Crow Tribal Transportation Program
2022 Tribal Transportation Safety Plan

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Prepared by:

KLJ

ENGINEERING, REIMAGINED

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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:

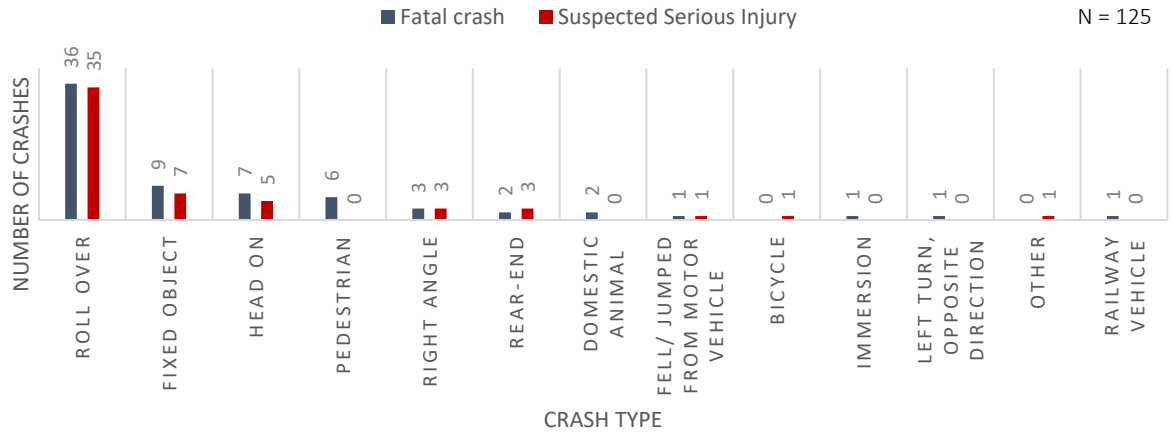
> *"Tribal Transportation Safety Plans are a tool used to identify and address transportation risk factors that have a potential of leading to serious injury or death. Safety Plans also organize the efforts of a variety of entities to more effectively reduce risk and can cover multiple transportation 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 2011-2020, there were a reported 737 crashes or approximately 74 crashes per year within the Crow Reservation. Of the reported 737 crashes, 706 crashes were reported in Big Horn County and the remaining 31 crashes were reported in Yellowstone County.

There were a reported 69 fatal crashes, 56 suspected serious injury crashes, 151 suspected minor injury crashes, 37 possible injury crashes, 411 property damage only crashes and 13 crashes were reported as unknown injuries. The reported 69 fatal crashes resulted in 83 fatalities or approximately 8 fatalities per year over the ten-year time interval within the Crow Reservation. The leading crash type resulting in fatal and serious injuries occurred from Roll Over crashes, accounting for approximately 57% of all fatal and serious injury crashes. Below summarizes the top crash types resulting in fatal and serious injury crashes.

Figure 1: Fatal and Serious Injury Crash Types on the Crow Reservation (2011-2020)



In 2021 the Crow 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

- Develop a Reservation-Wide Transportation Education Program
- Establish a Youth Drivers Education Program

Enforcement/EMS

- Obtain and Upgrade Communications Equipment
- Develop Road Closure Procedures with MDT and Montana Highway Patrol
- Improve Cellular Coverage on Reservation for 911 Response and Provide Reservation-Wide Street Signing and House Numbering
- Develop an MOA for Fire Response
- Provide Tribal Traffic Safety Officers
- Incorporate the use of Speed Radar Trailers as a Deterrent

Engineering

- Develop a Reservation-Wide Signing and Pavement Marking Project
- Establish a Highway Fencing Program
- Perform Road Safety Audit on BIA, Tribal and County Roadways and All Railroad Crossings
- Develop Multi-Use Pathways and Pathway Lighting Projects
- Incorporate Speed Feedback Signs within School Zones
- Improve Roadway and Pedestrian Lighting Throughout the Reservation

Safety Planning/Other

- No other strategies were prioritized for implementation

BACKGROUND

The Crow Indian Reservation was established in 1868 and is the homeland of the Crow Tribe. The Reservation encompasses approximately 2.3 million acres (3,566 square miles) in southcentral Montana and sits on Yellowstone and Big Horn Counties, bordered by Wyoming on the south and the northwestern boundary approximately 10 miles from Billings, MT. The Crow Tribe has more than 13,000 enrolled Tribal members and about 75% (9,750) reside on the reservation, where 85% speak Crow as their first language.

Currently, the main uses of land in the area are for agriculture and ranching. Coal and coal-bed methane deposits can be found on the Reservation but have not been developed.

Figure 2: Crow Reservation Location[1]



With more than 2,100 BIA and Tribal Road miles – the heavily traveled I-90 and US Highway 212 corridors that cross the Reservation – the safety of the Tribal transportation system is an important factor for visitors and residents. The average of MDT's Annual Average Daily Traffic (AADT) on I-90 is more than 7,000 and nearly 2,000 for US Highway 212 each year. With the Little Bighorn Battlefield National Monument located at the junction of US Highway 212 and I-90 and the widely attended Crow Fair, summer traffic volumes in the area are considerable.

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.

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.

[1] https://www.ctlb.org/

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.

HISTORICAL CRASH DATA

Historical crash data contained in the MDT Crash Database, occurring on the Crow Reservation was provided by MDT Traffic and Safety Bureau for a ten-year time interval covering January 1, 2011 through December 31, 2020. Crash data is submitted to the MDT Crash Database by the Montana Highway Patrol (MHP). Historical crash data is not available from the Bureau of Indian Affairs (BIA) Law Enforcement. The crashes, which they respond to and the crash information collected are not reported to the MHP.

The accuracy of reported crash data to the MDT Crash Database is only limited to one source, the Montana Highway Patrol. The Montana Highway Patrol response may be limited to Montana State roadways within the reservation, such as State Route 313 from Hardin to Fort Smith, Interstate I-90 and State Routes 416 and 418, from Pryor to Billings. If the MHP responds to crashes on BIA and tribally owned roads, then it is discretionary.

Obtaining information from BIA 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.

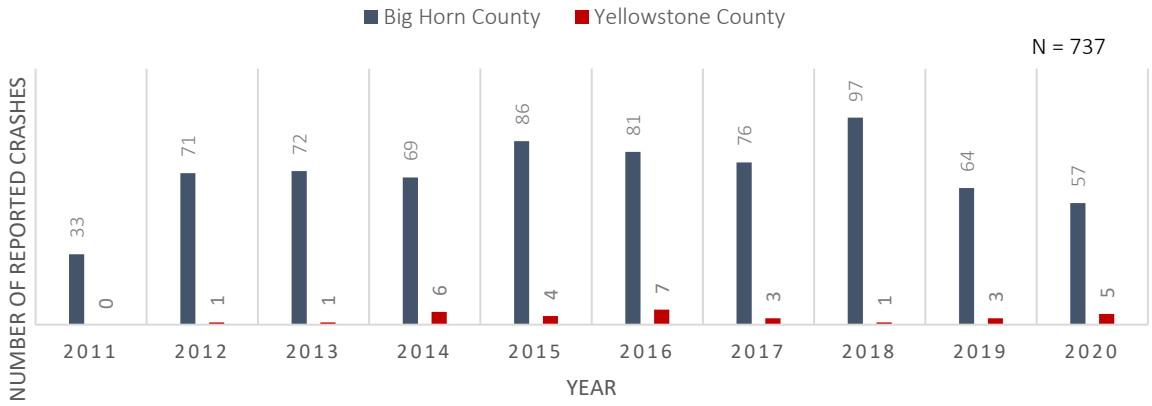
One of the important factors in the development of a Tribal Transportation Safety Plan is the available crash data analyzed and utilized in the identification of issues and development of strategies. Adequate crash information plays a crucial role for the Tribe as this information can be used to assist in applying and securing federal and state funding and TTPSF funds for safety improvements on roadways throughout the Reservation, as 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.

With crash data only being limited to what was reported to the MDT Crash Database, the data only shows a small portion of actual crashes that may have occurred throughout the reservation.

Location of Crash

During the ten-year time interval between 2011-2020, there were a reported 737 crashes or approximately 74 crashes per year within the Crow Reservation. Of the reported 737 crashes, 706 crashes were reported in Big Horn County and the remaining 31 crashes were reported in Yellowstone County. The number of reported crashes has remained relatively consistent per-year of the ten-year time interval with exception to 2011. **Figure 3** shows the number of reported crashes per year on the Crow Reservation within the two-county area.

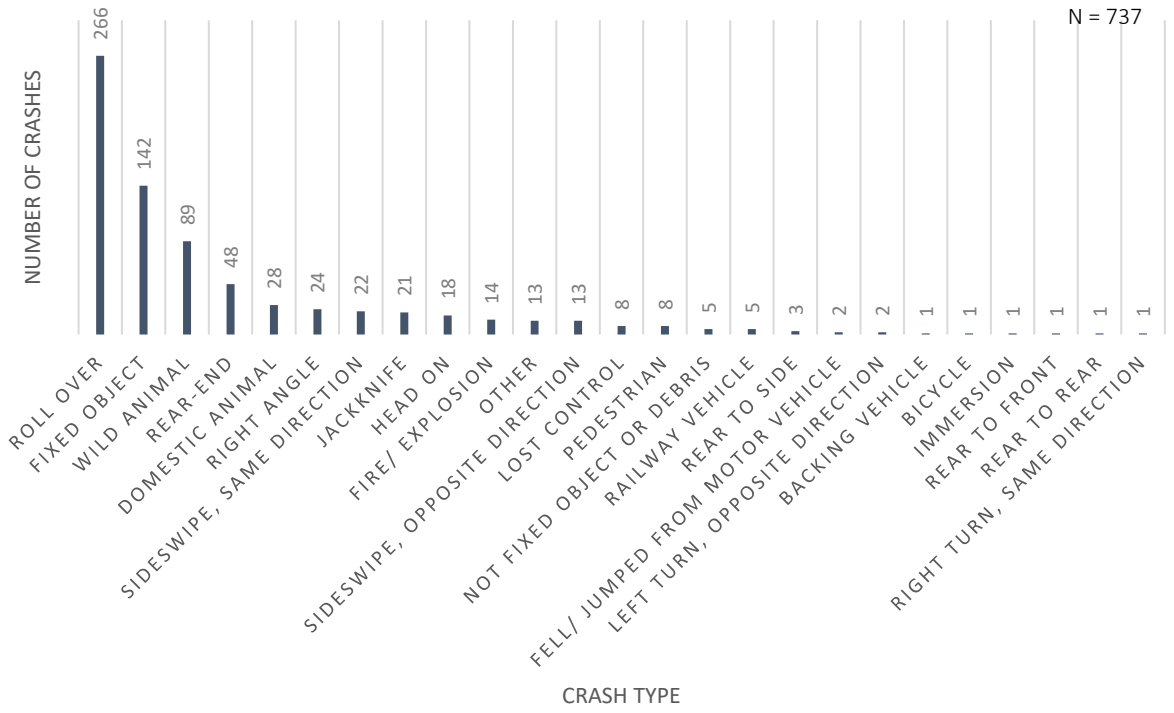
Figure 3: Number of Reported Crashes per Year on the Crow Reservation (2011-2020)



Crash Types

Roll Over crashes were the most common reoccurring event throughout the ten-year time interval, accounting for 266 of the 737 crashes or 36.1% of all reported crashes, The other three top leading crash types observed are Fixed Object crashes accounting for 142 crashes or 19.3% of all reported crashes, Wild Animal crashes accounting for 89 crashes or 12.1% of all reported crashes and Rear-End crashes accounting for 48 crashes or 6.5% of all reported crashes. **Figure 4** shows the different crash types that occurred within the Crow Reservation from 2011-2020.

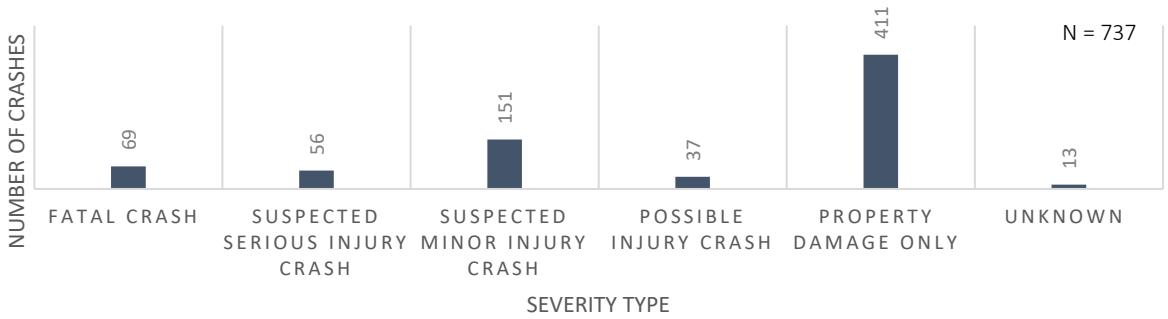
Figure 4: Crash Types Occurring on the Crow Reservation (2011-2020)



Crash Injury Severity

During the studied ten-year time interval, there were a reported 69 fatal crashes, 56 suspected serious injury crashes, 151 suspected minor injury crashes, 37 possible injury crashes, 411 property damage only crashes and 13 crashes were reported as unknown injuries. The reported 69 fatal crashes resulted in 83 fatalities or approximately 8 fatalities per year over the ten-year time interval within the Crow Reservation. **Figure 5** shows the different crash severities reported on the Crow Reservation.

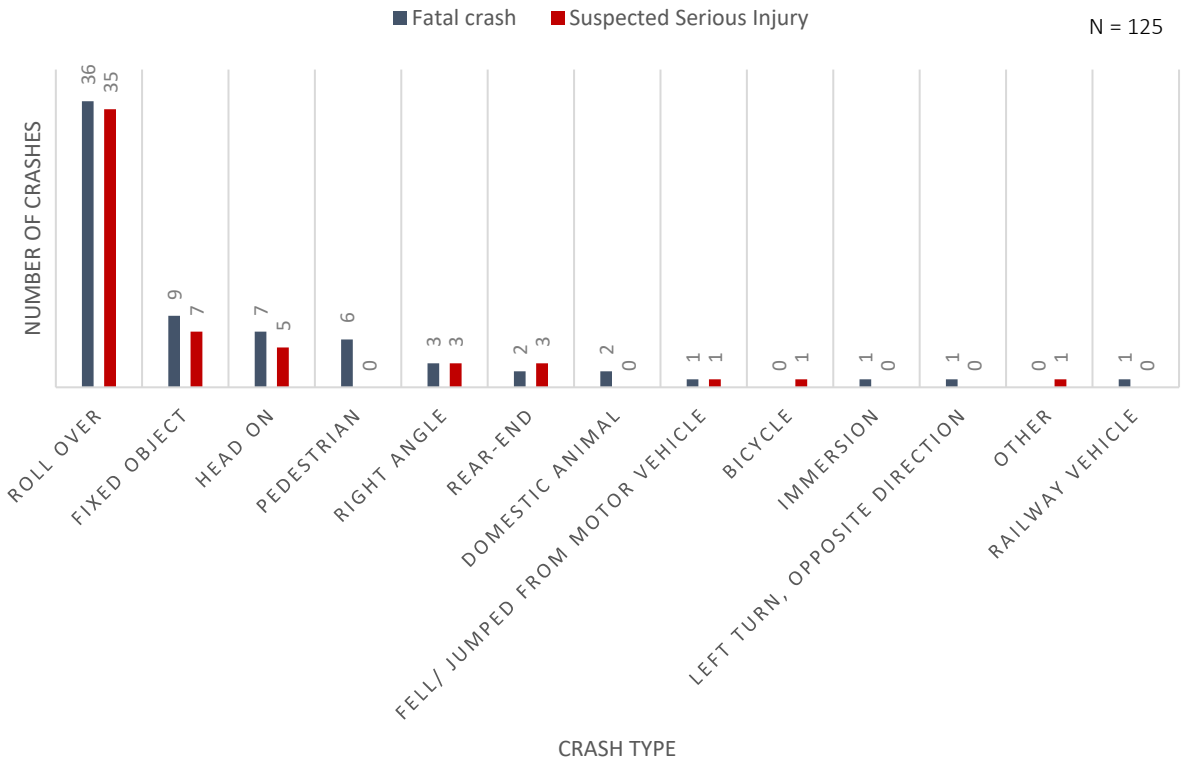
Figure 5: Crash Severities Occurring on the Crow Reservation (2011-2020)



Fatal and Serious injury crashes stand out due to their impact on lives. Of the 69 fatal injuries reported, 36 were from the result of Roll Over crashes, nine (9) were from the result of Fixed Object Crashes, seven (7) were from the result of Head On crashes, six (6) were from the result of Pedestrian crashes, three (3) were from the result of Right Angle crashes, two (2) were from the result of both Rear End and Domestic Animal crashes, and one (1) was from the result of each, Railway Vehicle, Left turn Opposite Direction, Immersion and Falling or Jumping from a Moving Vehicle crash.

Of the 56 reported suspected serious injury crashes, 35 were from the result of Roll Over crashes, seven (7) were from the result of Fixed Object Crashes, five (5) were from the result of Head On crashes, three (3) were from the result of both Right Angle and Rear End crashes, and one (1) was the result of each, Falling or Jumping from a Moving Vehicle, a Bicycle and listed as other. Figure 6 summarizes the different crash types for Fatal and Serious Injuries.

Figure 6: Fatal and Serious Injury Crash Types on the Crow Reservation (2011-2020)



2022 Tribal Transportation Safety Management Plan

This 2022 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, EMS, education, 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 the Crow 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:

- The Occurrence of Roll Over Crashes
- Presence of Fixed Objects
- Presence of Wild Animals
- Lack of Driver Experience

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:

- Lack of Cellular Coverage for EMS Response
- Need for Tribal Traffic Safety Officer
- Upgrading School Zones with Vehicle Speed Feedback Signs
- Improved Roadway and Pedestrian Lighting

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 Crow 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

Develop a Reservation-Wide Transportation Education Program

The Crow Tribe currently does not have an established SOAR (Safe on All Roads) Coordinator through MDT. The program through MDT is committed to reducing crash deaths and injuries on the reservations in Montana. The coordinator works with law enforcement, schools, and other interested parties on the Reservation to provide education on transportation safety, particularly to younger drivers on behavioral issues such as seat belt use, texting and driving, impaired driving, and child restraint. With Alcohol, Careless Driving, Speeding, and Inattentive driving being the top contributing circumstances for fatal crashes, this program can be extremely important in reducing injuries and deaths.

This project 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. The SOAR Program has received funding for items in the past, but funding is not sufficient for larger items such as PSAs, Arrive Alive Programs, billboards using local artistry, banners, videos, Tribal safety posters and other safety education and promotional materials that would be used in education programs, during Pow Wows and at other community events.

Strategy Champion: Crow Tribal Transportation Program and Tribal SOAR Coordinator.

Funding Opportunity: TTP Safety Funding, BIA Indian Highway Safety Program (IHSP) Funding.

Establish a Youth Drivers Education Program

During development of the Crow Tribal Safety Plan, there was discussion about driver education programs for younger drivers. These programs have changed over the years from one that was provided through the school systems to one where participants are required to pay for the classes and behind the wheel training. This has resulted in many youths in the community not taking classes due to the inability to pay for this service. The group identified that many of the crashes occurring on the Reservation are contributed by a significant number of younger drivers ages under the age of 30. This has been an issue with other Tribes in Montana as well where they have discussed requiring completion of a driver's education program as a graduation requirement. Coordination needs to occur with the Montana Office of Public Instruction and the Tribal Schools to see that a program can be established to meet the needs of the Tribal community.

Strategy Champion: Tribal SOAR Coordinator, MDT SOAR Coordinator.

Funding Opportunity: MT OPI Funds, TTP Safety Funding and BIA IHSP Funding.

Enforcement Strategies

Obtain and Upgrade Communications Equipment

One key aspect to good, coordinated emergency response is having the ability for good communications among responders. While police vehicles have radios and the BIA has recently upgraded the base station, other Tribal programs such as Transportation and Disaster and Emergency Services do not have communications equipment that allow them to respond accordingly to crashes, road closures or other events. Additionally, with the rural nature and inaccessible areas there is a significant need for all agencies to have hand-held communications equipment. The BIA is upgrading the base station at the new law enforcement building; however, proper protection for the location was not included. This site, while fenced is immediately adjacent to the roadway and needs positive separation to make sure that communications are not interrupted either intentionally or accidentally.

Strategy Champion: Crow Tribal Transportation Program.

Funding Opportunity: TTP Safety Funding or BIA IHSP Funding.

Develop Road Closure Procedures with MDT and Montana Highway Patrol

During adverse weather conditions, it is common for I-90 to become impassible south of Crow Agency for travelers heading south. Currently there has been little coordination and at times, the roadway has not been closed timely, resulting in through traffic and Tribal members being stranded in the rural location. Additionally, when the road is closed, there is no advanced warning provided to allow drivers to exit at Billings, MT. This results in significant traffic and heavy truck traffic stacking up in both Hardin and Crow Agency.

Neither of these communities have sufficient services to provide for this influx of travelers. The Crow Tribe would like to work with state authorities to develop a plan so that timelier and coordinated closures of the road can occur. This

plan should also identify strategic points where notifications can be placed to allow drivers to make appropriate route and stopping point decisions.

Strategy Champion: Crow Tribal Transportation Program, MDT, and Montana Highway Patrol

Funding Opportunity: TTP Safety Funding or MDT Safety Funds

Improve Cellular Coverage on Reservation for 911 Response and Provide Reservation-Wide Street Signing and House Numbering

The Crow Reservation is the largest Indian Reservation in the State of Montana with limited cell phone towers providing coverage throughout the Reservation. An area of concern for EMS and Law Enforcement responding to emergencies in rural areas of the Reservation is the lack of cellular coverage and their GPS equipment losing a cellular signal to provide them the exact location to where they need to respond for an emergency.

This relies on individuals within the EMS and Law Enforcement groups to have a vast knowledge of locations on the Reservation that are referred to by local community members or dispatchers needing to collect more detailed information for the location information prior to being able to dispatch an emergency vehicle. Further complication is also seen that many of the roads are not signed, and houses do not display a number and may be known by a local name or nickname that is not easily identifiable by either the dispatcher or responders.

To remedy this situation, a reservation-wide street signing and house numbering project should be initiated. This could then be updated with the 911 system within the reservation to include location information for quicker response times. In addition, by providing additional cell phone towers to provide increase cell phone coverage would allow for the GPS units to receive a continuous signal to a location of an emergency.

Strategy Champion: Crow Tribal Transportation Program and EMS

Funding Opportunity: ReConnect and Other Telecom Funding

Develop an MOA for Fire Response

There currently are multiple volunteer fire departments within communities on the Crow Reservation and at times it is unclear as to who are the first responders or service areas. To clarify service areas, first responders, protocols to request assistance and other procedures for emergency and fire response, a MOA should be developed amongst the key departments.

Strategy Champion: Crow Tribal Transportation Program, Volunteer Fire Departments and DES Coordinator

Funding Opportunity: None Required.

Provide Tribal Traffic Safety Officers

Currently the Tribe does not have a dedicated highway safety officer to provide traffic enforcement services and was identified as a priority need for the Reservation do to the large number of fatalities and severe crashes on the reservation. To assist in education and enforcement within the reservation, it was felt that the need for an officer were needed, throughout the year and particularly during events. The demand on time that criminal activities require, highway safety enforcement by necessity becomes a lower priority. To elevate the level of highway safety enforcement throughout the year and during events, the Tribe should pursue obtaining at least one or possibly two highway safety enforcement officers.

Strategy Champion: Crow Tribal Transportation Department

Funding Opportunity: BIA Indian Highway Safety Program Funding.

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 Crow 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.

Figure 7: Example of a Speed Radar Trailer[2]



Strategy Champion: Crow Tribal Transportation Program and BIA Law Enforcement

Funding Opportunity: TTP, TTPSF or BIA IHSP

Engineering Strategies

Develop a Reservation-Wide Signing and Pavement Marking Project

There are many roadways on the Crow Reservation that do not currently have adequate highway signing or pavement markings installed. The absence or deteriorated nature of these highway signs and markings can significantly impact transportation safety. With the predominant crash for injuries and fatalities being a single vehicle running off the road and then overturning, the addition of improved signing and markings could help to reduce these types of crashes.

Figure 8: Worn Pavement Markings on BIA 91 Near Pryor, MT



Installation of signing and markings has long been identified by the FHWA as proven low-cost safety improvements.

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

Additionally, the road safety audits (RSA) performed on the Crow Reservation in the past have identified the improvement and installation of signing and markings for implementation. A project should be developed to design and install these features in compliance with the Manual on Uniform Traffic Control Devices (MUTCD).

Strategy Champion: Crow Tribal Transportation Program.

Funding Opportunity: TTP Funding, TTP Safety Funding.

Establish a Highway Fencing Program

The data for the Crow Reservation shows that crashes with both domestic animals and wild animals rank in the top five for total crashes. These crashes show the need to install, repair and improve fencing along roadways on the Reservation. Since many of these roadways are state routes, any fencing program would need to be coordinated with MDT. On other Reservation programs such as these have been coordinated with Tribal Ordinances that empower Tribal Programs with the ability to gather and hold livestock that is running loose on highway rights-of-way. For a successful program, it is recommended that similar coordinated efforts be developed.

Figure 9: Example of Highway Fencing[3]



Strategy Champion: Crow Tribal Council, Crow Tribal Transportation Program and MDT.

Funding Opportunity: TTP Funding, TTP Safety Funding and MDT Funding.

Perform Road Safety Audit on BIA, Tribal and County Roadways and All Railroad Crossings

Road Safety Audits (RSAs) have been an important tool for many Tribes and one that the Crow Tribal Transportation Program could utilize. RSAs provide an opportunity to bring traffic and safety expertise to assess safety concerns of routes where there are high numbers of crashes or where they have specific concerns. The goal of these RSAs is to identify safety issues and then develop specific transportation safety improvements that may include signing, lighting, striping, pathways, intersection improvement and other activities to rectify shortcomings.

To continue to build on the safety improvement and the use of RSAs, the Tribe should pursue funding to accomplish RSAs on the BIA, Tribal and county roadways including all railroad crossings within the Reservation. Any railroad

[3] https://westerntransportationinstitute.org/publication/2018/new-publication-on-the-effects-of-wildlife-fencing/

crossing improvements would need to be coordinated with the county and the railroad companies to make sure that recommendations are implementable.

Strategy Champion: Crow Tribal Transportation Program

Funding Opportunity: TTP Safety Funding.

Develop Multi-Use Pathways and Pathway Lighting Projects

There are locations within the Crow Reservation where there is pedestrian/bike traffic, and the Tribe has identified specific need for pathways. The locations are primarily within Crow Agency and included access to the Pow Wow Grounds, Pedestrian Rail Crossing, I-90 Pedestrian Structure, pathway along BIA 1 and Tribal Housing and a pathway along Bala Street heading north ending at CAP Drive. Crash data identifies pedestrian and bicyclist as major crash cause resulting in fatal and serious injury. They account for approximately 9% of all fatal crashes occurring on the Reservation. Multi-Use 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 10: Multi-Use 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 11: Solar Pedestrian Lighting Example[4]

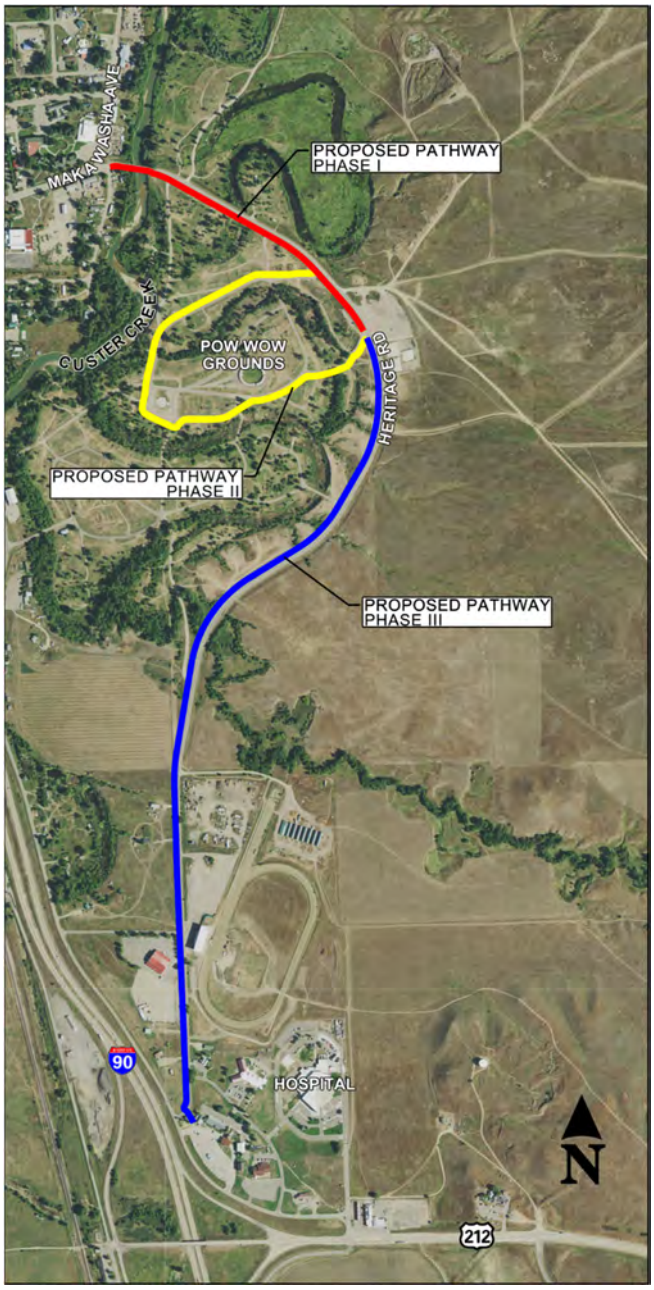


[4] https://www.sepco-solarlighting.com/solar-pathway-landscape-lighting

Pow Wow Ground Multi-Use Pathway

This multi-use pathway would start at the east end of Makawasha Avenue in Crow Agency and run to the south along the Pow Wow Grounds and the fair grounds that are used during the Crow Fair. The pathway would also include a loop connection within the Pow Wow grounds and a connection to services at the I-90, US Highway 212 Junction. The multi-use pathway would be 10-feet wide and constructed in multiple phases and could include pedestrian lighting depending on the available funding.

Figure 12: Pow Wow Ground Multi-Use Pathway



Phase I would begin at Makawasha Avenue and head south along Heritage Road towards the Pow Wow Ground where it would terminate at the south end of the proposed Phase II loop of the multi-use pathway within the Pow Wow Ground. The approximate length of Phase I of the project would be 0.49-miles and could include pedestrian

lighting depending on the available funding. The approximate project construction cost for the multi-use pathway and pedestrian lighting are shown below:

- Phase I Multi-Use Pathway: $635,000.00
- Phase I Pedestrian Lighting: $150,000.00
- Phase I Construction Total: $785,000.00

Phase II of the proposed multi-use pathway would connect the area within the Pow Wow Grounds in a loop back to the proposed Phase I of the proposed multi-use pathway. The approximate length of Phase II of the project would be 0.80-miles and could include pedestrian lighting depending on the available funding. The approximate project construction cost for the multi-use pathway and pedestrian lighting are shown below:

- Phase II Multi-Use Pathway: $1,100,000.00
- Phase II Pedestrian Lighting: $250,000.00
- Phase II Construction Total: $1,350,000.00

Phase III of the proposed multi-use pathway would continue at the terminus of the proposed Phase I multi-use pathway and continue along Heritage Road heading south to a connection to services at the I-90, including the Hospital in Crow Agency. The approximate length of Phase III of the project would be 1.36-miles and could include pedestrian lighting depending on the available funding. The approximate project construction cost for the multi-use pathway and pedestrian lighting are shown below:

- Phase III Multi-Use Pathway: $1,800,000.00
- Phase III Pedestrian Lighting: $415,000.00
- Phase III Construction Total: $2,215,000.00

Strategy Champion: Crow Tribal Transportation Program

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

Crow Agency Pedestrian Railroad Crossing Multi-Use Pathway

This multi-use pathway within Crow Agency would provide for a pedestrian connection from the tribal housing that is west of the interstate and Burlington Northern Rail line to Makawasha Avenue in downtown Crow Agency. Currently pedestrians have to use the narrow roadway to cross the rail, tracks and under the interstate structures or use the ditch area and cross the rails and ties. This multi-use pathway connection to the proposed BIA 1 multi-use pathway would be 10-feet wide and could include pedestrian lighting depending on the available funding. The approximate length of the multi-use pathway would be 585-feet. The approximate project construction cost for the multi-use pathway and pedestrian lighting are shown below:

- Multi-Use Pathway: $145,000.00
- Pedestrian Lighting: $35,000.00
- Construction Total: $180,000.00

Figure 13: Crow Agency Pedestrian Railroad Crossing Multi-Use Pathway



Strategy Champion: Crow Tribal Transportation Program

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

I-90 Pedestrian Structure

The only crossing of I-90 for bicyclists and pedestrians is at the Crow Agency Interchange, which itself does not include any sidewalk or other facilities west of the I-90 ramps. The large Tribal housing developments and Tribal facilities located to the north of this on both sides of I-90, have resulted in pedestrians crossing the interstate at grade at unauthorized locations. There is a need for a grade separated structure to meet this need and provide safe crossing of the interstate.

An example of an existing pedestrian structure is shown below. This pedestrian structure is on the Flathead Indian Reservation and crosses over US Highway 93 in Pablo, MT.

Figure 14: Pedestrian Structure Example[5]



The proposed location for the I-90 Pedestrian Structure would begin on Cap Drive east of the interstate in Crow Agency and head west perpendicular to I-90 where it would terminate on the west side of I-90. The approximate length of

[5] https://www.aisc.org/globalassets/modern-steel/archives/2012/12/2012v12_welcoming.pdf

the structure would be 680-feet to span the complete length of the interstate. Based on the cost of other similar structures in Western Montana, this grade separated pedestrian structure would cost approximately $5,500,000.00.

Figure 15: I-90 Pedestrian Structure



Strategy Champion: Crow Tribal Transportation Program

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

BIA 1 to Plenty Hawk Drive Multi-Use Pathway

The multi-use pathway is located west of Crow Agency and would be constructed in two different phases and would be 10-feet wide. Phase I would begin at the end of the proposed Crow Agency Railroad Crossing Multi-Use Pathway and follow along BIA 1 heading west before transitioning north where it would terminate at the newly reconstructed T-Intersection of BIA 1. The approximate length for Phase I of the multi-use pathway would be 0.54-miles and could include pedestrian lighting depending on the available funding.

Phase II of the project would begin at the south intersection of BIA 1 and Plenty Hawk Drive and head northeast and then transition north to the north intersection of BIA 1 and Plenty Hawk Drive where it would transition again heading east to terminate at the end of Phase I of the proposed multi-use pathway. The approximate length for Phase II of the multi-use pathway would be 0.68-miles and could include pedestrian lighting depending on the available funding.

BIA 1 to Plenty Hawk Drive Multi-Use Pathway would provide for a safe pedestrian and bicyclist access from the multiple Tribal Housing subdivisions to facilities and businesses in Crow Agency. The approximate project construction cost for the two different phases of the multi-use pathway and pedestrian lighting are shown below:

Phase I

- Multi-Use Pathway: $700,000.00
- Pedestrian Lighting: $165,000.00
- Construction Total: $865,000.00

Phase II

- Multi-Use Pathway: $882,000.00
- Pedestrian Lighting: $207,000.00
- Construction Total: $1,089,000.00

Figure 16: BIA 1 to Plenty Hawk Drive Multi-Use Pathway



Strategy Champion: Crow Tribal Transportation Program

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

Crow Agency Walking Pathway

This walking pathway within Crow Agency would provide for a pedestrian connection from the main road, Makawasha Avenue to tribal housing located to the north. The walking pathway would begin at the intersection of Makawasha Avenue and Bala Street and head north to the intersection of Bala Street and Moccasin Street. It would then head east before transitioning back north, providing access to the school in Crow Agency, where it would terminate at the intersection of Cap Drive and Moccasin Steet. There is currently limited pedestrian access along Bala Street, however much of the existing sidewalk is deteriorating and is not ADA accessible. This walking pathway would be 5-feet wide, and a total length of 885-feet. The estimated construction cost for this project is approximately $300,000.00 and the design was completed in October 2020.

Strategy Champion: Crow Tribal Transportation Program

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

Figure 17: Crow Agency Multi-Use Pathway



Incorporate Speed Feedback Signs within School Zones

An issue that was identified as a concern was the prevalence of speeding within school zones. Speed Feedback Signs (SFS) provide drivers with feedback about their speed in relationship to the posted speed limit. They can be an effective method to help reduce speeds at desired locations when properly installed at certain distances upstream in both directions to maintain the desired speed reductions. It is recommended that an engineering study be completed to identify desired school zone locations, desired speeds within the school zone, and proper locations for the SFS to be placed.

Figure 18: Example of a Speed Feed Back Sign within a School Zone



Strategy Champion: Crow Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding

Improve Roadway and Pedestrian Lighting Throughout the Reservation

An area of concern that was discussed was the lack of roadway and pedestrian lighting throughout the many communities within the Crow Reservation. Roadway lighting provides a visual performance and visual comfort to assist in keeping a driver alert while on the roadway. Pedestrian lighting, as previously discussed, increases pedestrian visibility and could provide for traffic calming and potentially increase security. Due to the high cost that can be associated with roadway and pedestrian lighting 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. 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: Crow Tribal Transportation Program

Funding Opportunity: TTP Safety Funding, TTP Funding

Safety Planning and Other Strategies

No other strategies were prioritized for implementation.

APPENDIX A: MEETING AGENDA

Crow Tribal Safety Plan 2021 Update

Agenda

December 1, 2021

1:00 p.m.	Welcome and Introductions
1:15 p.m.	Background and Overview
	Review of Previous Safety Plan
	Crash and Safety Data Update
	Review of other Plans
	Questions and Discussion of Data
2:00 p.m.	Development of Activities for updated Tribal Transportation Safety Plan:
	Identification/Discussion of new safety issues and concerns
	Identify Safety Strategies completed
	Identify New Strategies to Include.
3:00 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
4:15 p.m.	Questions/Discussion of Process or other Items
4:30 p.m.	Adjourn

APPENDIX B: MEETING PARTICIPANTS

Crow Tribe Tribal Transportation Safety Plan		
Attendance List		
Name:	Organization:	Email:
Patti Medicinehorse	BHC Ambulance	pattimedicinehourse@gmail.com
Makalia Gutierrez	Crow Tribal Transportation Program	makalia.gutierrez@crow-nsn.gov
Thomas White Clay Sr	Crow Tribal Transportation Program	thomas.whiteclaysr@crow-nsn.gov
Robert Stewart	Instructor LBHC	stewartr@lbhc.edu
Angie Bear Claw	Crow Tribal Transportation Program	angie.bearclaw@crow-nsn.gov
Craig Genzlinger	KLJ	craig.genzlinger@kljeng.com
Chad Fischer	KLJ	chad.fischer@kljeng.com

APPENDIX C: 2021 TRIBAL TRANSPORTATION SAFETY PLAN PRESENTATION

TRIBAL TRANSPORTATION SAFETY PLAN
December 2021

Crow Tribe



KLJ
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

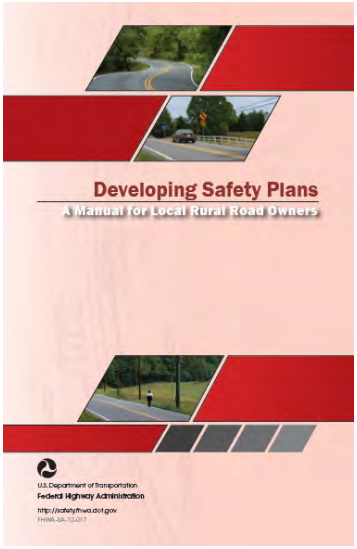
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Benefits of Safety Planning

- 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





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Previous Crash Data (1996 – 2012)

- 2015 Tribal Transportation Safety Plan (Amended in 2019)
  - 1,265 Reported Crashes (1996 – 2012) or 74 crashes per year
  - Top Three Crash Types
    - Roll Over (Approximately 39%)
    - Domestic Animal (Approximately 7%)
    - Wild Animal (Approximately 5%)
  - 101 - Fatal Crashes (Approximately 6 fatal crashes per year)

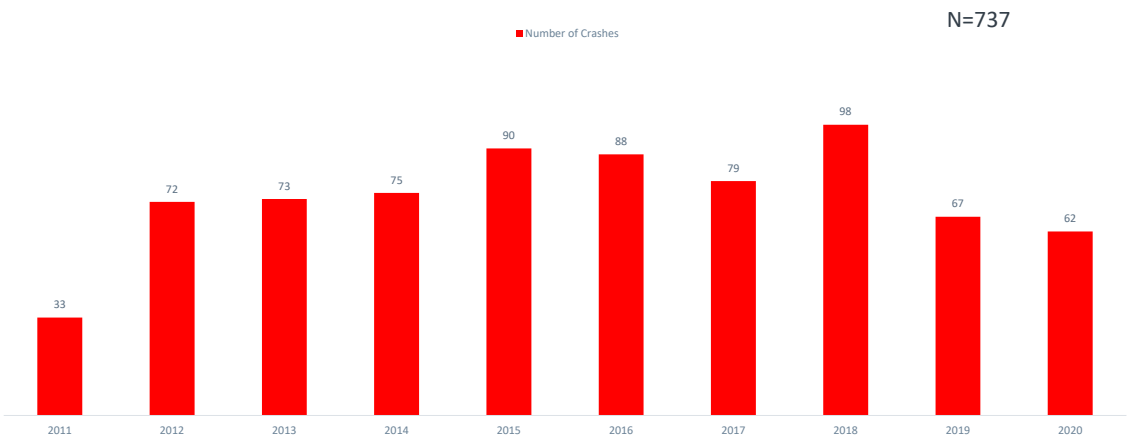
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Crash Data (2010 – 2020)

- Data Based Plan
  - MDT Traffic and Safety Bureau (2011 – 2020)
    - Big Horn County
    - Yellowstone County
  - Tribal Enforcement
  - Personal Knowledge

7

Number of Crashes (2011-2020)



Approximately 74 crashes per year

8

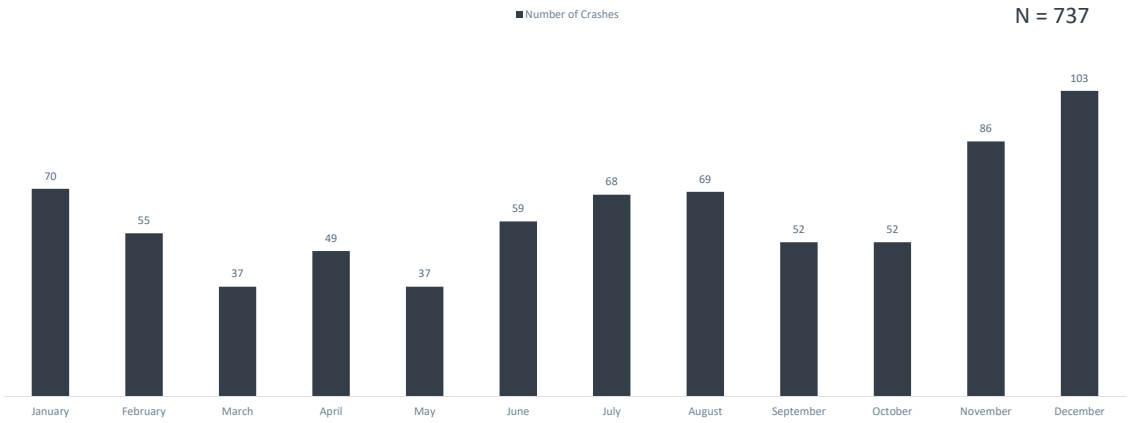
Number of Crashes by County (2011-2020)



N = 737

9

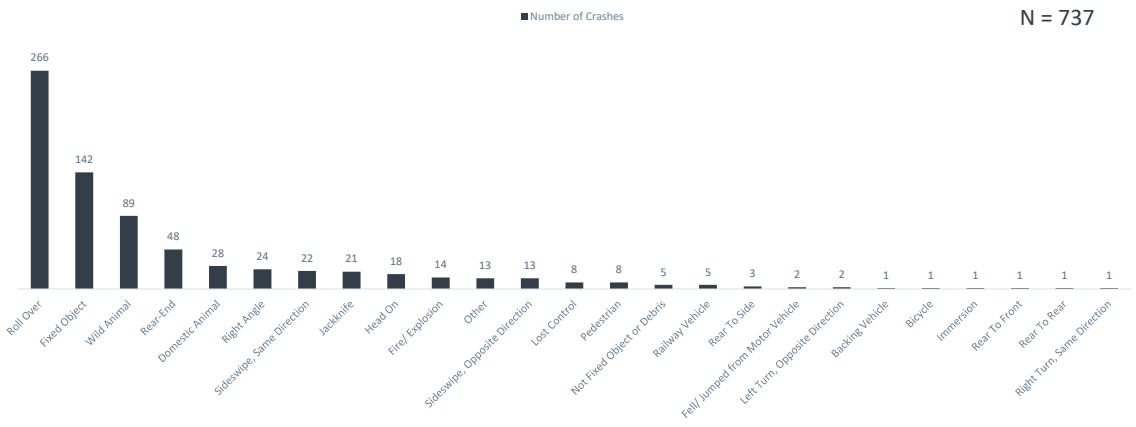
Number of Crashes by Month (2011-2020)



N = 737

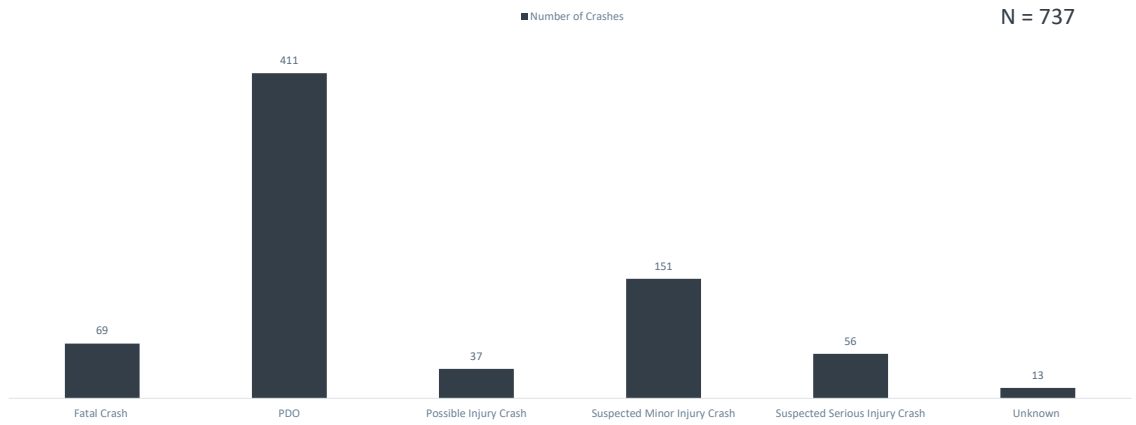
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Crash Types (2011-2020)



11

Crash Severity (2011-2020)

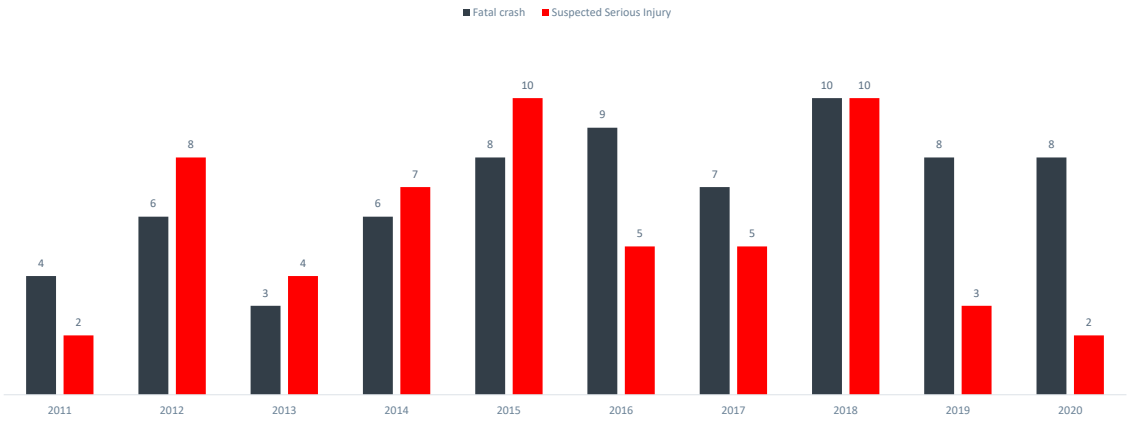


PDO = Property Damage Only
69 Fatal Crashes resulted in 83 Fatalities

12

Fatal and Serious Injury Crashes by Year (2011-2020)

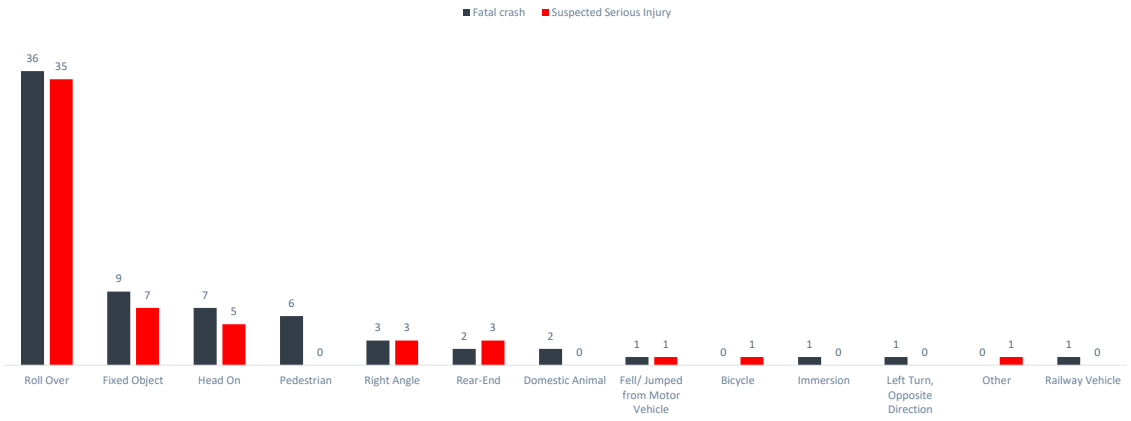
N = 125



13

Fatal and Serious Injury Crash Types (2011-2020)

N = 125



Roll Over Crashes account for Approximately 57% of all Fatal and Serious Injury Crashes

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Existing Safety Programs

- Existing Safety Programs from 2015 Safety Plan
  - The SOAR program is established, and a program coordinator is in place
  - The Tribe is plotting crash locations to determine hot spots for traffic crashes
  - The Tribe an active DUI Task Force
  - Child seats are being provided to those that need them in the community
  - The Tribal Police are using safety checkpoints on the Reservations
  - Seat belt surveys are being completed
  - Traffic safety presentations are being provided for youth in the school system
  - IHS holds an annual Safety Days
  - The Tribe has an Emergency Response Committee
  - Dynamic message boards are being used during the Crow Fair to aid in traffic movement

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2015 Implementation Strategies

- Education Strategies
  - Continue and Expand the Reservation-Wide Transportation Education Program
  - Establish a Youth Drivers Education Program
  - Utilize the Seat Belt Sled and other Safety Demonstration Devices
- Enforcement/EMS Strategies
  - Obtain and Upgrade Communications Equipment
  - Develop Road Closure Procedures with MDT and Montana Highway Patrol
  - Establish DUI Funded Youth Education Program
  - Provide Reservation-Wide Street Signing and House Numbering to Enhance 911 Response
  - Develop an MOA for Fire Response

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2015 Implementation Strategies Continued

- Engineering Strategies
  - Develop a Reservation-Wide Signing and Marking Project
  - Establish a Highway Fencing Program
  - Perform Road Safety Audits on BIA, Tribal and County Roadways
  - Perform Railroad Safety Audits at BIA, Tribal and Local Road Crossings
  - Develop Multi-Use Separated Paths
    - Crow Agency head Start
    - Pow Wow Grounds Pathway
    - Crow Agency Pedestrian Railroad Crossings
    - I-90 Pedestrian Structure
    - BIA1/Xavier Road Pathway
  - Implement Safety Countermeasures on Pryor Road Route 418
- Safety Planning and Other Strategies
  - Collect and Share Crash Data

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Safety Issues

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

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Safety Countermeasures

- Strategies to Improve Safety

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Transportation Safety Plan

Questions?

Craig Genzlinger, PE
406-461-2222
craig.genzlinger@kljeng.com

Chad Fischer, PE
406-441-5786
chad.fischer@kljeng.com

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