

FEDERAL GOVERNMENT'S ROAD SAFETY INITIATIVE

**YOUNG DRIVER RESEARCH PROGRAM -
MASS CRASH DATA ANALYSIS**

GENERAL ESTIMATES SYSTEM (1989) - WEST REGION

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Abstract

This report is ninth in a series examining young versus older driver differences in car crashes for both Australian and USA data. Bivariate analyses examining the similarities and differences between drivers of various age groups involved in casualty crashes according to the General Estimates System for the West Region of the USA (1989) were conducted. Results are presented as a series of tables. The data was also examined for day and night-time differences. Conclusions and comparisons between the two data sets are not presented as the 11th report of the series provides an overview of all findings.

Key Words

YOUNG DRIVER, CRASH ANALYSIS, DAY, NIGHT, CAR DRIVER

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1 CHARACTERISTICS OF YOUNG DRIVER CRASHES - MASS CRASH DATA ANALYSIS

1.1 INTRODUCTION

The Monash University Accident Research Centre was commissioned by the Federal Office of Road Safety to undertake the Young Driver Research Program as part of the Federal Government's Road Safety Initiative.

One of the research projects in the Young Driver Research Program involved identifying the characteristics of young driver crashes through supplementing previous literature reviews which identify the known characteristics of young driver crashes, behaviour and performance from experimental, field and evaluation studies.

In addition, this project involved deriving information from a systematic analysis of Australian and US mass crash data to complement information from the literature review. The results of this analysis are presented in a series of reports which are outlined below:

Australian data

Report N ^o	Data File	State	Year(s)
1	Casualty crash	New South Wales	1986-1990
	"	Victoria	1984-1989
2	"	South Australia	1986-1990
3	FORS Fatality	New South Wales	1988
4	"	Victoria	"
5	"	South Australia	"
6	"	NSW, Victoria and SA combined	"

USA data

Report N ^o	Data File	US Region	Year(s)
7	GES	North-west	1989
8	"	Mid-west	"
9	"	West	"
10	"	South	"

Overview report

Report N ^o	
11	Reviews the main findings presented in Report N ^{os} 1 to 10

The tables presented in the first report are accompanied by a discussion of results highlighting the main findings contained in that report, as well as noting some of the difficulties inherent in analysis of large data sets. Reports 2 to 10 contain results presented in tabular form only, although a brief description of the data used is given. Report N^o 11 contains an overview of results comprising two sections: the first compares results with the main literature findings (see Macdonald; 1994a 1994b); the second notes similarities and differences in results between States and compared to the US data.

This report (Nº 9 in the series) presents results for casualty crashes which occurred in the Western region of the US in 1989, and outlines, in turn:

- the role of mass crash data in identifying problem areas for young driver safety
- the data set used in the study
- the methodology used
- results:
 - general bivariate patterns
 - daytime vs night-time young driver crashes

This study provides a systematic analysis and review of young driver crashes as represented in mass crash data; to date only ad-hoc, fragmented investigations of young driver crashes using mass crash data have been undertaken. This series of reports, therefore, serve as a comprehensive source document on young driver crashes.

1.2 USING MASS CRASH DATA

Mass crash data provide the most complete and readily available details about crash events, in terms of:

- the temporal and spatial details about the crash incident (where and when it occurred)
- driver (and other involved road user) demographics
- environmental conditions when the crash occurred
- the sequence of events preceding the crash (crash types), including the traffic context and vehicle/road user actions.

Due to reporting criteria, these data are also more representative of crashes involving injury (particularly more serious injury) to the road user(s) involved in the crash than of less severe crashes (eg. property damage only crashes).

Information derived from analysis of mass crash data is essential for identifying target areas or 'problems' where countermeasures should be directed. Analysis of mass crash data allows:

- the magnitude of the 'problem' to be ascertained
- the stability of the 'problem' to be determined
- the generality/specificity of the 'problem' to be determined (eg. Are both males and females affected? Does the 'problem' occur at both day and night; in metropolitan and rural locations?).

In using mass crash data to describe the young driver 'problem' and identify target areas, it is important to balance the need to disaggregate the crash problem into homogeneous sub-problems (with similar characteristics), with the number of levels by which the problem is disaggregated. The more homogeneous the sub-problem, the more likely it is that an appropriate countermeasure can be developed that will be effective in reducing that sub-problem; however, in terms of cost-effectiveness, the sub-problem must be sufficiently large for the cost of the countermeasure to be distributed amongst sub-problem members to allow benefits of the countermeasure to, at least, match its costs (Cameron, 1990).

Countermeasures are also more likely to be cost-effective if they target a sub-problem which has a higher than average risk of crash involvement, or of severe injury when involved (Cameron, 1990). The lack of comparable exposure data to determine crash or severity risk of sub-problems compared with average risks, however, means that 'high' risk sub-problems cannot be identified directly in this study.

Information derived from analysis of mass crash data is inherently descriptive in nature; that is, it does not provide information regarding the causal mechanisms or factors leading to a crash occurring. Road user 'errors' or factors causally related to the behaviour and context identified in a crash may only be inferred.

To be successful, a countermeasure must either:

- control and decrease the opportunity for the occurrence of behaviour related to crash problem types via external impositions, or
- 'correct' the causes and behavioural problem related to the critical actions leading to the crash.

Although the former approach has been applied successfully to other road safety problems, it has not led to significant gains in the young driver area. This is because the over-involvement of young drivers in crashes is **not** limited to a small number of crash types (where each could be addressed by a specific strategy), but is a more general phenomenon (Drummond & Triggs, 1991).

In the case of young driver safety, the latter approach is more likely to lead to more **efficient** countermeasures (those which provide greater overlap between a behavioural problem and a countermeasure). However, this can only be achieved by obtaining a better understanding of the behavioural problem (a product of the interaction between performance and motivational factors). A better understanding of the driving process, skilled performance and motivational factors is the first step to achieving this. A description of the behavioural problem may lead to effective countermeasures, but these will be generally less efficient.

Notwithstanding the limitations of mass crash data analysis outlined above, the identification of sub-problems by their relative incidence within the population of young driver crashes is an important criterion for selecting targets for cost-beneficial countermeasures and understanding/interpreting other young driver performance findings.

2 GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION - BIVARIATE ANALYSES

2.1 INTRODUCTION

Data collection for the General Estimates System (GES) file began in 1988 as an initiative by the Washington D.C. based National Highway Traffic Safety Administration (NHTSA). The file contains data on road crashes involving all types of motor vehicles.

The GES obtains its data from a nationally representative probability sample selected from an estimated 6.6 million police-reported crashes which occur annually in the United States, involving fatalities, injuries or major property damage. The 1989 sample data file comprised a subset of approximately 44,000 randomly selected Police Accident Reports.

Selection of this sample of Police Accident Reports followed three stages. The first stage involved the sampling of geographic *areas* called Primary Sampling Units (PSUs) from across the United States. A PSU is defined as either a central city, a county surrounding a central city, an entire county, or a group of contiguous counties. The U.S. was divided into 1,195 of these PSUs, which were then grouped into four geographic *regions*. These were the Northwestern, Midwestern, Southern and Western regions. Within each region, PSUs were further categorized into three types representing large central cities, large suburban areas, and all others.

In the second stage of selection, a sample of police jurisdictions was drawn from within the geographic areas. This was a probability sample from within each PSU, where the probability of a jurisdiction being selected was proportional to the number of crashes investigated within that jurisdiction. Therefore, as the number of reported crashes increased, the probability of selecting the particular jurisdiction also increased (an average of six or seven jurisdictions were selected from each PSU).

Stage three of the process involved the selection of Police Accident Reports from within the sampled jurisdictions. Accident Reports were classified into one of three categories comprising:

- all crashes involving a 'towed-away' vehicle
- all crashes not involving a 'towed-away' vehicle, but involving injury to at least one person
- all other crashes.

A systematic sample of crashes was selected from within each of the above categories, based on different sampling ratios. Where the number of police investigated crashes within any particular jurisdiction were too numerous to list, a subsample of Accident Reports were listed, and the final sample drawn from among these.

Data coded in the abovementioned form for the year 1989 was obtained from the NHTSA, and prior to being examined in bivariate analyses (age by variable of interest), was modified in the following manner:

- As the focus of primary interest was young *car* drivers, a driver-based file was created. Included were drivers of cars, station-wagons, coupes, hatchbacks, convertibles, vans, utilities, pickups and 4WD vehicles.
- Most casualty crash files contain a variable which stipulates the severity of the crash ranging from a fatality to property damage, but this system creates problems in making across database comparisons due to differing reporting requirements for the lower severity levels. Because of this, it has been the practice for this series of reports to only include the three most severe crash levels in the analysis, which for the US data are: fatalities, incapacitating injuries and nonincapacitating injuries.
- Age of drivers was grouped as follows: 0 to 15, 16 to 25 (16 being the minimum licensing age in the US), 26 to 40, 41 to 55 and 56 to 98 years (the latter being the oldest age found in the data). The benefit of this grouping is that there are only four age group categories of licensed drivers which facilitates presentation and discussion of results. The term 'young drivers' refers only to drivers aged between 16 and 25 years.
- Reporting of all categories coded within some variables (eg. first harmful event) was in some cases impractical due to low frequency counts on certain categories. The general practice has been to present categories with a reasonable number of coded cases, and collapse those with particularly low frequencies. A list of variables which have been collapsed for this reason is presented in Appendix 1.
- All 'not known' cases (eg. not known age group, not known day of week, etc) were collapsed with other missing cases.

2.2 TABLES - BIVARIATE ANALYSES

The tables on the following pages present percentages for each variable of interest distributed by age group. As the GES file, unlike the Australian data, consists of only a *sample* of crashes from the US for 1989, it was considered more appropriate to present percentage tables in the main body of the report instead of frequency tables as was the case for the Australian data. Frequency tables for the GES data have, however, been included as Appendices. Variables have been grouped under headings which are consistent with those used in the first report, and page numbers have been included for convenience.

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GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MAXIMUM INJURY SEVERITY (CRASH LEVEL) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Non-incapacitating injury	81.3%	72.7%	74.7%	74.4%	71.4%	73.6%
Incapacitating injury	18.8%	24.9%	23.6%	23.3%	25.4%	24.2%
Fatal injury	0.0%	2.1%	1.7%	2.3%	3.2%	2.1%
Unknown injury severity	0.0%	0.3%	0.0%	0.0%	0.0%	0.1%
	0.6%	36.1%	36.5%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MAXIMUM INJURY SEVERITY (VEHICLE LEVEL) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No injury	33.3%	32.8%	38.7%	40.5%	43.6%	37.4%
Possible injury	6.7%	7.1%	8.8%	8.8%	5.9%	7.8%
Non-incapacitating injury	53.3%	44.7%	40.4%	36.8%	37.1%	41.1%
Incapacitating injury	6.7%	13.8%	11.1%	13.0%	11.9%	12.4%
Fatal injury	0.0%	1.5%	0.9%	0.9%	1.5%	1.2%
Injured - severity unknown	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%
	0.5%	36.0%	36.5%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF VEHICLES INVOLVED BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1	37.5%	31.1%	27.2%	25.5%	24.7%	28.1%
2	43.8%	55.7%	57.0%	55.7%	58.7%	56.5%
3	12.5%	10.3%	11.3%	13.2%	14.5%	11.6%
4	6.3%	1.9%	3.0%	3.6%	1.7%	2.6%
5	0.0%	0.4%	0.7%	0.9%	0.3%	0.5%
6	0.0%	0.4%	0.8%	1.1%	0.0%	0.6%
7	0.0%	0.3%	0.0%	0.0%	0.0%	0.1%
	0.5%	36.3%	36.2%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER INJURED IN CRASH BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No-one injured	0.0%	2.5%	0.9%	1.6%	1.5%	1.6%
1	43.8%	54.2%	57.4%	52.3%	57.6%	55.4%
2	25.0%	24.1%	25.0%	25.2%	25.3%	24.8%
3	6.3%	11.1%	9.0%	12.7%	9.6%	10.4%
4	18.8%	5.2%	4.0%	5.2%	3.8%	4.7%
5 or more	6.3%	2.9%	3.7%	3.0%	2.3%	3.2%
	0.5%	36.3%	36.2%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER INJURED IN VEHICLE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No-one injured	37.5%	35.0%	39.6%	41.6%	44.8%	38.8%
1	25.0%	44.3%	45.9%	42.7%	43.0%	44.4%
2	37.5%	14.3%	10.1%	10.7%	9.9%	11.9%
3	0.0%	4.2%	3.1%	3.2%	1.5%	3.3%
4 or more	0.0%	2.2%	1.2%	1.8%	0.9%	1.6%
	0.5%	36.3%	36.2%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF PERSONS INVOLVED BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1	6.7%	8.5%	8.3%	5.2%	6.7%	7.7%
2	26.7%	35.4%	37.4%	40.3%	45.2%	38.0%
3	13.3%	25.0%	21.3%	20.5%	23.9%	22.8%
4	0.0%	12.3%	14.4%	12.7%	10.0%	12.8%
5	6.7%	8.4%	7.5%	7.1%	7.3%	7.7%
6	20.0%	4.1%	3.7%	6.6%	2.4%	4.2%
7	6.7%	3.7%	3.3%	4.7%	2.4%	3.6%
8 or more	20.0%	2.6%	3.9%	2.8%	2.1%	3.1%
	0.5%	36.1%	36.4%	15.2%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DAY OF WEEK BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Monday	33.3%	15.5%	17.4%	18.4%	18.5%	17.1%
Tuesday	6.7%	14.8%	15.9%	13.4%	16.6%	15.1%
Wednesday	13.3%	14.7%	15.6%	17.6%	15.9%	15.6%
Thursday	13.3%	17.7%	16.4%	17.3%	15.9%	16.9%
Friday	20.0%	17.8%	19.6%	20.5%	19.2%	19.0%
Saturday	13.3%	19.6%	15.1%	12.9%	14.0%	16.3%
Sunday	6.7%	13.6%	12.1%	15.5%	11.7%	13.1%
	0.6%	36.2%	36.6%	14.8%	11.9%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
WEEKDAY VERSUS WEEKEND BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Weekday	81.3%	70.8%	75.7%	75.5%	77.0%	74.1%
Weekend	18.8%	29.2%	24.3%	24.5%	23.0%	25.9%
	0.5%	36.3%	36.2%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TIME PERIOD BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
12 am - 6 am	6.3%	10.3%	7.0%	5.5%	2.6%	7.4%
6 am - 12 pm	18.8%	18.1%	23.3%	25.0%	27.3%	22.1%
12 pm - 6 pm	31.3%	41.6%	44.7%	48.4%	55.8%	45.4%
6 pm - 12 am	43.8%	30.0%	25.0%	21.1%	14.2%	25.1%
	0.5%	36.3%	36.3%	15.1%	11.8%	100.0%

Missing cases = 215

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TIME PERIOD BY WEEKDAY/WEEKEND BY AGE GROUP

N=3131

	WEEKDAY					Total
	0-15	16-25	26-40	41-55	56-98	
12 am - 6 am	7.7%	5.9%	4.4%	3.3%	2.3%	4.5%
6 am - 12 pm	15.4%	20.2%	24.8%	23.5%	28.3%	23.4%
12 pm - 6 pm	38.5%	44.1%	46.7%	51.5%	57.7%	47.8%
6 pm - 12 am	38.5%	29.9%	24.1%	21.7%	11.7%	24.3%
	0.6%	34.7%	37.1%	15.4%	12.3%	100.0%

	WEEKEND					Total
	0-15	16-25	26-40	41-55	56-98	
12 am - 6 am	0.0%	21.0%	15.2%	12.0%	3.8%	15.9%
6 am - 12 pm	33.3%	13.3%	18.3%	29.6%	24.1%	18.5%
12 pm - 6 pm	0.0%	35.6%	38.5%	38.9%	49.4%	38.4%
6 pm - 12 am	66.7%	30.1%	28.0%	19.4%	22.8%	27.2%
	0.4%	40.9%	34.0%	14.3%	10.4%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RURAL/URBAN BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Urban	43.8%	38.7%	40.6%	42.0%	38.1%	39.9%
10% Rural	43.8%	36.8%	38.1%	37.5%	38.1%	37.5%
20% Rural	0.0%	12.3%	10.2%	10.7%	8.4%	10.8%
40% Rural	6.3%	7.3%	6.9%	3.6%	8.4%	6.7%
50% Rural	6.3%	4.9%	4.2%	6.1%	7.0%	5.1%
	0.5%	36.3%	36.2%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
SPEED LIMIT IN MILES (AND KM/H) BY AGE GROUP

N = 3131

	0-15	16-25	26-40	41-55	56-98	Total
0 (car-park, etc)	0.0%	0.1%	0.3%	0.2%	0.3%	0.2%
5 (8 km/h)	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
10 (17 km/h)	0.0%	0.3%	0.0%	0.2%	0.0%	0.1%
15 (24 km/h)	0.0%	0.6%	0.7%	1.0%	0.0%	0.6%
20 (32 km/h)	0.0%	0.8%	0.8%	0.0%	0.3%	0.6%
25 (40 km/h)	26.7%	15.8%	13.1%	14.5%	12.4%	14.3%
30 (48 km/h)	20.0%	14.6%	14.1%	17.9%	19.7%	15.5%
35 (56 km/h)	26.7%	33.0%	32.1%	30.1%	23.6%	31.1%
40 (64 km/h)	13.3%	12.3%	11.8%	8.1%	16.2%	11.9%
45 (72 km/h)	0.0%	7.6%	8.5%	10.5%	10.8%	8.7%
50 (80 km/h)	6.7%	2.4%	2.9%	1.7%	1.9%	2.4%
55 (89 km/h)	6.7%	11.0%	15.1%	14.7%	13.1%	13.3%
65 (105 km/h)	0.0%	1.5%	0.6%	1.0%	1.6%	1.1%
	0.6%	36.1%	36.5%	15.2%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
INTERSTATE HIGHWAY BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No (not on highway)	93.8%	94.1%	94.4%	93.2%	94.8%	94.1%
Yes (on highway)	6.3%	5.9%	5.6%	6.8%	5.2%	5.9%
	0.5%	36.4%	36.2%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
LAND USE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Population 25000 - 50000	6.3%	7.1%	7.0%	6.5%	6.0%	6.8%
Population 50000 - 100000	12.5%	12.6%	9.8%	11.9%	7.5%	10.9%
Population 100000+	56.3%	54.4%	57.4%	58.4%	55.9%	56.2%
Other Area	25.0%	25.9%	25.8%	23.2%	30.6%	26.0%
	0.6%	36.5%	35.8%	15.0%	12.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROADWAY ALIGNMENT BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Straight	87.5%	89.8%	90.4%	90.8%	92.3%	90.5%
Curve	12.5%	10.2%	9.6%	9.2%	7.7%	9.5%
	0.6%	36.2%	36.4%	15.0%	11.9%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROADWAY PROFILE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Level	63.6%	75.3%	76.3%	75.9%	78.6%	76.0%
Grade	36.4%	22.9%	22.1%	22.9%	19.1%	22.2%
Hillcrest	0.0%	1.5%	1.3%	0.9%	2.3%	1.4%
Other	0.0%	0.4%	0.4%	0.3%	0.0%	0.3%
	0.5%	36.8%	36.0%	14.8%	11.9%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFICWAY FLOW BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Two way undivided	75.0%	63.1%	61.2%	60.7%	65.6%	62.4%
Divided highway	18.8%	35.0%	36.5%	36.0%	32.6%	35.3%
Oneway	6.3%	1.9%	2.3%	3.3%	1.7%	2.3%
	0.7%	36.1%	36.3%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RELATION TO ROADWAY BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
On roadway	68.8%	81.2%	86.6%	87.7%	88.3%	84.9%
On shoulder/parking lane	6.3%	3.1%	1.8%	2.1%	1.8%	2.3%
Off roadway/shoulder/parking lane	25.0%	14.9%	10.6%	10.0%	9.7%	12.1%
On median	0.0%	0.7%	0.9%	0.2%	0.3%	0.7%
Other	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
	0.6%	36.3%	36.3%	15.1%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RELATION TO JUNCTION BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Non junction	37.5%	40.9%	38.5%	37.6%	34.0%	38.7%
Intersection	37.5%	40.9%	41.5%	41.1%	49.3%	42.1%
Intersection related	18.8%	9.7%	10.8%	9.6%	8.5%	10.0%
Interchange area	0.0%	0.4%	0.9%	0.5%	0.0%	0.5%
Driveway/alley	6.3%	7.3%	7.2%	9.4%	7.6%	7.6%
Entrance/exit ramp	0.0%	0.4%	0.8%	1.8%	0.6%	0.8%
Other	0.0%	0.5%	0.4%	0.0%	0.0%	0.3%
	0.6%	36.3%	36.2%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF TRAVEL LANES BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1	0.0%	2.6%	2.1%	2.9%	1.2%	2.3%
2	66.7%	38.8%	42.1%	44.2%	46.5%	41.9%
3	33.3%	16.4%	18.9%	19.4%	18.5%	18.1%
4	0.0%	25.1%	22.5%	20.0%	18.5%	22.4%
5	0.0%	12.8%	12.2%	10.6%	12.8%	12.2%
6 or more	0.0%	4.3%	2.1%	2.9%	2.5%	3.0%
	0.5%	35.1%	36.4%	15.7%	12.3%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFIC CONTROL DEVICE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No controls	53.3%	59.2%	56.3%	59.3%	51.8%	57.2%
Traffic signals:						
with pedestrian signal	0.0%	0.3%	0.1%	0.0%	0.0%	0.1%
pedestrian signal not known	20.0%	22.1%	23.5%	24.4%	24.7%	23.2%
flashing traffic signal/beacon	0.0%	0.1%	0.5%	0.7%	0.6%	0.4%
other traffic signal	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
unknown traffic signal	0.0%	0.6%	1.2%	0.7%	1.2%	0.9%
Regulatory, school zone or warning signs:						
stop sign	13.3%	10.6%	10.0%	10.5%	17.9%	11.3%
yield sign	0.0%	0.7%	1.1%	0.7%	0.6%	0.8%
warning sign	0.0%	0.8%	0.8%	0.5%	1.2%	0.8%
other sign	0.0%	0.4%	0.1%	0.0%	0.3%	0.2%
unknown sign	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Miscellaneous not at railroad crossing	0.0%	0.2%	0.6%	0.2%	0.6%	0.4%
Traffic controls present - no details	13.3%	4.7%	5.7%	3.0%	1.2%	4.4%
Other traffic controls	0.0%	0.3%	0.0%	0.0%	0.0%	0.1%
	0.5%	35.9%	36.3%	15.2%	12.0%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFIC DEVICE FUNCTIONING BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No controls	53.3%	59.5%	56.4%	59.3%	51.8%	57.4%
Device not functioning	0.0%	0.1%	0.2%	0.0%	0.3%	0.1%
Device functioning	46.7%	40.4%	43.4%	40.7%	47.9%	42.5%
	0.5%	35.8%	36.3%	15.3%	12.0%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
SEX OF DRIVER BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Male	56.3%	56.1%	52.3%	53.0%	54.4%	54.0%
Female	43.8%	43.9%	47.7%	47.0%	45.6%	46.0%
	0.5%	36.3%	36.3%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ALCOHOL USE (DRIVER) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Alcohol involved	13.3%	9.7%	9.8%	6.9%	3.9%	8.7%
No alcohol involved	86.7%	90.3%	90.2%	93.1%	96.1%	91.3%
	0.5%	35.9%	36.5%	15.3%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ALCOHOL INVOLVEMENT IN CRASH BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Alcohol involved	12.5%	14.6%	14.8%	12.2%	8.8%	13.6%
No alcohol involved	87.5%	85.4%	85.2%	87.8%	91.2%	86.4%
	0.6%	36.1%	36.4%	15.1%	11.9%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DRIVER PHYSICAL/MENTAL IMPAIRMENT BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No impairment	93.8%	96.9%	97.5%	97.0%	97.0%	97.1%
Drowsy/fatigue	0.0%	1.9%	1.1%	0.5%	1.2%	1.3%
Ill / blackout	0.0%	0.3%	0.0%	0.2%	0.9%	0.2%
Illicit drugs	0.0%	0.1%	0.1%	0.5%	0.0%	0.1%
Hit-and-run vehicle	6.3%	0.5%	0.9%	0.7%	0.6%	0.7%
Physical/mental impairment - no details	0.0%	0.2%	0.1%	0.5%	0.0%	0.2%
Other physical/mental impairment	0.0%	0.1%	0.4%	0.7%	0.3%	0.3%
	0.6%	36.0%	36.6%	15.1%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DRIVER'S ACTION BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Not avoiding/swerving	93.8%	93.6%	94.9%	97.7%	97.3%	95.1%
Slippery or loose surface	0.0%	1.1%	0.5%	0.0%	0.3%	0.6%
Blowout	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Ruts/holes/bumps	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%
Animals on road	0.0%	0.2%	0.2%	0.0%	0.0%	0.1%
Vehicle on road	0.0%	0.3%	0.9%	0.0%	0.0%	0.4%
Phantom vehicle	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Ped/cyclist/non motorist	0.0%	0.1%	0.1%	0.0%	0.3%	0.1%
Water/snow/oil slick	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Hit-and-run vehicle	6.3%	0.6%	0.9%	0.7%	0.6%	0.7%
Avoiding action	0.0%	4.1%	2.4%	1.6%	1.2%	2.7%
	0.6%	36.3%	36.3%	15.1%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VIOLATIONS CHARGED BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
None	43.8%	58.5%	63.5%	70.0%	67.6%	63.0%
Alcohol/drugs	12.5%	4.1%	5.2%	3.5%	2.1%	4.2%
Speeding	0.0%	6.6%	4.5%	3.0%	3.3%	4.9%
Alcohol or drugs and speeding	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Reckless driving	0.0%	1.1%	0.7%	0.0%	0.0%	0.6%
Driving with suspended licence	0.0%	1.1%	0.8%	0.5%	0.0%	0.7%
Failure to give way	6.3%	5.7%	6.9%	6.7%	15.5%	7.4%
Running traffic controls/stop sign	0.0%	2.1%	1.7%	3.0%	3.3%	2.2%
Other violation	37.5%	20.9%	16.8%	13.0%	8.2%	16.8%
	0.6%	36.2%	36.4%	15.2%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF OCCUPANTS IN VEHICLE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1	20.0%	56.0%	63.2%	66.1%	68.0%	61.3%
2	53.3%	26.7%	21.6%	22.6%	26.1%	24.3%
3	13.3%	10.0%	8.1%	5.5%	3.0%	7.9%
4	0.0%	4.6%	4.6%	3.5%	1.8%	4.1%
5 or more	13.3%	2.7%	2.5%	2.3%	1.2%	2.4%
	0.5%	36.2%	36.4%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAVEL SPEED OF VEHICLE IN MILES (AND KM/H) BY AGE GROUP

N = 3131

	0-15	16-25	26-40	41-55	56-98	Total
Stationary	0.0%	23.2%	37.2%	42.9%	29.7%	32.2%
01 - 12 (01 - 20 km/h)	0.0%	11.6%	13.6%	8.7%	13.0%	12.0%
13 - 24 (21 - 40 km/h)	0.0%	14.7%	11.3%	20.1%	15.9%	14.5%
25 - 35 (41 - 60 km/h)	0.0%	15.0%	11.3%	8.7%	13.8%	12.5%
36 - 50 (61 - 80 km/h)	100.0%	18.6%	15.1%	10.9%	13.0%	15.5%
51 - 60 (81 - 100 km/h)	0.0%	10.1%	8.2%	6.5%	10.9%	9.0%
Over 60 (>100 km/h)	0.0%	6.8%	3.3%	2.2%	3.6%	4.4%
	0.1%	35.6%	36.6%	15.8%	11.9%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MODEL YEAR BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1986 - 1989	18.8%	23.2%	31.6%	30.9%	30.0%	28.2%
1981 - 1985	31.3%	28.1%	28.9%	34.8%	31.2%	29.8%
1976 - 1980	31.3%	30.5%	25.1%	21.2%	24.2%	26.4%
1971 - 1975	12.5%	11.0%	9.1%	8.1%	7.9%	9.5%
1974 and earlier	6.3%	7.1%	5.4%	5.1%	6.7%	6.1%
	0.6%	36.5%	36.2%	15.0%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE DEFECTS BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No vehicle defects	100.0%	98.3%	97.9%	97.9%	98.5%	98.1%
Tyres	0.0%	0.4%	0.1%	0.0%	0.0%	0.2%
Brakes	0.0%	0.1%	0.5%	0.2%	0.3%	0.3%
Steering	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Headlights	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Signal lights	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Other lights	0.0%	0.1%	0.0%	0.2%	0.0%	0.1%
Mirrors	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hit-and-run vehicle	0.0%	0.6%	0.9%	0.9%	0.3%	0.7%
Vehicle defects - no detail	0.0%	0.2%	0.1%	0.0%	0.3%	0.1%
Other vehicle defect	0.0%	0.2%	0.3%	0.7%	0.6%	0.4%
	0.5%	35.9%	36.5%	15.3%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
LIGHT CONDITIONS BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Daylight	56.3%	64.3%	69.1%	72.4%	83.4%	69.4%
Dark	6.3%	10.6%	7.2%	6.4%	3.6%	7.9%
Dark but lighted	31.3%	22.0%	19.9%	15.6%	10.9%	19.0%
Dawn	0.0%	0.4%	0.6%	0.9%	0.3%	0.5%
Dusk	0.0%	0.8%	1.4%	2.1%	0.6%	1.2%
Dawn or dusk	6.3%	1.9%	1.7%	2.5%	1.2%	1.9%
	0.6%	36.2%	36.4%	15.2%	11.6%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ATMOSPHERIC CONDITIONS BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No adverse conditions	87.5%	88.1%	89.0%	88.5%	91.7%	88.9%
Rain	6.3%	9.4%	8.6%	9.0%	6.2%	8.7%
Sleet	0.0%	0.1%	0.0%	0.5%	0.3%	0.1%
Snow	6.3%	0.4%	0.7%	0.9%	0.9%	0.7%
Fog	0.0%	0.2%	0.3%	0.2%	0.0%	0.2%
Other	0.0%	1.8%	1.3%	0.9%	0.9%	1.4%
	0.6%	36.3%	36.3%	15.1%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VISUAL OBSTRUCTION BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No obstruction	93.3%	97.4%	96.8%	96.6%	95.3%	96.8%
Precipitation	0.0%	0.4%	0.0%	0.0%	0.3%	0.2%
Glare/sun/headlights	0.0%	0.2%	0.4%	1.4%	1.2%	0.6%
Curve/hill/embankment	0.0%	0.1%	0.1%	0.0%	0.9%	0.2%
Building/billboard	0.0%	0.0%	0.1%	0.5%	0.0%	0.1%
Trees/crops/vegetation	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Moving vehicle	0.0%	0.5%	0.9%	0.2%	1.2%	0.7%
Parked vehicle	0.0%	0.4%	0.6%	0.7%	0.3%	0.5%
Broken/dirty windscreen	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
Hit-and-run vehicle	6.7%	0.6%	0.9%	0.7%	0.6%	0.7%
Vision obscured - no details	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%
Other obstruction	0.0%	0.2%	0.2%	0.0%	0.3%	0.2%
	0.5%	36.3%	36.4%	15.1%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROAD SURFACE CONDITIONS BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Dry	75.0%	83.3%	84.2%	85.3%	89.8%	84.6%
Wet	6.3%	12.6%	11.5%	11.1%	8.1%	11.4%
Snow/slush	0.0%	1.0%	1.0%	2.1%	0.6%	1.1%
Ice	6.3%	2.1%	2.5%	1.4%	1.2%	2.1%
Sand/dirt/oil	12.5%	0.9%	0.5%	0.0%	0.0%	0.6%
Other	0.0%	0.1%	0.4%	0.2%	0.3%	0.2%
	0.6%	36.1%	36.4%	15.2%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE MANOEUVRE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Going straight	33.3%	57.9%	54.2%	51.7%	54.7%	55.1%
Slowing/stopping	0.0%	3.0%	2.1%	3.2%	2.4%	2.6%
Starting in traffic lane	6.7%	0.2%	0.7%	0.5%	0.3%	0.4%
Stopped in traffic lane	0.0%	9.1%	15.0%	18.1%	11.8%	12.9%
Passing/overtaking	0.0%	0.8%	0.5%	0.5%	0.3%	0.6%
Leaving parking spot	0.0%	0.4%	0.1%	0.0%	0.0%	0.2%
Entering parking spot	0.0%	0.0%	0.0%	0.5%	0.3%	0.1%
Avoiding animal/pedestrian/object/vehicle	6.7%	1.7%	1.7%	1.1%	0.6%	1.5%
Turning right	6.7%	3.7%	3.9%	3.4%	3.8%	3.8%
Turning left	26.7%	15.7%	14.6%	15.1%	19.1%	15.7%
U-turn	0.0%	0.3%	0.4%	0.2%	0.3%	0.3%
Reversing	0.0%	0.4%	0.2%	0.7%	0.9%	0.4%
Changing lanes/merging	6.7%	1.2%	1.8%	1.4%	2.1%	1.6%
Negotiating curve	6.7%	3.0%	2.1%	1.8%	1.8%	2.4%
Other	6.7%	2.7%	2.8%	1.8%	1.8%	2.5%
	0.5%	36.3%	36.3%	15.1%	11.8%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MANNER OF COLLISION BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No collision with moving vehicle	37.5%	32.1%	28.5%	26.7%	26.8%	29.3%
Rear-end	18.8%	23.6%	26.6%	29.4%	22.1%	25.4%
Head-on	0.0%	3.9%	3.0%	3.6%	2.6%	3.4%
Angle	37.5%	38.5%	38.6%	37.6%	46.8%	39.4%
Sideswipe, same direction	0.0%	1.5%	3.1%	2.1%	1.5%	2.2%
Sideswipe, opposite direction	6.3%	0.4%	0.2%	0.7%	0.0%	0.3%
Other	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%
	0.6%	36.3%	36.3%	15.1%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
FIRST HARMFUL EVENT (CRASH LEVEL) BY AGE GROUP

N = 3131

	0-15	16-25	26-40	41-55	56-98	Total
Non collision:						
Rollover	12.5%	2.7%	1.8%	1.1%	1.8%	2.1%
Other non collision	0.0%	1.7%	0.9%	0.7%	0.0%	1.1%
Collision with object - not fixed:						
Pedestrian	0.0%	6.1%	6.9%	6.6%	6.5%	6.5%
Cycle or cyclist	0.0%	6.1%	7.4%	8.4%	7.9%	7.1%
Motor veh on road	62.5%	68.1%	71.6%	73.3%	73.3%	70.7%
Motor veh parked	6.3%	3.1%	1.1%	2.1%	2.1%	2.1%
Other object not fixed	0.0%	0.4%	0.1%	0.7%	0.6%	0.3%
Collision with fixed object:						
Guardrail	0.0%	1.0%	1.4%	1.1%	0.3%	1.1%
Post/pole/support	6.3%	2.6%	2.2%	0.7%	1.5%	2.1%
Culvert/ditch	0.0%	0.8%	0.5%	0.5%	0.6%	0.6%
Curb	6.3%	1.5%	1.3%	0.7%	0.9%	1.3%
Embankment	0.0%	1.3%	1.4%	0.9%	1.5%	1.3%
Wall	0.0%	0.4%	0.5%	0.2%	0.0%	0.3%
Tree	0.0%	1.0%	0.4%	0.7%	1.5%	0.8%
Other fixed object	6.3%	3.0%	2.4%	2.3%	1.8%	2.5%
	0.6%	36.4%	36.2%	15.1%	11.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MOST HARMFUL EVENT (VEHICLE LEVEL) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Non collision:						
Rollover	15.4%	4.5%	3.1%	2.6%	1.9%	3.4%
Other non collision	0.0%	1.0%	1.0%	0.2%	0.3%	0.8%
Collision with object - not fixed:						
Pedestrian	0.0%	6.4%	6.9%	6.5%	6.6%	6.6%
Cycle/cyclist	0.0%	6.6%	7.8%	8.9%	8.5%	7.6%
Motor vehicle on road	61.5%	70.6%	73.4%	75.4%	76.4%	73.0%
Parked motor vehicle	0.0%	3.3%	1.3%	1.7%	1.9%	2.1%
Other object not fixed	0.0%	0.1%	0.4%	0.5%	0.9%	0.4%
Collision with fixed object:						
Guardrail	0.0%	0.8%	0.9%	0.5%	0.0%	0.7%
Post/pole/support	7.7%	2.3%	1.8%	0.5%	1.3%	1.8%
Culvert/ditch	0.0%	0.8%	0.4%	0.2%	0.3%	0.5%
Embankment	0.0%	0.5%	0.9%	0.5%	0.3%	0.6%
Wall	0.0%	0.4%	0.2%	0.2%	0.0%	0.3%
Tree	0.0%	1.0%	0.6%	1.0%	0.9%	0.8%
Other fixed object	15.4%	1.5%	1.4%	1.4%	0.6%	1.4%
	0.5%	35.8%	36.7%	15.3%	11.6%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE ROLE BY AGE GROUP

N = 3131

	0-15	16-25	26-40	41-55	56-98	Total
Single vehicle crashes:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
non collision	6.3%	3.6%	2.3%	1.6%	1.5%	2.6%
striking	31.3%	25.2%	20.9%	19.6%	20.4%	22.3%
struck	0.0%	2.4%	4.2%	4.1%	3.6%	3.4%
both	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Multi vehicle crashes:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
non collision	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
striking	43.8%	36.0%	31.3%	29.0%	32.3%	32.9%
struck	12.5%	27.8%	34.9%	36.4%	36.2%	32.6%
both	6.3%	4.9%	6.4%	8.8%	6.0%	6.2%
	0.6%	36.4%	36.2%	15.1%	11.6%	100.0%

3 GENERAL ESTIMATES SYSTEM CASUALTY FILE (1989) - WESTERN REGION: DAY/NIGHT COMPARISONS

Bivariate analyses which examined the similarities and differences between drivers of various age groups involved in reported casualty crashes in the USA for 1989 were reported in the previous chapter. There are numerous ways in which the data can be analysed and an important consideration is any age group differences arising as a result of the time of day, given the increased risk of night-time driving relative to driving during the day. The following chapter re-examines the casualty crash data with the following modifications:

- 'day' was operationally defined as the period between 6.00 am and 5.59 pm while 'night' was defined as the period between 6.00 pm and 5.59 am.
- all 'not known' cases (eg. not known age group, not known day of week, etc) were collapsed with all other missing cases. Missing and unknown cases make up approximately 10% of the total sample for most variables.

3.1 INTERPRETATION OF TABLES

A consistent pattern emerges when making day/night comparisons of crash involvement for young drivers by each variable. On average, 32% of drivers involved in daytime crashes were young drivers, while in night-time crashes they represented 44-45%. This pattern appears to hold for the US as well as Australian data.

When making day night comparisons from percentage tables, it is important also to refer to frequency tables (Appendix 3) in order to gain an idea of the sample sizes which these percentages represent. *The following example has been included to illustrate the kind of supplementary information which can be extracted from frequency tables.*

This example relates to the variable 'Relation to roadway' which indicates the location of the first harmful impact in the crash. From the frequency table (Appendix 3, p.156) it is apparent that from a total of 162 drivers involved in daytime crashes in the 'off roadway/shoulder/parking lane' category, 67 (41%) were young drivers. For night-time crashes in this 'off roadway' category, the total number of drivers increased to 187, which was also reflected in an increase in the number of young drivers involved (89, representing 48% of the night-time total). Hence, in absolute terms, there was an increase of about 33% in the number of young drivers involved in night-time, 'off roadway' crashes. This compares with a night-time increase of 10% for drivers in the 41-55 age group.

An increase in proportions is also apparent between young drivers involved in daytime (31%) and night-time (44%) crashes in the 'on roadway' category. The total number of drivers involved in night-time crashes within this category (n=710), however, is far less than the total number of drivers involved in similar daytime crashes (n=1753). Care must be exercised, therefore, in interpreting proportions resulting from different sample sizes because an apparently large proportional increase may actually address far fewer cases.

Ratio comparisons between drivers involved in 'off roadway' and 'on roadway' daytime crashes with those of corresponding night-time crashes is another way of interpreting the

results. The number of young drivers involved in daytime 'off roadway' crashes is 67, while young drivers involved in daytime 'on roadway' crashes is 543. This gives a ratio of 1:8. Where night-time crashes involving young drivers are concerned, the number of drivers involved in 'off roadway' collisions is 89 while the number involved in 'on roadway' collisions is 312, giving a ratio of 1:4. This difference between daytime and night-time ratios between 'off roadway' and 'on roadway' collisions clearly indicates that the probability of young drivers being involved in 'off roadway' crashes relative to crashes 'on road' is greater at night than during the day.

There are a few points to keep in mind when interpretation of these results are made:

- It is necessary to note the sample size or the number of cases present when making comparisons. For example, when making day/night comparisons, in most cases the sample size of drivers involved in night-time crashes is less than those of drivers involved in daytime crashes, despite the higher proportion of young drivers involved in night-time crashes.
- The number of years that make up each age group differ. For example, young drivers (16-25 years) covers ten years while the 26-55 age group covers 30 years. Thus, similar proportions between these age groups indicate an over-involvement of young drivers of almost three per year of age.
- The increase in young driver proportions involved in night-time crashes may be a result of any of the following reasons:
 - young drivers allocate a higher proportion of their total driving to night-time driving, and/or young drivers having a greater propensity to engage in risky driving behaviour at night
 - older drivers allocate a lower proportion of their total driving to night-time driving, and/or older drivers tend to engage in safe driving behaviour at night.

Hence, the over-involvement of one age group may be a result of a relative under-involvement of other age groups.

Variables and page numbers are listed here for the convenience of the reader:

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GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MAXIMUM INJURY SEVERITY (CRASH LEVEL) BY AGE GROUP

N = 3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Non-incapacitating injury	75.0%	73.3%	75.8%	76.5%	72.0%	74.5%
Incapacitating injury	25.0%	24.5%	22.2%	21.9%	25.9%	23.4%
Fatal injury	0.0%	2.3%	2.0%	1.6%	2.1%	2.0%
	0.4%	32.0%	36.6%	16.4%	14.5%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Non-incapacitating injury	87.5%	71.5%	72.4%	68.4%	68.4%	34.1%
Incapacitating injury	12.5%	25.8%	26.4%	27.2%	22.8%	12.4%
Fatal injury	0.0%	1.9%	1.2%	4.4%	8.8%	1.1%
Unk injury severity	0.0%	0.7%	0.0%	0.0%	0.0%	0.2%
	0.9%	44.3%	36.4%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MAXIMUM INJURY SEVERITY (VEHICLE LEVEL) BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No injury	14.3%	36.7%	39.7%	44.0%	44.1%	40.0%
Possible injury	14.3%	7.6%	9.2%	9.7%	5.7%	8.3%
Non-incapacitating injury	57.1%	41.8%	39.0%	34.9%	37.7%	39.1%
Incapacitating injury	14.3%	12.4%	11.0%	10.7%	11.7%	11.5%
Fatal injury	0.0%	1.5%	1.0%	0.6%	0.7%	1.0%
Injured - severity unknown	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
	0.4%	31.9%	36.7%	16.5%	14.6%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No injury	50.0%	26.9%	36.7%	30.7%	41.1%	15.3%
Possible injury	0.0%	6.4%	8.1%	6.1%	7.1%	3.3%
Non-incapacitating injury	50.0%	48.9%	43.3%	42.1%	33.9%	21.6%
Incapacitating injury	0.0%	16.1%	11.3%	19.3%	12.5%	6.9%
Fatal injury	0.0%	1.5%	0.6%	1.8%	5.4%	0.7%
Injured - severity unknown	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
	0.9%	44.4%	36.3%	12.4%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF VEHICLES INVOLVED BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
1		37.5%	27.5%	22.7%	22.3%	23.8%	24.4%
2		25.0%	56.8%	58.7%	56.0%	59.8%	57.7%
3		25.0%	12.8%	13.1%	14.9%	14.3%	13.5%
4 or more		12.5%	2.8%	5.6%	6.8%	2.1%	4.4%
		0.4%	32.1%	36.5%	16.4%	14.5%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
1		37.5%	36.4%	36.9%	34.2%	29.3%	17.3%
2		62.5%	54.0%	53.4%	54.7%	53.4%	26.0%
3		0.0%	6.6%	7.7%	8.5%	15.5%	3.7%
4 or more		0.0%	3.1%	2.1%	2.6%	1.7%	1.2%
		0.8%	44.9%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER INJURED IN CRASH BY AGE GROUP

N = 3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No-one injured	0.0%	1.7%	1.1%	1.2%	1.4%	1.4%
1	25.0%	54.6%	57.0%	52.6%	58.0%	55.5%
2	25.0%	26.4%	25.3%	26.9%	24.5%	25.8%
3	12.5%	9.2%	8.5%	12.1%	9.8%	9.5%
4	25.0%	5.7%	4.7%	5.3%	4.2%	5.1%
5 or more	12.5%	2.4%	3.3%	1.9%	2.1%	2.6%
	0.4%	32.1%	36.5%	16.4%	14.5%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No-one injured	0.0%	3.5%	0.6%	2.6%	1.7%	1.1%
1	62.5%	53.3%	58.1%	51.3%	55.2%	26.5%
2	25.0%	20.9%	24.5%	20.5%	29.3%	10.9%
3	0.0%	14.1%	10.0%	14.5%	8.6%	5.9%
4	12.5%	4.5%	2.4%	5.1%	1.7%	1.8%
5 or more	0.0%	3.8%	4.4%	6.0%	3.4%	2.0%
	0.8%	44.9%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER INJURED IN VEHICLE BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
No-one injured		25.0%	38.4%	40.6%	44.9%	45.1%	41.2%
1		25.0%	43.7%	45.6%	40.6%	43.0%	43.7%
2		50.0%	12.3%	9.5%	11.1%	9.4%	10.8%
3 or more		0.0%	5.5%	4.3%	3.4%	2.4%	4.3%
		0.4%	32.1%	36.5%	16.4%	14.5%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
No person injured		50.0%	29.8%	37.5%	32.5%	43.1%	16.3%
1		25.0%	45.1%	46.6%	48.7%	43.1%	22.1%
2		25.0%	17.4%	11.5%	9.4%	12.1%	6.8%
3 or more		0.0%	7.7%	4.4%	9.4%	1.7%	3.0%
		0.8%	44.9%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF PERSONS INVOLVED BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
1		14.3%	5.7%	4.8%	2.9%	5.4%	4.9%
2		28.6%	39.3%	40.3%	41.8%	45.5%	40.9%
3		0.0%	25.0%	21.6%	20.9%	24.7%	23.0%
4		0.0%	10.9%	14.0%	12.2%	9.7%	12.0%
5		0.0%	9.8%	8.7%	8.0%	8.2%	8.8%
6 or more		57.1%	9.3%	10.7%	14.1%	6.5%	10.4%
		0.4%	32.2%	36.4%	16.3%	14.7%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
1		0.0%	12.7%	16.0%	11.5%	13.7%	6.4%
2		25.0%	29.2%	31.4%	36.3%	43.1%	14.8%
3		25.0%	25.4%	20.6%	19.5%	19.6%	10.6%
4		0.0%	14.5%	15.4%	14.2%	11.8%	6.8%
5		12.5%	6.3%	4.9%	4.4%	2.0%	2.5%
6 or more		37.5%	11.9%	11.7%	14.2%	9.8%	5.7%
		0.9%	44.2%	36.5%	12.7%	5.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DAY OF WEEK BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Monday	25.0%	17.4%	16.3%	16.1%	18.5%	17.0%
Tuesday	12.5%	13.9%	15.0%	12.7%	15.4%	14.3%
Wednesday	25.0%	15.0%	15.9%	16.4%	12.9%	15.3%
Thursday	12.5%	15.3%	15.2%	16.1%	14.7%	15.3%
Friday	12.5%	14.4%	17.4%	15.8%	18.2%	16.3%
Saturday	12.5%	13.4%	12.1%	10.5%	11.5%	12.2%
Sunday	0.0%	10.4%	8.2%	12.4%	8.7%	9.7%
	0.4%	32.1%	36.5%	16.4%	14.5%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Monday	37.5%	8.2%	13.9%	15.4%	6.9%	5.4%
Tuesday	0.0%	11.7%	12.4%	8.5%	12.1%	5.5%
Wednesday	0.0%	9.6%	9.7%	12.0%	20.7%	5.1%
Thursday	12.5%	16.0%	13.6%	12.0%	12.1%	6.9%
Friday	25.0%	17.4%	17.7%	23.1%	12.1%	8.6%
Saturday	12.5%	23.0%	16.5%	12.8%	17.2%	9.1%
Sunday	12.5%	14.1%	16.2%	16.2%	19.0%	7.4%
	0.8%	44.9%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
WEEKDAY VERSUS WEEKEND BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Weekday		87.5%	76.1%	79.7%	77.1%	79.7%	78.2%
Weekend		12.5%	23.9%	20.3%	22.9%	20.3%	21.8%
		0.4%	32.1%	36.5%	16.4%	14.5%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Weekday		75.0%	62.9%	67.3%	70.9%	63.8%	31.6%
Weekend		25.0%	37.1%	32.7%	29.1%	36.2%	16.6%
		0.8%	44.9%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TIME PERIOD BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
6 am - 12 pm		37.5%	36.6%	42.3%	43.7%	42.3%	40.7%
12 pm - 6 pm		62.5%	63.4%	57.7%	56.3%	57.7%	59.3%
		0.4%	32.1%	36.5%	16.4%	14.5%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
6 pm - 12 am		87.5%	74.4%	78.2%	79.5%	84.5%	37.1%
12 am - 6 am		12.5%	25.6%	21.8%	20.5%	15.5%	11.0%
		0.8%	44.9%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TIME PERIOD BY WEEKDAY/WEEKEND BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Weekday:	6 am - 12 pm	25.0%	23.9%	27.7%	24.1%	26.2%	25.7%
	12 pm - 6 pm	62.5%	52.2%	52.0%	52.9%	53.5%	52.5%
Weekend:	6 am - 12 pm	12.5%	6.5%	6.5%	9.9%	6.6%	7.1%
	12 pm - 6 pm	0.0%	17.4%	13.8%	13.0%	13.6%	14.7%
		0.4%	32.1%	36.5%	16.4%	14.5%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Weekday:	12 am - 6 am	12.5%	10.3%	10.3%	9.4%	10.3%	10.2%
	6 pm - 12 am	62.5%	52.6%	56.9%	61.5%	53.4%	55.4%
Weekend:	12 am - 6 am	0.0%	15.3%	11.5%	11.1%	5.2%	12.7%
	6 pm - 12 am	25.0%	21.8%	21.2%	17.9%	31.0%	21.7%
		0.8%	44.9%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RURAL/URBAN BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Urban	62.5%	38.1%	40.5%	41.2%	36.7%	39.4%
10% Rural	37.5%	39.1%	39.5%	39.9%	38.8%	39.3%
20% Rural	0.0%	11.4%	10.6%	11.5%	8.7%	10.7%
40% Rural	0.0%	7.3%	6.8%	2.5%	9.1%	6.6%
50% Rural	0.0%	4.1%	2.6%	5.0%	6.6%	4.1%
	0.4%	32.1%	36.5%	16.4%	14.5%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Urban	25.0%	39.9%	41.0%	44.4%	44.8%	19.8%
10% Rural	50.0%	33.1%	35.1%	30.8%	34.5%	16.3%
20% Rural	0.0%	13.6%	9.4%	8.5%	6.9%	5.3%
40% Rural	12.5%	7.3%	7.1%	6.8%	5.2%	3.4%
50% Rural	12.5%	6.1%	7.4%	9.4%	8.6%	3.5%
	0.8%	44.9%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
SPEED LIMIT IN MILES (AND KM/H) BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
0	(car-park, etc)	0.0%	0.2%	0.2%	0.3%	0.4%	0.2%
05	(8 km/h)	0.0%	0.0%	0.2%	0.0%	0.0%	0.1%
10	(17 km/h)	0.0%	0.5%	0.0%	0.3%	0.0%	0.2%
15	(24 km/h)	0.0%	0.3%	0.9%	1.0%	0.0%	0.6%
20	(32 km/h)	0.0%	0.9%	0.9%	0.0%	0.4%	0.7%
25	(40 km/h)	25.0%	15.7%	13.4%	15.0%	12.4%	14.3%
30	(48 km/h)	25.0%	15.7%	13.3%	18.7%	21.2%	16.1%
35	(56 km/h)	37.5%	33.4%	31.2%	29.0%	22.0%	30.2%
40	(64 km/h)	12.5%	11.7%	14.2%	9.7%	17.8%	13.1%
45	(72 km/h)	0.0%	9.0%	8.6%	10.7%	10.8%	9.3%
50	(80 km/h)	0.0%	2.4%	2.6%	1.0%	1.2%	2.0%
55	(89 km/h)	0.0%	9.0%	14.0%	13.7%	12.4%	12.0%
65	(105 km/h)	0.0%	1.4%	0.8%	0.7%	1.5%	1.0%
		0.4%	32.1%	36.6%	16.6%	14.3%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
0	(car-park, etc)	0.0%	0.0%	0.6%	0.0%	0.0%	0.1%
10	(17 km/h)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15	(24 km/h)	0.0%	1.0%	0.3%	0.9%	0.0%	0.3%
20	(32 km/h)	0.0%	0.8%	0.6%	0.0%	0.0%	0.3%
25	(40 km/h)	28.6%	16.0%	12.6%	13.0%	12.7%	6.9%
30	(48 km/h)	14.3%	13.2%	15.7%	15.7%	12.7%	7.0%
35	(56 km/h)	14.3%	32.3%	34.0%	33.3%	30.9%	15.8%
40	(64 km/h)	14.3%	12.9%	6.9%	3.7%	9.1%	4.5%
45	(72 km/h)	0.0%	5.7%	8.2%	10.2%	10.9%	3.6%
50	(80 km/h)	14.3%	2.3%	3.5%	3.7%	5.5%	1.5%
55	(89 km/h)	14.3%	14.0%	17.3%	17.6%	16.4%	7.6%
65	(105 km/h)	0.0%	1.8%	0.3%	1.9%	1.8%	0.6%
		0.8%	44.2%	36.3%	12.3%	6.3%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
INTERSTATE HIGHWAY BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
No (not on highway)		100.0%	95.9%	94.4%	94.1%	95.4%	95.0%
Yes (on highway)		0.0%	4.1%	5.6%	5.9%	4.6%	5.0%
		0.4%	32.1%	36.5%	16.4%	14.5%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
No (not on highway)		87.5%	91.3%	94.4%	90.6%	91.4%	44.5%
Yes (on highway)		12.5%	8.7%	5.6%	9.4%	8.6%	3.7%
		0.8%	44.9%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
LAND USE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Population 25000 - 50000	12.5%	6.5%	7.0%	7.3%	6.5%	6.8%
Population 50000 - 100000	0.0%	11.5%	10.0%	12.3%	7.9%	10.5%
Population 100000+	62.5%	53.6%	58.5%	59.6%	54.2%	56.5%
Other Area	25.0%	28.4%	24.5%	20.9%	31.4%	26.2%
	0.4%	32.3%	36.1%	16.3%	14.9%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Population 25000 - 50000	0.0%	8.0%	7.0%	4.5%	3.6%	3.3%
Population 50000 - 100000	25.0%	14.2%	9.3%	10.8%	5.4%	5.5%
Population 100000+	50.0%	56.0%	55.0%	55.0%	64.3%	26.8%
Other Area	25.0%	21.9%	28.8%	29.7%	26.8%	12.3%
	0.9%	45.2%	35.2%	12.5%	6.3%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROADWAY ALIGNMENT BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Straight		87.5%	91.2%	92.4%	92.3%	93.6%	92.2%
	Curve	12.5%	8.8%	7.6%	7.7%	6.4%	7.8%
		0.4%	32.0%	36.6%	16.3%	14.7%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Straight		87.5%	88.0%	86.1%	86.5%	86.0%	41.6%
	Curve	12.5%	12.0%	13.9%	13.5%	14.0%	6.2%
		0.9%	44.6%	36.1%	12.1%	6.2%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROADWAY PROFILE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Level	50.0%	76.0%	77.7%	77.2%	79.3%	77.2%
Grade	50.0%	22.5%	20.5%	21.6%	18.9%	21.2%
Hillcrest	0.0%	1.1%	1.3%	0.8%	1.8%	1.2%
Other	0.0%	0.4%	0.6%	0.4%	0.0%	0.4%
	0.3%	32.3%	36.3%	16.4%	14.8%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Level	71.4%	74.2%	73.1%	71.8%	75.0%	34.1%
Grade	28.6%	23.2%	25.6%	26.9%	20.0%	11.3%
Hillcrest	0.0%	2.2%	1.2%	1.3%	5.0%	0.9%
Other	0.0%	0.3%	0.0%	0.0%	0.0%	0.1%
	1.0%	46.1%	35.5%	11.5%	5.9%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFICWAY FLOW BY AGE GROUP

N=3131

	DAY					
	0-15	16-25	26-40	41-55	56-98	Total
Two way undivided	75.0%	63.4%	59.4%	59.4%	67.2%	61.8%
Divided highway	25.0%	34.7%	38.0%	36.9%	31.5%	35.8%
Oneway	0.0%	1.9%	2.6%	3.7%	1.3%	2.4%
	0.5%	31.8%	36.9%	16.5%	14.3%	100.0%

	NIGHT					
	0-15	16-25	26-40	41-55	56-98	Total
Two way undivided	75.0%	62.6%	65.3%	64.3%	58.5%	30.5%
Divided highway	12.5%	35.4%	33.2%	33.7%	37.7%	16.5%
Oneway	12.5%	2.0%	1.4%	2.0%	3.8%	1.0%
	1.0%	44.7%	35.1%	12.4%	6.7%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RELATION TO ROADWAY BY AGE GROUP

N = 3131

	DAY					
	0-15	16-25	26-40	41-55	56-98	Total
On roadway	75.0%	86.5%	91.5%	92.2%	89.4%	89.6%
On shoulder/parking lane	12.5%	2.2%	1.1%	0.9%	1.8%	1.6%
Off roadway/shoulder/parking lane	12.5%	10.7%	6.7%	6.5%	8.8%	8.3%
On median	0.0%	0.6%	0.7%	0.3%	0.0%	0.5%
	0.4%	32.1%	36.6%	16.4%	14.5%	100.0%

	NIGHT					
	0-15	16-25	26-40	41-55	56-98	Total
On roadway	62.5%	73.6%	76.3%	75.2%	82.8%	36.3%
On shoulder/parking lane	0.0%	4.5%	3.3%	5.1%	1.7%	1.9%
Off roadway/shoulder/parking lane	37.5%	21.0%	19.0%	19.7%	13.8%	9.6%
On median	0.0%	0.7%	1.5%	0.0%	1.7%	0.5%
Other	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
	0.8%	44.9%	35.7%	12.4%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RELATION TO JUNCTION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Non junction	37.5%	37.2%	37.8%	35.1%	30.7%	36.1%
Intersection	50.0%	42.7%	41.2%	40.4%	51.9%	43.2%
Intersection related	12.5%	11.2%	11.8%	11.0%	8.8%	11.1%
Interchange area	0.0%	0.2%	0.4%	0.3%	0.0%	0.3%
Driveway/alley	0.0%	8.0%	7.6%	11.6%	8.1%	8.4%
Entrance/exit ramp	0.0%	0.5%	0.8%	1.6%	0.4%	0.8%
Other	0.0%	0.2%	0.3%	0.0%	0.0%	0.2%
	0.4%	32.1%	36.5%	16.4%	14.6%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Non junction	37.5%	46.4%	39.9%	44.4%	50.0%	21.3%
Intersection	25.0%	38.1%	42.3%	42.7%	36.2%	19.3%
Intersection related	25.0%	7.4%	8.6%	6.0%	6.9%	3.8%
Interchange area	0.0%	0.7%	1.8%	0.9%	0.0%	0.5%
Driveway/alley	12.5%	6.2%	6.3%	3.4%	5.2%	2.8%
Entrance/exit ramp	0.0%	0.2%	0.6%	2.6%	1.7%	0.4%
Other	0.0%	1.0%	0.6%	0.0%	0.0%	0.3%
	0.9%	44.7%	35.8%	12.5%	6.2%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF TRAVEL LANES BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
1		0.0%	2.6%	2.7%	1.7%	1.0%	2.2%
2		75.0%	38.3%	39.8%	44.9%	46.1%	41.2%
3		25.0%	17.2%	18.4%	18.8%	19.1%	18.2%
4		0.0%	23.2%	23.0%	20.9%	18.6%	22.0%
5		0.0%	13.6%	13.5%	11.1%	12.3%	12.9%
6		0.0%	3.3%	2.0%	1.7%	2.9%	2.5%
7 or more		0.0%	1.7%	0.6%	0.9%	0.0%	0.9%
		0.3%	31.0%	36.2%	17.4%	15.1%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
1		0.0%	2.6%	0.9%	6.6%	2.6%	1.1%
2		60.0%	39.1%	47.2%	42.1%	48.7%	20.0%
3		40.0%	15.3%	19.9%	21.1%	15.4%	8.3%
4		0.0%	28.1%	21.6%	17.1%	17.9%	10.9%
5		0.0%	11.7%	9.5%	9.2%	15.4%	5.0%
6		0.0%	2.6%	0.0%	2.6%	0.0%	0.7%
7 or more		0.0%	0.7%	0.9%	1.3%	0.0%	0.4%
		0.8%	43.8%	37.0%	12.2%	6.2%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFIC CONTROL DEVICE BY AGE GROUP

N=3131

	DAY					
	0-15	16-25	26-40	41-55	56-98	Total
No controls	62.5%	55.5%	55.1%	57.9%	49.6%	54.9%
Traffic signals:						
with pedestrian signal	0.0%	0.5%	0.1%	0.0%	0.0%	0.2%
pedestrian signal not known	25.0%	23.1%	24.1%	27.3%	26.4%	24.7%
flashing traffic signal/beacon	0.0%	0.0%	0.3%	0.3%	0.7%	0.3%
other traffic signal	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
unknown traffic signal	0.0%	0.8%	1.4%	1.0%	0.7%	1.1%
Regulatory, school zone or warning signs:						
stop sign	0.0%	13.0%	10.5%	10.0%	19.6%	12.5%
yield sign	0.0%	0.5%	1.0%	0.6%	0.7%	0.7%
warning sign	0.0%	1.0%	0.7%	0.3%	0.7%	0.7%
other sign	0.0%	0.3%	0.0%	0.0%	0.0%	0.1%
unknown sign	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Miscellaneous (not at railroad crossing)	0.0%	0.3%	0.9%	0.3%	0.7%	0.6%
Traffic controls present - no details	12.5%	5.0%	5.5%	2.3%	0.7%	4.1%
	0.4%	31.8%	36.6%	16.4%	14.8%	100.0%

	NIGHT					
	0-15	16-25	26-40	41-55	56-98	Total
No controls:	42.9%	64.8%	58.9%	62.9%	62.5%	29.7%
pedestrian signal not known	14.3%	20.8%	22.1%	16.4%	16.1%	9.7%
flashing traffic signal/beacon	0.0%	0.3%	0.9%	1.7%	0.0%	0.3%
unknown traffic signal	0.0%	0.3%	0.6%	0.0%	3.6%	0.3%
Regulatory, school zone or warning signs:						
stop sign	28.6%	7.3%	8.9%	12.1%	8.9%	4.2%
yield sign	0.0%	1.0%	1.2%	0.9%	0.0%	0.5%
warning sign	0.0%	0.5%	0.9%	0.9%	3.6%	0.4%
other sign	0.0%	0.5%	0.3%	0.0%	1.8%	0.2%
Traffic controls present - no details	14.3%	4.3%	6.1%	5.2%	3.6%	2.4%
Other traffic controls	0.0%	0.5%	0.0%	0.0%	0.0%	0.1%
	0.8%	44.2%	36.0%	12.8%	6.2%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFIC DEVICE FUNCTIONING BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No controls	62.5%	55.5%	55.1%	57.7%	49.6%	54.9%
Device not functioning	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%
Device functioning	37.5%	44.5%	44.9%	42.3%	50.0%	45.1%
	0.4%	31.8%	36.5%	16.5%	14.8%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No controls	42.9%	65.2%	59.1%	63.5%	62.5%	29.7%
Device not functioning	0.0%	0.3%	0.6%	0.0%	0.0%	0.2%
Device functioning	57.1%	34.5%	40.3%	36.5%	37.5%	17.7%
	0.8%	44.1%	36.1%	12.8%	6.2%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
SEX OF DRIVER BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Male		87.5%	50.9%	46.9%	48.0%	51.4%	49.2%
Female		12.5%	49.1%	53.1%	52.0%	48.6%	50.8%
		0.4%	32.1%	36.6%	16.4%	14.5%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Male		25.0%	64.4%	63.7%	66.7%	69.0%	31.0%
Female		75.0%	35.6%	36.3%	33.3%	31.0%	17.1%
		0.8%	44.8%	35.8%	12.4%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ALCOHOL USE (DRIVER) BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Alcohol involved		14.3%	3.1%	3.7%	3.1%	1.5%	3.1%
No alcohol involved		85.7%	96.9%	96.3%	96.9%	98.5%	96.9%
		0.4%	32.1%	36.6%	16.6%	14.4%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Alcohol involved		12.5%	19.8%	22.6%	17.5%	15.8%	9.6%
No alcohol involved		87.5%	80.3%	77.4%	82.5%	84.2%	38.0%
		0.9%	43.9%	36.4%	12.5%	6.3%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ALCOHOL INVOLVEMENT IN CRASH BY AGE GROUP

N = 3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Alcohol involved	12.5%	5.9%	6.5%	5.3%	4.9%	5.9%
No alcohol involved	87.5%	94.1%	93.5%	94.7%	95.1%	94.1%
	0.4%	32.0%	36.6%	16.3%	14.6%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Alcohol involved	12.5%	27.6%	32.6%	31.0%	27.6%	14.2%
No alcohol involved	87.5%	72.4%	67.4%	69.0%	72.4%	33.6%
	0.9%	44.5%	36.0%	12.5%	6.2%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DRIVER PHYSICAL/MENTAL IMPAIRMENT BY AGE GROUP

N=3131

	DAY					
	0-15	16-25	26-40	41-55	56-98	Total
No impairment	87.5%	97.7%	98.7%	97.8%	97.1%	98.0%
Drowsy/fatigued	0.0%	1.3%	0.4%	0.3%	1.4%	0.8%
Ill / blackout	0.0%	0.3%	0.0%	0.3%	1.1%	0.3%
Illicit drugs	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%
Hit-and-run vehicle	12.5%	0.3%	0.6%	0.3%	0.4%	0.5%
Physical/mental impairment - no details	0.0%	0.3%	0.1%	0.0%	0.0%	0.2%
Other physical/mental impairment	0.0%	0.0%	0.1%	1.0%	0.0%	0.2%
	0.4%	31.9%	36.9%	16.4%	14.4%	100.0%

	NIGHT					
	0-15	16-25	26-40	41-55	56-98	Total
No impairment	100.0%	95.6%	94.9%	94.9%	96.4%	46.0%
Drowsy/fatigued	0.0%	2.9%	2.4%	0.9%	0.0%	1.1%
Ill / blackout	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
Illicit drugs	0.0%	0.2%	0.3%	0.9%	0.0%	0.2%
Hit-and-run vehicle	0.0%	0.7%	1.5%	1.7%	1.8%	0.6%
Physical/mental impairment - no details	0.0%	0.0%	0.0%	1.7%	0.0%	0.1%
Other physical/mental impairment	0.0%	0.2%	0.9%	0.0%	1.8%	0.3%
	0.9%	44.2%	36.2%	12.6%	6.0%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DRIVER'S ACTION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Not avoiding/swerving	87.5%	94.7%	96.2%	98.4%	97.9%	96.3%
Slippery or loose surface	0.0%	1.3%	0.4%	0.0%	0.4%	0.6%
Blowout	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Ruts/holes/bumps	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%
Animals on road	0.0%	0.2%	0.1%	0.0%	0.0%	0.1%
Vehicle on road	0.0%	0.3%	0.8%	0.0%	0.0%	0.4%
Phantom vehicle	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Water/snow/oil slick	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Hit-and-run vehicle	12.5%	0.3%	0.6%	0.3%	0.4%	0.5%
Avoiding action - details unknown	0.0%	3.2%	1.4%	1.2%	1.1%	1.9%
	0.4%	32.0%	36.7%	16.5%	14.4%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Not avoiding/swerving	100.0%	92.0%	92.0%	95.7%	94.7%	44.8%
Slippery or loose surface	0.0%	0.9%	0.6%	0.0%	0.0%	0.3%
Animals on road	0.0%	0.2%	0.3%	0.0%	0.0%	0.1%
Vehicle on road	0.0%	0.2%	0.9%	0.0%	0.0%	0.2%
Pedestrian/cyclist/non-motorist	0.0%	0.2%	0.3%	0.0%	1.8%	0.2%
Hit-and-run vehicle	0.0%	0.9%	1.5%	1.7%	1.8%	0.6%
Avoiding action - details unknown	0.0%	5.4%	4.4%	2.6%	1.8%	2.2%
	0.8%	44.9%	35.8%	12.4%	6.0%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VIOLATIONS CHARGED BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
None	37.5%	60.0%	66.1%	69.3%	65.9%	64.5%
Alcohol/drugs	12.5%	1.3%	1.7%	0.3%	1.1%	1.3%
Speeding	0.0%	6.8%	4.4%	3.5%	3.3%	4.9%
Alcohol or drugs and speeding	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%
Reckless driving	0.0%	1.1%	0.4%	0.0%	0.0%	0.5%
Driving with suspended licence	0.0%	1.1%	0.6%	0.3%	0.0%	0.6%
Failure to give way	12.5%	7.2%	7.5%	7.3%	17.2%	8.8%
Running traffic controls/stop sign	0.0%	2.3%	1.9%	3.5%	4.0%	2.6%
Other violation	37.5%	20.2%	17.4%	15.5%	8.4%	16.8%
	0.4%	32.1%	36.7%	16.5%	14.3%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
None	50.0%	56.0%	57.9%	71.9%	75.4%	28.5%
Alcohol/drugs	12.5%	8.4%	12.8%	12.3%	7.0%	5.0%
Speeding	0.0%	6.4%	4.6%	1.8%	3.5%	2.4%
Alcohol or drugs and speeding	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Reckless driving	0.0%	1.0%	1.2%	0.0%	0.0%	0.4%
Driving with suspended licence	0.0%	1.0%	1.2%	0.9%	0.0%	0.5%
Failure to give way	0.0%	3.5%	5.5%	5.3%	7.0%	2.2%
Running traffic controls/stop sign	0.0%	1.7%	1.2%	1.8%	0.0%	0.7%
Other violation	37.5%	22.0%	15.5%	6.1%	7.0%	8.0%
	0.9%	44.4%	36.0%	12.5%	6.3%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF OCCUPANTS IN VEHICLE BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
1		28.6%	62.7%	65.7%	68.8%	67.4%	65.4%
2		57.1%	22.3%	18.6%	20.8%	26.2%	21.4%
3		14.3%	8.7%	8.9%	5.7%	3.5%	7.5%
4 or more		0.0%	6.3%	6.8%	4.7%	2.8%	5.7%
		0.4%	32.1%	36.6%	16.4%	14.6%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
1		12.5%	45.5%	57.8%	58.6%	70.9%	25.2%
2		50.0%	33.4%	27.8%	27.6%	25.5%	14.5%
3		12.5%	12.1%	6.6%	5.2%	0.0%	4.1%
4 or more		25.0%	9.0%	7.8%	8.6%	3.6%	4.0%
		0.9%	44.6%	36.1%	12.5%	5.9%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAVEL SPEED OF VEHICLE IN MILES (AND KM/H) BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Stationary		0.0%	25.9%	42.0%	47.9%	29.6%	36.3%
01 - 12	(01 - 20 km/h)	0.0%	13.4%	14.0%	7.7%	14.8%	12.8%
13 - 24	(21 - 40 km/h)	0.0%	15.4%	10.7%	22.5%	17.6%	15.2%
25 - 35	(41 - 60 km/h)	0.0%	15.8%	11.7%	9.9%	13.0%	12.8%
36 - 50	(61 - 80 km/h)	100.0%	18.6%	14.0%	7.7%	12.0%	14.2%
51 - 60	(81 - 100 km/h)	0.0%	6.5%	5.7%	3.5%	9.3%	6.0%
Over 60	(>100 km/h)	0.0%	4.5%	2.0%	0.7%	3.7%	2.8%
		0.1%	31.0%	37.6%	17.8%	13.5%	100.0%

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Stationary		0.0%	19.3%	25.6%	26.2%	30.0%	10.5%
01 - 12	(01 - 20 km/h)	0.0%	9.0%	12.8%	11.9%	6.7%	4.8%
13 - 24	(21 - 40 km/h)	0.0%	13.3%	12.8%	11.9%	10.0%	5.8%
25 - 35	(41 - 60 km/h)	0.0%	13.9%	10.4%	4.8%	16.7%	5.4%
36 - 50	(61 - 80 km/h)	0.0%	18.7%	17.6%	21.4%	16.7%	8.4%
51 - 60	(81 - 100 km/h)	0.0%	15.7%	14.4%	16.7%	16.7%	7.0%
Over 60	(>100 km/h)	0.0%	10.2%	6.4%	7.1%	3.3%	3.6%
		0.0%	45.7%	34.4%	11.6%	8.3%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MODEL YEAR BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
1986 - 1989	0.0%	23.8%	31.5%	29.6%	30.9%	28.5%
1981 - 1985	25.0%	28.8%	30.1%	34.9%	30.5%	30.5%
1976 - 1980	37.5%	31.5%	24.8%	23.6%	25.6%	26.9%
1971 - 1975	25.0%	10.0%	9.1%	7.5%	6.3%	8.8%
1974 and earlier	12.5%	5.9%	4.6%	4.4%	6.7%	5.3%
	0.4%	32.2%	36.5%	16.2%	14.6%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
1986 - 1989	37.5%	22.6%	31.7%	34.5%	25.9%	13.3%
1981 - 1985	37.5%	26.8%	26.3%	34.5%	34.5%	13.5%
1976 - 1980	25.0%	29.2%	25.7%	14.7%	17.2%	12.2%
1971 - 1975	0.0%	12.5%	9.0%	9.5%	15.5%	5.3%
1974 and earlier	0.0%	8.9%	7.2%	6.9%	6.9%	3.8%
	0.9%	45.2%	35.5%	12.3%	6.2%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE DEFECTS BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No vehicle defects	100.0%	98.7%	98.1%	98.7%	98.5%	98.5%
Tyres	0.0%	0.3%	0.1%	0.0%	0.0%	0.2%
Brakes	0.0%	0.2%	0.6%	0.3%	0.0%	0.3%
Signal lights	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Other lights	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%
Mirrors	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hit-and-run vehicle	0.0%	0.3%	0.7%	0.6%	0.4%	0.5%
Vehicle defects - no details	0.0%	0.2%	0.1%	0.0%	0.4%	0.2%
Other vehicle defect	0.0%	0.3%	0.1%	0.0%	0.7%	0.3%
	0.4%	31.7%	36.9%	16.5%	14.4%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No vehicle defects	100.0%	97.8%	97.5%	95.7%	98.2%	47.0%
Tyres	0.0%	0.5%	0.0%	0.0%	0.0%	0.1%
Brakes	0.0%	0.0%	0.3%	0.0%	1.8%	0.1%
Steering	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
Headlights	0.0%	0.0%	0.3%	0.0%	0.0%	0.1%
Other lights	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
Hit-and-run vehicle	0.0%	1.0%	1.2%	1.7%	0.0%	0.5%
Vehicle defects - no details	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
Other vehicle defect	0.0%	0.0%	0.6%	2.6%	0.0%	0.3%
	0.8%	44.6%	35.6%	12.7%	6.3%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
LIGHT CONDITIONS BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Daylight	87.5%	93.7%	93.1%	92.2%	94.5%	93.3%
Dark	0.0%	1.3%	0.6%	1.3%	0.7%	0.9%
Dark but lighted	12.5%	2.6%	3.5%	2.5%	2.9%	3.0%
Dawn	0.0%	0.6%	0.8%	0.9%	0.4%	0.7%
Dusk	0.0%	0.5%	1.1%	2.2%	0.7%	1.0%
Dawn or dusk	0.0%	1.3%	0.8%	0.9%	0.7%	1.0%
	0.4%	32.0%	36.8%	16.5%	14.2%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Daylight	25.0%	20.6%	17.3%	18.1%	28.6%	9.4%
Dark	12.5%	24.2%	21.6%	20.7%	17.9%	10.7%
Dark but lighted	50.0%	51.1%	55.3%	51.7%	50.0%	25.1%
Dawn	0.0%	0.0%	0.0%	0.9%	0.0%	0.1%
Dusk	0.0%	1.2%	2.1%	1.7%	0.0%	0.7%
Dawn or dusk	12.5%	2.9%	3.6%	6.9%	3.6%	1.8%
	0.9%	44.8%	35.7%	12.6%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ATMOSPHERIC CONDITIONS BY AGE GROUP

N=3131

	DAY					
	0-15	16-25	26-40	41-55	56-98	Total
No adverse conditions	87.5%	88.9%	89.5%	88.3%	91.1%	89.3%
Rain	12.5%	8.6%	8.6%	9.1%	6.4%	8.4%
Sleet	0.0%	0.0%	0.0%	0.6%	0.4%	0.2%
Snow	0.0%	0.5%	0.6%	0.6%	1.1%	0.6%
Fog	0.0%	0.2%	0.1%	0.0%	0.0%	0.1%
Other	0.0%	1.9%	1.1%	1.3%	1.1%	1.4%
	0.4%	32.1%	36.6%	16.4%	14.5%	100.0%

	NIGHT					
	0-15	16-25	26-40	41-55	56-98	Total
No adverse conditions	87.5%	87.1%	88.0%	88.9%	94.7%	42.7%
Rain	0.0%	10.5%	8.7%	8.5%	5.3%	4.5%
Sleet	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
Snow	12.5%	0.2%	0.9%	1.7%	0.0%	0.4%
Fog	0.0%	0.2%	0.6%	0.9%	0.0%	0.2%
Other	0.0%	1.7%	1.8%	0.0%	0.0%	0.7%
	0.9%	44.8%	35.7%	12.5%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VISUAL OBSTRUCTION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No obstruction	87.5%	97.6%	96.4%	95.9%	96.4%	96.7%
Precipitation	0.0%	0.5%	0.0%	0.0%	0.4%	0.2%
Glare/sun/headlights	0.0%	0.0%	0.6%	1.9%	0.7%	0.6%
Curve/hill/embankment	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%
Building/billboard	0.0%	0.0%	0.1%	0.6%	0.0%	0.2%
Trees/crops/vegetation	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Moving vehicle	0.0%	0.8%	1.3%	0.3%	1.4%	1.0%
Parked vehicle	0.0%	0.3%	0.7%	0.9%	0.0%	0.5%
Broken/dirty windscreen	0.0%	0.3%	0.0%	0.0%	0.0%	0.1%
Hit-and-run vehicle	12.5%	0.3%	0.6%	0.3%	0.4%	0.5%
Other obstruction	0.0%	0.2%	0.3%	0.0%	0.4%	0.2%
	0.4%	32.0%	36.7%	16.4%	14.4%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No obstruction	100.0%	97.2%	97.6%	98.3%	89.5%	46.7%
Precipitation	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
Glare/sun/headlights	0.0%	0.5%	0.0%	0.0%	3.5%	0.2%
Curve/hill/embankment	0.0%	0.2%	0.3%	0.0%	3.5%	0.2%
Parked vehicle	0.0%	0.5%	0.3%	0.0%	1.8%	0.2%
Hit-and-run vehicle	0.0%	0.9%	1.5%	1.7%	1.8%	0.6%
Vision obscured - no details	0.0%	0.2%	0.3%	0.0%	0.0%	0.1%
Other obstruction	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%
	0.7%	45.1%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROAD SURFACE CONDITION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Dry	75.0%	83.8%	85.7%	84.3%	89.4%	85.3%
Wet	12.5%	12.1%	10.6%	11.6%	8.4%	11.0%
Snow/slush	0.0%	1.3%	1.1%	2.5%	0.7%	1.4%
Ice	0.0%	2.0%	2.1%	1.6%	1.1%	1.8%
Sand/dirt/oil	12.5%	0.8%	0.3%	0.0%	0.0%	0.4%
Other	0.0%	0.0%	0.1%	0.0%	0.4%	0.1%
	0.4%	31.9%	36.8%	16.6%	14.3%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Dry	75.0%	82.6%	81.1%	87.9%	91.4%	40.3%
Wet	0.0%	13.3%	13.2%	9.5%	6.9%	5.9%
Snow/slush	0.0%	0.5%	0.6%	0.9%	0.0%	0.3%
Ice	12.5%	2.4%	3.3%	0.9%	1.7%	1.3%
Sand/dirt/oil	12.5%	1.0%	0.9%	0.0%	0.0%	0.4%
Other	0.0%	0.2%	0.9%	0.9%	0.0%	0.3%
	0.9%	44.6%	35.8%	12.5%	6.2%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE MANOEUVRE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Going straight	37.5%	58.7%	53.4%	49.1%	54.4%	54.5%
Slowing/stopping	0.0%	2.9%	2.7%	3.8%	2.5%	2.9%
Starting in traffic lane	12.5%	0.2%	0.8%	0.6%	0.4%	0.6%
Stopped in traffic lane	0.0%	10.3%	17.7%	21.3%	11.3%	14.9%
Passing/overtaking	0.0%	0.5%	0.6%	0.0%	0.0%	0.4%
Leaving parking spot	0.0%	0.2%	0.1%	0.0%	0.0%	0.1%
Entering parking spot	0.0%	0.0%	0.0%	0.6%	0.0%	0.1%
Avoiding animal/pedestrian/object/vehicle	0.0%	1.0%	1.8%	0.9%	0.4%	1.2%
Turning right	0.0%	3.2%	4.3%	3.4%	3.9%	3.7%
Turning left	37.5%	16.7%	13.7%	15.0%	20.5%	16.0%
U-turn	0.0%	0.2%	0.4%	0.3%	0.4%	0.3%
Reversing	0.0%	0.3%	0.3%	0.9%	0.7%	0.5%
Changing lanes/merging	0.0%	1.1%	1.5%	1.6%	2.5%	1.5%
Negotiating curve	12.5%	2.4%	0.7%	0.6%	1.1%	1.3%
Other	0.0%	2.4%	1.8%	1.9%	2.1%	2.1%
	0.4%	32.0%	36.6%	16.4%	14.5%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Going straight	28.6%	57.1%	55.8%	59.0%	56.1%	27.3%
Slowing/stopping	0.0%	3.1%	0.9%	1.7%	1.8%	1.0%
Starting in traffic lane	0.0%	0.2%	0.3%	0.0%	0.0%	0.1%
Stopped in traffic lane	0.0%	7.3%	9.5%	9.4%	14.0%	4.2%
Passing/overtaking	0.0%	1.2%	0.3%	1.7%	1.8%	0.5%
Leaving parking spot	0.0%	0.7%	0.0%	0.0%	0.0%	0.2%
Entering parking spot	0.0%	0.0%	0.0%	0.0%	1.8%	0.1%
Avoiding animal/pedestrian/object/vehicle	14.3%	2.8%	1.5%	1.7%	1.8%	1.1%
Turning right	14.3%	4.3%	3.0%	3.4%	3.5%	1.8%
Turning left	14.3%	14.2%	16.3%	15.4%	12.3%	7.2%
U-turn	0.0%	0.5%	0.3%	0.0%	0.0%	0.2%
Reversing	0.0%	0.5%	0.0%	0.0%	1.8%	0.2%
Changing lanes/merging	14.3%	1.4%	2.4%	0.9%	0.0%	0.8%
Negotiating curve	0.0%	3.6%	5.0%	5.1%	5.3%	2.1%
Other	14.3%	3.1%	4.7%	1.7%	0.0%	1.6%
	0.7%	44.9%	35.9%	12.4%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MANNER OF COLLISION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No collision with moving vehicle	37.5%	28.5%	24.0%	23.2%	25.4%	25.6%
Rear-end	25.0%	27.1%	30.6%	34.4%	20.8%	28.7%
Head-on	0.0%	4.1%	2.8%	3.7%	2.5%	3.3%
Angle	37.5%	39.2%	39.7%	37.5%	49.5%	40.6%
Sideswipe, same direction	0.0%	1.0%	2.8%	0.9%	1.4%	1.7%
Sideswipe, opposite direction	0.0%	0.2%	0.1%	0.3%	0.0%	0.2%
Other	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%
	0.4%	32.1%	36.6%	16.5%	14.5%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No collision with moving vehicle	37.5%	37.4%	37.9%	36.2%	33.3%	17.9%
Rear-end	12.5%	18.7%	18.0%	15.5%	28.1%	8.9%
Head-on	0.0%	3.5%	3.6%	3.4%	3.5%	1.7%
Angle	37.5%	37.4%	36.4%	37.9%	33.3%	17.7%
Sideswipe, same direction	0.0%	2.4%	3.8%	5.2%	1.8%	1.5%
Sideswipe, opposite direction	12.5%	0.7%	0.3%	1.7%	0.0%	0.4%
	0.8%	44.9%	35.9%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
FIRST HARMFUL EVENT (CRASH LEVEL) BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Non collision:						
Rollover	25.0%	1.7%	1.0%	0.9%	1.4%	1.4%
Other non collision	0.0%	1.4%	1.0%	0.6%	0.0%	0.9%
Collision with object - not fixed:						
Pedestrian	0.0%	6.8%	6.0%	7.1%	6.4%	6.5%
Cycle or cyclist	0.0%	7.6%	8.9%	9.3%	8.5%	8.5%
Motor vehicle on road	62.5%	71.6%	76.0%	76.8%	74.6%	74.4%
Motor vehicle parked	12.5%	2.2%	0.8%	0.6%	1.8%	1.4%
Other	0.0%	0.2%	0.1%	0.3%	0.4%	0.2%
Collision with fixed object:						
Guardrail	0.0%	0.6%	0.6%	0.3%	0.4%	0.5%
Post/pole/support	0.0%	1.4%	1.5%	0.6%	1.4%	1.3%
Culvert/ditch	0.0%	0.8%	0.1%	0.3%	0.7%	0.5%
Curb	0.0%	1.3%	1.0%	0.6%	0.4%	0.9%
Embankment	0.0%	1.1%	1.0%	0.6%	1.4%	1.0%
Wall	0.0%	0.3%	0.3%	0.0%	0.0%	0.2%
Tree	0.0%	0.6%	0.6%	0.0%	1.4%	0.6%
Other fixed object	0.0%	2.2%	1.1%	1.9%	1.4%	1.6%
	0.4%	32.1%	36.5%	16.5%	14.4%	100.0%
	NIGHT					
	0-15	16-25	26-40	41-55	56-98	Total
Non collision:						
Rollover	0.0%	4.0%	3.6%	1.7%	3.4%	1.7%
Other non collision	0.0%	2.1%	0.9%	0.9%	0.0%	0.7%
Collision with object - not fixed:						
Pedestrian	0.0%	5.2%	8.9%	5.2%	6.9%	3.2%
Cycle or cyclist	0.0%	4.0%	4.1%	6.0%	5.2%	2.1%
Motor vehicle on road	62.5%	62.8%	62.4%	63.8%	67.2%	30.4%
Motor vehicle parked	0.0%	4.5%	1.8%	6.0%	3.4%	1.7%
Other	0.0%	0.7%	0.0%	1.7%	1.7%	0.3%
Collision with fixed object:						
Guardrail	0.0%	1.6%	3.3%	3.4%	0.0%	1.1%
Post/pole/support	12.5%	4.5%	3.6%	0.9%	1.7%	1.7%
Culvert/ditch	0.0%	0.7%	1.2%	0.9%	0.0%	0.4%
Curb	12.5%	1.9%	2.1%	0.9%	3.4%	1.0%
Embankment	0.0%	1.6%	2.4%	1.7%	1.7%	0.9%
Wall	0.0%	0.5%	0.9%	0.9%	0.0%	0.3%
Tree	0.0%	1.6%	0.0%	2.6%	1.7%	0.6%
Other fixed object	12.5%	4.2%	5.0%	3.4%	3.4%	2.1%
	0.8%	45.0%	35.8%	12.3%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MOST HARMFUL EVENT (VEHICLE LEVEL) BY AGE GROUP

N=3131

	DAY					
	0-15	16-25	26-40	41-55	56-98	Total
Non collision:						
Rollover	16.7%	2.7%	1.6%	1.3%	2.3%	2.0%
Other non collision	0.0%	1.0%	1.2%	0.0%	0.0%	0.8%
Collision with object - not fixed:						
Pedestrian	0.0%	7.0%	6.0%	6.8%	6.4%	6.5%
Cycle/cyclist	0.0%	8.0%	9.3%	9.6%	9.1%	8.9%
Motor vehicle on road	83.3%	73.4%	77.0%	78.5%	77.0%	76.1%
Parked motor vehicle	0.0%	2.3%	0.9%	0.3%	1.5%	1.3%
Other object not fixed	0.0%	0.2%	0.3%	0.3%	0.4%	0.3%
Collision with fixed object:						
Guardrail	0.0%	0.5%	0.3%	0.0%	0.0%	0.3%
Post/pole/support	0.0%	1.5%	1.5%	0.3%	1.5%	1.3%
Culvert/ditch	0.0%	0.8%	0.1%	0.3%	0.4%	0.4%
Embankment	0.0%	0.3%	0.3%	0.6%	0.4%	0.4%
Wall	0.0%	0.3%	0.1%	0.3%	0.0%	0.2%
Tree	0.0%	0.7%	0.7%	0.3%	0.8%	0.6%
Other fixed object	0.0%	1.2%	0.7%	1.3%	0.4%	0.9%
	0.3%	32.0%	36.8%	16.7%	14.2%	100.0%
	NIGHT					
	0-15	16-25	26-40	41-55	56-98	Total
Non collision:						
Rollover	14.3%	7.1%	6.3%	6.5%	0.0%	2.9%
Other non collision	0.0%	1.1%	0.6%	0.9%	1.9%	0.4%
Collision with object - not fixed:						
Pedestrian	0.0%	5.6%	8.8%	5.6%	7.5%	3.2%
Cycle/cyclist	0.0%	4.5%	4.4%	6.5%	5.7%	2.2%
Motor vehicle on road	42.9%	66.1%	65.6%	66.4%	73.6%	30.6%
Parked motor vehicle	0.0%	4.8%	2.2%	5.6%	3.8%	1.8%
Other object not fixed	0.0%	0.0%	0.6%	0.9%	3.8%	0.3%
Collision with fixed object:						
Guardrail	0.0%	1.3%	2.2%	1.9%	0.0%	0.8%
Post/pole/support	14.3%	3.7%	2.5%	0.9%	0.0%	1.3%
Culvert/ditch	0.0%	0.8%	0.9%	0.0%	0.0%	0.3%
Embankment	0.0%	0.8%	2.2%	0.0%	0.0%	0.5%
Wall	0.0%	0.5%	0.3%	0.0%	0.0%	0.2%
Tree	0.0%	1.6%	0.3%	2.8%	1.9%	0.6%
Other fixed object	28.6%	2.1%	2.8%	1.9%	1.9%	1.2%
	0.8%	43.9%	36.8%	12.4%	6.1%	100.0%

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE ROLE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Single vehicle crashes:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
non collision	12.5%	2.4%	1.4%	1.3%	1.8%	1.8%
striking	25.0%	21.6%	16.1%	16.3%	18.8%	18.3%
struck	0.0%	3.5%	5.3%	4.4%	4.0%	4.3%
both	0.0%	0.0%	0.0%	0.3%	0.0%	0.1%
Multi vehicle crashes:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
striking	37.5%	40.1%	32.3%	29.2%	30.7%	34.1%
struck	12.5%	27.3%	37.1%	38.2%	38.3%	34.2%
both	12.5%	5.1%	7.8%	10.3%	6.5%	7.2%
	0.4%	32.4%	36.4%	16.5%	14.3%	100.0%

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Single vehicle crashes:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
non collision	0.0%	5.3%	4.2%	2.6%	0.0%	2.0%
striking	37.5%	30.9%	30.9%	28.7%	28.1%	14.7%
struck	0.0%	0.7%	2.1%	3.5%	1.8%	0.8%
both	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Multi vehicle crashes:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
non collision	0.0%	0.0%	0.0%	0.9%	0.0%	0.1%
striking	50.0%	30.0%	29.1%	28.7%	40.4%	14.6%
struck	12.5%	28.5%	30.3%	31.3%	26.3%	14.1%
both	0.0%	4.6%	3.6%	4.3%	3.5%	2.0%
	0.9%	44.6%	36.1%	12.3%	6.1%	100.0%

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**APPENDIX 1: GUIDE TO COLLAPSING OF VARIABLES FOR THE GES CASUALTY
FILE (1989): WESTERN REGION**

FIRST HARMFUL EVENT

Non collision

rollover

other non collision: fire/explosion
immersion
gas inhalation
jackknife
non collision injury (injured in vehicle, or fell from vehicle)
non collision - no details
thrown or falling object

Collision with object not fixed

pedestrian

cycle or cyclist

motor vehicle on road

motor vehicle parked

other: railway train
animal
other type of non motorist
object not fixed - no details

Collision with fixed object

guardrail

post/pole/support

curb

embankment

wall

tree

other fixed object: ground
building
impact attenuator/crash cushion
bridge structure
concrete traffic barrier
culvert/ditch
fence
fire hydrant
shrubby or bush
boulder
fixed object - no details

MOST HARMFUL EVENT

Non collision

rollover

other non collision: fire/explosion
immersion
gas inhalation
jackknife
non collision injury (injured in vehicle, or fell from vehicle)
non collision - no details
thrown or falling object

Collision with object not fixed

pedestrian

cycle or cyclist

motor vehicle on road

motor vehicle parked

other: railway train
animal
other type of non motorist
object not fixed - no details

Collision with fixed object

guardrail

post/pole/support

tree

other fixed object: ground
building
impact attenuator/crash cushion
bridge structure
embankment
curb
concrete traffic barrier
culvert/ditch
wall
fence
fire hydrant
shrubbery or bush
boulder
fixed object - no details

APPENDIX 2: FREQUENCY TABLES -GES WEST REGION (1989)

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GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MAXIMUM INJURY SEVERITY (CRASH LEVEL) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Non-incapacitating injury	13	752	783	322	242	2112
Incapacitating injury	3	258	247	101	86	695
Fatal injury		22	18	10	11	61
Unknown injury severity		3				3
	16	1035	1048	433	339	2871

Missing cases = 260

-
- * Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MAXIMUM INJURY SEVERITY (VEHICLE LEVEL) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No injury	5	337	404	175	147	1068
Possible injury	1	73	92	38	20	224
Non-incapacitating injury	8	459	421	159	125	1172
Incapacitating injury	1	142	116	56	40	355
Fatal injury		15	9	4	5	33
Injured - severity unknown		1	1			2
	15	1027	1043	432	337	2854

Missing cases = 277

-
- Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF VEHICLES INVOLVED BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1	6	330	288	112	85	821
2	7	591	603	245	202	1648
3	2	109	120	58	50	339
4	1	20	32	16	6	75
5		4	7	4	1	16
6		4	8	5		17
7		3				3
	16	1061	1058	440	344	2919

Missing cases = 212

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER INJURED IN CRASH BY AGE GROUP

N = 3131

	0-15	16-25	26-40	41-55	56-98	Total
No-one injured		26	10	7	5	48
1	7	575	607	230	198	1617
2	4	256	265	111	87	723
3	1	118	95	56	33	303
4	3	55	42	23	13	136
5 or more	1	31	39	13	8	92
	16	1061	1058	440	344	2919

Missing cases = 212

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER INJURED IN VEHICLE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No-one injured	6	371	419	183	154	1133
1	4	470	486	188	148	1296
2	6	152	107	47	34	346
3		45	33	14	5	97
4 or more	0	23	13	8	3	47
	16	1061	1058	440	344	2919

Missing cases = 212

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF PERSONS INVOLVED BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1	1	86	85	22	22	216
2	4	358	381	171	149	1063
3	2	253	217	87	79	638
4		124	147	54	33	358
5	1	85	76	30	24	216
6	3	41	38	28	8	118
7	1	37	34	20	8	100
8 or more	3	26	40	12	7	88
	15	1010	1018	424	330	2797

Missing cases = 334

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DAY OF WEEK BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Monday	5	145	164	70	57	441
Tuesday	1	138	150	51	51	391
Wednesday	2	137	147	67	49	402
Thursday	2	165	155	66	49	437
Friday	3	166	185	78	59	491
Saturday	2	183	143	49	43	420
Sunday	1	127	114	59	36	337
	15	934	944	381	308	2582

Missing cases = 212

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
WEEKDAY VERSUS WEEKEND BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Weekday	13	751	801	332	265	2162
Weekend	3	310	257	108	79	757
	16	1061	1058	440	344	2919

Missing cases = 212

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TIME PERIOD BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
12 am - 6 am	1	109	74	24	9	217
6 am - 12 pm	3	192	246	110	94	645
12 pm - 6 pm	5	440	473	213	192	1323
6 pm - 12 am	7	317	265	93	49	731
	16	1058	1058	440	344	2916

Missing cases = 215

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TIME PERIOD BY WEEKDAY/WEEKEND BY AGE GROUP

N=3131

	WEEKDAY					Total
	0-15	16-25	26-40	41-55	56-98	
12 am - 6 am	1	44	35	11	6	97
6 am - 12 pm	2	151	199	78	75	505
12 pm - 6 pm	5	330	374	171	153	1033
6 pm - 12 am	5	224	193	72	31	525
	13	749	801	332	265	2160

	WEEKEND					Total
	0-15	16-25	26-40	41-55	56-98	
12 am - 6 am		65	39	13	3	120
6 am - 12 pm	1	41	47	32	19	140
12 pm - 6 pm		110	99	42	39	290
6 pm - 12 am	2	93	72	21	18	206
	3	309	257	108	79	756

Missing cases = 215

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RURAL/URBAN BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Urban	7	411	430	185	131	1164
10% Rural	7	390	403	165	131	1096
20% Rural		131	108	47	29	315
40% Rural	1	77	73	16	29	196
50% Rural	1	52	44	27	24	148
	16	1061	1058	440	344	2919

Missing cases = 212

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
SPEED LIMIT IN MILES (AND KM/H) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
0 (car-park, etc)		1	3	1	1	6
5 (8 km/h)			1			1
10 (17 km/h)		3		1		4
15 (24 km/h)		6	7	4		17
20 (32 km/h)		8	8		1	17
25 (40 km/h)	4	153	129	59	39	384
30 (48 km/h)	3	142	138	73	62	418
35 (56 km/h)	4	320	315	123	74	836
40 (64 km/h)	2	119	116	33	51	321
45 (72 km/h)		74	83	43	34	234
50 (80 km/h)	1	23	28	7	6	65
55 (89 km/h)	1	107	148	60	41	357
65 (105 km/h)		15	6	4	5	30
	15	971	982	408	314	2690

Missing cases = 441

-
- * Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
INTERSTATE HIGHWAY BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No (not on highway)	15	998	998	410	325	2746
Yes (on highway)	1	63	59	30	18	171
	16	1061	1057	440	343	2917

Missing cases = 214

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
LAND USE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Population 25000 - 50000	1	71	69	27	20	188
Population 50000 - 100000	2	127	96	49	25	299
Population 100000+	9	546	564	241	186	1546
Other Area	4	260	254	96	102	716
	16	1004	983	413	333	2749

Missing cases = 382

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROADWAY ALIGNMENT BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Straight	14	919	930	384	312	2559
Curve	2	104	99	39	26	270
	16	1023	1029	423	338	2829

Missing cases = 302

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROADWAY PROFILE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Level	7	596	591	242	202	1638
Grade	4	181	171	73	49	478
Hillcrest		12	10	3	6	31
Other		3	3	1		7
	11	792	775	319	257	2154

Missing cases = 977

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFICWAY FLOW BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Two way undivided	12	555	542	224	189	1522
Divided highway	3	308	323	133	94	861
Oneway	1	17	20	12	5	55
	16	880	885	369	288	2438

Missing cases = 693

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RELATION TO ROADWAY BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
On roadway	11	857	912	384	301	2465
On shoulder/parking lane	1	33	19	9	6	68
Off roadway/shoulder/parking lane	4	157	112	44	33	350
On median		7	10	1	1	19
Other		1				1
	16	1055	1053	438	341	2903

Missing cases = 228

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RELATION TO JUNCTION BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Non junction	6	428	402	164	116	1116
Intersection	6	428	434	179	168	1215
Intersection related	3	101	113	42	29	288
Interchange area		4	9	2		15
Driveway/alley	1	76	75	41	26	219
Entrance/exit ramp		4	8	8	2	22
Other		5	4			9
	16	1046	1045	436	341	2884

Missing cases = 247

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF TRAVEL LANES BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1		18	15	9	3	45
2	6	269	303	137	113	828
3	3	114	136	60	45	358
4		174	162	62	45	443
5		89	88	33	31	241
6 or more		30	15	9	6	60
	9	694	719	310	243	1975

Missing cases = 1156

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFIC CONTROL DEVICE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No controls	8	596	573	253	174	1604
Traffic signals:						
with pedestrian signal		3	1			4
pedestrian signal not known	3	222	239	104	83	651
flashing traffic signal/beacon		1	5	3	2	11
other traffic signal			1			1
unknown traffic signal		6	12	3	4	25
Regulatory, school zone or warning signs:						
stop sign	2	107	102	45	60	316
yield sign		7	11	3	2	23
warning sign		8	8	2	4	22
other sign		4	1		1	6
unknown sign			1			1
Miscellaneous not at railroad crossing		2	6	1	2	11
Traffic controls present - no details	2	47	58	13	4	124
Other traffic controls		3				3
	15	1006	1018	427	336	2802

Missing cases = 329

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFIC DEVICE FUNCTIONING BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No controls	8	596	573	253	174	1604
Device not functioning		1	2		1	4
Device functioning	7	405	441	174	161	1188
	15	1002	1016	427	336	2796

Missing cases = 335

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
SEX OF DRIVER BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Male	9	594	553	233	187	1576
Female	7	464	505	207	157	1340
	16	1058	1058	440	344	2916

Missing cases = 215

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ALCOHOL USE (DRIVER) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Alcohol involved	2	99	101	30	13	245
No alcohol involved	13	918	932	402	319	2584
	15	1017	1033	432	332	2829

Missing cases = 302

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ALCOHOL INVOLVEMENT IN CRASH BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Alcohol involved	2	152	155	53	30	392
No alcohol involved	14	887	892	381	312	2486
	16	1039	1047	434	342	2878

Missing cases = 253

-
- Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DRIVER PHYSICAL/MENTAL IMPAIRMENT BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No impairment	15	995	1019	419	323	2771
Drowsy/fatigue		20	11	2	4	37
Ill / blackout		3		1	3	7
Illicit drugs		1	1	2		4
Hit-and-run vehicle	1	5	9	3	2	20
Physical/mental impairment - no details		2	1	2		5
Other physical/mental impairment		1	4	3	1	9
	16	1027	1045	432	333	2853

Missing cases = 278

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DRIVER'S ACTION BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Not avoiding/swerving	15	985	1000	429	330	2759
Slippery or loose surface		12	5		1	18
Blowout			1			1
Ruts/holes/bumps					1	1
Animals on road		2	2			4
Vehicle on road		3	9			12
Phantom vehicle			1			1
Pedestrian/cyclist/non motorist		1	1		1	3
Water/snow/oil slick			1			1
Hit-and-run vehicle	1	6	9	3	2	21
Avoiding action		43	25	7	4	79
	16	1052	1054	439	339	2900

Missing cases = 231

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VIOLATIONS CHARGED BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
None	7	598	654	301	223	1783
Alcohol/drugs	2	42	54	15	7	120
Speeding		68	46	13	11	138
Alcohol or drugs and speeding				1		1
Reckless driving		11	7			18
Driving with suspended licence		11	8	2		21
Failure to give way	1	58	71	29	51	210
Running traffic controls/stop sign		21	17	13	11	62
Other violation	6	214	173	56	27	476
	16	1023	1030	430	330	2829

Missing cases = 302

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF OCCUPANTS IN VEHICLE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1	3	581	659	286	229	1758
2	8	277	225	98	88	696
3	2	104	85	24	10	225
4		48	48	15	6	117
5 or more	2	28	26	10	4	70
	15	1038	1043	433	337	2866

Missing cases = 265

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAVEL SPEED OF VEHICLE IN MILES (AND KM/H) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Stationary		96	158	79	41	374
01 - 12 (01 - 20 km/h)		48	58	16	18	140
13 - 24 (21 - 40 km/h)		61	48	37	22	168
25 - 35 (41 - 60 km/h)		62	48	16	19	145
36 - 50 (61 - 80 km/h)	1	77	64	20	18	180
51 - 60 (81 - 100 km/h)		42	35	12	15	104
Over 60 (>100 km/h)		28	14	4	5	51
	1	414	425	184	138	1162

Missing cases = 1969

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MODEL YEAR BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
1986 - 1989	3	246	331	134	103	817
1981 - 1985	5	298	303	151	107	864
1976 - 1980	5	323	263	92	83	766
1971 - 1975	2	117	95	35	27	276
1974 and earlier	1	75	57	22	23	178
	16	1059	1049	434	343	2901

Missing cases = 230

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE DEFECTS BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No vehicle defects	15	980	991	415	322	2723
Tyres		4	1			5
Brakes		1	5	1	1	8
Steering		1				1
Headlights			1			1
Signal lights			1			1
Other lights		1		1		2
Mirrors						0
Hit-and-run vehicle		6	9	4	1	20
Vehicle defects - no details		2	1		1	4
Other vehicle defect		2	3	3	2	10
	15	997	1012	424	327	2775

Missing cases = 356

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
LIGHT CONDITIONS BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Daylight	9	665	719	315	276	1984
Dark	1	110	75	28	12	226
Dark but lighted	5	228	207	68	36	544
Dawn		4	6	4	1	15
Dusk		8	15	9	2	34
Dawn or dusk	1	20	18	11	4	54
	16	1035	1040	435	331	2857

Missing cases = 274

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ATMOSPHERIC CONDITIONS BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No adverse conditions	14	917	927	384	309	2551
Rain	1	98	90	39	21	249
Sleet		1		2	1	4
Snow	1	4	7	4	3	19
Fog		2	3	1		6
Other		19	14	4	3	40
	16	1041	1041	434	337	2869

Missing cases = 262

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VISUAL OBSTRUCTION BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No obstruction	14	1021	1016	420	322	2793
Precipitation		4			1	5
Glare/sun/headlights		2	4	6	4	16
Curve/hill/embankment		1	1		3	5
Building/billboard			1	2		3
Trees/crops/vegetation			1			1
Moving vehicle		5	9	1	4	19
Parked vehicle		4	6	3	1	14
Broken/dirty windscreen		2				2
Hit-and-run vehicle	1	6	9	3	2	21
Vision obscured - no details		1	1			2
Other obstruction		2	2		1	5
	15	1048	1050	435	338	2886

Missing cases = 245

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROAD SURFACE CONDITIONS BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Dry	12	856	874	370	298	2410
Wet	1	130	119	48	27	325
Snow/slush		10	10	9	2	31
Ice	1	22	26	6	4	59
Sand/dirt/oil	2	9	5			16
Other		1	4	1	1	7
	16	1028	1038	434	332	2848

Missing cases = 283

-
- * Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE MANOEUVRE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Going straight	5	607	569	226	186	1593
Slowing/stopping		31	22	14	8	75
Starting in traffic lane	1	2	7	2	1	13
Stopped in traffic lane		95	158	79	40	372
Passing/overtaking		8	5	2	1	16
Leaving parking spot		4	1			5
Entering parking spot				2	1	3
Avoiding animal/pedestrian/object/vehicle	1	18	18	5	2	44
Turning right	1	39	41	15	13	109
Turning left	4	165	153	66	65	453
U-turn		3	4	1	1	9
Reversing		4	2	3	3	12
Changing lanes/merging	1	13	19	6	7	46
Negotiating curve	1	31	22	8	6	68
Other	1	28	29	8	6	72
	15	1048	1050	437	340	2890

Missing cases = 241

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MANNER OF COLLISION BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
No collision with moving vehicle	6	338	300	117	91	852
Rear-end	3	249	280	129	75	736
Head-on		41	32	16	9	98
Angle	6	406	407	165	159	1143
Sideswipe, same direction		16	33	9	5	63
Sideswipe, opposite direction	1	4	2	3		10
Other					1	1
	16	1054	1054	439	340	2903

Missing cases = 228

-
- Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
 FIRST HARMFUL EVENT (CRASH LEVEL) BY AGE GROUP

N = 3131

	0-15	16-25	26-40	41-55	56-98	Total
Non collision:						
rollover	2	29	19	5	6	61
other non collision		18	10	3		31
Collision with object - not fixed:						
pedestrian		65	73	29	22	189
cycle/cyclist		65	78	37	27	207
motor vehicle on road	10	720	755	322	250	2057
motor vehicle parked	1	33	12	9	7	62
other object not fixed		4	1	3	2	10
Collision with fixed object:						
guardrail		11	15	5	1	32
post/pole/support	1	28	23	3	5	60
culvert/ditch		8	5	2	2	17
curb	1	16	14	3	3	37
embankment		14	15	4	5	38
wall		4	5	1		10
tree		11	4	3	5	23
other fixed object	1	32	25	10	6	74
	16	1058	1054	439	341	2908

Missing cases = 223

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MOST HARMFUL EVENT (VEHICLE LEVEL) BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Non collision:						
rollover	2	44	31	11	6	94
other non collision		10	10	1	1	22
Collision with object - not fixed:						
pedestrian		63	69	27	21	180
cycle/cyclist		65	78	37	27	207
motor vehicle on road	8	691	736	315	243	1993
parked motor vehicle		32	13	7	6	58
other non fixed object		1	4	2	3	10
Collision with fixed object:						
guardrail		8	9	2		19
post/pole/support	1	23	18	2	4	48
culvert/ditch		8	4	1	1	14
embankment		5	9	2	1	17
wall		4	2	1		7
tree		10	6	4	3	23
other fixed object	2	15	14	6	2	39
	13	979	1003	418	318	2731

Missing cases = 400

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE ROLE BY AGE GROUP

N=3131

	0-15	16-25	26-40	41-55	56-98	Total
Single vehicle crashes:						0
non collision	1	38	24	7	5	75
striking	5	264	217	85	68	639
struck		25	44	18	12	99
both				1		1
Multi vehicle crashes:						0
non collision				1		1
striking	7	377	325	126	108	943
struck	2	291	363	158	121	935
both	1	51	67	38	20	177
	16	1046	1040	434	334	2870

Missing cases = 261

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

**APPENDIX 3: FREQUENCY TABLES FOR GES WEST REGION (1989):
DAY/NIGHT COMPARISONS**

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GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MAXIMUM INJURY SEVERITY (CRASH LEVEL) BY AGE GROUP

N = 3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Non-incapacitating injury	6	455	539	244	203	1447
Incapacitating injury	2	152	158	70	73	455
Fatal injury		14	14	5	6	39
	8	621	711	319	282	1941

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Non-incapacitating injury	7	294	244	78	39	662
Incapacitating injury	1	106	89	31	13	240
Fatal injury		8	4	5	5	22
Unknown injury severity		3				3
	8	411	337	114	57	927

Missing cases = 263

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MAXIMUM INJURY SEVERITY (VEHICLE LEVEL) BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No injury	1	226	281	140	124	772
Possible injury	1	47	65	31	16	160
Non-incapacitating injury	4	257	276	111	106	754
Incapacitating injury	1	76	78	34	33	222
Fatal injury		9	7	2	2	20
Injured - severity unknown			1			1
	7	615	708	318	281	1929

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No injury	4	110	123	35	23	295
Possible injury		26	27	7	4	64
Non-incapacitating injury	4	200	145	48	19	416
Incapacitating injury		66	38	22	7	133
Fatal injury		6	2	2	3	13
Injured - severity unknown		1				1
	8	409	335	114	56	922

Missing cases = 280

-
- Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF VEHICLES INVOLVED BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
1		3	174	163	72	68	480
2		2	359	422	181	171	1135
3		2	81	94	48	41	266
4 or more		1	18	40	22	6	87
		8	632	719	323	286	1968

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
1		3	155	125	40	17	340
2		5	230	181	64	31	511
3			28	26	10	9	73
4 or more		0	13	7	3	1	24
		8	426	339	117	58	948

Missing cases = 215

-
- Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER INJURED IN CRASH BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No-one injured		11	8	4	4	27
1	2	345	410	170	166	1093
2	2	167	182	87	70	508
3	1	58	61	39	28	187
4	2	36	34	17	12	101
5 or more	1	15	24	6	6	52
	8	632	719	323	286	1968

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No-one injured		15	2	3	1	21
1	5	227	197	60	32	521
2	2	89	83	24	17	215
3		60	34	17	5	116
4	1	19	8	6	1	35
5 or more	0	16	15	7	2	40
	8	426	339	117	58	948

Missing cases = 215

-
- * Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER INJURED IN VEHICLE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No-one injured	2	243	292	145	129	811
1	2	276	328	131	123	860
2	4	78	68	36	27	213
3 or more	0	35	31	11	7	84
	8	632	719	323	286	1968

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No person injured	4	127	127	38	25	321
1	2	192	158	57	25	434
2	2	74	39	11	7	133
3 or more	0	33	15	11	1	60
	8	426	339	117	58	948

Missing cases = 215

-
- Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF PERSONS INVOLVED BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
1	1	35	33	9	15	93
2	2	241	279	130	127	779
3		153	150	65	69	437
4		67	97	38	27	229
5		60	60	25	23	168
6 or more	4	57	74	44	18	197
	7	613	693	311	279	1903

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
1		50	52	13	7	122
2	2	115	102	41	22	282
3	2	100	67	22	10	201
4		57	50	16	6	129
5	1	25	16	5	1	48
6 or more	3	47	38	16	5	109
	8	394	325	113	51	891

Missing cases = 337

-
- Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DAY OF WEEK BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Monday	2	110	117	52	53	334
Tuesday	1	88	108	41	44	282
Wednesday	2	95	114	53	37	301
Thursday	1	97	109	52	42	301
Friday	1	91	125	51	52	320
Saturday	1	85	87	34	33	240
Sunday		66	59	40	25	190
	8	632	719	323	286	1968

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Monday	3	35	47	18	4	107
Tuesday		50	42	10	7	109
Wednesday		41	33	14	12	100
Thursday	1	68	46	14	7	136
Friday	2	74	60	27	7	170
Saturday	1	98	56	15	10	180
Sunday	1	60	55	19	11	146
	8	426	339	117	58	948

Missing cases = 215

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
WEEKDAY VERSUS WEEKEND BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Weekday	7	481	573	249	228	1538
Weekend	1	151	146	74	58	430
	8	632	719	323	286	1968

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Weekday	6	268	228	83	37	622
Weekend	2	158	111	34	21	326
	8	426	339	117	58	948

Missing cases = 215

-
- Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
 TIME PERIOD BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
6 am - 12 pm	3	231	304	141	121	800
12 pm - 6 pm	5	401	415	182	165	1168
	8	632	719	323	286	1968

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
6 pm - 12 am	7	317	265	93	49	731
12 am - 6 am	1	109	74	24	9	217
	8	426	339	117	58	948

Missing cases = 215

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TIME PERIOD BY WEEKDAY/WEEKEND BY AGE GROUP

N=3131

		DAY					Total
		0-15	16-25	26-40	41-55	56-98	
Weekday:	6 am - 12 pm	2	151	199	78	75	505
	12 pm - 6 pm	5	330	374	171	153	1033
Weekend:	6 am - 12 pm	1	41	47	32	19	140
	12 pm - 6 pm		110	99	42	39	290
		8	632	719	323	286	1968

		NIGHT					Total
		0-15	16-25	26-40	41-55	56-98	
Weekday:	12 am - 6 am	1	44	35	11	6	97
	6 pm - 12 am	5	224	193	72	31	525
Weekend:	12 am - 6 am		65	39	13	3	120
	6 pm - 12 am	2	93	72	21	18	206
		8	426	339	117	58	948

Missing cases = 215

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RURAL/URBAN BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Urban	5	241	291	133	105	775
10% Rural	3	247	284	129	111	774
20% Rural		72	76	37	25	210
40% Rural		46	49	8	26	129
50% Rural		26	19	16	19	80
	8	632	719	323	286	1968

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Urban	2	170	139	52	26	389
10% Rural	4	141	119	36	20	320
20% Rural		58	32	10	4	104
40% Rural	1	31	24	8	3	67
50% Rural	1	26	25	11	5	68
	8	426	339	117	58	948

Missing cases = 215

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
SPEED LIMIT IN MILES (AND KM/H) BY AGE GROUP

N = 3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
0	(car-park, etc)		1	1	1	1	4
05	(8 km/h)			1			1
10	(17 km/h)		3		1		4
15	(24 km/h)		2	6	3		11
20	(32 km/h)		5	6		1	12
25	(40 km/h)	2	91	89	45	32	259
30	(48 km/h)	2	91	88	56	55	292
35	(56 km/h)	3	194	207	87	57	548
40	(64 km/h)	1	68	94	29	46	238
45	(72 km/h)		52	57	32	28	169
50	(80 km/h)		14	17	3	3	37
55	(89 km/h)		52	93	41	32	218
65	(105 km/h)		8	5	2	4	19
		8	581	664	300	259	1812

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
0	(car-park, etc)			2			2
10	(17 km/h)						0
15	(24 km/h)		4	1	1		6
20	(32 km/h)		3	2			5
25	(40 km/h)	2	62	40	14	7	125
30	(48 km/h)	1	51	50	17	7	126
35	(56 km/h)	1	125	108	36	17	287
40	(64 km/h)	1	50	22	4	5	82
45	(72 km/h)		22	26	11	6	65
50	(80 km/h)	1	9	11	4	3	28
55	(89 km/h)	1	54	55	19	9	138
65	(105 km/h)		7	1	2	1	11
		7	387	318	108	55	875

Missing cases = 444

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
INTERSTATE HIGHWAY BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No (not on highway)	8	606	678	304	272	1868
Yes (on highway)		26	40	19	13	98
	8	632	718	323	285	1966

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No (not on highway)	7	389	320	106	53	875
Yes (on highway)	1	37	19	11	5	73
	8	426	339	117	58	948

Missing cases = 217

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
LAND USE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Population 25000 - 50000	1	39	47	22	18	127
Population 50000 - 100000		69	67	37	22	195
Population 100000+	5	321	392	180	150	1048
Other Area	2	170	164	63	87	486
	8	599	670	302	277	1856

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Population 25000 - 50000		32	22	5	2	61
Population 50000 - 100000	2	57	29	12	3	103
Population 100000+	4	225	172	61	36	498
Other Area	2	88	90	33	15	228
	8	402	313	111	56	890

Missing cases = 385

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROADWAY ALIGNMENT BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Straight		7	558	646	288	263	1762
	Curve	1	54	53	24	18	150
		8	612	699	312	281	1912

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Straight		7	359	284	96	49	795
	Curve	1	49	46	15	8	119
		8	408	330	111	57	914

Missing cases = 305

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROADWAY PROFILE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Level	2	361	414	186	172	1135
Grade	2	107	109	52	41	311
Hillcrest		5	7	2	4	18
Other		2	3	1		6
	4	475	533	241	217	1470

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Level	5	233	177	56	30	501
Grade	2	73	62	21	8	166
Hillcrest		7	3	1	2	13
Other		1				1
	7	314	242	78	40	681

Missing cases = 980

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFICWAY FLOW BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Two way undivided	6	332	361	161	158	1018
Divided highway	2	182	231	100	74	589
Oneway		10	16	10	3	39
	8	524	608	271	235	1646

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Two way undivided	6	221	181	63	31	502
Divided highway	1	125	92	33	20	271
Oneway	1	7	4	2	2	16
	8	353	277	98	53	789

Missing cases = 696

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RELATION TO ROADWAY BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
On roadway	6	543	655	296	253	1753
On shoulder/parking lane	1	14	8	3	5	31
Off roadway/shoulder/parking lane	1	67	48	21	25	162
On median		4	5	1		10
	8	628	716	321	283	1956

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
On roadway	5	312	257	88	48	710
On shoulder/parking lane		19	11	6	1	37
Off roadway/shoulder/parking lane	3	89	64	23	8	187
On median		3	5		1	9
Other		1				1
	8	424	337	117	58	944

Missing cases = 231

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
RELATION TO JUNCTION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Non junction	3	232	268	112	87	702
Intersection	4	266	292	129	147	838
Intersection related	1	70	84	35	25	215
Interchange area		1	3	1		5
Driveway/alley		50	54	37	23	164
Entrance/exit ramp		3	6	5	1	15
Other		1	2			3
	8	623	709	319	283	1942

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Non junction	3	195	134	52	29	413
Intersection	2	160	142	50	21	375
Intersection related	2	31	29	7	4	73
Interchange area		3	6	1		10
Driveway/alley	1	26	21	4	3	55
Entrance/exit ramp		1	2	3	1	7
Other		4	2			6
	8	420	336	117	58	939

Missing cases = 250

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF TRAVEL LANES BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
1		11	13	4	2	30
2	3	160	194	105	94	556
3	1	72	90	44	39	246
4		97	112	49	38	296
5		57	66	26	25	174
6		14	10	4	6	34
7 or more		7	3	2		12
	4	418	488	234	204	1348

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
1		7	2	5	1	15
2	3	107	109	32	19	270
3	2	42	46	16	6	112
4		77	50	13	7	147
5		32	22	7	6	67
6		7		2		9
7 or more		2	2	1		5
	5	274	231	76	39	625

Missing cases = 1158

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
 TRAFFIC CONTROL DEVICE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No controls	5	334	381	180	139	1039
Traffic signals:						
with pedestrian signal		3	1			4
pedestrian signal not known	2	139	167	85	74	467
flashing traffic signal/beacon			2	1	2	5
other traffic signal			1			1
unknown traffic signal		5	10	3	2	20
Regulatory, school zone or warning signs:						
stop sign		78	73	31	55	237
yield sign		3	7	2	2	14
warning sign		6	5	1	2	14
other sign		2				2
unknown sign			1			1
Miscellaneous (not at railroad crossing)		2	6	1	2	11
Traffic controls present - no details	1	30	38	7	2	78
	8	602	692	311	280	1893

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No controls:	3	259	192	73	35	562
pedestrian signal not known	1	83	72	19	9	184
flashing traffic signal/beacon		1	3	2		6
unknown traffic signal		1	2		2	5
Regulatory, school zone or warning signs:						
stop sign	2	29	29	14	5	79
yield sign		4	4	1		9
warning sign		2	3	1	2	8
other sign		2	1		1	4
Traffic controls present - no details	1	17	20	6	2	46
Other traffic controls		2				2
	7	400	326	116	56	905

Missing cases = 333

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAFFIC DEVICE FUNCTIONING BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No controls	5	334	381	180	139	1039
Device not functioning					1	1
Device functioning	3	268	310	132	140	853
	8	602	691	312	280	1893

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No controls	3	259	192	73	35	562
Device not functioning		1	2			3
Device functioning	4	137	131	42	21	335
	7	397	325	115	56	900

Missing cases = 338

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
SEX OF DRIVER BY AGE GROUP

N=3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Male		7	321	337	155	147	967
Female		1	310	382	168	139	1000
		8	631	719	323	286	1967

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Male		2	273	216	78	40	609
Female		6	151	123	39	18	337
		8	424	339	117	58	946

Missing cases = 218

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ALCOHOL USE (DRIVER) BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Alcohol involved	1	19	26	10	4	60
No alcohol involved	6	595	675	308	271	1855
	7	614	701	318	275	1915

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Alcohol involved	1	79	75	20	9	184
No alcohol involved	7	321	257	94	48	727
	8	400	332	114	57	911

Missing cases = 305

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ALCOHOL INVOLVEMENT IN CRASH BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Alcohol involved	1	37	46	17	14	115
No alcohol involved	7	586	667	301	270	1831
	8	623	713	318	284	1946

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Alcohol involved	1	114	109	36	16	276
No alcohol involved	7	299	225	80	42	653
	8	413	334	116	58	929

Missing cases = 256

-
- Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DRIVER PHYSICAL/MENTAL IMPAIRMENT BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No impairment	7	600	700	308	269	1884
Drowsy/fatigued		8	3	1	4	16
Ill / blackout		2		1	3	6
Illicit drugs				1		1
Hit-and-run vehicle	1	2	4	1	1	9
Physical/mental impairment - no details		2	1			3
Other physical/mental impairment			1	3		4
	8	614	709	315	277	1923

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No impairment	8	392	319	111	54	884
Drowsy/fatigued		12	8	1		21
Ill / blackout		1				1
Illicit drugs		1	1	1		3
Hit-and-run vehicle		3	5	2	1	11
Physical/mental impairment - no details				2		2
Other physical/mental impairment		1	3		1	5
	8	410	336	117	56	927

Missing cases = 281

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
DRIVER'S ACTION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Not avoiding/swerving	7	592	689	317	276	1881
Slippery or loose surface		8	3		1	12
Blowout			1			1
Ruts/holes/bumps					1	1
Animals on road		1	1			2
Vehicle on road		2	6			8
Phantom vehicle			1			1
Water/snow/oil slick			1			1
Hit-and-run vehicle	1	2	4	1	1	9
Avoiding action - details unknown		20	10	4	3	37
	8	625	716	322	282	1953

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Not avoiding/swerving	8	390	311	112	54	875
Slippery or loose surface		4	2			6
Animals on road		1	1			2
Vehicle on road		1	3			4
Pedestrian/cyclist/non-motorist		1	1		1	3
Hit-and-run vehicle		4	5	2	1	12
Avoiding action - details unknown		23	15	3	1	42
	8	424	338	117	57	944

Missing cases = 234

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VIOLATIONS CHARGED BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
None	3	369	464	219	180	1235
Alcohol/drugs	1	8	12	1	3	25
Speeding		42	31	11	9	93
Alcohol or drugs and speeding				1		1
Reckless driving		7	3			10
Driving with suspended licence		7	4	1		12
Failure to give way	1	44	53	23	47	168
Running traffic controls/stop sign		14	13	11	11	49
Other violation	3	124	122	49	23	321
	8	615	702	316	273	1914

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
None	4	227	190	82	43	546
Alcohol/drugs	1	34	42	14	4	95
Speeding		26	15	2	2	45
Alcohol or drugs and speeding						0
Reckless driving		4	4			8
Driving with suspended licence		4	4	1		9
Failure to give way		14	18	6	4	42
Running traffic controls/stop sign		7	4	2		13
Other violation	3	89	51	7	4	154
	8	405	328	114	57	912

Missing cases = 305

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
NUMBER OF OCCUPANTS IN VEHICLE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
1	2	390	466	218	190	1266
2	4	139	132	66	74	415
3	1	54	63	18	10	146
4 or more	0	39	48	15	8	110
	7	622	709	317	282	1937

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
1	1	188	193	68	39	489
2	4	138	93	32	14	281
3	1	50	22	6		79
4 or more	2	37	26	10	2	77
	8	413	334	116	55	926

Missing cases = 268

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
TRAVEL SPEED OF VEHICLE IN MILES (AND KM/H) BY AGE GROUP

N = 3131

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Stationary			64	126	68	32	290
01 - 12	(01 - 20 km/h)		33	42	11	16	102
13 - 24	(21 - 40 km/h)		38	32	32	19	121
25 - 35	(41 - 60 km/h)		39	35	14	14	102
36 - 50	(61 - 80 km/h)	1	46	42	11	13	113
51 - 60	(81 - 100 km/h)		16	17	5	10	48
Over 60	(>100 km/h)		11	6	1	4	22
		1	247	300	142	108	798

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Stationary			32	32	11	9	84
01 - 12	(01 - 20 km/h)		15	16	5	2	38
13 - 24	(21 - 40 km/h)		22	16	5	3	46
25 - 35	(41 - 60 km/h)		23	13	2	5	43
36 - 50	(61 - 80 km/h)		31	22	9	5	67
51 - 60	(81 - 100 km/h)		26	18	7	5	56
Over 60	(>100 km/h)		17	8	3	1	29
		0	166	125	42	30	363

Missing cases = 1970

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MODEL YEAR BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
1986 - 1989		150	225	94	88	557
1981 - 1985	2	182	215	111	87	597
1976 - 1980	3	199	177	75	73	527
1971 - 1975	2	63	65	24	18	172
1974 and earlier	1	37	33	14	19	104
	8	631	715	318	285	1957

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
1986 - 1989	3	96	106	40	15	260
1981 - 1985	3	114	88	40	20	265
1976 - 1980	2	124	86	17	10	239
1971 - 1975		53	30	11	9	103
1974 and earlier		38	24	8	4	74
	8	425	334	116	58	941

Missing cases = 233

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE DEFECTS BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No vehicle defects	8	585	678	305	266	1842
Tyres		2	1			3
Brakes		1	4	1		6
Signal lights			1			1
Other lights				1		1
Mirrors						0
Hit-and-run vehicle		2	5	2	1	10
Vehicle defects - no details		1	1		1	3
Other vehicle defect		2	1		2	5
	8	593	691	309	270	1871

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No vehicle defects	7	393	313	110	56	879
Tyres		2				2
Brakes			1		1	2
Steering		1				1
Headlights			1			1
Other lights		1				1
Hit-and-run vehicle		4	4	2		10
Vehicle defects - no details		1				1
Other vehicle defect			2	3		5
	7	402	321	115	57	902

Missing cases = 358

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
LIGHT CONDITIONS BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Daylight	7	580	662	294	260	1803
Dark		8	4	4	2	18
Dark but lighted	1	16	25	8	8	58
Dawn		4	6	3	1	14
Dusk		3	8	7	2	20
Dawn or dusk		8	6	3	2	19
	8	619	711	319	275	1932

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Daylight	2	85	57	21	16	181
Dark	1	100	71	24	10	206
Dark but lighted	4	211	182	60	28	485
Dawn				1		1
Dusk		5	7	2		14
Dawn or dusk	1	12	12	8	2	35
	8	413	329	116	56	922

Missing cases = 277

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ATMOSPHERIC CONDITIONS BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No adverse conditions	7	550	633	280	255	1725
Rain	1	53	61	29	18	162
Sleet				2	1	3
Snow		3	4	2	3	12
Fog		1	1			2
Other		12	8	4	3	27
	8	619	707	317	280	1931

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No adverse conditions	7	365	294	104	54	824
Rain		44	29	10	3	86
Sleet		1				1
Snow	1	1	3	2		7
Fog		1	2	1		4
Other		7	6			13
	8	419	334	117	57	935

Missing cases = 265

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VISUAL OBSTRUCTION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No obstruction	7	607	689	307	271	1881
Precipitation		3			1	4
Glare/sun/headlights			4	6	2	12
Curve/hill/embankment					1	1
Building/billboard			1	2		3
Trees/crops/vegetation			1			1
Moving vehicle		5	9	1	4	19
Parked vehicle		2	5	3		10
Broken/dirty windscreen		2				2
Hit-and-run vehicle	1	2	4	1	1	9
Other obstruction		1	2		1	4
	8	622	715	320	281	1946

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No obstruction	7	411	327	113	51	909
Precipitation		1				1
Glare/sun/headlights		2			2	4
Curve/hill/embankment		1	1		2	4
Parked vehicle		2	1		1	4
Hit-and-run vehicle		4	5	2	1	12
Vision obscured-no details		1	1			2
Other obstruction		1				1
	7	423	335	115	57	937

Missing cases = 248

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
ROAD SURFACE CONDITION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Dry	6	512	604	268	245	1635
Wet	1	74	75	37	23	210
Snow/slush		8	8	8	2	26
Ice		12	15	5	3	35
Sand/dirt/oil	1	5	2			8
Other			1		1	2
	8	611	705	318	274	1916

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Dry	6	342	270	102	53	773
Wet		55	44	11	4	114
Snow/slush		2	2	1		5
Ice	1	10	11	1	1	24
Sand/dirt/oil	1	4	3			8
Other		1	3	1		5
	8	414	333	116	58	929

Missing cases = 286

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE MANOEUVRE BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Going straight	3	366	381	157	154	1061
Slowing/stopping		18	19	12	7	56
Starting in traffic lane	1	1	6	2	1	11
Stopped in traffic lane		64	126	68	32	290
Passing/overtaking		3	4			7
Leaving parking spot		1	1			2
Entering parking spot				2		2
Avoiding animal/pedestrian/object/vehicle		6	13	3	1	23
Turning right		20	31	11	11	73
Turning left	3	104	98	48	58	311
U-turn		1	3	1	1	6
Reversing		2	2	3	2	9
Changing lanes/merging		7	11	5	7	30
Negotiating curve	1	15	5	2	3	26
Other		15	13	6	6	40
	8	623	713	320	283	1947

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Going straight	2	241	188	69	32	532
Slowing/stopping		13	3	2	1	19
Starting in traffic lane		1	1			2
Stopped in traffic lane		31	32	11	8	82
Passing/overtaking		5	1	2	1	9
Leaving parking spot		3				3
Entering parking spot					1	1
Avoiding animal/pedestrian/object/vehicle	1	12	5	2	1	21
Turning right	1	18	10	4	2	35
Turning left	1	60	55	18	7	141
U-turn		2	1			3
Reversing		2			1	3
Changing lanes/merging	1	6	8	1		16
Negotiating curve		15	17	6	3	41
Other	1	13	16	2		32
	7	422	337	117	57	940

Missing cases = 244

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MANNER OF COLLISION BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
No collision with moving vehicle	3	179	172	75	72	501
Rear-end	2	170	219	111	59	561
Head-on		26	20	12	7	65
Angle	3	246	284	121	140	794
Sideswipe, same direction		6	20	3	4	33
Sideswipe, opposite direction		1	1	1		3
Other					1	1
	8	628	716	323	283	1958

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
No collision with moving vehicle	3	158	128	42	19	350
Rear-end	1	79	61	18	16	175
Head-on		15	12	4	2	33
Angle	3	158	123	44	19	347
Sideswipe, same direction		10	13	6	1	30
Sideswipe, opposite direction	1	3	1	2		7
	8	423	338	116	57	942

Missing cases = 231

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
FIRST HARMFUL EVENT (CRASH LEVEL) BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Non collision:						
rollover	2	11	7	3	4	27
other non collision		9	7	2		18
Collision with object - not fixed:						
pedestrian		43	43	23	18	127
cycle/cyclist		48	64	30	24	166
motor vehicle on road	5	451	544	248	211	1459
motor vehicle parked	1	14	6	2	5	28
other		1	1	1	1	4
Collision with fixed object:						
guardrail		4	4	1	1	10
post/pole/support		9	11	2	4	26
culvert/ditch		5	1	1	2	9
curb		8	7	2	1	18
embankment		7	7	2	4	20
wall		2	2			4
tree		4	4		4	12
other fixed object		14	8	6	4	32
	8	630	716	323	283	1960

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Non collision:						
rollover		17	12	2	2	33
other non collision		9	3	1		13
Collision with object - not fixed:						
pedestrian		22	30	6	4	62
cycle/cyclist		17	14	7	3	41
motor vehicle on road	5	267	211	74	39	596
motor vehicle parked		19	6	7	2	34
other		3		2	1	6
Collision with fixed object:						
guardrail		7	11	4		22
post/pole/support	1	19	12	1	1	34
culvert/ditch		3	4	1		8
curb	1	8	7	1	2	19
embankment		7	8	2	1	18
wall		2	3	1		6
tree		7		3	1	11
other fixed object	1	18	17	4	2	42
	8	425	338	116	58	945

Missing cases = 226

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
MOST HARMFUL EVENT (VEHICLE LEVEL) BY AGE GROUP

N=3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Non collision:						
rollover	1	16	11	4	6	38
other non collision		6	8			14
Collision with object - not fixed:						
pedestrian		42	41	21	17	121
cycle/cyclist		48	64	30	24	166
motor vehicle on road	5	439	528	244	204	1420
motor vehicle parked		14	6	1	4	25
other		1	2	1	1	5
Collision with fixed object:						
guardrail		3	2			5
post/pole/support		9	10	1	4	24
culvert/ditch		5	1	1	1	8
embankment		2	2	2	1	7
wall		2	1	1		4
tree		4	5	1	2	12
other fixed object		7	5	4	1	17
	6	598	686	311	265	1866
	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Non collision:						
rollover	1	27	20	7		55
other non collision		4	2	1	1	8
Collision with object - not fixed:						
pedestrian		21	28	6	4	59
cycle/cyclist		17	14	7	3	41
motor vehicle on road	3	250	208	71	39	571
motor vehicle parked		18	7	6	2	33
other			2	1	2	5
Collision with fixed object:						
guardrail		5	7	2		14
post/pole/support	1	14	8	1		24
culvert/ditch		3	3			6
embankment		3	7			10
wall		2	1			3
tree		6	1	3	1	11
other fixed object	2	8	9	2	1	22
	7	378	317	107	53	862

Missing cases = 403

* Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes

GENERAL ESTIMATES SYSTEM (1989) - WESTERN REGION*
VEHICLE ROLE BY AGE GROUP

N = 3131

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Single vehicle crashes:						0
non collision	1	15	10	4	5	35
striking	2	135	113	52	52	354
struck		22	37	14	11	84
both				1		1
Multi vehicle crashes:						0
striking	3	251	227	93	85	659
struck	1	171	261	122	106	661
both	1	32	55	33	18	139
	8	626	703	319	277	1933

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Single vehicle crashes:						0
non collision		22	14	3		39
striking	3	129	104	33	16	285
struck		3	7	4	1	15
both						0
Multi vehicle crashes:						0
striking				1		1
struck	4	125	98	33	23	283
both	1	119	102	36	15	273
both		19	12	5	2	38
	8	417	337	115	57	934

Missing cases = 264

- * Frequencies comprise drivers of cars and car derivatives involved in reported casualty crashes