LEGISLATIVE AUDIT DIVISION

Scott A. Seacat, Legislative Auditor
John W. Northey, Legal Counsel
Tori Hunthausen, IT & Operations Manager

Deputy Legislative Auditors:
Jim Pellegrini, Performance Audit
James Gillett, Financial-Compliance Audit

September 15, 1997

Representative John A. Mercer
Speaker
PO Box 460
Polson MT 59860-0460

Dear Speaker Mercer:

At your request, we reviewed the trends and changes in traffic safety activity since the removal of a numerical speed limit in December 1995. Subsequent to your request 12 legislators called to provide comments and request supplemental and related information. The attached report identifies major questions raised and provides data analysis addressing those questions.

We thank the staffs at the Departments of Justice and Transportation for their assistance and cooperation during our review. I would also like to express special thanks to Tom Mulvaney of the Legislative Services Division for his hard work and long hours supporting our data analysis.

As you have requested, we have mailed photocopies of this report to all Montana state legislators.

Respectfully submitted,

(signature on file)

Scott A. Seacat
Legislative Auditor

AG/v/z9.ltr

Enclosure

Room 135, State Capitol Building, PO Box 102705 Helena MT 59620-1705
Phone (406)444-3122, FAX (406)444-9784

Legislative Audit Division

Legislative Request 98L-11
September 15, 1997

Montana Speed Limit Analysis

We attempted to answer questions that may help the Legislature and the public make decisions related to speed limits in Montana. Information includes:

- Average measured speeds on urban Interstate highways remained constant between 55-60 mph.
- Average measured speeds on rural Interstate highways have been increasing and are currently 67 mph.
- Rural non-Interstate highways average measured speeds increased from 54 mph to 58 mph.
- Annual vehicle miles traveled increased steadily. Number of accidents and fatalities per million vehicle miles decreased.
- The first seven months of 1997 had increases in both the number of fatal accidents and fatalities compared to 1996.
- Majority of fatal accidents and total accidents are occurring on non-Interstate highways.
- Most accidents occur during daylight hours.
- Numerous factors contribute to fatal accidents.
- Seat belts increase safety.
- Basic rule citations increased in 1997.

Direct comments/inquiries to:
Legislative Audit Division
Room 135, State Capitol
PO Box 201705
Helena MT 59620-1705

INTRODUCTION

The Legislative Audit Division (LAD) was asked to analyze trends and changes which have occurred in motor vehicles speeds and accident rates since the removal of the numerical speed limit for the state of Montana on December 8, 1995. In addition to the LAD study, several studies are currently underway relating to speed limits. The National Highway Traffic Safety Administration (NHTSA) is studying the effects of increased speed limits which will focus on death and injury costs due to speed-related crashes and the benefits to states from repeal of national speed limits. The study is due to Congress by September 30, 1997. The NHTSA would not release any results of the study at the time of this analysis.

On September 5, 1997, the director of the Montana Department of Transportation (MDT), reconvened the department's Ad Hoc Committee on Speeds to determine if a compelling argument can be made for establishing a specific, numeric speed limit for Montana. The Committee is directed to provide an analysis and make a specific recommendation based on available data and information. The project was given a top priority and results will be presented no later than October 10, 1997.

SCOPE OF LAD REVIEW

For this study, we have gathered data and information from as many sources as possible. These sources are organizations and government agencies involved with traffic safety. They include the Montana Department of Justice, MDT, the NHTSA, traffic safety agencies in other states, and a national automobile publication. This document includes data on Montana accidents and summary information from research papers, reports and independent analysis. The following sections outline questions asked by legislators and the available analytical data we compiled in response to these questions.

WHAT ARE SOURCES FOR HIGHWAY TRAFFIC SAFETY INFORMATION?

There are numerous systems in place which contain data related to highway traffic safety. One such system is the Fatality Analysis Reporting System (FARS). This is a national database which contains data on fatal traffic crashes. Due to the limited Montana accident information on this system, we did not use data from FARS. For our analysis, we used data from the Montana Accident Reporting System (MARS). This system, along with a new Accident Investigator's report, was implemented by the Montana Highway Patrol (MHP), Department of Justice, in January 1996. Highway traffic safety data from the MDT was also used.

Data Limitations

The new MARS system stores information from crash reports throughout the state. Due to the recent changes in the system, less than two years of comparable detailed data were available, 1996 and year to date for 1997. In addition, estimated speed at the time of accident is not recorded on the current database, therefore, we were not able to determine if a statistical correlation exists between speed and accident frequency. We did not examine the internal controls over the computer systems. Historic data

on MARS is updated on an on-going basis, therefore, figures in this report may be updated and changed. Data used in this report was based on data entered on the system as of Thursday, September 11, 1997.

AVAILABLE SPEED LIMIT GUIDELINES

Every state has a basic speed law which specifies that regardless of any other applicable speed limit, the driver shall operate at a speed reasonable and prudent for the existing conditions, taking into account actual and potential hazards encountered. The process for setting speed limits recognizes most drivers will drive at a reasonable and safe speed. Traffic engineers often think of traffic speeds in terms of pace. When most vehicles are traveling at about the same pace, the chance of collisions is greatly reduced. Traffic engineers can determine the pace by collecting information on vehicle speed along a section of highway. Most states use widely accepted practices supported by the Federal Highway Administration (FHWA) and the Institute of Traffic Engineers to develop their basic traffic safety guidelines. It should be noted traffic engineers are studying traffic speeds and road conditions on sections of highways to set special speed zones not overall statewide speed limits.

FHWA Guidelines

FHWA issued a report titled "Guidelines for Establishing Speed Zones" in July 1985. This report outlines some fundamental concepts used as guidelines in establishing realistic speed zones. The guidelines include:

- The majority of motorists drive at a speed they consider reasonable and safe.
- A speed limit should be set so the majority of motorists observe it voluntarily.
- A speed limit should seem too fast to at least 85 percent of the drivers.
- The likelihood of an accident occurring is significantly greater for motorists traveling at speeds both slower and faster than the mean speed of traffic.
- The lowest accident involvement rate occurs when vehicles are traveling at approximately the 85th-percentile speed. (The 85th percentile speed is the speed where 85 percent of the drivers are at this speed or slower.)

This same FHWA report gives the major reasons for using the 85th-percentile speed to establish maximum speed limits (paraphrased):

- There is widespread use and acceptance by traffic professionals.
- The probability of accidents is low for vehicles traveling below the 85th-percentile speed.
- The 85th-percentile speed is recognized by the majority of drivers as a safe speed and is largely self-enforcing.
- Speed samples are easy to obtain and analyze.

Using the 85th-percentile speed to establish speed zones assumes there is a normal bell shaped curve for the speed distribution. The pace is defined as the 10 mph speed range containing the largest percentage of vehicles. In an ideal normal speed distribution about 70 percent of the vehicles would be

traveling within the pace with about 15 percent traveling slower and 15 percent traveling faster than the pace. Thus the upper end of the pace would be at about the 85th- percentile speed.

Montana Speed Zone Guidelines

MDT has outlined state guidelines in a 1977 report "Realistic Speed Zoning in Montana." This report states:". . . traffic laws which are based on the behavior of reasonable motorists are found to be successful. Laws that arbitrarily restrict the majority of drivers encourage wholesale violations, lack public support and usually fail to bring about desirable changes in driving behavior. This is especially true of speed zoning."

This same report goes on to state: "Before and after studies consistently demonstrate that there are no significant changes in traffic speeds following the posting of new or revised speed limits. Furthermore, no published research findings have established any direct relationship between posted speed limits and accident frequency . . .."

The report gives some reasons for realistic speed zones:

- They invite public compliance by conforming to the behavior of the majority and by giving a clear reminder to non-conforming violators.
- They offer an effective enforcement tool to the police by clearly separating the occasional violator from the reasonable majority.
- They tend to minimize current public antagonism toward police enforcement.
- They inject an element of logic and reason into an otherwise arbitrary and often emotional issue.

According to the department's highway design manual, the 85th-percentile speed is one of the factors, and usually the most important factor, for determining the posted, legal speed limit of a highway section. Other factors which can be considered for a posted speed limit include:

- 10 mph pace information
- road surface characteristics, shoulder condition, grade, alignment, and sight distance;
- the type and density of roadside development;
- accident experience during the previous 36 months, and;
- parking practices and pedestrian activity.

Since motorists take most of these factors into account when determining their speed, the best measurement for speed zone setting is the speed most drivers are driving.

Design Speed for Montana Highways

Design speed is "the maximum safe speed that can be maintained over a specified section of highway when conditions are so favorable that the design features of the highway govern." A design speed is selected for each highway project and according to MDT's road design manual it relates to the driver's comfort and not the speed at which a vehicle will lose control. Design speed is based on several road

design elements including highway classification, urban and rural roads, traffic volumes, and terrain. According to MDT, all these elements are considered when a road is designed. However, terrain has the greatest impact on a highway's design speed. The department's design standards classify terrain as either level, rolling, or mountainous. The following provides a breakout of the design speed for Montana's highways when the different types of terrain are considered.

DESIGN SPEED FOR MONTANA HIGHWAYS

National Highway System (interstate and principal arterials)

Terrain Type	Design Speed
Level	110 Km/h (70 mph)
Rolling	100 Km/h (62 mph)
Mountainous	80 Km/h (50 mph)

Surface Transportation Program (remainder of primary, secondary, urban and state highways)

Terrain Type	Design Speed
Level	100 Km/h (62 mph)
Rolling	90 Km/h (56 mph)
Mountainous	70 Km/h (43 mph)

Source: Compiled by LAD from MDT records.

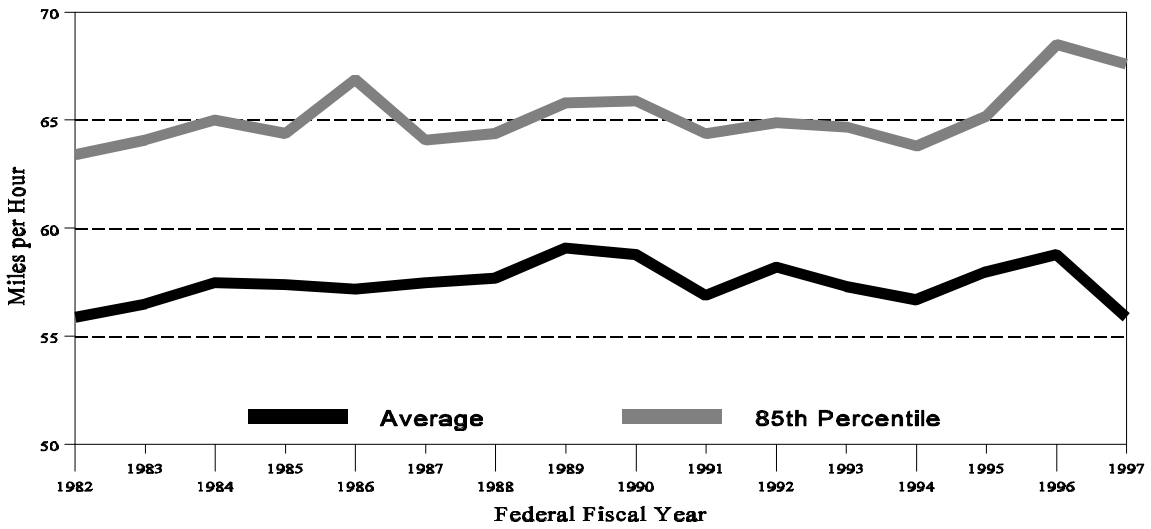
In addition, MDT officials indicated urban roads are designed with a speed of 80 Km/h (50 mph) because there is more development and access to the highway in these areas.

ARE MOTORISTS DRIVING FASTER IN MONTANA?

MDT's Data and Statistics Bureau collects data on traffic speeds which are reported quarterly to the federal government. This data is collected in 24 hour periods, four times a year, at 39 sites throughout Montana.

For urban Interstate highways (a total of eleven miles of Interstate near populations of 50,000 or greater) the posted speed limit has been constant since 1974 when the nationwide maximum speed limit of 55 mph was enacted as a temporary fuel conservation measure until it was repealed in December 1995. As shown in the following chart average measured speeds on urban Interstate highways have remained between 55 and 60 mph for the past 15 years.

Montana Urban Interstate Speeds
(1982 through 1997*)



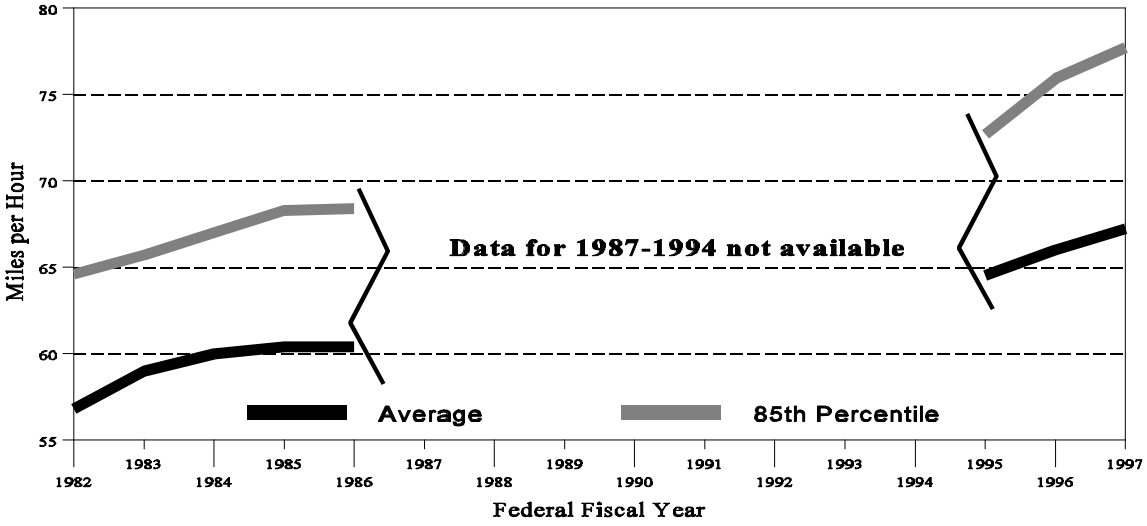
* 1997 only includes the first three quarters of the year.

Source: Compiled by LAD from MDT records.

The average measured speed was 55.9 mph in FFY82 (federal fiscal year-October 1 through September 30) and increased to about 59 mph in FFY89 and FFY90. The average measured speed then dropped slightly before returning to 58.8 mph in FFY96. Through the first three quarters of FFY97 the average measured speed was 55.9 mph.

For rural Interstate highways (which are the majority of Interstate miles in Montana), the posted speed limit increased from 55 mph to 65 mph in April 1987. The MDT stopped data collection on the system at that time and did not start collecting speed data again until FFY95. From FFY82 until FFY86, the average measured speed on rural Interstate gradually increased from about 57 mph to about 60 mph. When data collection started again in FFY95 the average measured speed was 64.5 mph. In December 1995, Montana returned to the "basic rule" speed limit. The average speed on rural Interstate highways increased to 66 mph in FFY96 and is at 67.2 mph through the first three quarters of FFY97.

Montana Rural Interstate Speeds
(1982 through 1997*)

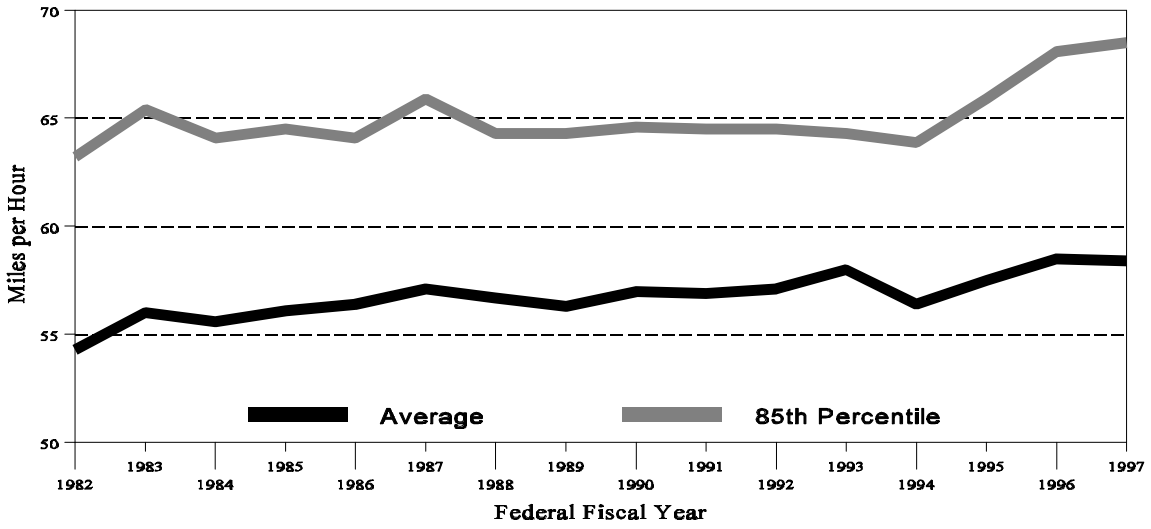


* 1997 only includes the first three quarters of the year.

Source: Compiled by LAD from MDT records.

For rural Non-Interstate highways the posted speed limits have followed the same pattern as for the urban Interstate highways. The posted speed limits were 55 mph until December 1995 when the "basic rule" became effective again. As shown in the following chart, there appeared to be a slight increasing trend in measured speed prior to any change in the posted speed limit. Since the return to the "basic rule", the average measured speed has continued its gradual climb to around 58.5 mph.

Montana Rural Non-Interstate Speeds
(1982 through 1997*)



* 1997 only includes the first three quarters of the year.

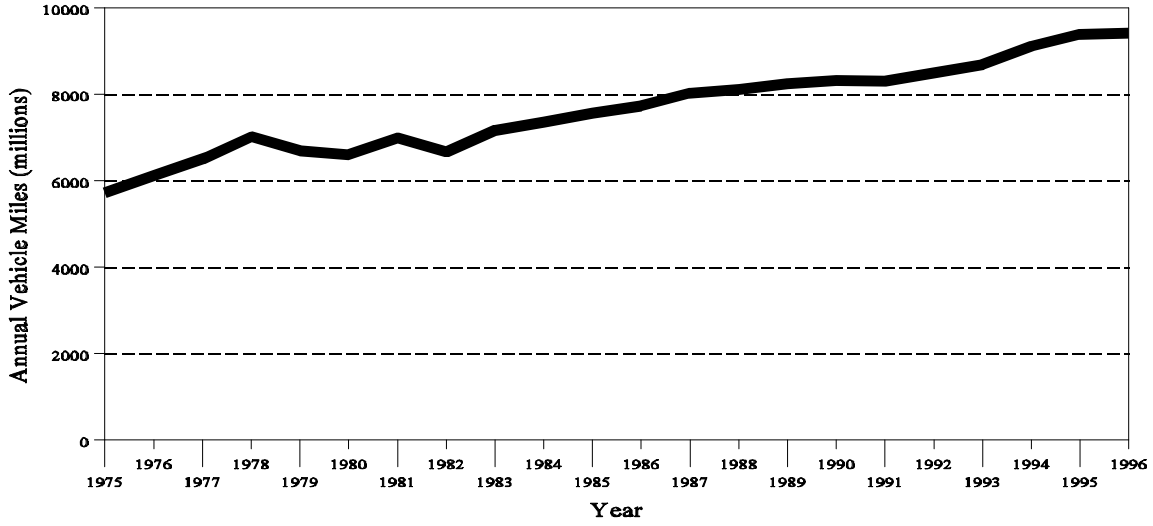
Source: Compiled by LAD from MDT records.

ARE MONTANA TRAFFIC VOLUMES INCREASING?

MDT's Data and Statistics Bureau also collects data on traffic volumes. One of the measures of the amount of traffic on the state's highways is the annual vehicle miles of travel. When one vehicle travels one mile it equals one vehicle mile. The following chart shows that annual number of vehicle miles traveled in the state has been increasing steadily since 1975. In 1975 there were approximately 5.7 billion vehicle miles traveled on the state's Interstate, state highway systems and local roads. The vehicle miles increased to about 9.4 billion in 1996 or an increase of about 65 percent.

Annual Vehicle Miles Traveled in Montana *

(1975 through 1996)

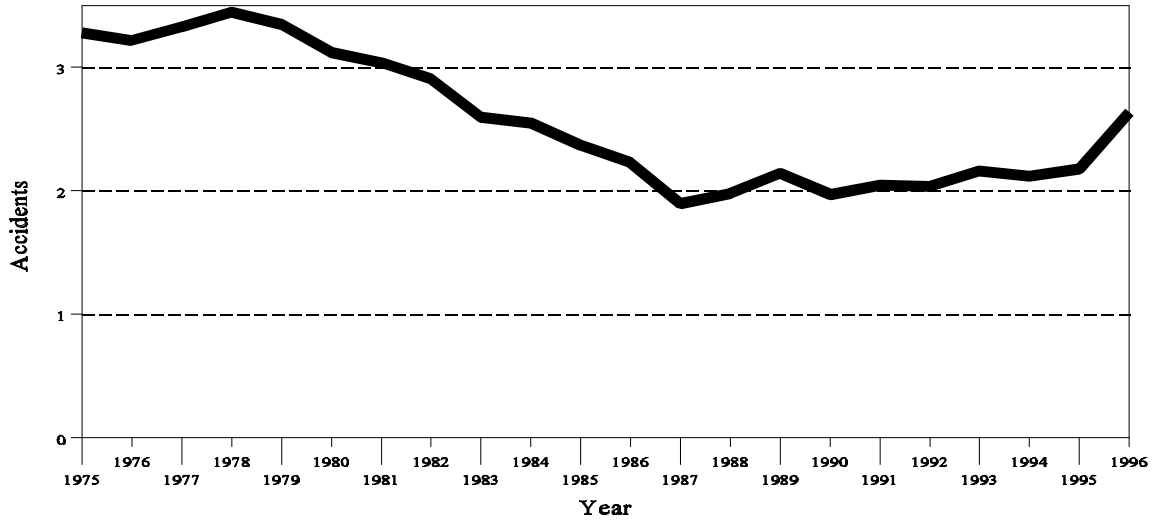


* Includes miles traveled on all interstate and state highway systems, and local roads.

Source: Compiled by LAD from MDT records.

As shown in the following chart, the number of accidents per million vehicle miles decreased rapidly from 1978 until 1987. From 1987 to 1995 the number of accidents remained fairly constant at around two per million vehicle miles. There was an increase in 1996 to 2.64 accidents per million vehicle miles.

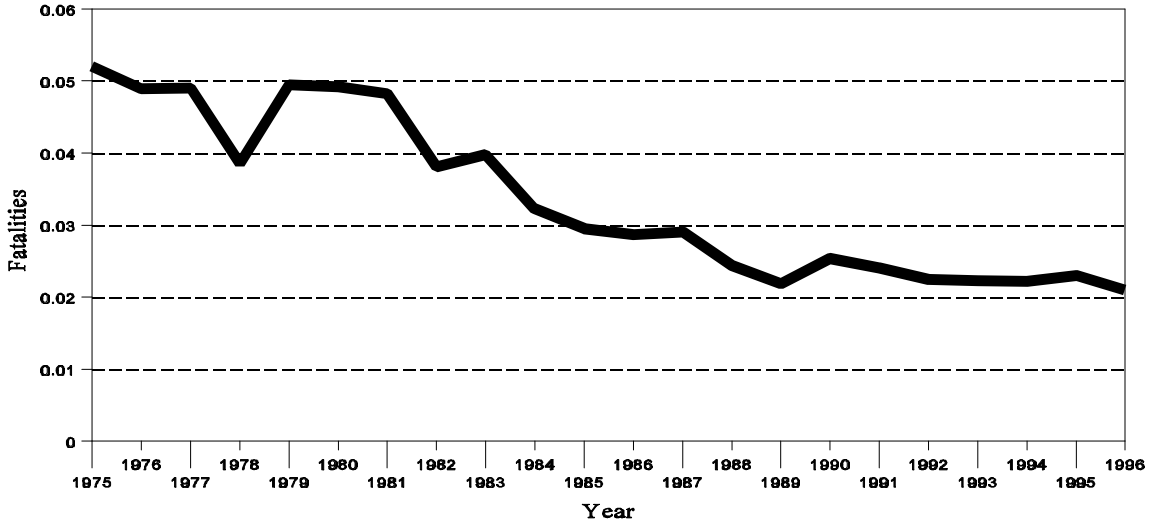
Accidents per Million Vehicle Miles in Montana
(1975 through 1996)



Source: Compiled by LAD from MDT records.

Since 1975, the trend of fatalities has been gradually decreasing. When combined with the increase in the number of vehicle miles, it causes a significant decrease in the number of fatalities per million vehicle miles traveled. This is shown in the following chart.

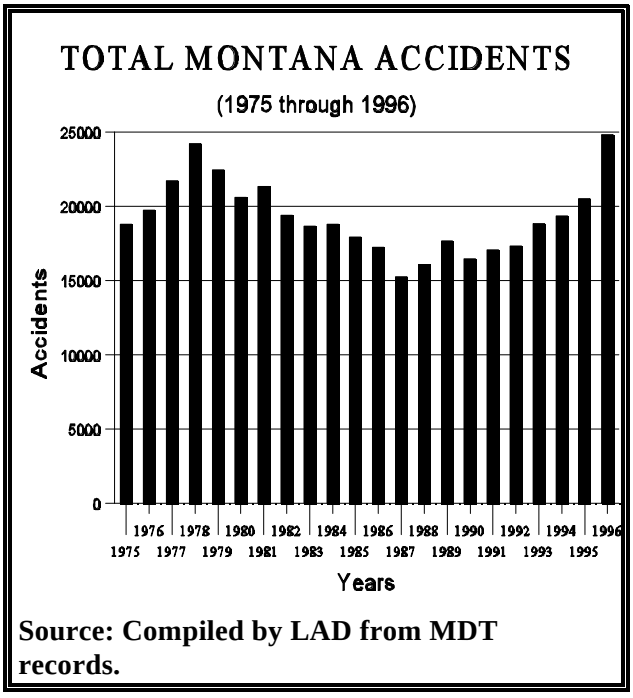
Fatalities per Million Vehicle Miles in Montana
(1975 through 1996)



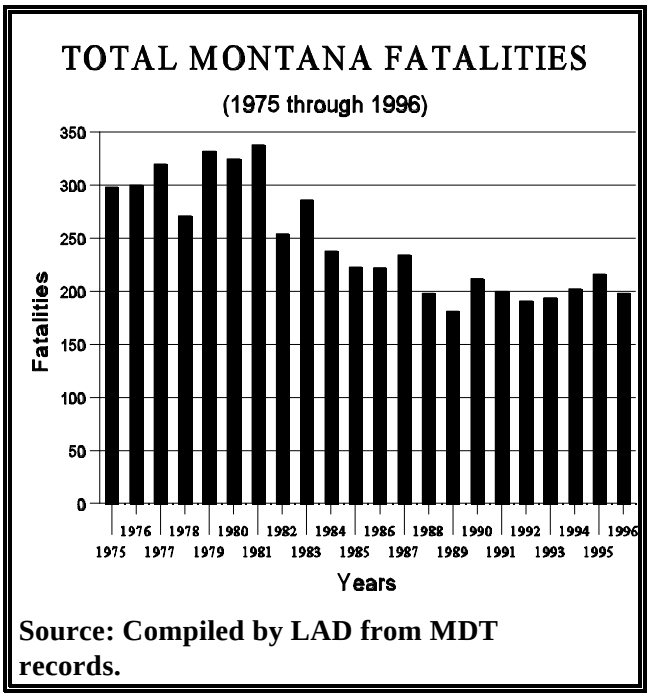
Source: Compiled by LAD from MDT records.

ARE ACCIDENTS AND FATALITIES INCREASING?

The following charts illustrate trends in the number of accidents and fatalities from 1975 through 1996.



Source: Compiled by LAD from MDT records.



Source: Compiled by LAD from MDT records.

Overall, total accidents have increased since 1990 while the number of fatalities have remained fairly constant at around 200.

RECENT FATALITY TRENDS

We compared the data for fatal accidents for the period of January 1 through July 31 for 1996 and 1997. In 1997 there were 111 fatal accidents resulting in 132 fatalities. For the same period in 1996 there were 97 fatal crashes and 108 fatalities. The number of fatalities has increased in the current year. In addition, there have been more multiple fatality accidents in 1997. In 1996 there were 10 accidents that involved multiple fatalities. In 1997 there were 17. The number of fatalities per multiple fatality accident is also up. This accounts for about half of the 24 fatality increase.

HOW DO MONTANA TRAFFIC FATALITIES COMPARE TO OTHER STATES?

We analyzed how current Montana trends compare to recent trends in surrounding states. This step was completed to determine if the increased number of fatalities in Montana corresponded with fatality trends in other states. We collected data on highway traffic fatalities from the central and western states for the past three years. A time period of January 1 through September 3 was used as this was the most current data available for Montana for 1997 at the time of the analysis. Adjustments were made to data which did not correspond with this time frame. The following table shows highway fatality trends over three years and compares the data to Montana.

HIGHWAY TRAFFIC FATALITY TRENDS
(January 1 through September 3)

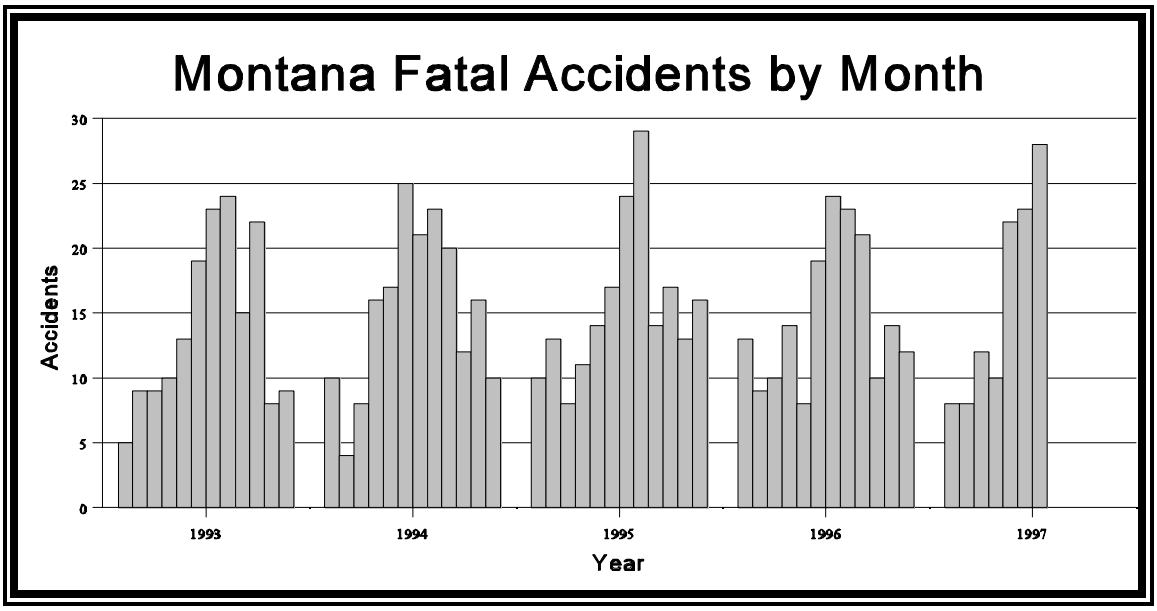
	YEAR			% Increase/Decrease		SPEED
STATE	1995	1996	1997	95 to 96	96 to 97	LIMIT *
Colorado	413	423	391	2%	-8%	75
Idaho	175 [1]	172 [1]	178 [2]	-2%	3%	75
Kansas	286	316	264 [3]	10%	-16%	70
Montana	**151**	**135**	**177**	**-11%**	**31%**	
Nebraska	169	193	172	14%	-11%	75
Nevada	221	209	145	-5%	-31%	75
North Dakota	49 [1]	57 [4]	64 [4]	16%	12%	70
Oregon	373 [5]	346 [5]	360 [5]	-7%	4%	65
South Dakota	104	124	84	19%	-32%	75
Utah	information not available at time of analysis					75
Washington	403	478	424	19%	-11%	70
Wyoming	122 [6]	93	92	-24%	-1%	75

* current speed limit (aside from Oregon, all increased after repeal of the national maximum)

[1] annual number reduced to 8 months (number * 8/12)
[2] through August 1997
[3] projection (165 through May * 8/5)
[4] through September 5
[5] through September 1
[6] unusually high year with no specific reason identified

Source: Compiled by the Legislative Audit Division.

As can be seen from the chart above, Montana has the highest percentage increase from 1996 to 1997. Three other states, Idaho, North Dakota, and Oregon, also had increases in highway fatalities from 1996 to 1997. Oregon has a posted speed limit of 65 miles per hour, the lowest of all western states, yet fatalities increased in 1997. Wyoming had a significant decrease from 1995 to 1996, but there was an unusually high number of fatalities in 1995. Other factors should also be considered when reviewing these numbers. For example, almost four months remain for 1997. Information in the Montana Highway Patrol 1996 Annual Report indicates a decreasing trend for number of fatal accidents in the latter months of the calendar year (Sept-Dec).



WHERE DO MONTANA ACCIDENTS OCCUR?

We identified and compared the type of roadway where accidents occurred for 1995 through 1997. This was done for both fatal and non-fatal accidents. Our analyses of change between 1995 and 1996 shows that even though there was a drop in fatal accidents on state highways and slight increases in three other types of roadways, the change was not statistically significant.

MONTANA HIGHWAY ACCIDENTS BY TYPE OF ROADWAY
(1995 through 1996)

	Fatal Accidents				Total Accidents			
	1995		1996		1995		1996	
Interstate	33		37		2168		2975	
NHS Highways		55		58		4831		5863
State Highways		61		46		6641		7647
County Roads	28		30		2970		3179	
Local	9		6		3898		5216	

Source: Montana Highway Patrol Database

We did the same comparison for the period of January 1 through July 31 for 1996 and 1997.

MONTANA HIGHWAY ACCIDENTS BY TYPE OF ROADWAY
(January 1 through July 31, 1996 and 1997)

	Fatal Accidents			Total Accidents		
	1996		1997	1996		1997
Interstate	17		23	1540		1494
NHS Highways		33	36		3212	3035
State Highways		24	25		4072	3999
County Roads	19		19	1722		1564
Local	4		5	3063		2529

Source: Montana Highway Patrol Database

Our analyses of the two years shows that even though there was an increase in fatal accidents in almost all areas between the same time periods 1996 and 1997, there was no significant change in the type of roadway where fatal accidents are occurring. There was a significant change in where all accidents occur. However, this was due to the number of accidents occurring on local roads.

WHEN DO MONTANA ACCIDENTS OCCUR?

The next step of our review was to determine if significant differences occur between daylight and non-daylight driving since a numeric speed limit is in place for night driving. We queried the MARS database to determine when accidents occur and the severity of accidents. The following table shows accident severity for daylight and non-daylight hours for interstate, primary, and secondary highways.

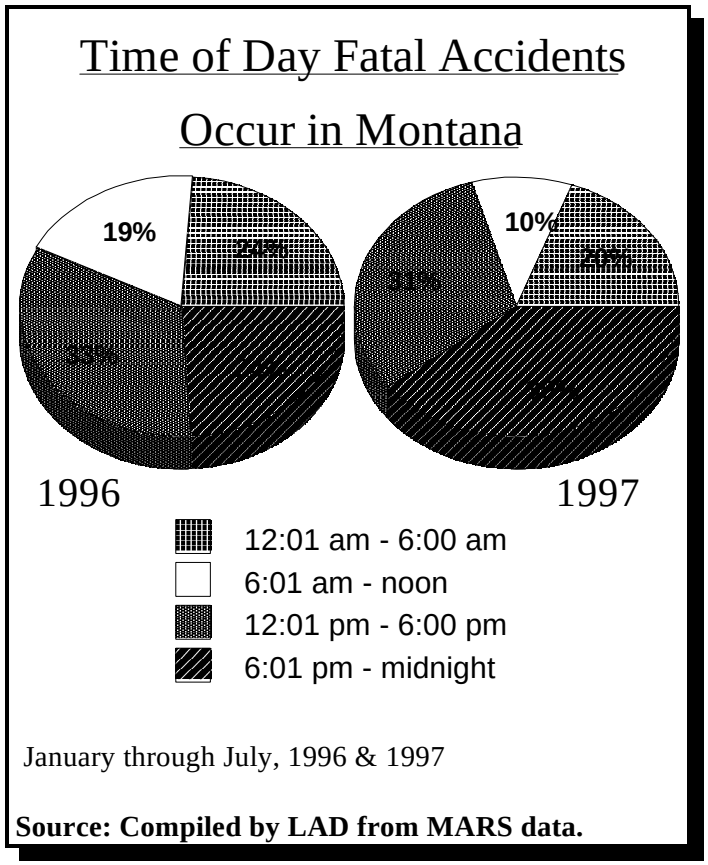
ACCIDENT SEVERITY ON MONTANA HIGHWAYS

(January through July , 1996 and 1997)

	Daylight Hours		Non-Daylight Hours	
	- - # of Crashes - -		- - # of Crashes - -	
Interstate Highways	**1996**	**1997**	**1996**	**1997**
Fatal	12	13	5	8
Incapacitating	95	86	43	40
Non-incapacitating	99	153	58	84
Non-injury	773	682	471	441
Possible Injury	146	152	69	73
Injured (severity unknown)	10	6	6	2
Unknown	8	5	6	3
Primary Highways				
Fatal	22	18	11	13
Incapacitating	172	162	80	61
Non-incapacitating	232	211	96	129
Non-injury	2,067	1,892	683	676
Possible Injury	457	426	134	160
Injured (severity unknown)	30	40	13	17
Unknown	74	32	25	20
Secondary Highways				
Fatal	8	16	16	17
Incapacitating	155	157	88	71
Non-incapacitating	284	255	148	148
Non-injury	2,666	2,577	812	818
Possible Injury	509	567	141	189
Injured (severity unknown)	47	41	20	18
Unknown	92	55	44	27

Source: Montana Accident Reporting System

The following chart provides a 6-hour breakdown of the time of day fatal accidents occurred on Montana highways. The data shows a decrease in fatal accidents during the 6:01 am to noon time frame and an increase in fatal accidents during the 6:01 pm to midnight time frame.



IS SPEED THE ONLY FACTOR AFFECTING TRAFFIC ACCIDENTS?

Driver behavior plays the dominant role in traffic safety. In Montana for 1997 the characteristics of the driver accounted for six of the top seven contributing circumstances to a fatal accident. According to the National Safety Council, in most motor vehicle accidents, factors are present relating to the driver, the vehicle and the road. It is the interaction of these factors which often sets up a series of events that result in an accident. The National Highway Traffic Safety Administration, in its studies and research into traffic safety, notes that very rarely is an adequate level of detail available to permit estimating the contribution of any specific factor on the occurrence of a fatal crash. It's research notes that statistical techniques that analyze accident data measure only **associations** between variables. They do not guarantee **causality**. Causality must be established though experimentation, which controls all but one or a few of the variables thought to affect the outcome variable.

If we were to relate this to the speed of a vehicle, we cannot through statistical studies or analysis determine if speed was the **cause** of an accident. We can identify driving too fast for conditions as a contributing factor, but the speed of the vehicle may not be the cause of the accident.

Many factors can add to the risk of being involved in a fatal crash. Consuming alcohol increases the risk of having a fatal accident. Alcohol affects the nervous system and inhibits decision making, proper response, and response time. Higher speed adds risk. According to a California study, if in an accident the chance of death or serious injury doubles for every 10 mph over 50 mph a vehicle travels. The faster a vehicle is going reduces the driver's ability to steer safely around objects and extends the distance necessary to stop. The condition of the vehicle also adds risk.

A research paper completed in July of 1997 by the National Center for Statistics and Analysis helps to illustrate the risk factors involved in a fatal accident. The research does not address cause. It estimates the odds of a fatality (given there is an accident). The driver factors are age, sex, posted speed in the accident location, hour of the day, day of the week, vehicle type, and type of crash. The following table summarizes the results of the study of 99,139 fatal accidents. In the table, the **Odds** represent relative odds. For example, in the first row - given there is an accident - the risk of there being a fatality if there is a male driver is 1.33 times higher than a female driver, or an estimated 33% greater risk. The risk of there being a fatality is 7.17 times higher if the accident occurs in an area with posted speeds higher than 55 mph when compared to an area having posted speeds of less than 40 mph.

Estimated Odds of Driver Fatal Crash by Key Driver and Crash Characteristics

Factor	Odds
Male/Female	1.33
65 years of age or older/ Less than 65	2.59
Posted speed 40-50 mph/ Less than 40 mph	2.83
Posted 55 mph/ Less than 40 mph	7.17
Posted above 55 mph/ Less than 40 mph	8.91
Weekend/ Weekday	1.19
Nighttime/Daytime	1.91
Light Truck and Van/ Passenger Car	1.29
Side Collision/Rear Collision	4.70
Single vehicle crash/Rear Collision	8.09
Head On/ Rear Collision	74.90

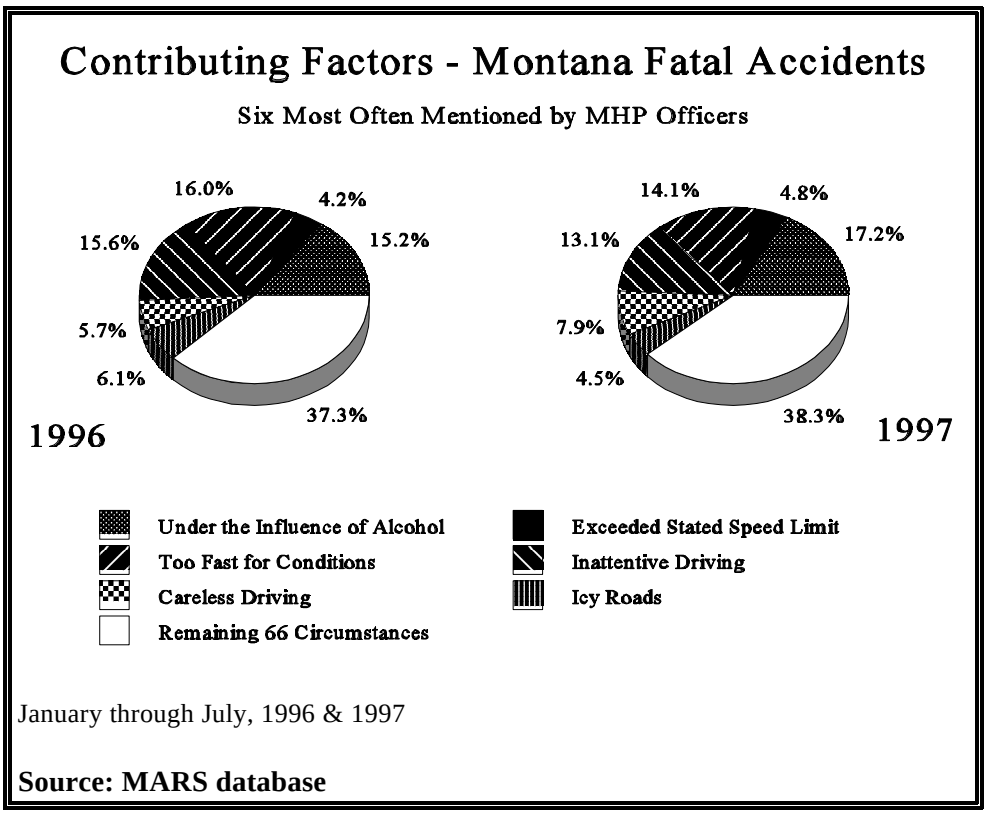
Source: Compiled by LAD from National Center for Statistics and Analysis records.

OTHER CONTRIBUTING FACTORS IN MONTANA FATAL ACCIDENTS

In a large majority of Montana cases, several different contributing factors were present. We analyzed the number of fatal accidents for the time period of January through July for both 1996 and 1997. The six most often identified contributing factors are:

--Too Fast for Conditions
--Alcohol
--Inattentive Driving
--Icy Roads
--Careless Driving
--Exceeding Stated Speed Limit

The following chart illustrates the percent of time MHP officers mentioned the factor as a contributing circumstance in a fatal accident. Up to five contributing circumstances can be identified for each accident.



We found these factors are generally occurring at relatively the same rate in both years. The only notable changes in factors reported was an increase in alcohol and careless driving as contributing factors.

DOES USE OF SEAT BELTS INCREASE SAFETY?

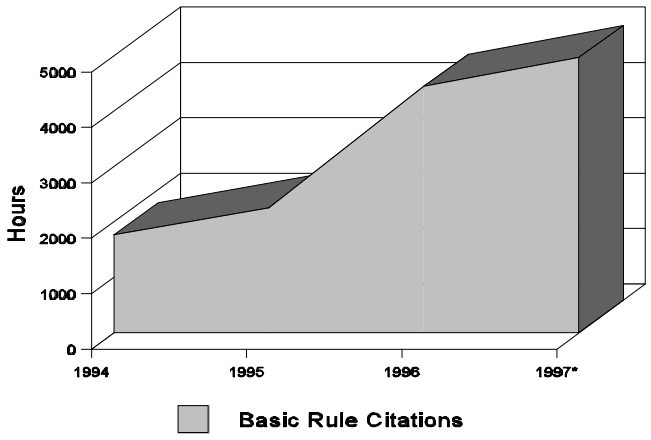
Since seat belt use was not included in this study as a contributing factor, we used the same analytical technique and constructed a similar table for seat belt use. We used Montana data for calendar year 1996. The results reflect that wearing a seat belt decreases your odds of dying if you are in an accident.

For Montana your probability of dying while wearing a seat belt are roughly 1.2 **to** 1000. Your probability of dying without a belt buckled are roughly 15 **to** 1000. Your probability of dying if your seat belt is *unfastened* is roughly 12 times higher than if your seat belt is *fastened*." Your probability of being injured if your seat belt is *unfastened* is roughly two and half times higher than if your seat belt is *fastened*."

In 1996 of the 174 Montana vehicular deaths (where seat belt data was available) those who were unbelted or improperly belted accounted for 124 (71%) of the deaths. In first six months of 1997 the 155 vehicular deaths 105 (68%) were unbelted. Not using a seat belt is definitely a contributing factor to fatalities.

HOW HAS MONTANA ENFORCEMENT CHANGED?

MHP is responsible for patrolling the highways of Montana, enforcing traffic laws, and investigating traffic accidents. Even though MHP management staff indicated it is more difficult for officers to make a stop for speeding violations with no numeric speed limit, there has been an increase in the number of basic rule citations issued in 1997. With the elimination of the natural resource conservation fine ($5 ticket), the primary speed enforcement tool is now the basic rule violation. This trend is illustrated in the chart to the right.



* projected for entire year

Source: Compiled by LAD from MHP records.

Court appearances since 1994 have also been increasing. For all of 1994, 8,140 hours were spent in court, 8,320 hours in 1995, 9,014 hours in 1996, and 5,426 recorded for the first seven months of 1997.

HAS THE NUMBER OF MHP OFFICERS CHANGED?

MHP traffic safety enforcement is conducted primarily by highway patrol officers. The amount of enforcement is directly affected by the number of officers available. In the past year there has been some fluctuation in the number of officers available. Division funding for officer positions was reduced during the last legislative session, resulting in six less patrol officers available for enforcement duties. In addition, there are currently four vacant positions resulting from officer retirements and regular staff attrition. Currently MHP is unable to fill these positions since the reserve list for trained cadets has been depleted. A recruit academy is scheduled to begin March 16, 1998 and when completed, four vacant positions will be filled. The numbers to the right illustrate the number of available field patrol officers for conducting enforcement duties over the next three years and the number currently providing enforcement. Excluding commanding officers, there are 190 patrolmen on the road.

MHP OFFICERS

FY 96	212
FY 97	212
CURRENT	**202**
FY 98	206
FY 99	206

Source: MHP Records

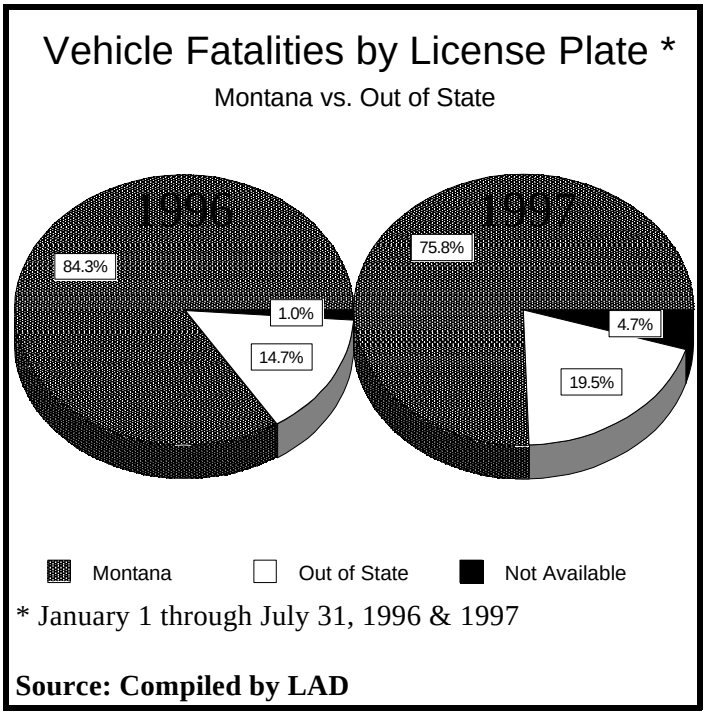
In addition to FTE levels, the amount of overtime hours logged is another indicator of potential enforcement levels. MHP officers logged 7814 overtime hours in all of 1996 and 7257 hours have been recorded in the first seven months of 1997. This amounts to approximately 37 overtime hours per officer in 1996 and 34 overtime hours per officer in 1997 through August.

OTHER QUESTIONS ASKED

The following sections address additional questions raised by legislators. We attempted to gather data and answer these questions to the extent possible in the limited time frame.

Have Insurance Rates Increased in the Past Year Due to No Speed Limits?

According to officials at the State Auditor's Office, insurance rates have not been affected yet. The actuaries are looking at this issue and will be compiling data in this area over the next year or two to determine if significant trends or changes are noted in accident rates. Insurance rates are tied to accident rates, not to speed limit restrictions.



Source: Compiled by LAD

What Percent of Fatalities Involve Vehicles With Out of State License Plates?

We gathered this data from the MARS system. This data only distinguishes the license plates on the vehicles involved in the accident not the state of residence of the driver. We compared this data for a seven month time frame in both 1996 and 1997 to determine if any trends were noted. There were 102 vehicle fatalities in the 1996 time period and 128 were recorded for the same period in 1997. The chart to the left illustrates the percentage of Montana plates versus non-Montana plates for each year.

What Type of Vehicles are Involved in Fatal Accidents?

Another step in the review was to determine what types of vehicles are involved in fatal crashes. The MARS database was queried to count the number of fatal accidents for each type of vehicle. The following table provides the results of this query.

MONTANA FATALITIES BY TYPE OF VEHICLE
(January through July)

CODE #	VEHICLE BODY STYLE	FREQUENCY 1996	1997
21	Mid-Size Car	19	21
18	Standard Pickup	16	19
20	Compact Car	15	16
28	Sport Utility	15	12
22	Large Passenger Car	4	12
8	Motorcycle	4	12
17	Small Pickup	12	9
19	Subcompact Car	1	6
25	Large Station Wagon	4	5
23	Small Station Wagon	2	4
27	Mini Van		4
6	Truck/Truck-Tractor	1	3
2	Van	5	3
13	Bicycle	1	1
1	Passenger Car		1
24	Mid-Size Station Wagon	2	
26	Moped		
98	Working Construction		
15	Other		
16	Fire Truck		
7	Motor home		
3	Bus		
4	School Bus		
5	Pickup		
9	Ambulance		
14	Snowmobile		
10	Farm Tractor/Machinery		
11	Construction Equipment		
12	Pickup w/ Camper	1	
99	Unknown		
	TOTAL	102	128

Source: MARS database

As the data indicates, small and standard pickups, mid-size and compact cars, and sport utility vehicles are most often involved in fatal accidents. Vans and motor homes are infrequently involved in fatal accidents, while buses and farm machinery were not involved in fatal accidents.

SUMMARY

We attempted to answer questions that may help the Legislature and the public make decisions related to speed limits in Montana. A summary of the information we gathered includes:

-- Since 1975 average measured speeds (over a 24 hour period) on urban Interstate highways have remained fairly constant between 55 and 60 mph.

-- Average measured speeds on rural Interstate highways have been increasing and are currently 67 mph.

-- For rural non-Interstate highways average measured speeds have gradually increased from about 54 mph to 58 mph.

-- Annual vehicle miles traveled has been increasing steadily since 1975. The number of accidents and fatalities per million vehicle miles has been on a decreasing trend.

-- For the first seven months of 1997 there have been increases in both the number of fatal accidents and fatalities compared to the same time period in 1996.

-- The majority of fatal accidents and total accidents are occurring on non-Interstate highways.

-- Most accidents occur during daylight hours.

-- Numerous factors contribute to fatal accidents.

-- Seat belts increase safety.

-- Basic rule citations increased in 1997.