



Inter Tribal Council of Arizona, Inc.

Nevada

Preliminary Motor Vehicle Crash Data Analysis

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TABLE OF CONTENTS

PURPOSE.....	4
METHODS	4
SUMMARY OF FINDINGS	4
MOTOR VEHICLE CRASHES AND INJURY.....	4
ENVIRONMENT & COLLISION TYPE	4
OCCUPANT CHARACTERISTICS	5
MOTOR VEHICLE CRASHES AND INJURY.....	6
YEAR.....	6
MONTH.....	7
DAY OF WEEK	8
TIME OF DAY.....	10
ENVIRONMENT & COLLISION TYPE	11
COLLISION TYPE.....	11
NUMBER OF VEHICLES.....	12
MOST HARMFUL EVENT	13
LIGHTING	14
OCCUPANT CHARACTERISTICS	15
AGE: ALL CRASHES.....	15
AGE: INJURY CRASHES	16
AGE: FATAL CRASHES.....	17
GENDER	18
RESTRAINT USE.....	19
IMPAIRMENT	22
STRENGTHS.....	23
LIMITATIONS.....	23

PURPOSE

The data analyzed for this report came from a request to the Nevada Department of Transportation (NDOT) by the Inter Tribal Council of Arizona, Inc. Tribal Epidemiology Center for all reports for motor vehicle crashes (MVCs) on the Tribal lands in Nevada (NV) that were filed by law enforcement from 2007 to 2014.

METHODS

The data analyzed for this report came from 399,178 reports for MVCs in NV. Reports are completed by law enforcement and submitted to NDOT. Location of the crash and assignment to Tribal lands areas was done by NDOT. The Tribal lands data was identified by Kimley-Horn using ArcGIS.

SUMMARY OF FINDINGS

MOTOR VEHICLE CRASHES AND INJURY

- **Burden of MVCs:** There were 1,392 MVCs on Tribal lands in NV from 2007-2014 and 397,786 off Tribal lands.
- **Injury:** Thirty-six percent (N=495) of MVCs on Tribal lands resulted in injuries to 670 people. Of those injured, 11% (N=75) suffered an incapacitating injury and 213 (32%) a non-incapacitating injury. Off Tribal lands, 38% (N=149,992) of crashes resulted in injury.
- **Fatality:** Two percent (N=27) of MVCs on Tribal lands resulted in fatality for 31 people compared to 0.5% (N=1894) MVCs off Tribal lands that resulted in fatality for 1,930 people.
- **Time:** In 2014, there were 5% more crashes on Tribal lands compared to off Tribal lands (9%). July through September had 1-2% more crashes occurred on Tribal lands compared to off Tribal lands. Nearly 10% more crashes occurred on Tribal lands on Mondays compared to off Tribal lands. Time of day that the crash occurred did not differ.

ENVIRONMENT & COLLISION TYPE

- **Collision Type:** On Tribal lands, 49% of MVCs were classified as non-collision, meaning that they only involved one vehicle. Only 15% of MVCs off Tribal lands were non-collision. Almost 50% of all single vehicle crashes occurred on Tribal lands.
- **Most Harmful Event:** There was a greater variety of most harmful events on Tribal lands compared to off Tribal lands. Collisions with cattle, other movable objects, embankments, deer and equipment failure were in the top ten most common harmful events on Tribal lands, but were not in the top ten off Tribal lands.
- **Lighting:** MVCs were more common when it was dark in areas with no lighting on Tribal

lands as compared to off Tribal lands.

OCCUPANT CHARACTERISTICS

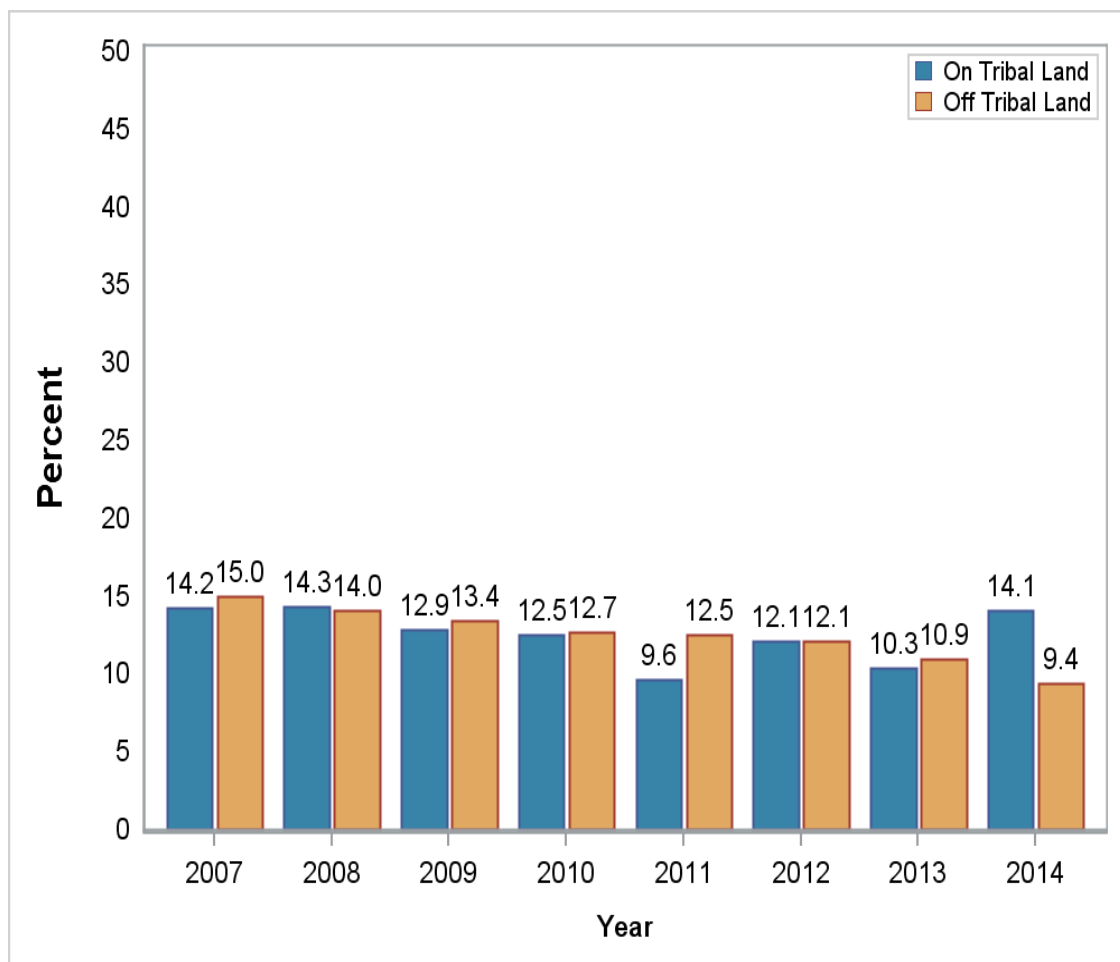
- **Age:** People ages 56-65 on Tribal lands had a higher percentage of all MVCs and injury MVCs than off Tribal lands, but had a lower percentage of fatal MVCs on Tribal lands. The age groups that had a higher percentage of fatal MVCs on Tribal lands were 26 to 35 years old and 66 to 75 years old.
- **Gender:** A higher percentage of men were involved in MVCs on Tribal lands compared to off Tribal lands.
- **Safety Device Use:** Almost 5% more people involved in MVCs on Tribal lands properly used shoulder and lap belts as compared to off Tribal lands, but almost 3% more people in MVCs on Tribal lands used no safety device. Proper use was higher in ages 56 to 85 years old on Tribal lands compared to off Tribal lands. Improper use was 4% higher in the 26 to 35 year old age group on Tribal lands compared to off Tribal lands.
- **Impairment:** Almost 2% more people in MVCs on Tribal lands were suspected to be impaired by alcohol compared to off Tribal lands.

MOTOR VEHICLE CRASHES AND INJURY

YEAR

Graph 1 shows the percent of total MVCs by year on and off Tribal lands. The proportion of crashes per year on Tribal lands was either the approximately the same or lower than off Tribal lands 2007-2013, but was nearly 5% higher in 2014.

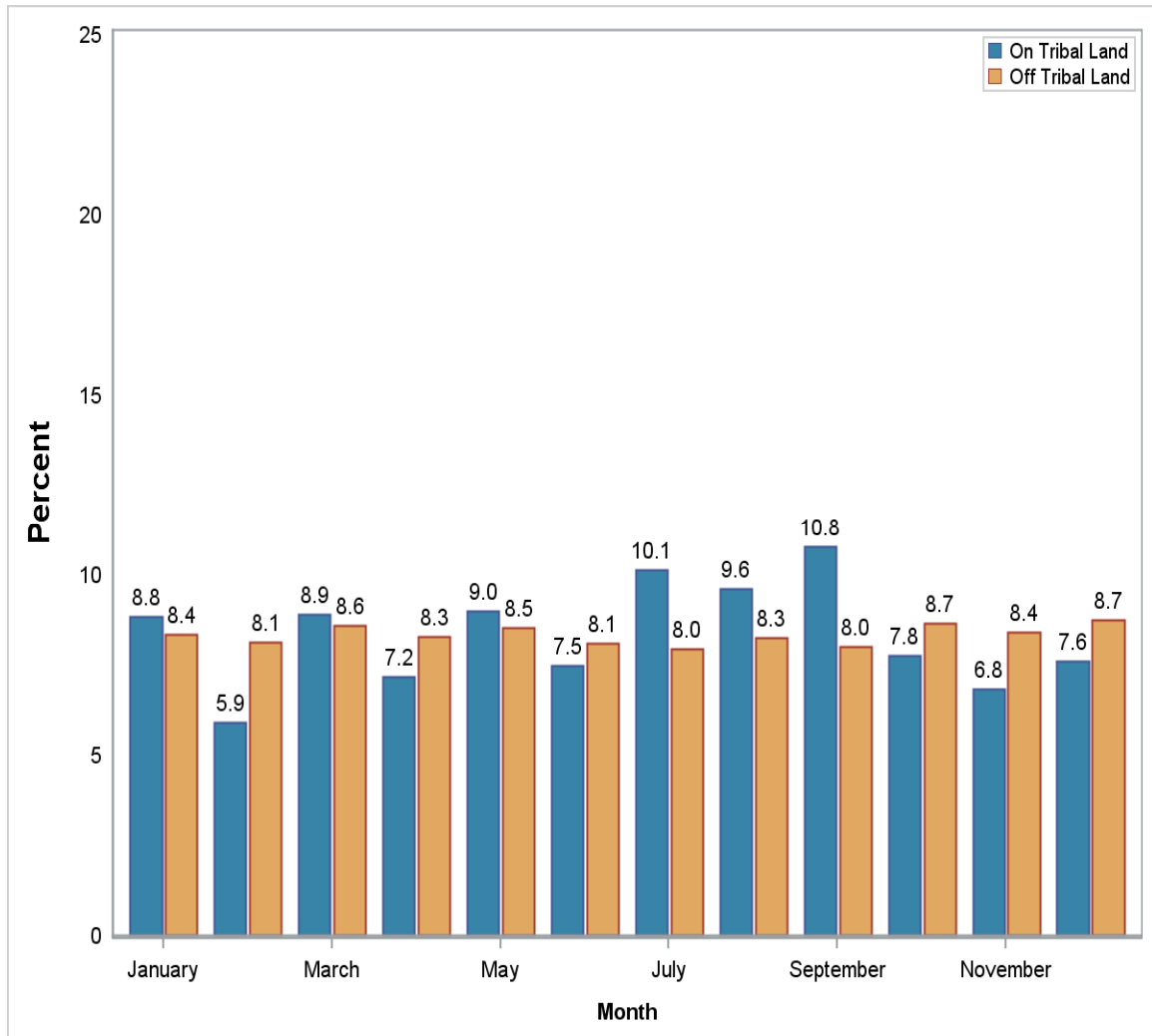
Graph 1. Number of Crashes by Year on and off Tribal Lands: 2007-2014.



MONTH

Graph 2 shows the distribution of MVCs by month for all the years combined. The percentage of MVCs on Tribal lands are 1-2% higher than off Tribal lands from July through September.

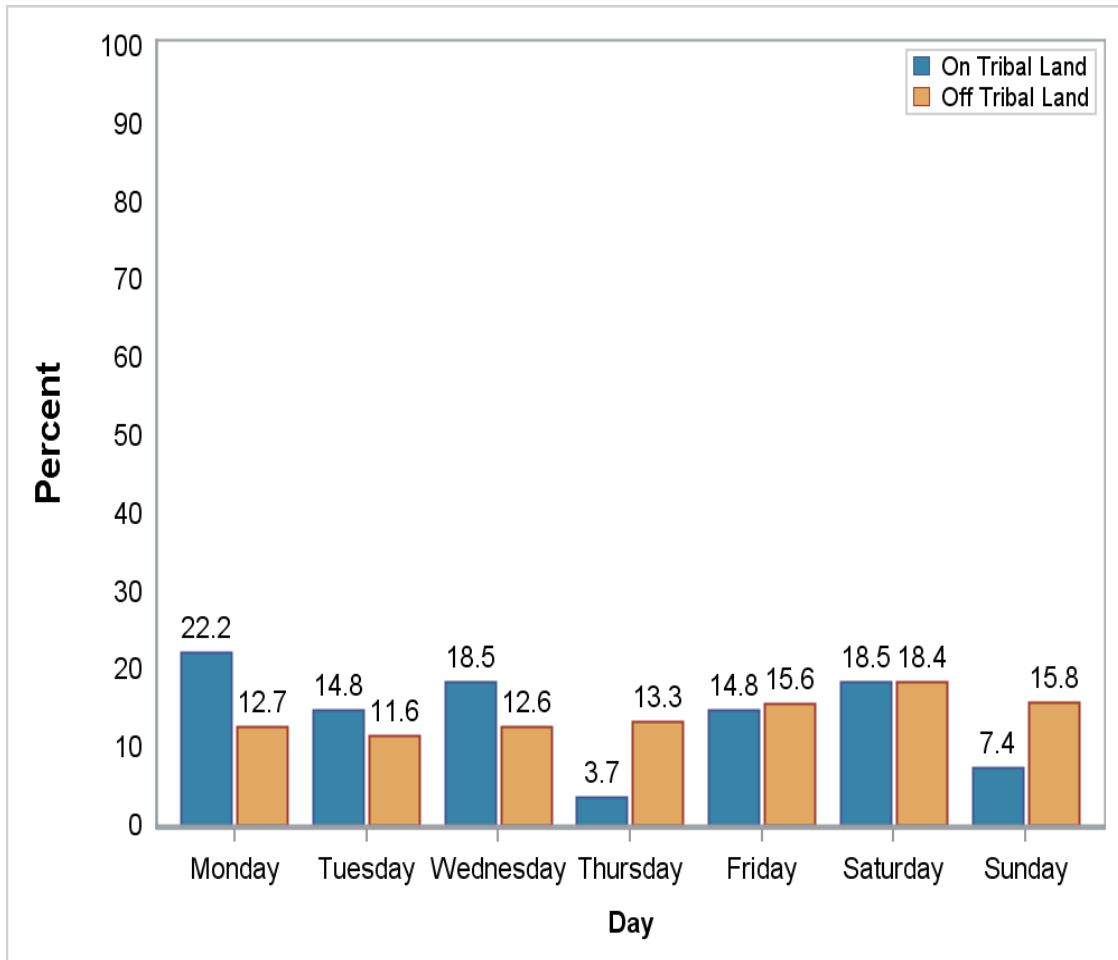
Graph 2. MVCs by Month of Crash on and off Tribal Lands: 2007-2014.



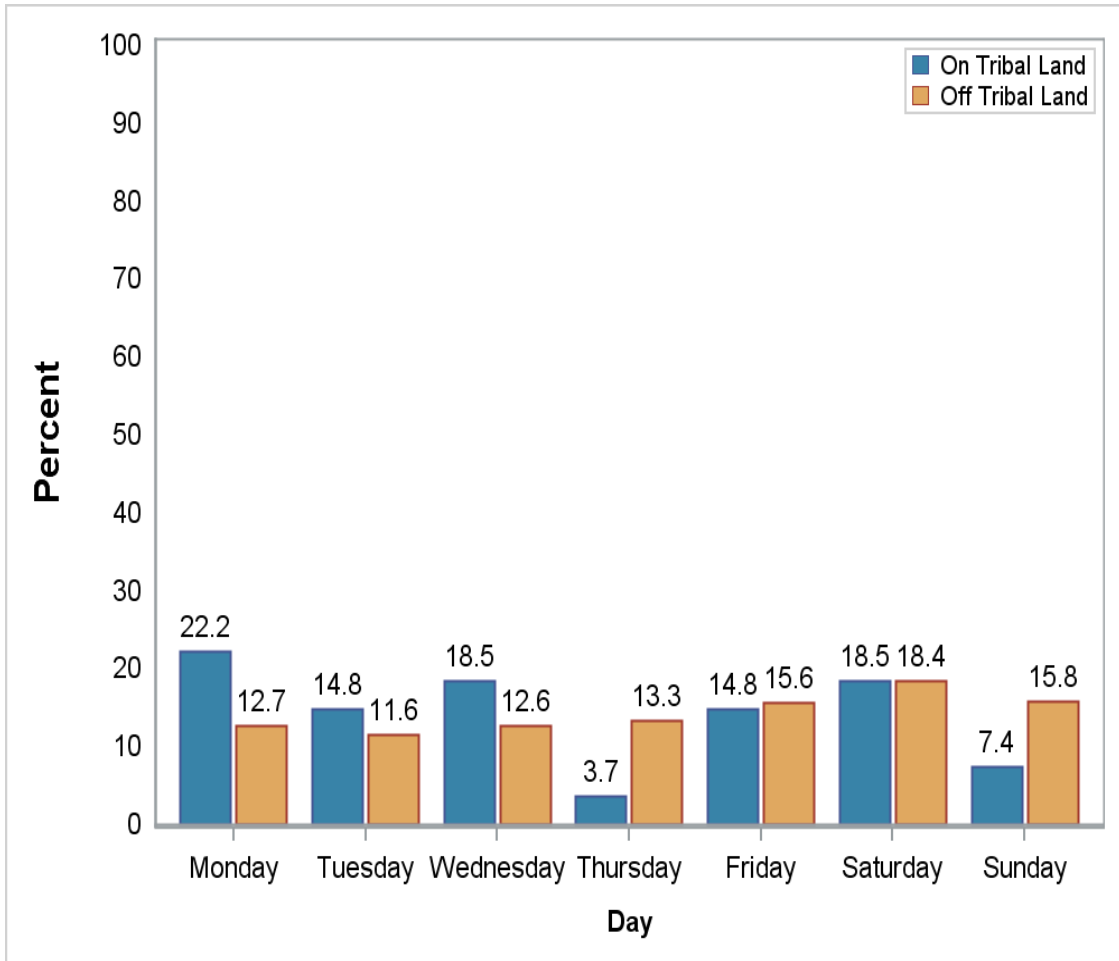
DAY OF WEEK

Graph 3a and 3b show the percent of injury and fatality MVCs on and off Tribal lands by day of the week. A higher percentage of injury and fatality crashes occur Monday-Wednesday on Tribal lands compared to off Tribal lands.

Graph 3a. Percent of Injury MVCs by Day of Week on and off Tribal Lands: 2007-2014



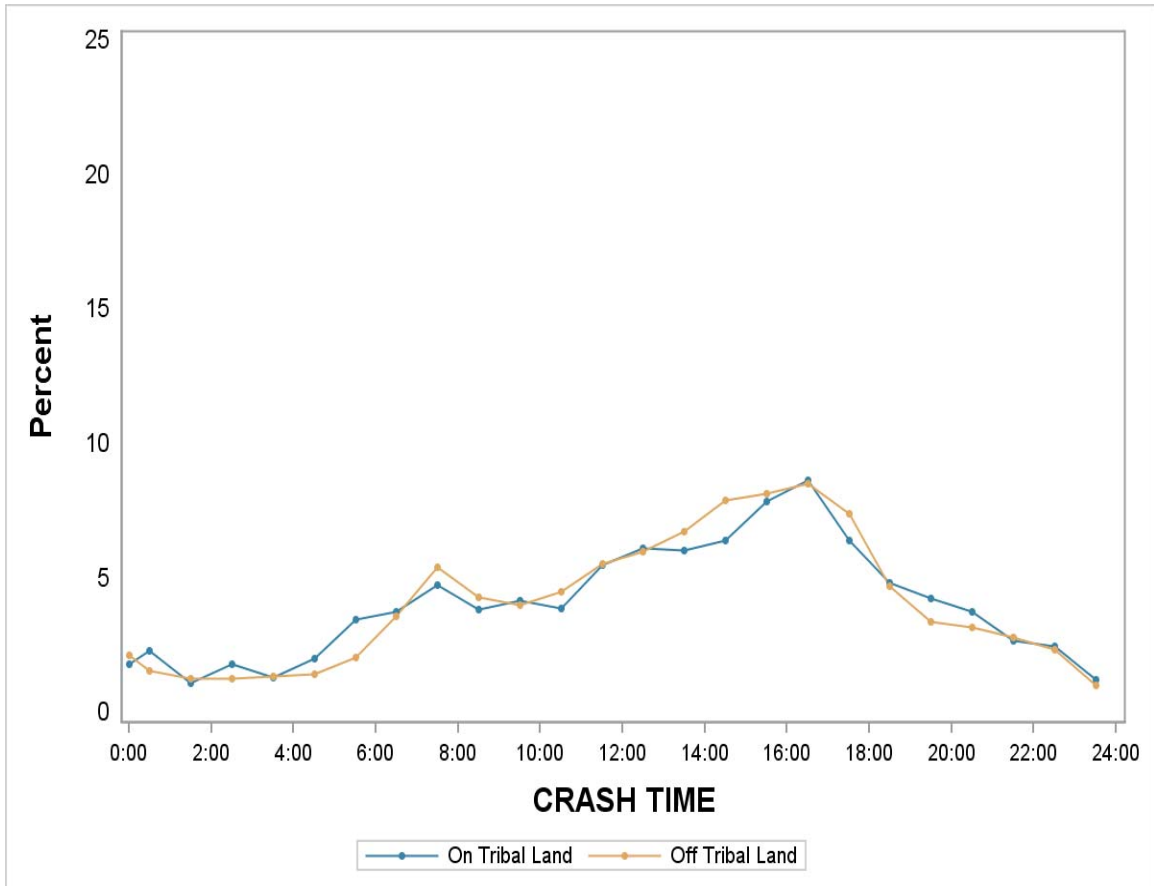
Graph 3b. Percent of Fatal MVCs by Day of Week on and off Tribal Lands: 2007-2014



TIME OF DAY

Graph 4 shows the time of MVCs. The pattern of MVCs by hour was nearly identical on and off Tribal lands.

Graph 4. Percent of MVCs by Hour on and off Tribal Lands: 2007-2014

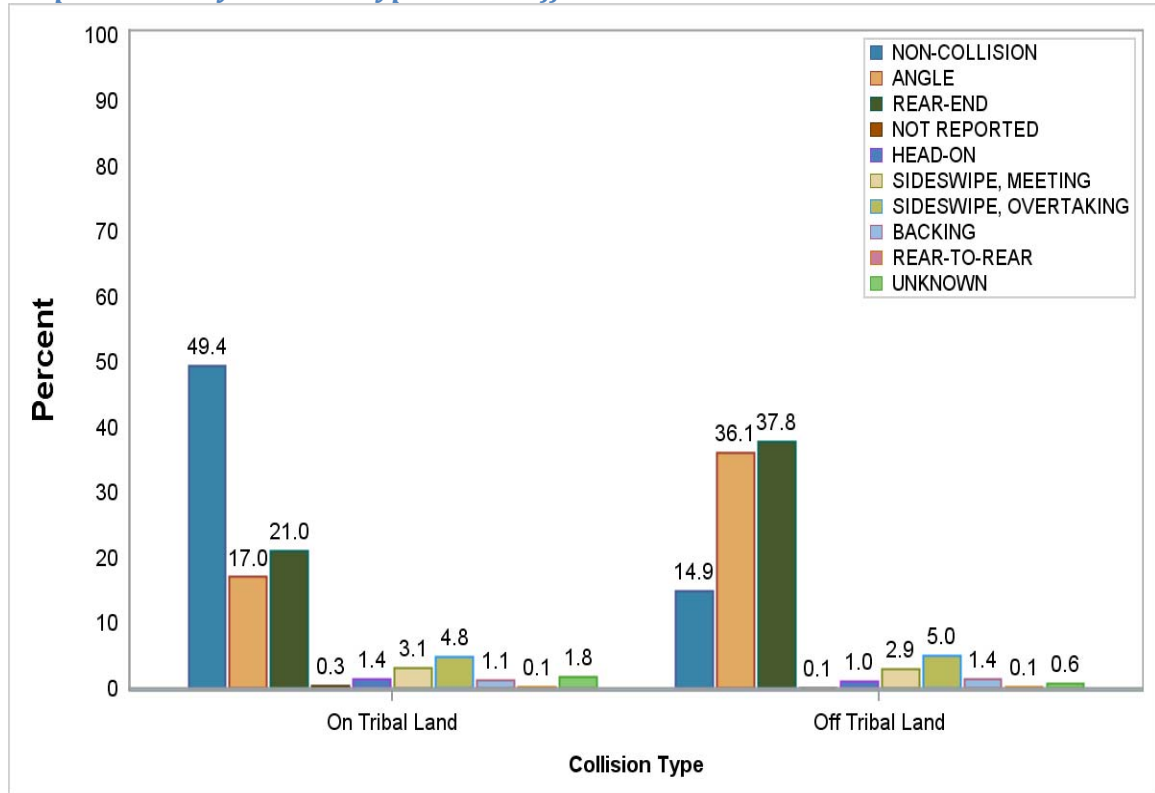


ENVIRONMENT & COLLISION TYPE

COLLISION TYPE

Graph 5 displays the type of collisions that occurred in 2007-2014 on and off Tribal lands. MVCs classified as “Non-Collision” are crashes involving a single vehicle and were 34% more likely to occur on Tribal lands. Angle and rear-end MVCs were approximately 25% less common on Tribal lands as compared to off Tribal lands.

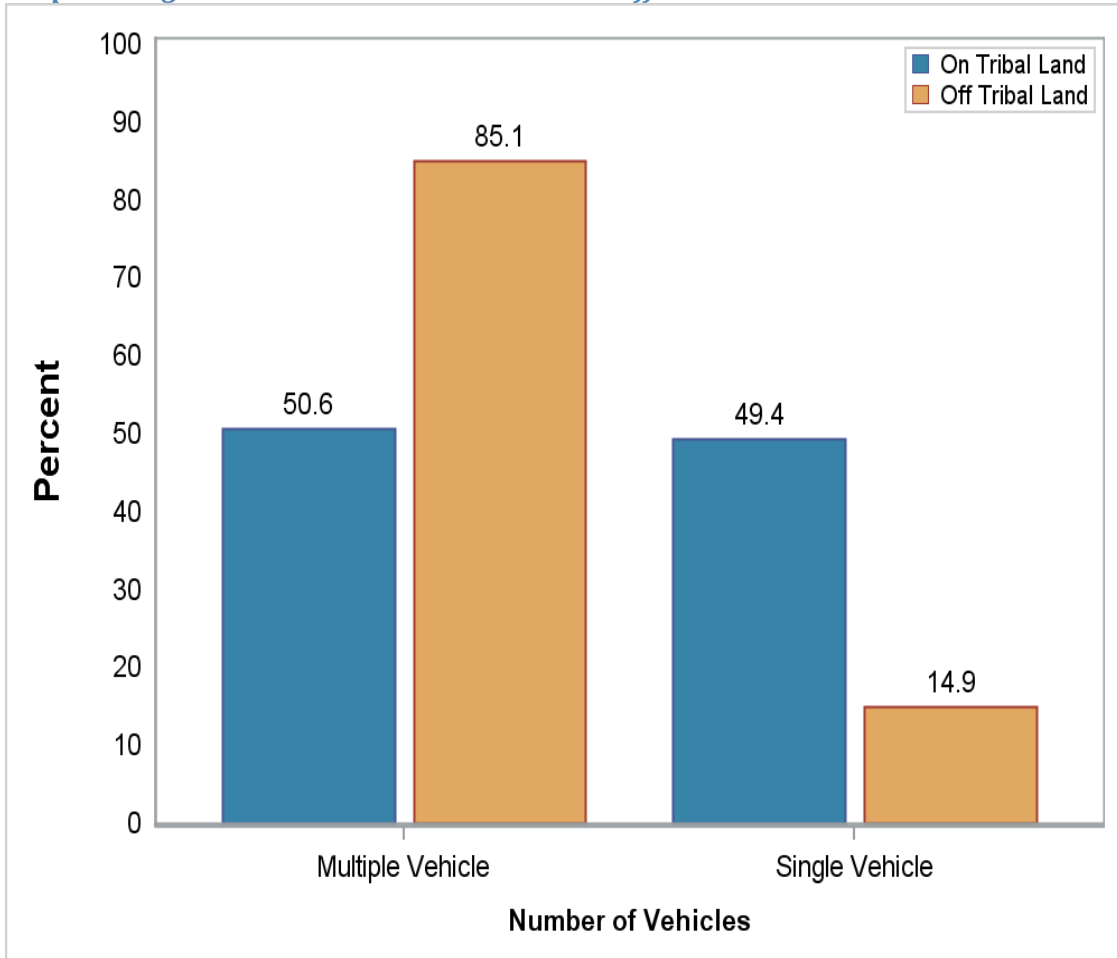
Graph 5. MVCs by Collision Type on and off Tribal Lands: 2007-2014



NUMBER OF VEHICLES

Graph 6 shows the percentage of single vehicle and multi-vehicle MVCs on and off Tribal lands. MVCs on Tribal lands were nearly 35% more likely to be single vehicle crashes as compared to off Tribal lands.

Graph 6. Single and Multi-Vehicle MVCs on and off Tribal Lands: 2007-2014



MOST HARMFUL EVENT

Table 1 shows the top ten most harmful events by rank order, on and off Tribal lands. The most harmful event is defined as the event that resulted in the most severe injury or, if no injury, the greatest property damage involving each motor vehicle. Duplicate ranks indicate a tie. There was a more even distribution amongst the top ten most harmful events on Tribal lands as compared to off Tribal lands where 68% were “motor vehicle in transport”, meaning while the vehicle was in motion on the roadway. This classification is most frequently used for collisions involving two or more vehicles.

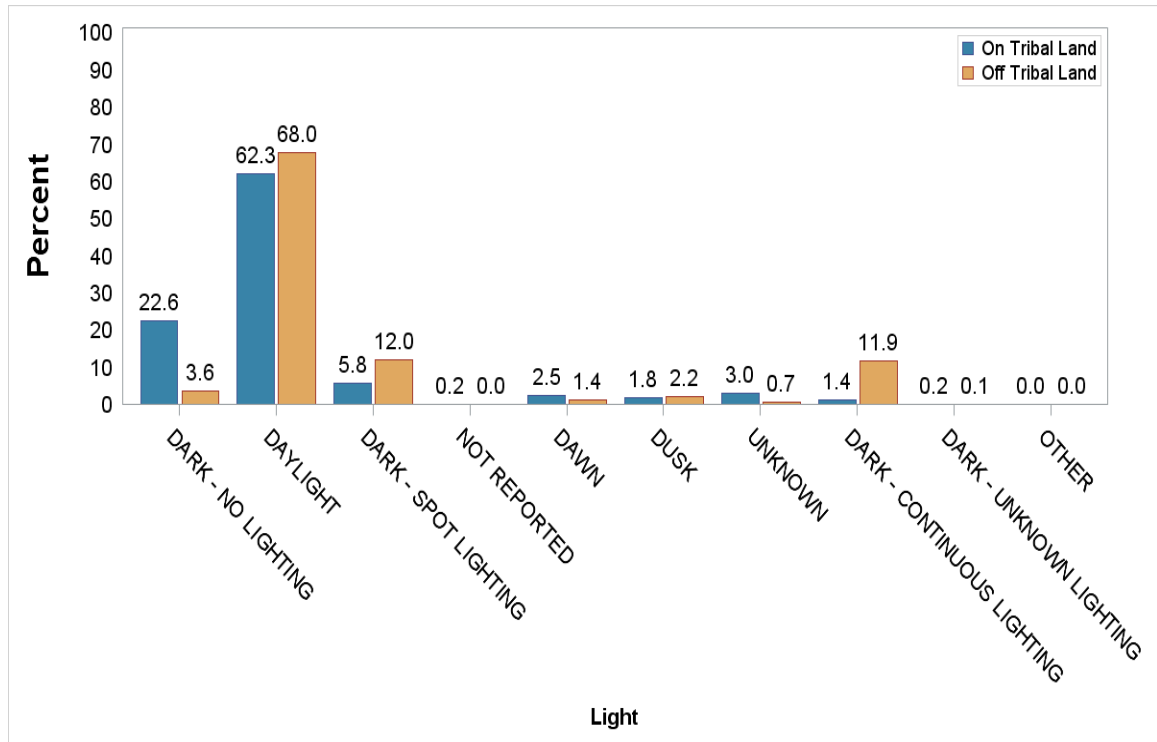
Table 1. Top Ten Most Harmful Events on and off Tribal Lands: 2007-2014

Most Harmful Event	On Tribal Lands			Off Tribal Lands		
	Number	Percent	Rank	Number	Percent	Rank
Motor vehicle in transport	473	40%	1	395,453	68%	1
Overturn/Rollover	189	16%	2	8372	1.4%	3
Slow/Stopped Vehicle	163	14%	3	120,536	21%	2
Cattle	41	3%	4	--	--	--
Ran off road: Right	32	3%	5	4316	0.7%	7
Other movable object	28	2%	6	4342	0.7%	6
Embankment	27	2%	7	--	--	--
Equipment failure (e.g. tire)	27	2%	7	--	--	--
Deer	23	2%	9	--	--	--
Fence/Wall	17	1%	10	7595	1%	4
Not reported	17	1%	10	--	--	--
Parked motor vehicle	--	--	--	4575	0.8%	5
Median barrier	--	--	--	4244	0.7%	8
Pedestrian	--	--	--	3485	0.6	9
Other non-collision	--	--	--	2777	0.5%	10

LIGHTING

Graph 7 shows the lighting conditions during MVCs on and off Tribal lands. MVCs on Tribal lands were nearly 20% more common when it was dark with no lighting as compared to off Tribal lands.

Graph 7. Lighting Conditions at Time of MVC on and off Tribal Lands: 2007-2014

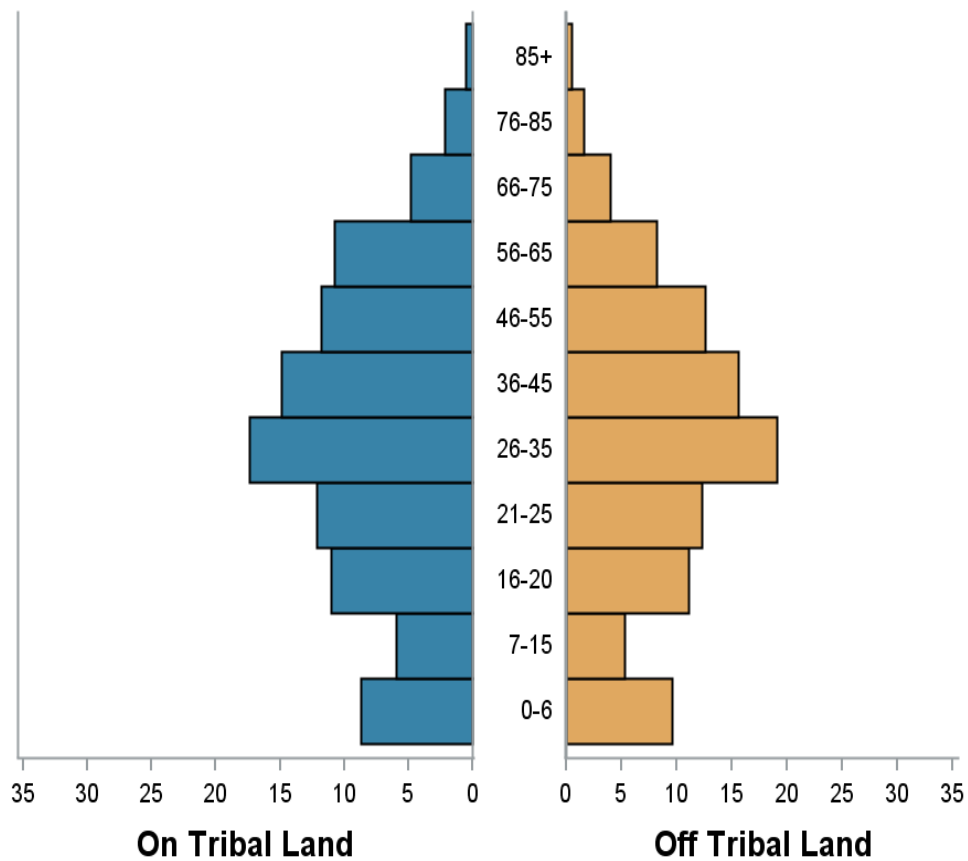


OCCUPANT CHARACTERISTICS

AGE: ALL CRASHES

Graph 8 shows the age distribution of people involved in MVCs on and off Tribal lands. On Tribal lands, there were 2,626 people involved in MVCs. Off Tribal lands, 928,875 people were involved in MVCs. The age distributions were roughly the same, except in 56-65 year olds on Tribal lands who were involved in 3% more crashes compared to off Tribal lands.

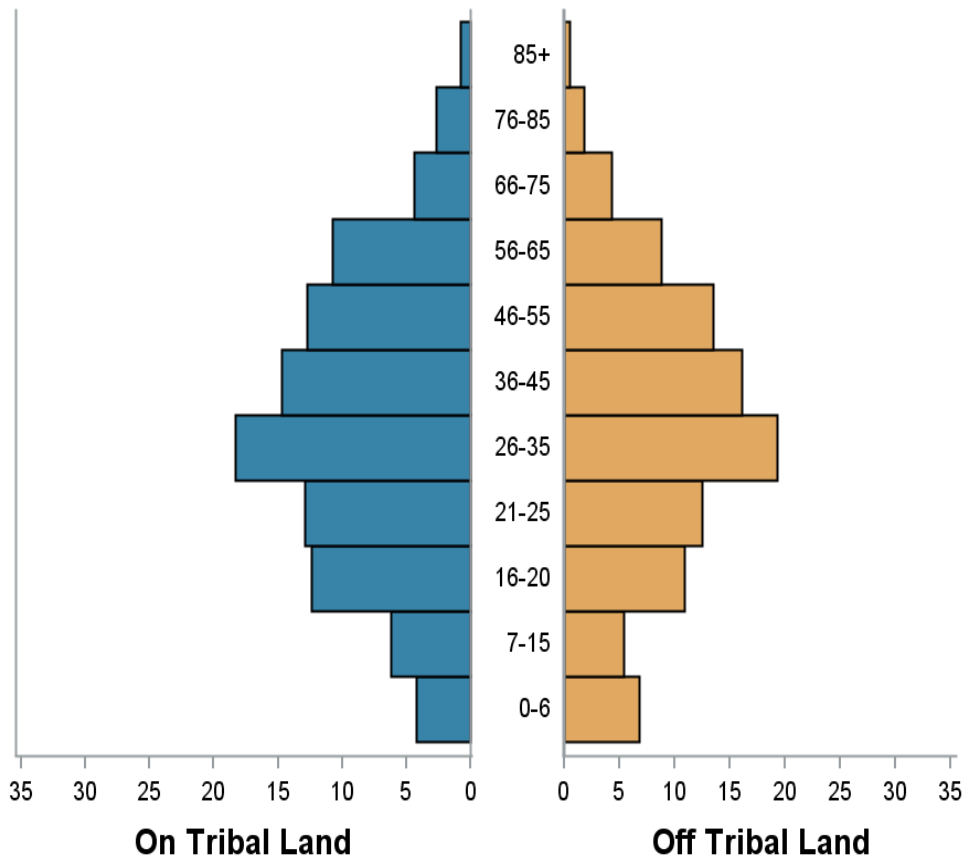
Graph 8. MVCs by Age on and off Tribal Lands: 2007-2014.



AGE: INJURY CRASHES

Graph 9 shows the age distribution of people involved in injury MVCs on and off Tribal lands. The percentage of people involved was roughly similar by age on and off Tribal lands for all age groups except those six years old and under. On Tribal lands, approximately 4% of injury crashes involved children six years of age and under, while off Tribal lands approximately 7% of crashes involved children 6 years old and under.

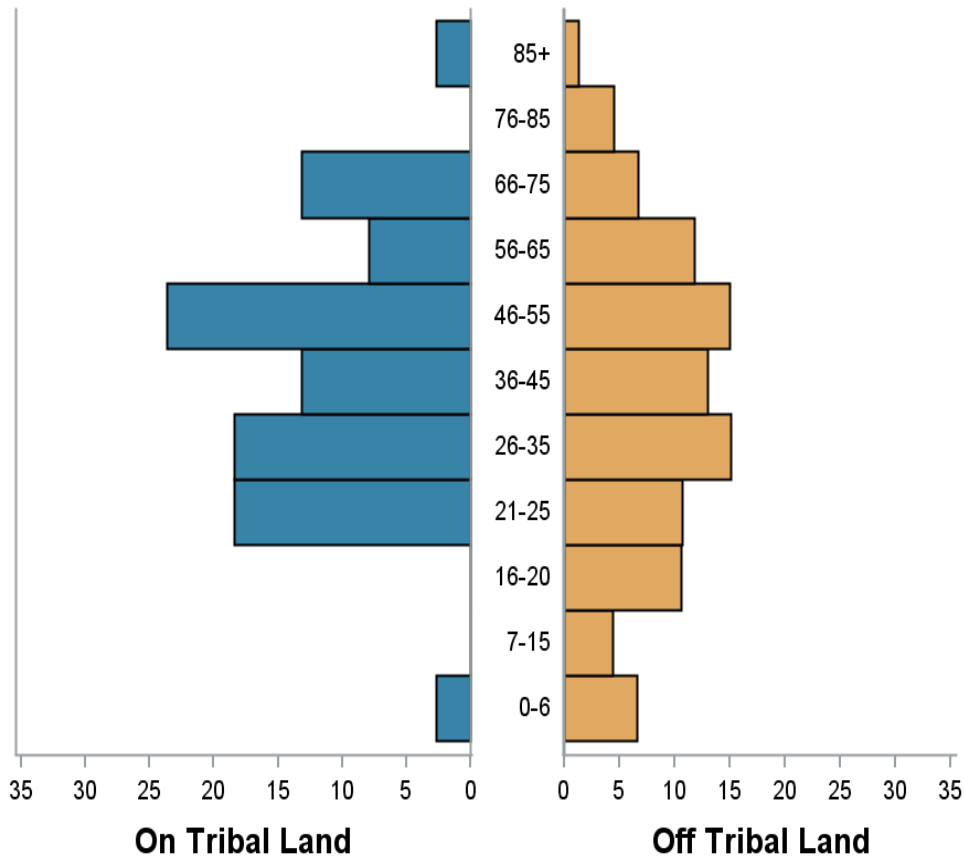
Graph 9. MVCs that Resulted in Injury by Age on and off Tribal Lands: 2007-2014.



AGE: FATAL CRASHES

Graph 10 shows the age distribution of people involved in fatal MVCs on and off Tribal lands. There were 37 people involved in fatal crashes on Tribal lands and 2,944 off Tribal lands. Twenty-four percent of fatal MVCs involved people ages 46-55 on Tribal lands as compared to 15% off Tribal lands. Eighteen percent of fatal MVCs involved people ages 26-35 on Tribal lands, while 15% of fatal crashes off Tribal lands involved this age group.

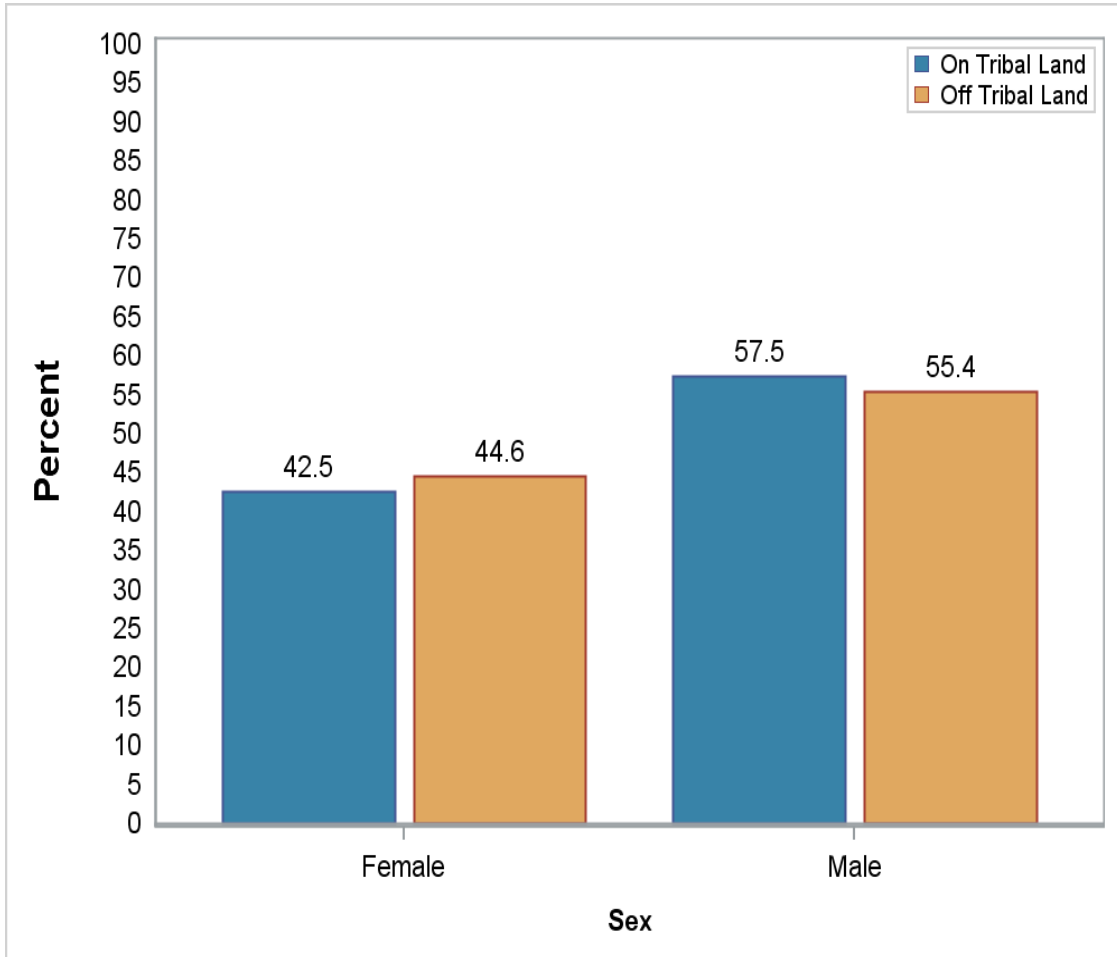
Graph 10. MVCs that Resulted in Fatality by Age and Location of Crash on and off Tribal Lands: 2007-2014.



GENDER

Graph 11 shows the gender distribution of people involved MVCs on and off Tribal lands. Slightly more men were involved in MVCs on Tribal lands compared to off Tribal lands.

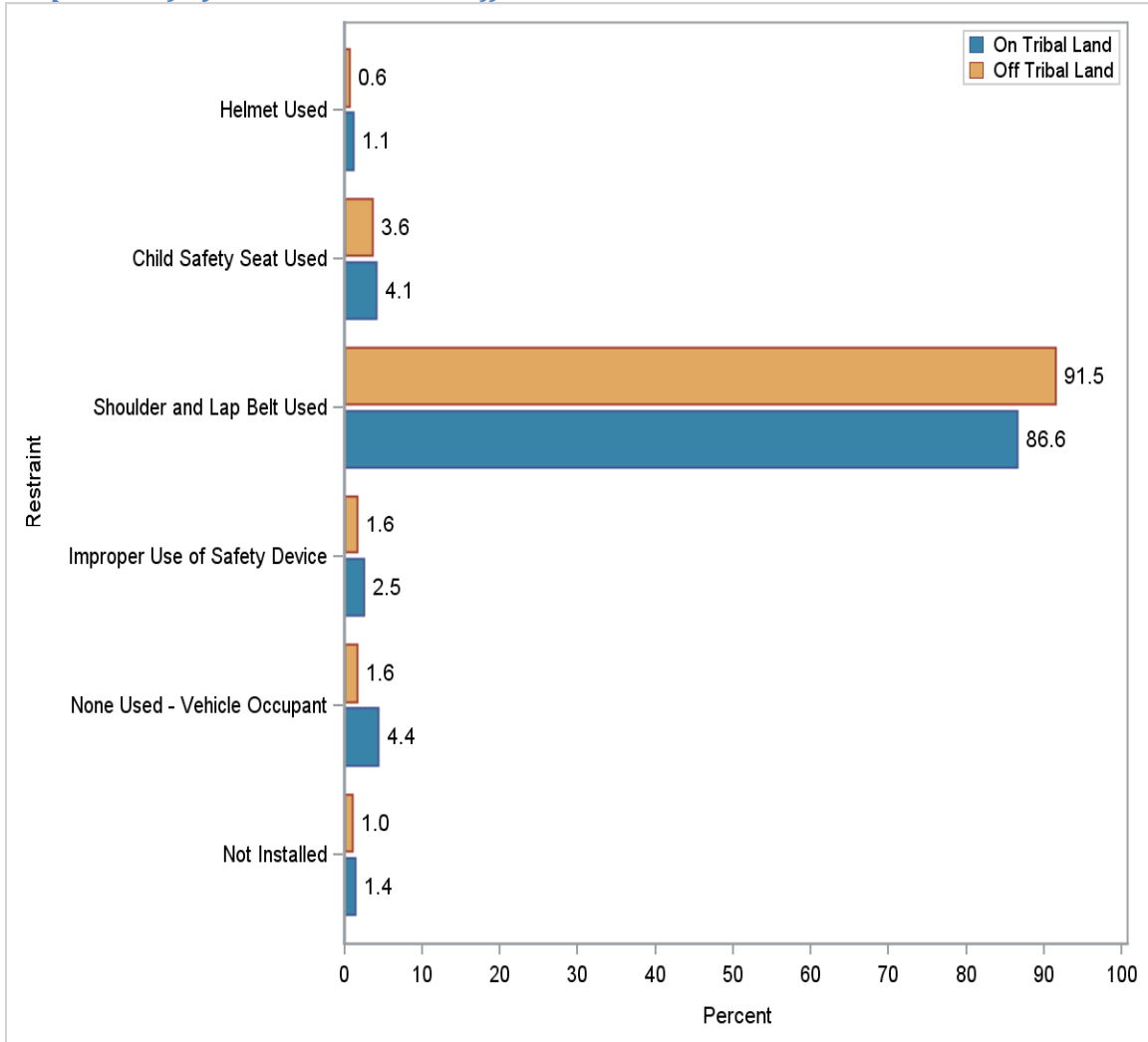
Graph 11. MVCs that Resulted in Fatality by Age and Location of Crash on and off Tribal Lands: 2007-2014.



RESTRAINT USE

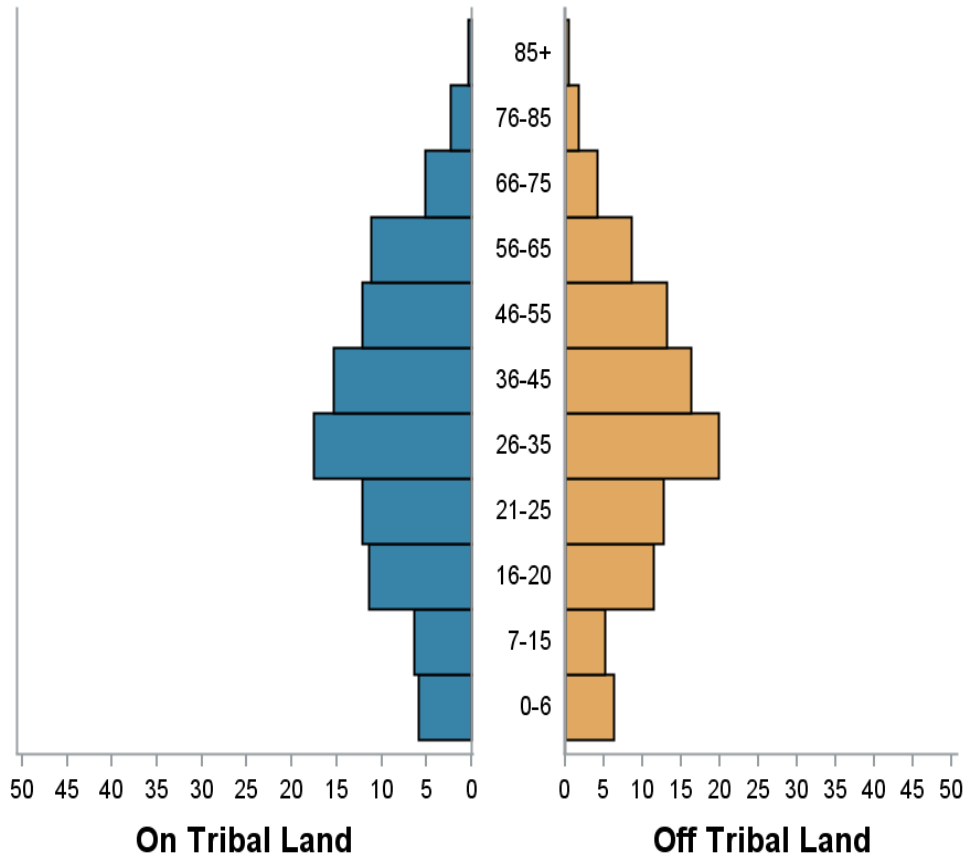
Graph 12 shows the use of safety devices on and off Tribal lands. Approximately 5% fewer people involved in MVCs on Tribal lands used a shoulder and lap belt on Tribal lands as compared to off Tribal lands. However, nearly 2% more people used no safety device on Tribal lands as compared to off Tribal lands.

Graph 12. Safety Device Use on and off Tribal Lands: 2007-2014.



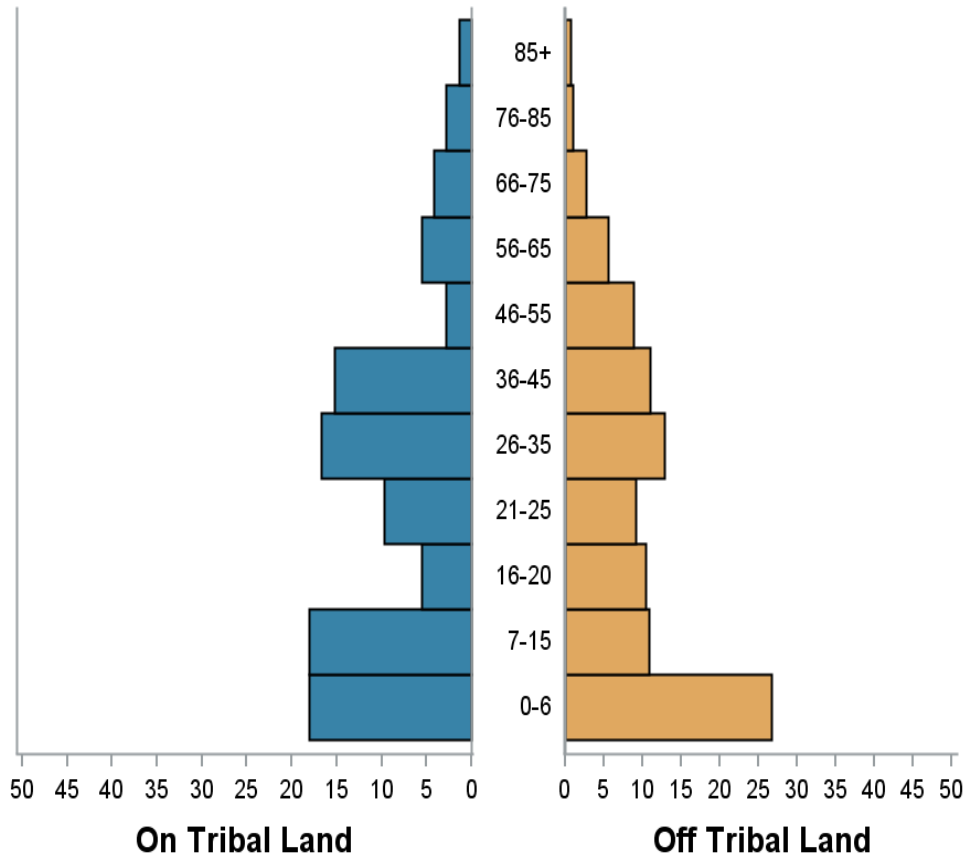
Graph 13 shows the percent of proper use of safety devices on and off Tribal lands by age. Proper use was higher in ages 56 to 85 years old on Tribal lands as compared to off Tribal lands.

Graph 13. Correct Safety Device Use by Age on and off Tribal Lands: 2007-2014.



Graph 14 shows the percent of improper use of safety devices on and off Tribal lands by age. Improper use was approximately 14% lower in ages 0 to 6 and 7% lower 7-15 years old on Tribal lands as compared to off Tribal lands. However, improper use was 4% higher in the 26 to 35 and 36-45 year old age groups on Tribal lands as compared to off Tribal lands.

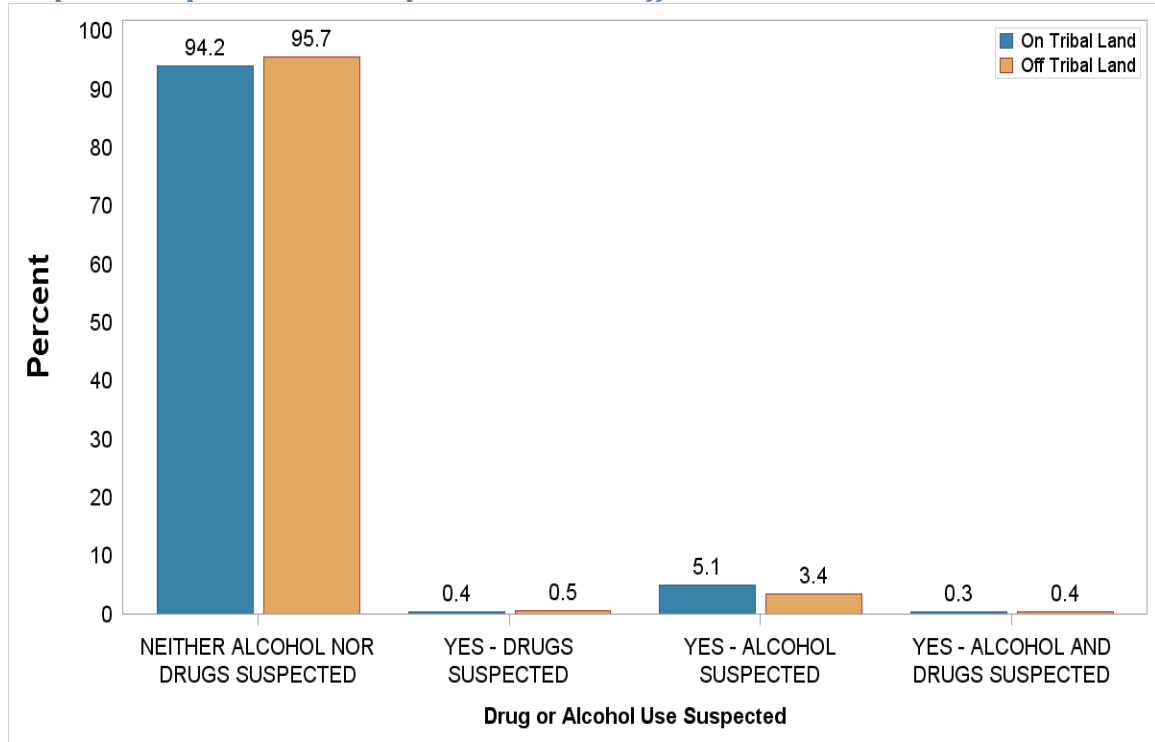
Graph 14. Improper Use of Safety Device Use by Age on and off Tribal lands: 2007-2014.



IMPAIRMENT

Graph 15 shows the suspected use of drugs and alcohol by the driver in MVCs on and off Tribal lands. Drugs and alcohol were not suspected in nearly 95% of crashes on and off Tribal lands. Alcohol was suspected in 2% more crashes on Tribal lands compared to off Tribal lands.

Graph 15. Suspected Driver Impairment on and off Tribal Lands: 2007-2014.



STRENGTHS

The data set included all the variables of interest from the state of NV Traffic Accident Report Vehicle Information Sheet, which allowed analysis of location, person, and time. The data included all MVCs located in Tribal lands boundaries, determined by Global Positioning System (GPS) coordinates that were reported to NDOT.

LIMITATIONS

It is well known that the majority of MVCs that occur on Tribal lands that are reported to NDOT are those that do not involve American Indians, therefore nothing can be inferred from this report about the driving behaviors of Tribal members. Conclusions can only be drawn about the people who drive on Tribal lands, regardless of race. In addition, most MVCs handled by Tribal police departments are not reported to NDOT, so data about MVCs on Bureau of Indian Affairs or Tribally-owned roads or in Tribal jurisdiction are sparse.