemented tribal ordinances that allow the tribal government to remove the animals and hold them until the proper owner comes to retrieve them. Animals not claimed are then auctioned off by the tribe. It is recommended that the Tribe develop a comprehensive approach including such an ordinance, an aggressive removal program and a roadway fencing program that collectively could be utilized to address the issue.

Strategy Champion: Rosebud Sioux Tribal Transportation Program, Rosebud Sioux Tribe Law Enforcement and Rosebud Sioux Tribal Council.

Funding Opportunity: TTP or TTPSF for fencing

Incorporate the use of Speed Radar Trailers as a Deterrent

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 being a major cause of crashes on the Rosebud Indian Reservation and the concerns that have been expressed about speeds and safety around schools, the Tribe should purchase several sets of speed trailers. These could be used by law enforcement in the various tribal communities as part of a targeted education and enforcement campaign to help reduce speeds.

[4] https://dot.sd.gov/media/documents/traffic/VMTTrucks.pdf

Figure 11: Example of a Speed Radar Trailer[5]



Strategy Champion: Rosebud Sioux Tribal Transportation Program and Rosebud Sioux Tribe Law Enforcement

Funding Opportunity: TTP, TTPSF or BIA IHSP

Engineering Strategies

Designate School Crosswalks and School Bus Stop Locations

One area where there was an identified need was establishing designated school crosswalks and school bus stop locations. Designated school crosswalks will allow school age children to cross the street at safer locations that are visibly marked. This can be accomplished by adding flashing beacons, crosswalks, and other traffic control.

Designated school bus stop locations will allow for a safer place for children to wait for the school bus by properly signing these locations along the road. In addition, shelters could be provided in these areas to provide protection from adverse weather while waiting for the school bus. Communities that were identified in the greatest need for both school crosswalks and bus stop locations were the following:

- Rosebud
- Saint Francis
- Spring Creek
- Parmelee
- Mission
- White River

An engineering study should be completed to identify areas for potential school crossing within the communities along with potential bus stop locations.

Strategy Champion: Rosebud Sioux Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding, TTP Funding.

Mileage Reference Markers and Delineation Along Routes

Currently within the reservation all the routes that are paved, no mileage reference markers (MRM) and delineators are present. MRM's assist motorist in letting them know how far they have traveled on a particular route, let them know the distance to their destination and most importantly in the event of an accident or roadside emergency it will allow them to give a more precise location to first responders.

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

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 marking approaches.

It is recommended that MRM's and delineators installed on paved BIA routes within the reservation.

Strategy Champion: Rosebud Sioux Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding, TTP Funding.

High-Performance Pavement Marking Tape on BIA 1 within the Community of Rosebud

Rosebud is one of the larger populated communities within the reservation and BIA 1 serves as the main road. Pavement markings throughout this area are heavily worn and have low visibility. It is recommended that the pavement markings be replaced with high-performance pavement marking tape. A high-performance pavement marking tape can be used as a replacement to either waterborne or epoxy pavement markings. This option provides a more durable pavement marking and can be beneficial in areas with higher traffic volumes and high pedestrian traffic. An engineering study and design should be completed prior to applying the new high-performance pavement marking tape. This will allow to identify all pedestrian crossings and final lane configurations throughout the corridor.

Strategy Champion: Rosebud Sioux Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding, TTP Funding.

Roadway Intersection Improvements

Many intersections throughout the reservation were identified of having safety concerns. The safety concerns identified were lack of proper intersection sight distance, intersection skew, no advance warning for stop ahead, lack of proper roadway signage, traffic control and low visibility during adverse weather. The following are the intersection that were identified:

- BIA 1 and BIA 9
- BIA1 and BIA 7
- BIA 5 and BIA 501
- BIA 5 and Tutle Road
- South Dakota State Highway 83 and US Highway 18
- South Dakota State Highway 44 and South Dakota State Highway 63

It is recommended that an engineering study be completed for each of these intersections to identify any safety deficiencies and recommended improvements. Coordination will need to be done with SDDOT for the intersections located on the state highway system.

Strategy Champion: Rosebud Sioux Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding, TTP Funding, SDDOT.

Develop Multi-Use Pathways and Pathway Lighting Projects

There are locations within the Rosebud Indian Reservation where there is pedestrian/bike traffic, and the Tribe has identified specific need for pathways. The locations included Antelope, Corn Creek, Mission, Saint Francis, Two Strike and Winner. SDDPS crash data identifies pedestrian a major crash cause, being in the top 10 of crash types occurring and accounting for approximately 6% of all serious and fatal injuries between 2013-2020. 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, and several companies produce such systems.

Figure 13: Solar Pedestrian Lighting Example[6]



Corn Creek Community Pathway

Corn Creek is located approximately 0.2-miles north of the intersection of South Dakota State Highway 63 and South Dakota State Highway 44 in Mellette County. The community utilizes two main approaches along South Dakota State Highway 63. Pedestrians and bicycles use the roadway between the two approach roads rather than the longer route around on the residential street, demonstrating a need to connect them. The pathway would total approximately 0.3-miles in length and cost an estimated $388,000.00 for construction.

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

Figure 14: Corn Creek Community Pathway



Strategy Champion: Rosebud Sioux Tribal Transportation Program

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

Kilgore Road South to Saint Francis Pathway

Kilgore Road, also known as BIA 1, is the main road that connects into Saint Francis from the south near Saint Francis School. Many community members, primarily school age children utilize this route and walk along the road to get to and from the school. A need has been identified to provide for a safe and efficient alternative to remove pedestrians walking along the road. A pathway is needed to connect from 295th Street to Warrior Drive.

The pathway would be approximately 0.6-miles and could include pedestrian lighting depending on the available funding or broken into two different phases to accommodate both the pathway and pedestrian lighting. The approximate project construction cost for the pathway and lighting are shown below:

- Separated Pathway: $763,000.00
- Pedestrian Lighting: $180,000.00
- Construction Total: $943,000.00

Figure 15: Kilgore Road South to Saint Francis Pathway



Strategy Champion: Rosebud Sioux Tribal Transportation Program

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

Turtle Creek Pathway

The construction of the new grocery store west of Mission has increased pedestrian traffic along US 18 and created a need for a separated multi-use pathway. This pathway would connect existing pedestrian facilities and users from

the town of Mission and the high-density tribal housing north of the highway with the new grocery store west of town.

Figure 16: Turtle Creek Pathway



The pathway could be constructed in multiple phases depending on the available funding and could include pedestrian lighting. Phase I would connect pedestrians along US Highway 18 between the supermarket and the town of Mission. Phase II would connect pedestrians along 273rd Ave from the apartment buildings with predominant tribal members to US Highway 18. The approximate length of Phase I is 0.9-miles and Phase II is 0.3-miles. The approximate project construction cost for the pathway and lighting are shown below:

Phase I

- Separated Pathway: $1,163,000.00
- Pedestrian Lighting: $274,000.00
- Total Construction Cost: $1,437,000.00

Phase II

- Separated Pathway: $388,000.00
- Pedestrian Lighting: $91,000.00
- Total Construction Cost: $479,000.00

Strategy Champion: Rosebud Sioux Tribal Transportation Program

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

Two Strike Community Pathway

Five miles south of Rosebud on BIA Route 1 is the tribal housing community of Two Strike. The housing complex is U-shaped with two approaches off the highway. Pedestrians and bicycles use the roadway between the two approach roads rather than the longer route around on the residential street, demonstrating a need to connect

them. St. Francis is located approximately 3.5-miles south of the Two Strike Community. Additional needs have been identified to provide for a safe and efficient alternative to remove pedestrians walking along the BIA 1 as many pedestrians commute back and forth between Two Strike and St. Francis for goods and services. The pathway would 10-feet wide and begin in St. Francis at the intersection of Cherry Road and BIA 1. It would the follow BIA 1 north, parallel to the roadway terminating at the furthers north approach of the Two Strike Community. The pathway would be approximately 3.4-miles in length and the cost is broken down below:

- Construction Total: $4,824,920.00
- Construction Engineering: $461,715.00
- Design Engineering: $570,000.00
- Project Total: $5,856,635.00

Figure 17: Two Strike Community Pathway



Strategy Champion: Rosebud Sioux Tribal Transportation Program

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

Winner Community Tribal Housing Pathway

Southeast of Winner, South Dakota on east 279th Street is a tribal housing complex. This complex includes a community building west of the houses on 279th Street and a Head Start Program. Currently there are no existing bike or pedestrian facilities in the area, residents, including children having to walk on the roadway or in the adjacent ditches to travel to the community center or Head Start Program. A pathway is needed to connect the housing development to both the community center and the head start program. Different options have been discussed with the community and it is recommended that community input for the proposed location for a pathway be considered. These three different options are shown in the **Figure 18**.

Figure 18: Winner Community Tribal Housing Pathway



Pedestrian lighting could be included in each option depending on the available funding and/or if desired all three options could be constructed in different phases. The approximate project construction cost for each pathway option and lighting are shown below:

Option 1 (0.62-miles)
- Separated Pathway: $801,000.00
- Pedestrian Lighting: $189,000.00
- Total Construction Cost: $990,000.00

Option 2 (0.69-miles)
- Separated Pathway: $892,000.00
- Pedestrian Lighting: $210,000.00
- Total Construction Cost: $1,102,000.00

Option 3 (0.81-miles)
- Separated Pathway: $1,100,000.00
- Pedestrian Lighting: $246,000.00
- Total Construction Cost: $1,346,000.00

All Combined Options (0.98-miles)
- Separated Pathway: $1,267,000.00
- Pedestrian Lighting: $298,000.00
- Total Construction Cost: $1,565,000.00

Strategy Champion: Rosebud Sioux Tribal Transportation Program

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

Antelope and White Horse Communities Pedestrian Connectivity

One area for consideration for pathways and additional sidewalk was between the South Antelope Community and White Horse Community. This area has high pedestrian traffic and is in close proximity of the Sinte Gleska University. A pathway is needed along US Highway 18, connecting from Antelope going east towards White Horse, as well as a pathway connecting from the highway going south towards the university to connect into the community.

Figure 19 shows the proposed recommended improvements for pedestrian connectivity. It is anticipated this project will need to be completed in multiple phases. Pedestrian lighting could be included in each phase for the proposed pathways depending on the available funding. Coordination with SDDOT will be needed if a project were to come fruition for the Pathway along US Highway 18. The approximate project construction cost for each phase and lighting are shown below:

Phase I (0.82-miles)

- Separated Pathway: $1,060,000.00
- Pedestrian Lighting: $248,000.00
- Total Construction Cost: $1,308,000.00

Phase II (1.08-miles)

- Separated Pathway: $1,400,000.00
- Pedestrian Lighting: $329,000.00
- Total Construction Cost: $1,729,000.00

Phase III (5,370 linear feet)

- Proposed Sidewalks: $550,000.00
- Total Construction Cost: $550,000.00

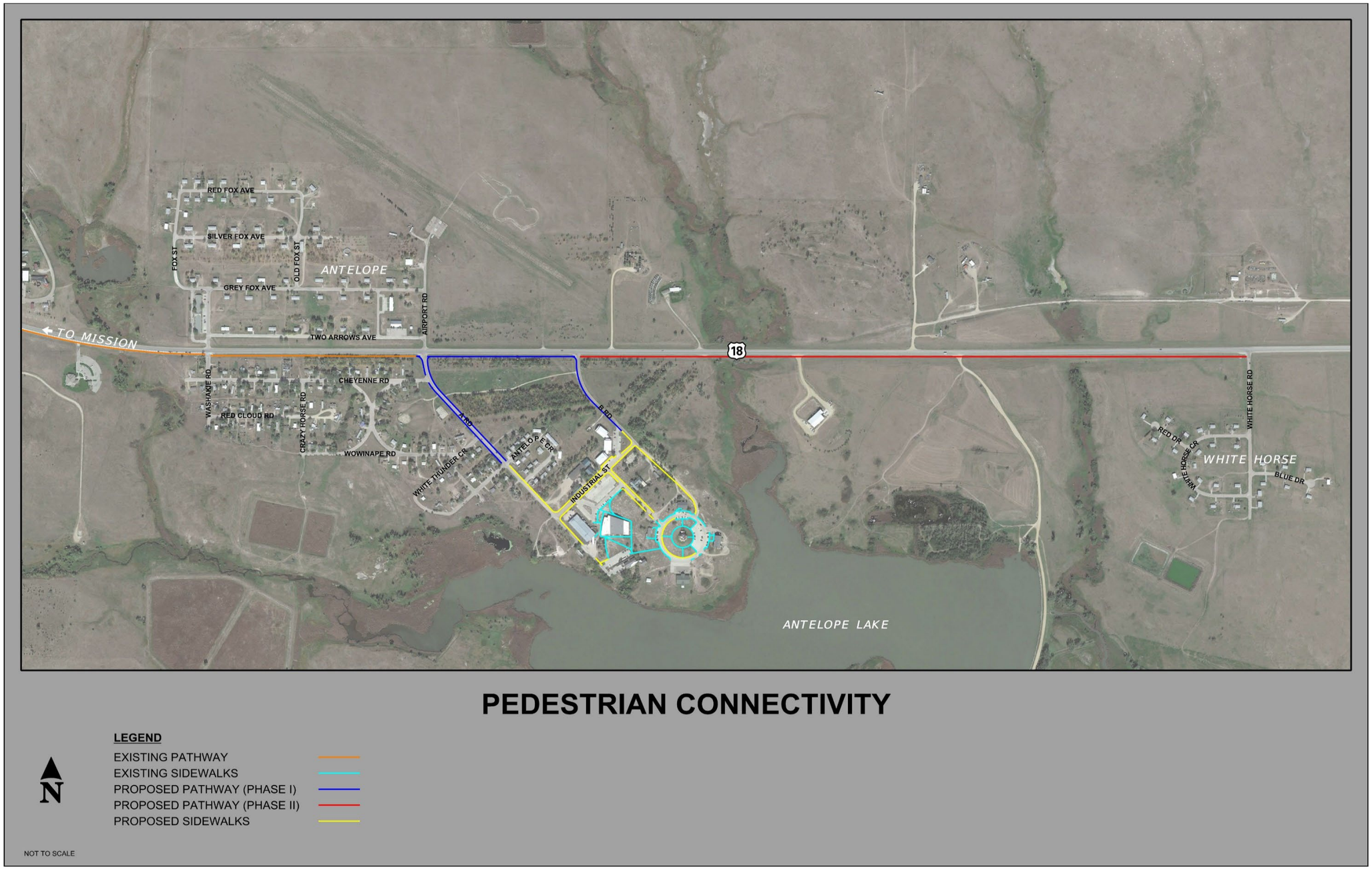
Strategy Champion: Rosebud Sioux Tribal Transportation Program

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

Safety Planning and Other Strategies

No other strategies were prioritized for implementation.

Figure 19: Antelope and White Horse Communities Pedestrian Connectivity



APPENDIX A: MEETING AGENDA

Rosebud Sioux Tribal Safety Plan 2021 Update

Agenda

September 15, 2021

VIA WebEx Video Call

10:00 a.m.	Welcome and Introductions
10:15 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
11:00 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.
12:00	Break for Lunch
1:00 p.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
2:15 p.m.	Questions/Discussion of Process or other Items

APPENDIX B: MEETING PARTICIPANTS

Rosebud Sioux Tribal Transportation Safety Plan		
Attendance List		
Name:	Organization:	Email:
LaJuanda Stands And Looks Back	MAP-21	lajuanda.salb@rst-nsn.gov
Lynda Douville	MAP-21	lynda.douville@rst-nsn.gov
Todd Brockmann	Federal Highway Tribal Liaison	todd.brockmann@dot.gov
George Guerue Sr.	RST Roads	rstroads@hotmail.com
Craig Genzlinger	KLJ	craig.genzlinger@kljeng.com
Tonya Huber	KLJ	tonya.huber@kljeng.com
Chad Fischer	KLJ	chad.fischer@kljeng.com

APPENDIX C: 2021 TRIBAL TRANSPORTATION SAFETY PLAN PRESENTATION

TRIBAL TRANSPORTATION SAFETY PLAN
September 2021

Rosebud Sioux Tribe

ENGINEERING, REIMAGINED

1

Goals 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…

2

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

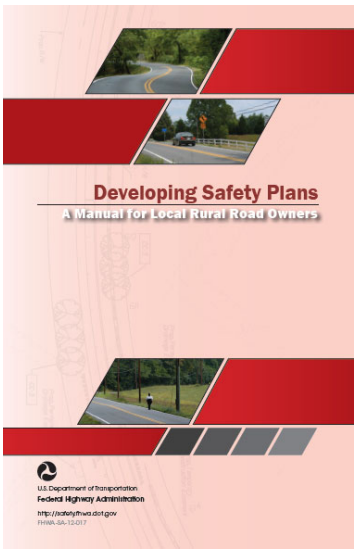
3

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

4

Safety Planning Process





5

Previous Crash Data (2005 – 2012)

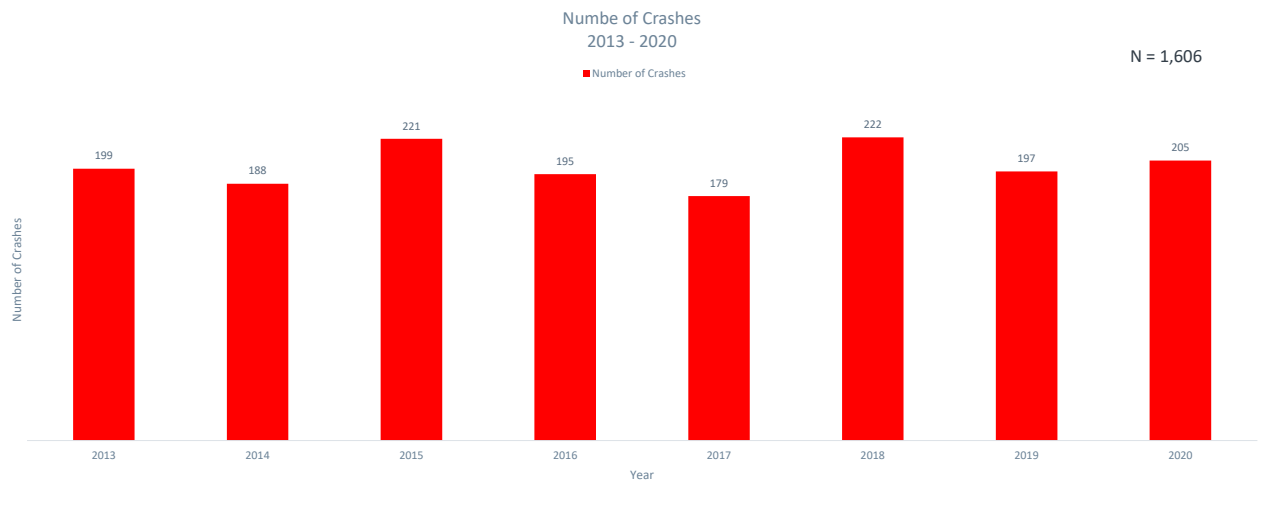
- 2014 Tribal Transportation Safety Plan
  - 1,537 Reported Crashes (2005 – 2012)
  - Top Three Crash Types
    - Wild Animal (Approximately 58%)
    - Overturn Rollover (Approximately 11%)
    - Fixed Object (Approximately 8%)
  - Fatal Crashes (63 crashes)
    - Gregory County (8 crashes or 12.7%)
    - Mellette County (16 crashes or 25.4%)
    - Todd County (31 crashes or 49.2%)
    - Tripp County (8 crashes or 12.7%)

6

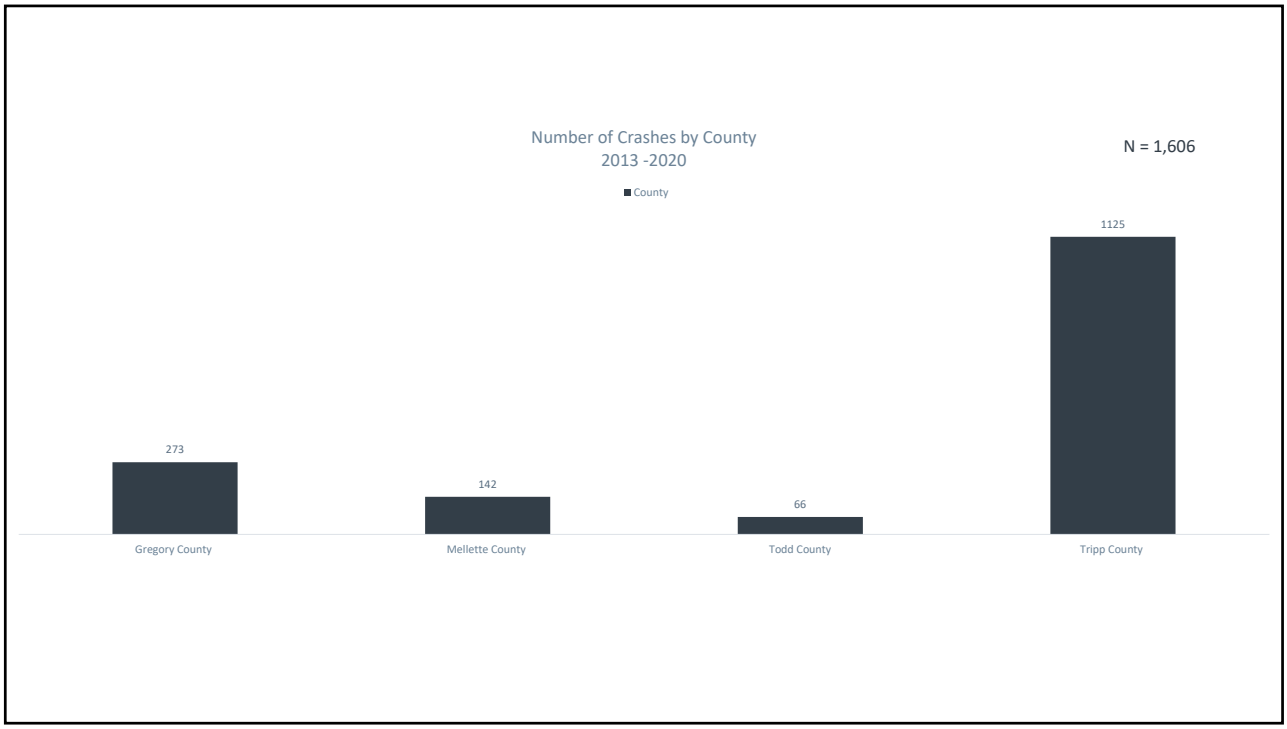
Crash Data (2013 – 2020)

- Data Based Plan
  - SD DPS Data (2013 – 2020)
    - Gregory County
    - Mellette County
    - Todd County
    - Tripp County
  - Tribal Enforcement
  - Personal Knowledge

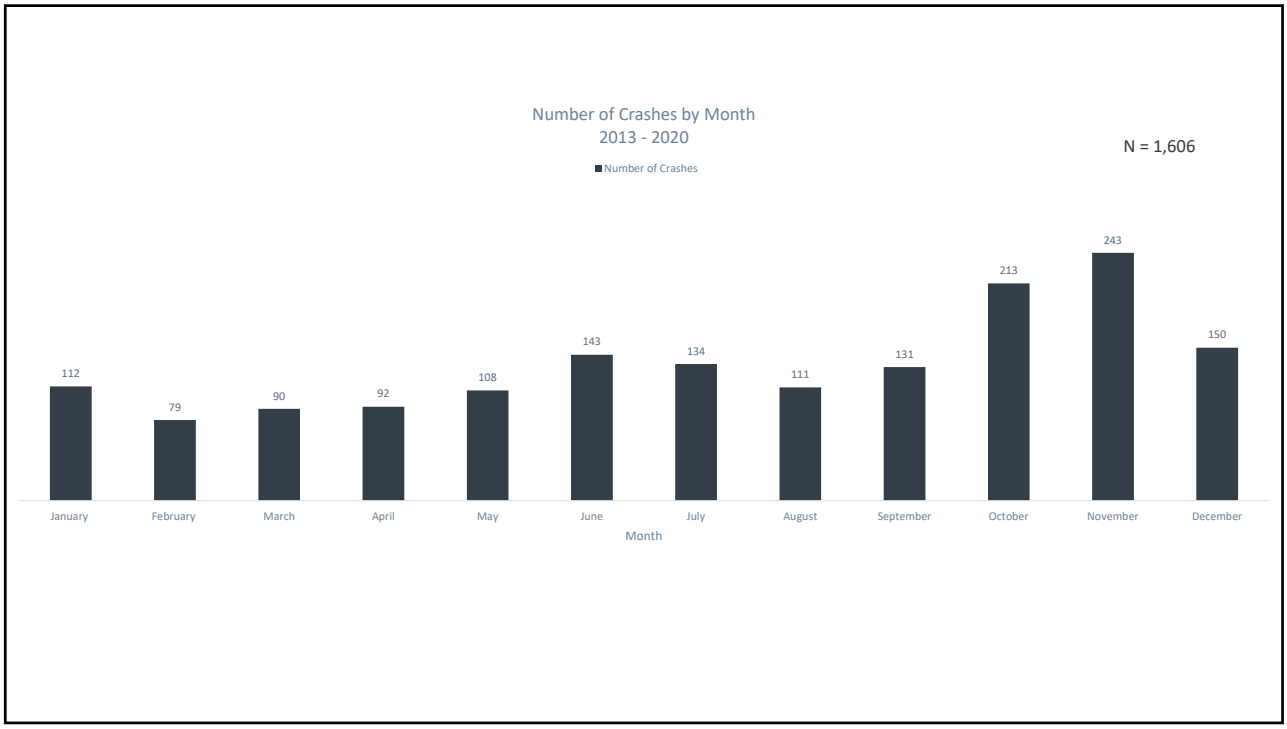
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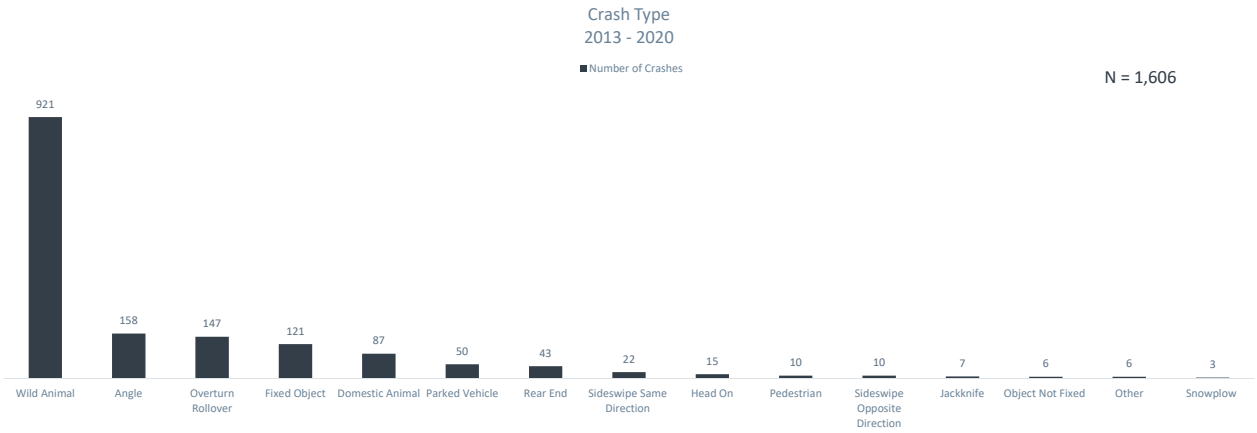
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Number of Crashes by County
2013 -2020
N = 1,606
County
1125
273
142
66
Gregory County
Mellette County
Todd County
Tripp County

9


Number of Crashes by Month
2013 - 2020
N = 1,606
Number of Crashes
243
213
150
143
134
131
112
111
108
92
90
79
January
February
March
April
May
June
July
August
September
October
November
December
Month

10



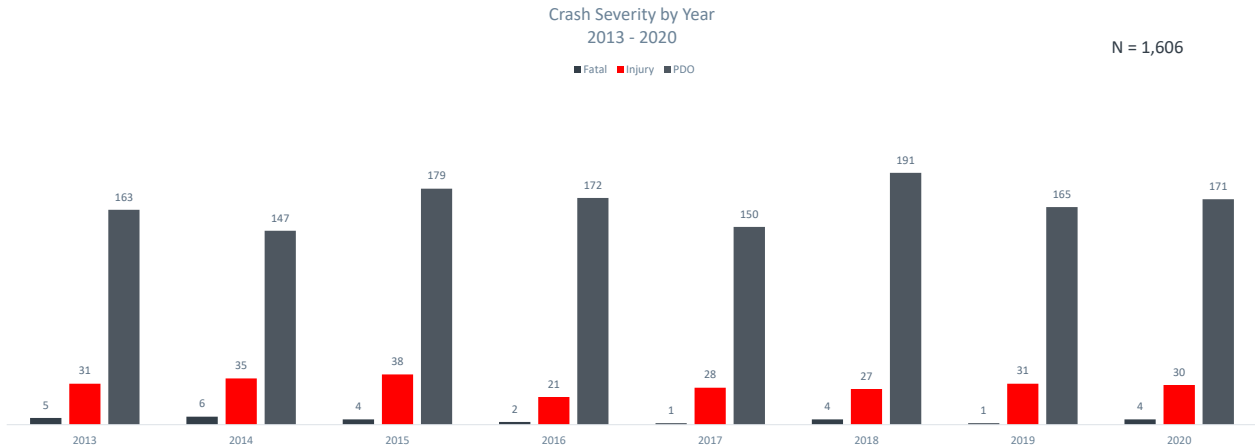
- Gregory and Winner, SD account for approximate 49% of angle crashes or 78 crashes
- Populations are greater then 1,000

11



PDO = Property Damage Only

12



PDO = Property Damage Only

13

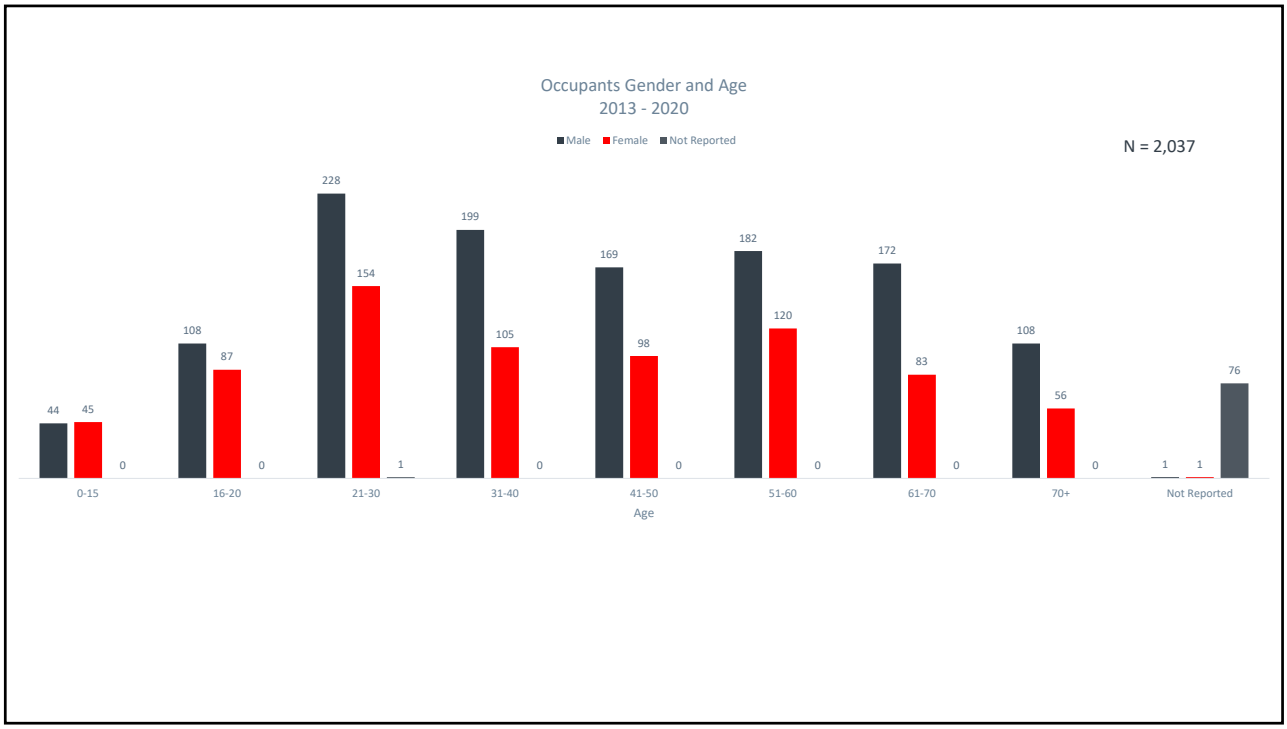
Crash Injury Severity	Number of Injuries	Percentage
Fatal injury	28	1.4%
Incapacitating	81	4.0%
No injury	852	41.8%
Non-incapacitating	117	5.7%
Not applicable	3	0.1%
Possible	168	8.2%
*Not Reported	788	38.7%
Total	**2037**	**100.0%**

* - Not Reported, Injuries Listed as Wild Animal Crashes

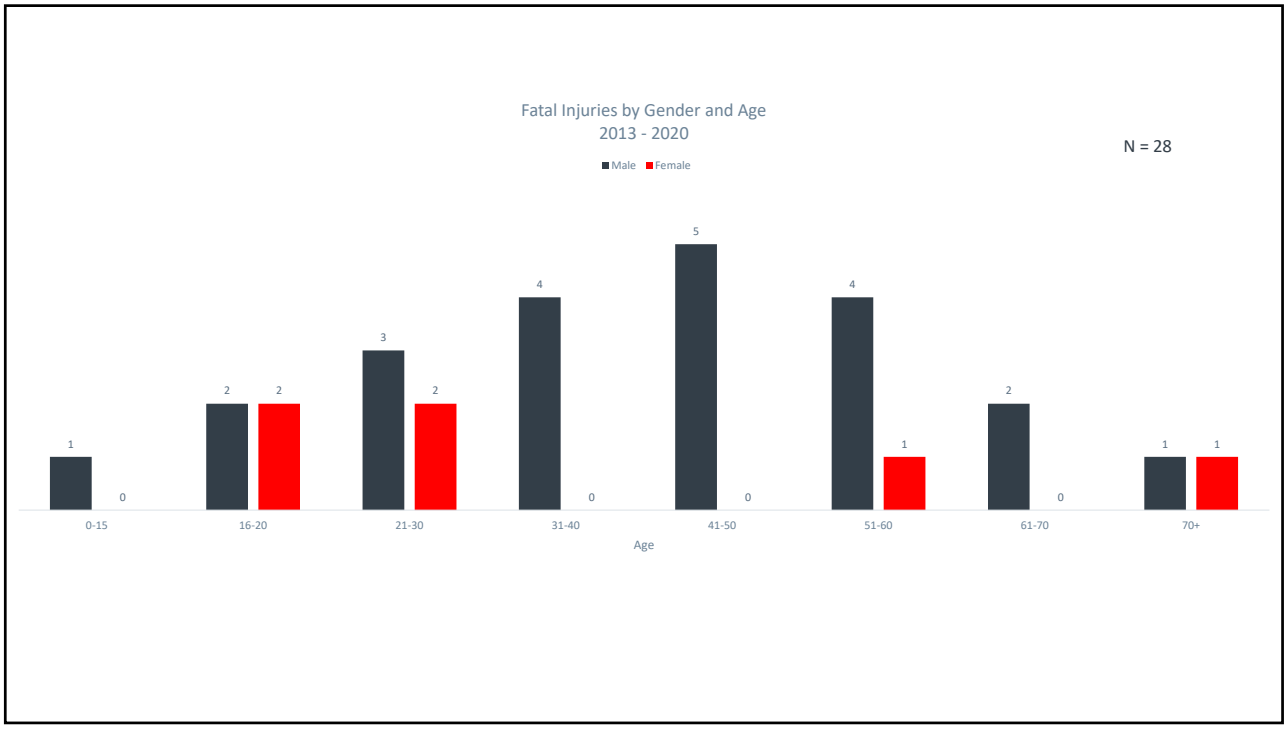
Type of Safety Equipment Used	Number of Occupants	Percentage
Child/Youth restraint system used properly	2	0.1%
Helmet and eye protection	7	0.3%
Helmet only	2	0.1%
Lap belt and shoulder harness used	544	26.7%
Lap belt only used	21	1.0%
None used	198	9.7%
Not applicable	69	3.4%
Shoulder harness only used	12	0.6%
Unknown	273	13.4%
*Not Reported	909	44.6%
Total	**2037**	**100.0%**

* - Not Reported, Injuries Listed as Wild Animal Crashes

14


Occupants Gender and Age
2013 - 2020
Male
Female
Not Reported
N = 2,037
44
45
0
108
87
0
228
154
1
199
105
0
169
98
0
182
120
0
172
83
0
108
56
0
1
1
76
0-15
16-20
21-30
31-40
41-50
51-60
61-70
70+
Not Reported
Age

15


Fatal Injuries by Gender and Age
2013 - 2020
Male
Female
N = 28
1
0
2
2
3
2
4
0
5
0
4
1
2
0
1
1
0-15
16-20
21-30
31-40
41-50
51-60
61-70
70+
Age

16

Pedestrian Crash Locations

Route	Severity Type	Approximate Location
BIA 1	Fatal	1.4-miles South of BIA 1 & BIA 5
BIA 1	Fatal	0.5-miles North of BIA 1 & BIA 9
US Highway 18	Fatal	5.5-miles West SD State Highway 53 & US Highway 18
US Highway 83	Fatal	0.6-miles North of White River
US Highway 18	Injury	2.6-miles West of Bonesteel
US Highway 18	Injury	Within Winner
US Highway 18	Injury	Within Winner
US Highway 18	Injury	Within Winner
US Highway 83	Injury	Within White River
US Highway 18	Injury	1.5-miles West of Winner

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Existing Safety Programs

- Existing Safety Programs from 2014 Safety Plan
  - Rosebud Sioux Tribe Law Enforcement Services uses CISCO electronic crash record system and continues to enter data from crashes that they investigate
  - School District has installed strobe lights on school buses to increase visibility
  - Advance Warning Signs have been installed at school bus stop locations
  - The Map-21 Program conducts Road Safety Audits (RSA's) to identify safety deficiencies on BIA roadways within the reservation
  - Tribe has received a Center for Disease Control grant to establish a Tribal Motor Vehicle Injury Prevention Program
  - Tribe has an Injury Prevention Coalition that is tasked with identifying the causes of severe injuries and deaths on the reservation and reducing them

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Existing Safety Programs Continued

- Indian Health Service has completed a Severe Injury Surveillance Profile
- Implemented a Primary Seat Belt Law on the reservation
- Rosebud Sioux Tribe Law Enforcement Services and IHS make community presentations on transportation safety
- 2014 the Tribe was awarded funding for Traffic Safety Officers to exclusively provide traffic law enforcement
- Tribal Motor Vehicle Injury Prevention Program provides car seat inspection stations

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2014 Implementation Strategies

- Education Strategies
  - Continue the Tribal Motor Vehicle Injury Prevention Program (TMVIPP)
- Enforcement/EMS Strategies
  - Develop Stronger Partnership between Rosebud Tribal Law Enforcement, Tribal Council and Tribal Transportation Safety Programs
  - Share Electronic Crash Records Data among Agencies
  - Initiate Discussions on Possible use of Cross Jurisdictional Agreements for Law Enforcements
  - Incorporate Indian Law Training at the South Dakota Law Enforcement Academy
  - Develop a Comprehensive Tribal Traffic Code
  - Establish a Motor Carrier Safety (MCS) Program

20

2014 Implementation Strategies Continued

- Engineering Strategies
  - Continue Utilizing Road Safety Audits on BIA and Other Routes
  - Develop Multi-Use Separated Paths
    - Sicangu Village Pathway
    - Turtle Creek Pathway
    - Winner Community Tribal Housing Pathway
    - White Horse to Antelope Pathway
    - Horse Creek Pathway
    - Two Strike Community Pathway
  - Complete a Comprehensive Engineering Study for Access to the New School
  - BIA Route 7 and Todd County's Lakeview Road and 293rd Street Rosebud to US 83 Roadway Improvements (16 miles)

21

2020 Road Safety Audit

- Field inventory was completed in September 2019 with the report finalized in May 2020
  - Routes Inventoried Included:
    - BIA 1
    - BIA 4
    - BIA 5
    - BIA 7
    - BIA 9
    - BIA 12
    - BIA 30
    - BIA 37
    - BIA 501
- Enforcement/EMS Strategies

22

Safety Issues

- Problem Locations?
- Problem Driver Behavior?
- Resource Issues?

23

Safety Countermeasures

- Strategies to Improve Safety

24

2019 Road Safety Audit

Questions?

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