

## **Unreported Motor Vehicle Crash Investigation on Three Billings-Area Indian Reservations, 1983-1988.** Mark A. Kelty and Jerry L. Lee, Class of 1988.

### **Abstract**

At three Indian Reservations in Montana and Wyoming, analysis was performed on available police, ambulance and first-responder records of motor vehicle crashes (MVCs) and compared with MVC records from reporting systems used by the Montana and Wyoming state governments. The analysis and comparison of these records covered a 5 1/2 year period, from January 1, 1983 through June 30, 1988.

Final results indicate a mean reporting discrepancy rate of 64% for the three reservations surveyed (Reporting Discrepancy Rate = 100% -Reporting Accuracy Rate). Individually, the rates were as follows: Wind River (Wyoming), 49%; Northern Cheyenne (Montana), 52%; and Blackfeet (Montana), 85%. These rates indicate that the reservations are not accurately represented in state (and, therefore, federal) MVC statistics. Since state reporting system records are a primary tool used to prioritize highway development and repair projects, it is quite likely that the reservation roadways represented in this project are not allotted an adequate and equitable share of highway funds needed for road improvements.

### **Introduction**

Ever since the signing of treaties between Indian Tribes and the U.S. government, the Indian Tribes have struggled to find the most beneficial balance between autonomy in legal sovereignty and the utilization of available federal and state resources. One of the results of this struggle has been the low degree to which local MVCs have been reported to state reporting systems (SRS).

Ideally, MVC reports are completed by police officers at actual MVC sites, utilizing uniformly-formatted report forms. These forms vary somewhat in format from state to state, but remain the same in terms of the general range of information which is obtained. Completed MVC forms are then submitted to the SRS for the state as part of a permanent record of MVCs occurring along those particular roadways.

State governments utilize data from their SRS records as an important tool in establishing priorities for roadway development and improvement projects. A main factor of such data is the determination of existing roadway "hot spots" (specific areas of high MVC concentration, or of high MVC-related deaths or severe injuries). This and other factors of roadway conditions are taken into account in establishing a "hazard index" for each roadway, to determine the relative importance of repairing or modifying such roads. And since many of the heavily traveled reservation roadways are maintained by State Highway Departments, the importance of reporting local MVCs to the states is quite apparent.

However, some Tribal governments prefer to have their own police agencies conduct the majority of reservation law-enforcement duties, with as little state involvement as possible. When this situation exists, and the Tribal police do not fill out the State MVC forms or follow the reporting protocol, the MVCs investigated by the Tribal police are not represented as part of the State's SRS data. It would seem a logical conclusion that if reservation roadways are incompletely represented in terms of MVC occurrences, those same roadways are likely given much lower priority for road improvement funding.

It was with these concepts in mind that the methodology of the project was designed.

### **Methodology**

1. The period studied during the project was January 1, 1983 to June 30, 1988.
2. Data was gathered for analysis and comparison from the following local MVC responders and state data systems:
  - a. Bureau of Indian Affairs/Tribal Police records.
  - b. Ambulance records from those Ambulance services whose operational territory includes reservation areas.

- c. County Sheriff records.
- d. Local First-Responder records.
- e. Records from Wyoming Accident Reporting System (WARS), Wyoming Highway Department.
- f. Records from Highway Information System (HIS), Montana Department of Administration.

3. The recorded MVCs from the above sources were cross-referenced with each other to avoid any single MVC with two reports (e.g.; police MVA report and ambulance trip sheet) from being counted as two separate MVCs. Two parameters (time and location) were primarily used in cross-referencing the MVC reports.

- a. If any MVC was recorded by two or more sources as occurring within 1 hour and within 1 mile of each other, the multiple reports were counted as one MVC.
- b. If the time and location data on any report was found to be insufficient, additional data given regarding other specific details (e.g., total passengers in vehicle, number injured, number killed) was also considered to help prevent multiple reports of any one MVC from being counted as multiple MVCs.

4. The following equations were used to calculate reporting accuracy and reporting discrepancy rates for each reservation, after the total numbers of reservation MVCs were tabulated.

$$\frac{\text{Total MVCs in state reporting system for Reservation A}}{\text{Total combined MVCs for reservation A}} \times 100 = \text{Reporting Accuracy Rate (\%)} \\ \text{(state reporting system + local data sources for Reservation A)}$$

$$100\% - \text{Reporting Accuracy Rate (\%)} = \text{Reporting Discrepancy Rate (\%)} \\ \text{For Reservation A} \qquad \qquad \qquad \text{For Reservation A}$$

### **Results and Discussion**

The results of the project indicate that very incomplete reporting of MVCs was done by law enforcement agencies serving the reservations during the 5-1/2 year period examined. Calculated rates of reporting discrepancy were as follows: Wind River, 49%; Northern Cheyenne, 52%; and Blackfeet, 85%.

Available Tribal Police documentation of MVCs at Blackfeet was the most numerous among the BIA/Tribal police agencies surveyed, but only a small percentage (no higher than 15%) of the total MVC investigations at Blackfeet were submitted for recording in the Montana HIS system. For the same period, available MVC documentation from their counterparts at Northern Cheyenne and Wind River was very limited. Data from the Northern Cheyenne Agency Police was available for only 1-1/2 years of the time period examined. For the Wind River Agency Police, there was no data available for all of 1983 and 1985. Also, there were access problems with other local police agencies because of department guidelines limiting storage time for documents. Because of this, it is quite possible that the number of MVCs that actually occurred during the time period researched (and were unreported to state reporting systems) was much higher.

At Northern Cheyenne, if the ratio of Tribal Police-recorded MVCs (from 1-1/2 years of available data) to reports recorded by ambulance and Montana HIS system sources is applied to the remaining four years of time analyzed in the project, the reporting discrepancy rate for that reservation increases from 52% to 63%.

### **Limitations of the Study**

1. Lack of data from some sources for portions of the 5-1/2 year period examined (e.g., the above-mentioned gaps in collected MVC reports at Northern Cheyenne).
2. Incorrect or incomplete recording of data on MVC report forms, making cross-referencing more difficult and increasing the chance of errors in the cross-referencing process.  
Example:  
MVC record source #1: Date: 4/22/85  
Location: 3 miles east of Bob's Market, on Pike Lane.  
Time: 4:00

MVC record source #2: Date: 4/22/85  
 Location: by Tucker's Bridge.  
 Time: 16:25

3. Lack of available research time to gather additional sources of data (e.g.; Hospital Emergency Room log books or patient treatment forms).

### **Recommendations**

1. This project involved only three Billings Area reservations (Northern Cheyenne, Blackfeet and Wind River), and roadway systems from only two states (Montana and Wyoming). Such research should be performed at all reservations to determine the extent of MVC under-reporting which is occurring at Indian Reservations throughout the U.S.

2. Some Bureau of Indian Affairs/Tribal Police Departments are equipped with MVC investigation forms which have different formats than those used in the state reporting systems. The forms are submitted to local agency administrative personnel, but are often not sent further to be included in state reporting system records. a. Each BIA/Tribal police department should contact state police departments to begin the transition from existing MVC forms to standardized State MVC investigation forms. b. Once the appropriate forms are obtained, and personnel are trained in their use, established procedures for completion and submission of forms should be followed. c. After the improved reporting process is in place, local authorities can request detailed analysis of the MVCs occurring on reservation roadways, receiving information on up to 25 different parameters (e.g.; location, time of day) related to MVC events. Using these parameters, a hazard index can be determined for more precise evaluations of hazardous conditions existing on local departments.

With this data in their possession, Tribal governments can approach State Highway Departments with road improvement requests based on solid MVC statistical data. This would provide the Tribe with much more justification for higher priority in using state highway funds for the repair or improvement of on-system reservation roads.

Local police agencies could also use the improved reporting system to keep better records of MVCs occurring on off-system reservation roadways, for possible future repairs or improvements by county, city or BIA road departments.

3. Local agencies and/or governments should move to have mile markers installed along all well-traveled reservation roadways. These markers can aid police officers in more thorough reporting of MVC sites, especially any roadway "hot spot" locations. They also serve to assist local ambulance crews and other emergency personnel in locating sites of emergency situations.

Many state highway departments maintain separate listings of roadways which either have or do not have roadside mile markers installed ("on-system" and "off-system" respectively). On-system MVCs are generally listed in geographic order on roadways, which very clearly points out any roadway hot spots that may have developed. On the other hand, off-system MVCs are simply listed (if listed at all) by map grid coordinates or other methods, which makes the process of determining MVC hot spots far more difficult. By installing mile markers along more reservation roadways, those roadways could then be added to existing listings of state on-system roads, and the locations of MVCs occurring on those roads can be recorded with much more precision in SRS data records. It is hoped that the data resulting from this project can be used as a tool to help implement better procedures for reporting of MVC data on reservations throughout the United States.

## **References**

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