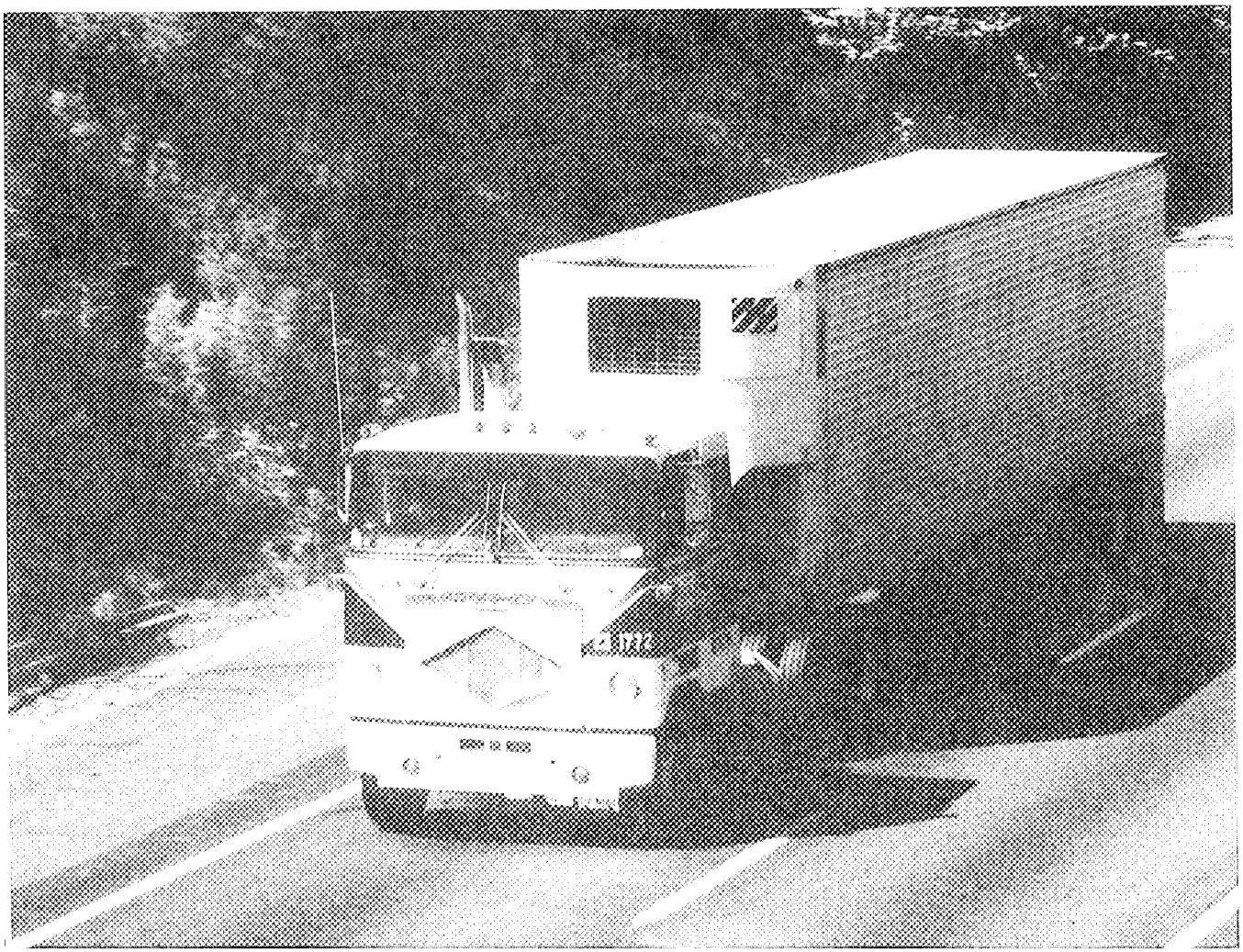
U.S. Department
of Transportation

**Federal Highway
Administration**

Accidents of Motor Carriers of Property 1987

Office of Motor Carriers



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Accidents of Motor Carriers of Property 1987

Publication No. FHWA/MC-90/013

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HIGHLIGHTS OF THE 1987 REPORT

1987 OVERVIEW

- This document profiles 1987 accidents reported by *interstate* commercial carriers of property subject to the Department of Transportation Act. It is suspected that accidents involving interstate carriers were significantly *underreported;* actions are underway to correct this in the future.

- 27,479 accidents were reported by commercial carriers of property in 1987, 5 percent more than in 1986. This was the first time that total accidents reported increased since 1984.

- Accidents were more lethal in 1987 than during any of the preceding four years. Nearly 1 in 10 accidents in 1987 resulted in fatalities; 6 in 10 accidents produced injuries.

- Reported accidents produced 2,907 fatalities, 28,018 injuries, and property damage estimated at $380,638,715.

- 1 out of 4 accidents occurred in just four states: Illinois, Ohio, Pennsylvania, and Texas.

THE DRIVER

- 2 of every 10 persons killed—and 3 of every 10 persons injured—in truck accidents were truck drivers or occupants.

- Physical impairment of the professional drivers operating the trucks was not a factor in most accidents, at least according to the carriers reporting the accidents.

- Driver age did not appear to have a significant impact on accident severity, except that drivers under 21 tended to be involved in more severe accidents—and drivers over 64 in less severe accidents—than the population at large.

- When accidents occurred, truck drivers not wearing seat belts were four times more likely to be killed.

THE VEHICLE

- 8 out of every 10 reported accidents involved tractors-semitrailers.

- Heavier trucks tended to be involved in accidents with fewer fatalities/injuries than lighter vehicles. However, heavy-truck accidents usually resulted in higher property damage than light-vehicle accidents.

- Accidents involving trucks transporting metal products, farm products, and explosives were more likely to result in fatalities than accidents involving trucks carrying other cargos.

- Mechanical defects almost never contributed to accidents, according to the carriers reporting the accidents.

THE ACCIDENT SETTING

- Reported accidents were more numerous on divided highways, but more likely to be fatal on undivided highways.

- 7 out of 10 reported accidents occurred under favorable weather and favorable road conditions.

- Fewer fatalities/injuries occurred per accident under adverse environmental conditions than under ideal conditions.

- Truck occupants were more likely to be killed or injured in accidents which occurred during the night than during the day.

THE ACCIDENT

- 3 out of 4 accidents involved collisions. These accidents generated 92 percent of the fatalities, 84 percent of the injuries, and 69 percent of the property damage reported during 1987.

- Collision accidents were over three times more likely to result in fatalities than non-collision accidents.

- In 9 out of 10 non-collision accidents, the trucks reportedly overturned, jackknifed, or ran off the road.

- Property damage tended to be higher in non-collision accidents, averaging $19,268 per accident versus $12,310 per collision accident.

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INTRODUCTION

This document presents aggregate statistics contained in the *1987 Motor Carriers of Property Accident Database.* The database was compiled from reports of applicable accidents filed by commercial carriers of property subject to the Department of Transportation Act (49 U.S.C. 1651-60). The database is maintained by the Office of Motor Carriers (OMC), Federal Highway Administration, U.S. Department of Transportation.

The data presented in this publication are intended for use by individuals and organizations in the public and private sectors requiring information on accidents of motor carriers of property. Readers seeking general information will find that these materials satisfy many of their basic data requirements. Persons needing more specialized information than presented here are encouraged to contact OMC directly.

ACCIDENT REPORTING

Motor carriers that operate commercial motor vehicles in interstate commerce are subject to the reporting requirements specified in 49 CFR 394. Additionally, the intrastate transportation performed by those interstate motor carriers is subject to the same reporting requirements. Accidents are reported using Federal Form MCS 50-T, *Motor Carrier Accident Report (Property-Carrying).*

A "reportable" accident has occurred when one or more of the following conditions result:

- At least one person dies.
- At least one person experiences bodily injury which requires immediate medical treatment away from the scene of the accident.
- Property is damaged in the amount of $4,400 or more, based on actual or estimated costs.

The MCS 50-T report contains over 60 data elements pertaining to the motor carrier, driver, vehicles, and circumstances of the accident. Accident reports, when received by OMC, are entered into the Motor Carriers of Property Accident Database.

In 1987, properly-executed accident reports were all entered into the database, with one exception. When two or more commercial carriers reported involvement in a single accident, only one of those reports was entered into the

database. Generally, the report filed by the carrier determined to have been most directly involved in the accident was the one entered into the database.

NATURE OF THE DATA

Readers should be aware of several significant limitations in the 1987 data. First, attempts were not routinely made in 1987 to ensure that all accidents which should have been reported were, in fact, reported. Hence, the database is limited to those accident occurrences for which MCS 50-Ts were filed. There is, however, ample evidence to indicate that the number of accident occurrences which should have been reported, but were not reported, was substantial.

Secondly, attempts were not ordinarily made in 1987 to verify the completeness and accuracy of carriers' accounts of the accidents, as reported on the MCS 50-Ts. Thus, carriers' presentations of the circumstances surrounding the accidents were entered into the database precisely as reported. During 1987, OMC did not maintain data on the extent—if any—to which commercial carriers' accounts of accidents deviated from the accounts compiled by police, courts, insurance companies, etc.

Lastly, it should be noted that this publication is a summary of accident statistics, presented without benefit of *exposure* factors. Exposures refer to the potential opportunities for a given event to occur. Suppose, for instance, that two interstate carriers, A and B, experienced 12 and 18 reportable accidents, respectively. Carrier A logged 5 million miles of travel during the year, while Carrier B travelled 10 million miles. Initially, it might look as though Carrier B was less safe than Carrier A, since B had 18 accidents and A had only 12. However, when one considers the exposure—in this case, *total vehicle miles driven*—a very different picture emerges. Now it is seen that Carrier A experienced 2.4 accidents per million miles travelled, whereas Carrier B experienced only 1.8 accidents per million miles of travel. Perhaps Carrier B was really the safer of the two carriers after all!

Because this document is largely deprived of exposure data, one must exercise great caution in attempting to compare the probabilities of accidents occurring under various circumstances. For instance, while the data on accidents by time of day chronicled in Chapter 4 shows that most accidents occurred during the day, one cannot necessarily conclude that the probability of accidents happening in the daytime was greater than at night. Before one could draw that conclusion, one would need to examine such exposure factors as the number of commercial vehicles on the roads in the daytime versus the nighttime.

One may, however, properly use the data in this document to compare the probable consequences of accidents under different circumstances. For example, one *can* make a valid determination about whether accidents, when they occurred, were more severe during the day or at night.

ORGANIZATION OF THE DOCUMENT

This document contains five chapters:

- Chapter 1: 1987 Overview
- Chapter 2: The Driver
- Chapter 3: The Vehicle
- Chapter 4: The Accident Setting
- Chapter 5: The Accident

Within each chapter, data are organized under specific topics. A glossary of terms and a copy of Form MCS 50-T are presented in the Appendix.

DATA CONVENTIONS

The following conventions are used throughout this document:

- Percentages shown in tables and figures are rounded to the nearest one-tenth of 1 percent. Percentages do not always total 100 due to rounding.
- Items which motor carriers left blank on the 50-T report are noted in tables and figures under the "Not Reported" category.
- When the size of the sample from which the data shown in a given figure were drawn is not readily apparent, the sample size is identified at the base of the figure. For example, "N = 27,479" means that the data shown were drawn from 27,479 accident reports.
- Accident consequences – notably fatality and injury rates – are usually expressed as a rate per 100 accidents.
- Specific parts of the *Federal Motor Carrier Safety Regulations* are referenced in the text of the document, as appropriate. For example, "49 CFR 394" means Title 49 of the *Code of Federal Regulations*, Part 394.

ADDITIONAL INFORMATION

- For answers to questions not addressed in this publication, please contact the Federal Highway Administration, Office of Motor Carriers, HIA-10, at 400 Seventh Street, S.W., Washington, D.C. 20590. The telephone number is 202-366-4023.

Chapter 1 1987 OVERVIEW

Accident Class Totals
Accident Consequences
State Accident Statistics
Five-Year Trends

In 1987, 27,479 accidents involving commercial vehicles of property were reported by the individuals and companies who operate those vehicles. These accidents resulted in 2,907 fatalities, 28,018 non-fatal injuries, and property damage estimated at $380,638,715. Fewer than 1 in 10 accidents involved fatalities, though more than 6 in 10 produced injuries. Trend data for the five-year period, 1983–1987, reveals that total accidents reported in 1987 increased by approximately 6 percent over the 1983 total. During the same period, however, fatalities increased by nearly 15 percent.

ACCIDENT CLASS TOTALS

The 27,479 accidents reported in 1987 fall into three *classes*:

- *Fatal Accidents.* This group includes all accidents for which at least one fatality was reported. These accidents may also have involved non-fatal injuries and property damage.
- *Injury Accidents.* At least one injury, but no fatalities, were reported for each accident in this category. Property damage may also have been a consequence of "injury" accidents.
- *Property Damage Accidents.* Each of these accidents resulted in actual or estimated property damage of $4,400 or more, but involved no fatalities or injuries.

Accidents are grouped into these classes according to accident severity. For example, accidents which resulted in fatalities and injuries are classified as "fatal" accidents. Accidents involving injuries and property damage fall into the "injury" category.

Table 1-1 summarizes 1987 accident data by the three accident classes.

In Table 1-2, class totals are broken down further by *carrier type*, *accident type*, and *trip type*. Carrier type includes for-hire and private. Accident type encompasses (1) collisions with moving, fixed, or parked objects; and (2) non-collisions, e.g., fires and jackknifes. Trip type indicates whether the commercial vehicles were engaged in over-the-road or local transportation when the accidents occurred.

Approximately 3 out of every 4 accidents reported in 1987 were the result of collisions; 3 out of 4 accidents also occurred during over-the-road trips (i.e., on highways between two non-local destination points). In general, as accident severity increased—from property damage to injuries to fatalities—the likelihood that the resultant accidents entailed collisions also increased.

For-hire carriers were involved in 97 percent of all accidents reported in 1987, suggesting that for-hire carriers, as a group, are either (1) much less safe than private carriers, or (2) much more likely to report their accidents than private carriers. Based on its long-term experience monitoring and regulating truck safety, OMC presumes the latter to be the case.

Table 1-3 breaks down accident class totals by type of for-hire carrier.

Table 1-1
1987 Accident Summary

	NUMBER	PERCENT
FATAL ACCIDENTS	2,410	8.8
INJURY ACCIDENTS	16,734	60.9
PROPERTY DAMAGE ACCIDENTS	8,335	30.3
TOTAL ACCIDENTS	27,479	100.0

Table 1-2
Accident Class Totals
By Carrier Type, Accident Type, and Trip Type

	FATAL ACCIDENTS		INJURY ACCIDENTS		PROPERTY DAMAGE ACCIDENTS		TOTAL ACCIDENTS	
	#	%	#	%	#	%	#	%
CARRIER TYPE								
FOR-HIRE	2,319	96.2	16,372	97.8	8,059	96.7	26,750	97.3
PRIVATE	81	3.4	325	1.9	256	3.1	662	2.4
TYPE NOT RPTD.	10	0.4	37	0.2	20	0.2	67	0.2
TOTAL	2,410	100.0	16,734	99.9	8,335	100.0	27,479	99.9
ACCIDENT TYPE								
COLLISION	2,214	91.9	13,557	81.0	5,612	67.3	21,383	77.8
NON-COLLISION	196	8.1	3,174	19.0	2,723	32.7	6,093	22.2
TYPE NOT RPTD.	0	0.0	3	0.0	0	0.0	3	0.0
TOTAL	2,410	100.0	16,734	100.0	8,335	100.0	27,479	100.0
TRIP TYPE								
OVER-THE-ROAD	1,928	80.0	12,686	75.8	6,945	83.3	21,559	78.5
LOCAL	479	19.9	4,007	23.9	1,359	16.3	5,845	21.3
TYPE NOT RPTD.	3	0.1	41	0.2	31	0.4	75	0.3
TOTAL	2,410	100.0	16,734	99.9	8,335	100.0	27,479	100.1

Table 1-3
Breakdown of For-Hire Accidents

	FATAL ACCIDENTS		INJURY ACCIDENTS		PROPERTY DAMAGE ACCIDENTS		TOTAL ACCIDENTS	
	#	%	#	%	#	%	#	%
FOR-HIRE CARRIERS								
ICC AUTHORIZED	1,837	79.2	13,762	84.1	6,829	84.7	22,428	83.8
ICC EXEMPT	457	19.7	2,542	15.5	1,200	14.9	4,199	15.7
OTHER	25	1.1	68	0.4	30	0.4	123	0.5
TOTAL	2,319	100.0	16,372	100.0	8,059	100.0	26,750	100.0

ACCIDENT CONSEQUENCES

Fatalities, injuries, and property damage – the physical *consequences* of commercial vehicle accidents – are summarized in Tables 1-4 and 1-5. Table 1-4 shows that the majority of 1987 accident consequences were the result of (1) accidents involving for-hire carriers, (2) collision accidents, and (3) accidents occurring during over-the-road transportation. As with the class totals, nearly all (96 percent) of the accident consequences reported involved for-hire carriers. Table 1-5 shows that most of these carriers were "ICC authorized."

Table 1-4
Accident Consequences
By Carrier Type, Accident Type, and Trip Type

	FATALITIES		INJURIES		PROPERTY DAMAGE	
	#	%	#	%	$	%
CARRIER TYPE						
FOR-HIRE	2,790	96.0	27,399	97.8	369,689,062	97.1
PRIVATE	104	3.6	554	2.0	9,732,560	2.6
TYPE NOT RPTD.	13	0.4	65	0.2	1,217,093	0.3
TOTAL	2,907	100.0	28,018	100.0	380,638,715	100.0
ACCIDENT TYPE						
COLLISION	2,684	92.3	23,661	84.4	263,234,836	69.2
NON-COLLISION	223	7.7	4,353	15.5	117,400,879	30.8
TYPE NOT RPTD.	0	0.0	4	0.0	3,000	0.0
TOTAL	2,907	100.0	28,018	99.9	380,638,715	100.0
TRIP TYPE						
OVER-THE-ROAD	2,350	80.8	21,363	76.2	322,268,692	84.7
LOCAL	554	19.1	6,596	23.5	57,588,382	15.1
TYPE NOT RPTD.	3	0.1	59	0.2	781,641	0.2
TOTAL	2,907	100.0	28,018	99.9	380,638,715	100.0

Table 1-5
Breakdown of For-Hire Accident Consequences

	FATALITIES		INJURIES		PROPERTY DAMAGE	
	#	%	#	%	$	%
FOR-HIRE CARRIERS						
ICC AUTHORIZED	2,200	78.9	22,836	83.3	310,039,094	83.9
ICC EXEMPT	550	19.7	4,433	16.2	57,985,891	15.7
OTHER	40	1.4	130	0.5	1,664,077	0.5
TOTAL	2,790	100.0	27,399	100.0	369,689,062	100.1

In 1987, less than 1 out of every 10 (8.8 percent) commercial vehicle accidents produced fatalities. Fatal accidents averaged 1.2 deaths each. Figures 1-1, 1-2, and 1-3 show the rates at which fatalities, injuries, and property damage—by accident and trip type—were generated during 1987. In general, the fatality rate for collision accidents was more than three times higher than the rate for non-collision accidents (Figure 1-1). Non-fatal injuries also occurred more frequently in collisions than in non-collisions (Figure 1-2). Trip type—local versus over-the-road—does not appear to have significantly affected fatality and injury rates (Figures 1-1 and 1-2). Property damage in non-collision accidents was produced at a rate more than 50 percent higher than in collision accidents (Figure 1-3). This may have been the result of relatively high cargo losses sustained during non-collision accidents (e.g., when vehicles jackknifed). Also, property damage resulting from over-the-road accidents was generated at a rate nearly 50 percent higher than in accidents occurring during local trips.

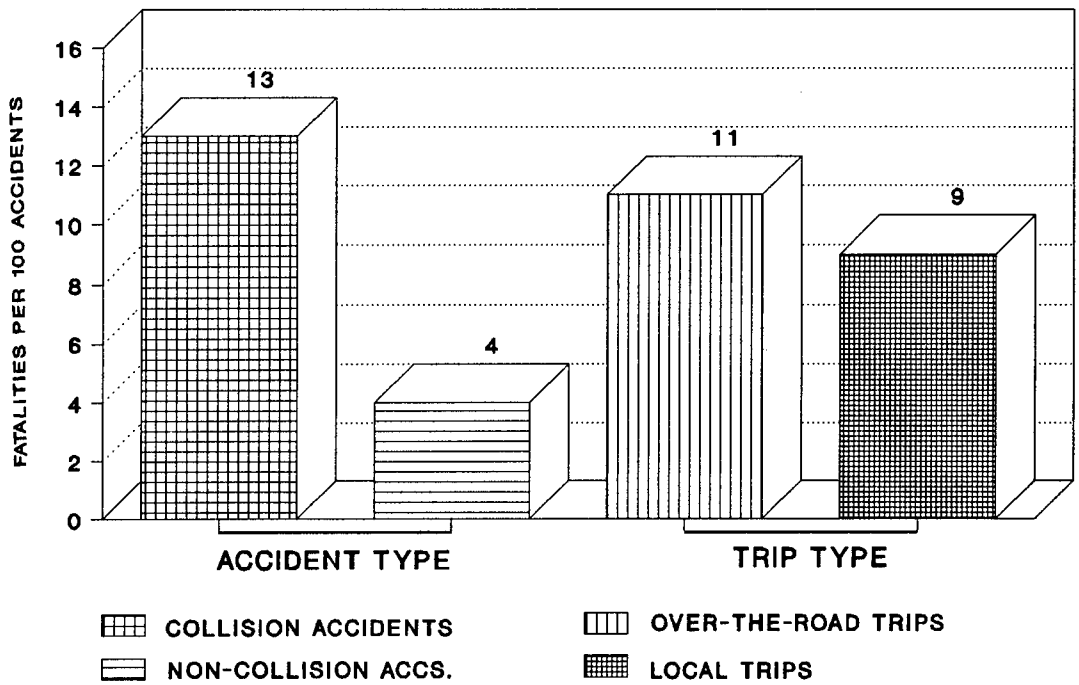

Figure 1-1
Fatalities Per 100 Accidents
By Accident Type and Trip Type

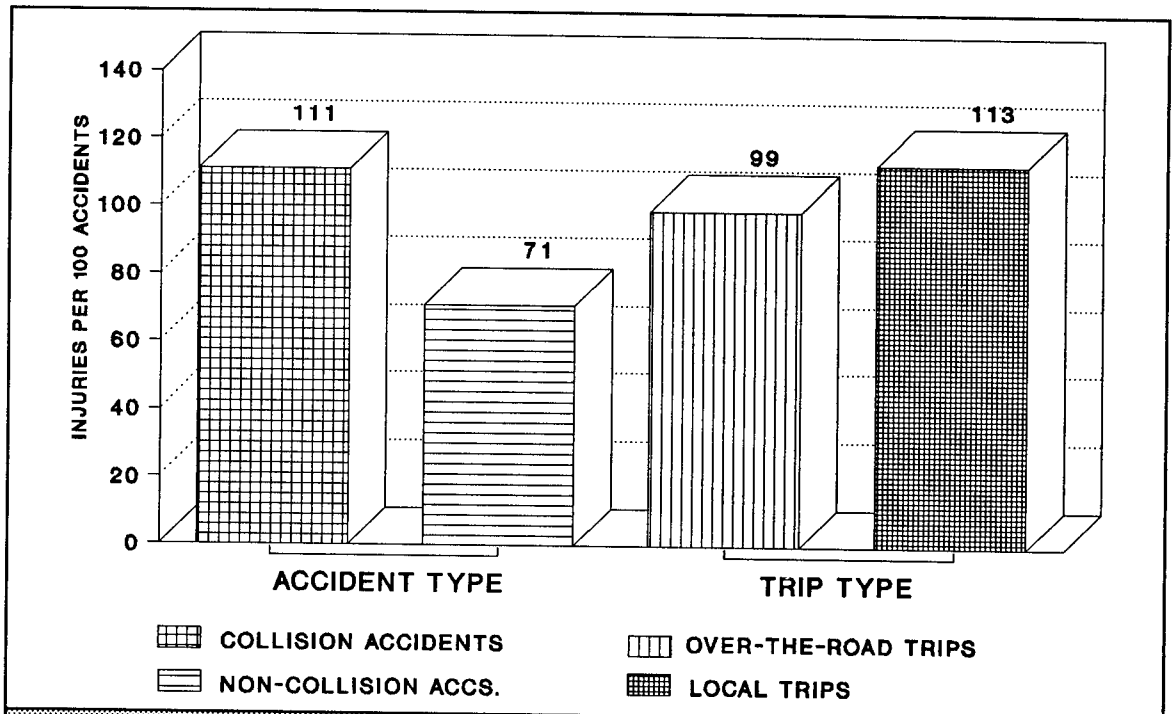

Figure 1-2
Injuries Per 100 Accidents
By Accident Type and Trip Type

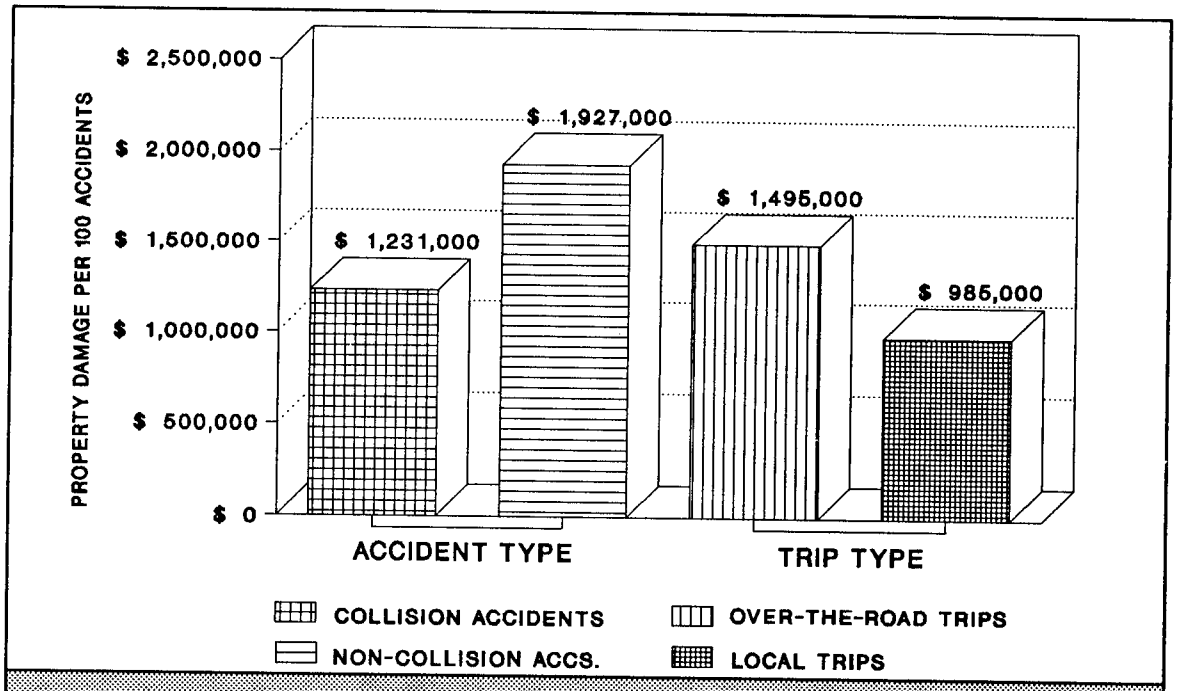

Figure 1-3
Property Damage Per 100 Accidents
By Accident Type and Trip Type

STATE ACCIDENT STATISTICS

During 1987, reported accidents occurred in every state, the District of Columbia, and U.S. territories. Additional accidents involving U.S. carriers in foreign commerce (in Canada and Mexico) were also reported.

Figure 1-4 compares levels of accidents by state. The largest number of accidents were reported in the travel corridor extending northeast, from Illinois to New York. Large numbers of accidents also occurred in California, Georgia, and Texas. In general, accidents in a given state were experienced in proportion to the volume of commercial vehicle traffic in that state. Hence, more accidents occurred in states east of the Mississippi River than in states west of the river.

Tables 1-6 and 1-7 summarize the statistics on accident classes and consequences by state. In 1987, reported accidents ranged from a low of 11 in Hawaii to a high of 1,856 in Pennsylvania (Table 1-6). Reported fatalities stretched from 1 each in Hawaii and North Dakota to 208 in Texas (Table 1-7).

Twenty-four percent of all accidents reported during the year occurred in just four states: Pennsylvania, Ohio, Texas, and Illinois (Table 1-6); 24 percent of the reported fatalities also occurred in four states: Texas, Pennsylvania, California, and Ohio (Table 1-7).

Table 1-8 compares the percentage of accidents, by state, which were fatal.

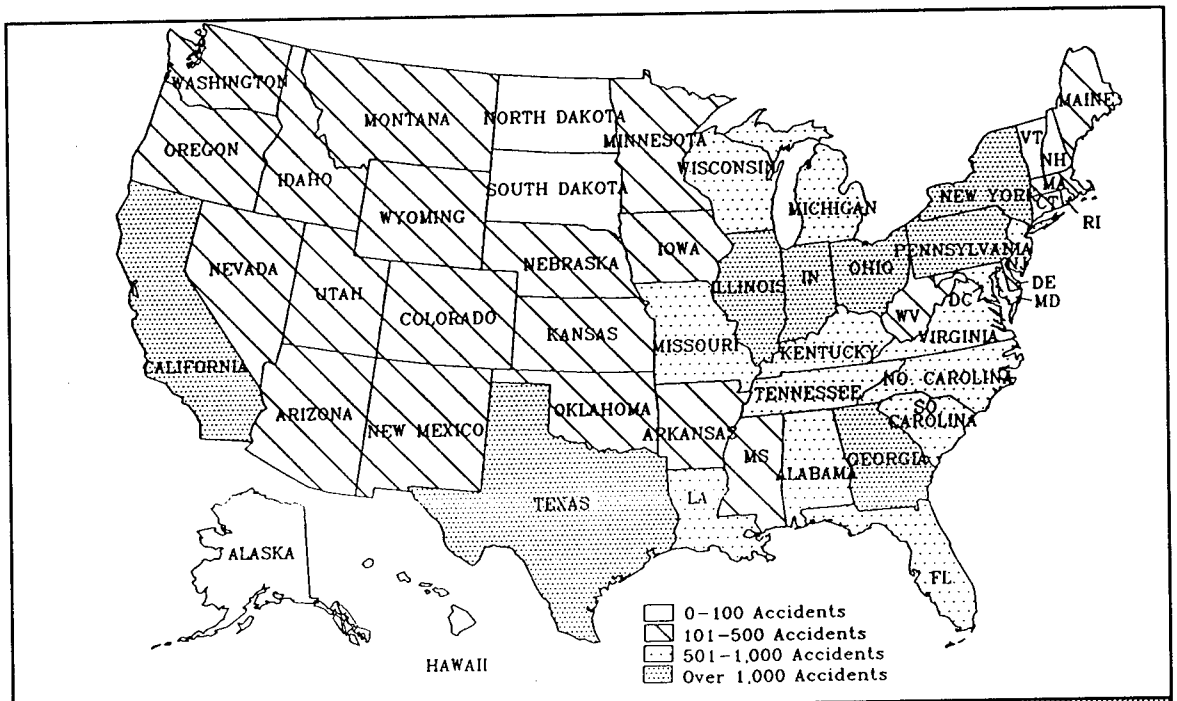

Figure 1-4
Accident Levels
By State

Table 1-6
Accident Class Totals
By State

STATE	FATAL ACCIDENTS #	FATAL ACCIDENTS %	INJURY ACCIDENTS #	INJURY ACCIDENTS %	PROPERTY DAMAGE ACCIDENTS #	PROPERTY DAMAGE ACCIDENTS %	TOTAL ACCIDENTS #	TOTAL ACCIDENTS %
ALABAMA	60	2.5	393	2.3	131	1.6	584	2.1
ALASKA	5	0.2	18	0.1	13	0.2	36	0.1
ARIZONA	39	1.6	185	1.1	103	1.2	327	1.2
ARKANSAS	41	1.7	278	1.7	147	1.8	466	1.7
CALIFORNIA	136	5.6	800	4.8	334	4.0	1,270	4.6
COLORADO	25	1.0	219	1.3	117	1.4	361	1.3
CONNECTICUT	17	0.7	200	1.2	144	1.7	361	1.3
DELAWARE	15	0.6	72	0.4	27	0.3	114	0.4
DIST. OF COLUMBIA	2	0.1	37	0.2	14	0.2	53	0.2
FLORIDA	124	5.1	641	3.8	218	2.6	983	3.6
GEORGIA	98	4.1	693	4.1	292	3.5	1,083	3.9
HAWAII	1	0.0	6	0.0	4	0.0	11	0.0
IDAHO	9	0.4	69	0.4	46	0.6	124	0.5
ILLINOIS	90	3.7	946	5.7	466	5.6	1,502	5.5
INDIANA	106	4.4	686	4.1	328	3.9	1,120	4.1
IOWA	34	1.4	200	1.2	142	1.7	376	1.4
KANSAS	43	1.8	204	1.2	134	1.6	381	1.4
KENTUCKY	39	1.6	311	1.9	160	1.9	510	1.9
LOUISIANA	55	2.3	365	2.2	127	1.5	547	2.0
MAINE	4	0.2	65	0.4	57	0.7	126	0.5
MARYLAND	48	2.0	401	2.4	149	1.8	598	2.2
MASSACHUSETTS	25	1.0	255	1.5	119	1.4	399	1.5
MICHIGAN	58	2.4	435	2.6	207	2.5	700	2.5
MINNESOTA	35	1.5	179	1.1	97	1.2	311	1.1
MISSISSIPPI	52	2.2	220	1.3	89	1.1	361	1.3
MISSOURI	87	3.6	467	2.8	233	2.8	787	2.9
MONTANA	13	0.5	50	0.3	46	0.6	109	0.4
NEBRASKA	19	0.8	129	0.8	83	1.0	231	0.8
NEVADA	14	0.6	60	0.4	39	0.5	113	0.4
NEW HAMPSHIRE	6	0.2	47	0.3	23	0.3	76	0.3
NEW JERSEY	41	1.7	632	3.8	292	3.5	965	3.5
NEW MEXICO	28	1.2	156	0.9	97	1.2	281	1.0
NEW YORK	86	3.6	682	4.1	403	4.8	1,171	4.3
NORTH CAROLINA	82	3.4	599	3.6	271	3.3	952	3.5
NORTH DAKOTA	1	0.0	29	0.2	17	0.2	47	0.2
OHIO	130	5.4	1,008	6.0	494	5.9	1,632	5.9
OKLAHOMA	40	1.7	221	1.3	157	1.9	418	1.5
OREGON	25	1.0	170	1.0	127	1.5	322	1.2
PENNSYLVANIA	159	6.6	1,106	6.6	591	7.1	1,856	6.8
RHODE ISLAND	6	0.2	24	0.1	11	0.1	41	0.1
SOUTH CAROLINA	58	2.4	326	1.9	138	1.7	522	1.9
SOUTH DAKOTA	4	0.2	43	0.3	34	0.4	81	0.3
TENNESSEE	81	3.4	583	3.5	240	2.9	904	3.3
TEXAS	163	6.8	909	5.4	531	6.4	1,603	5.8
UTAH	9	0.4	100	0.6	71	0.9	180	0.7
VERMONT	4	0.2	47	0.3	20	0.2	71	0.3
VIRGINIA	63	2.6	548	3.3	201	2.4	812	3.0
WASHINGTON	24	1.0	178	1.1	118	1.4	320	1.2
WEST VIRGINIA	25	1.0	216	1.3	109	1.3	350	1.3
WISCONSIN	51	2.1	303	1.8	148	1.8	502	1.8
WYOMING	11	0.5	105	0.6	91	1.1	207	0.8
CANADA	5	0.2	34	0.2	30	0.4	69	0.3
MEXICO	6	0.2	24	0.1	15	0.2	45	0.2
U.S. TERRITORIES	0	0.0	0	0.0	1	0.0	1	0.0
STATE NOT RPTD.	8	0.3	60	0.4	39	0.5	107	0.4
TOTAL	2,410	99.9	16,734	100.0	8,335	100.3	27,479	100.4

Table 1-7
Accident Consequences
By State

STATE	FATALITIES #	FATALITIES %	INJURIES #	INJURIES %	PROPERTY DAMAGE $	PROPERTY DAMAGE %
ALABAMA	75	2.6	634	2.3	8,198,860	2.2
ALASKA	5	0.2	31	0.1	1,011,334	0.3
ARIZONA	44	1.5	348	1.2	6,037,880	1.6
ARKANSAS	58	2.0	462	1.6	8,118,377	2.1
CALIFORNIA	157	5.4	1,375	4.9	18,728,694	4.9
COLORADO	32	1.1	371	1.3	5,461,581	1.4
CONNECTICUT	18	0.6	304	1.1	3,910,369	1.0
DELAWARE	21	0.7	119	0.4	1,639,871	0.4
DIST. OF COLUMBIA	4	0.1	56	0.2	365,290	0.1
FLORIDA	141	4.9	1,197	4.3	11,351,756	3.0
GEORGIA	106	3.6	1,171	4.2	13,938,306	3.7
HAWAII	1	0.0	16	0.1	78,836	0.0
IDAHO	11	0.4	101	0.4	2,127,265	0.6
ILLINOIS	111	3.8	1,471	5.3	18,845,053	5.0
INDIANA	123	4.2	1,180	4.2	18,411,615	4.8
IOWA	38	1.3	365	1.3	7,115,939	1.9
KANSAS	69	2.4	349	1.2	6,114,172	1.6
KENTUCKY	49	1.7	485	1.7	6,833,308	1.8
LOUISIANA	76	2.6	672	2.4	6,671,011	1.8
MAINE	4	0.1	96	0.3	1,735,779	0.5
MARYLAND	56	1.9	662	2.4	7,613,124	2.0
MASSACHUSETTS	27	0.9	384	1.4	3,541,961	0.9
MICHIGAN	68	2.3	694	2.5	7,986,607	2.1
MINNESOTA	38	1.3	281	1.0	4,247,581	1.1
MISSISSIPPI	69	2.4	375	1.3	4,679,304	1.2
MISSOURI	107	3.7	799	2.9	10,601,953	2.8
MONTANA	15	0.5	80	0.3	3,170,847	0.8
NEBRASKA	23	0.8	219	0.8	3,679,844	1.0
NEVADA	16	0.6	105	0.4	3,306,247	0.9
NEW HAMPSHIRE	7	0.2	69	0.2	707,839	0.2
NEW JERSEY	54	1.9	1,055	3.8	11,365,739	3.0
NEW MEXICO	32	1.1	265	0.9	5,192,794	1.4
NEW YORK	102	3.5	1,174	4.2	12,413,360	3.3
NORTH CAROLINA	93	3.2	1,040	3.7	17,716,283	4.7
NORTH DAKOTA	1	0.0	45	0.2	738,801	0.2
OHIO	148	5.1	1,632	5.8	20,593,905	5.4
OKLAHOMA	52	1.8	369	1.3	6,371,283	1.7
OREGON	29	1.0	266	0.9	4,579,815	1.2
PENNSYLVANIA	191	6.6	1,822	6.5	26,421,029	6.9
RHODE ISLAND	6	0.2	45	0.2	383,274	0.1
SOUTH CAROLINA	76	2.6	609	2.2	6,789,754	1.8
SOUTH DAKOTA	4	0.1	60	0.2	1,547,877	0.4
TENNESSEE	92	3.2	943	3.4	12,571,595	3.3
TEXAS	208	7.2	1,531	5.5	21,445,653	5.6
UTAH	14	0.5	176	0.6	3,466,360	0.9
VERMONT	4	0.1	86	0.3	647,672	0.2
VIRGINIA	77	2.6	969	3.5	10,477,485	2.8
WASHINGTON	27	0.9	283	1.1	3,341,214	0.9
WEST VIRGINIA	30	1.0	336	1.2	5,717,094	1.5
WISCONSIN	55	1.9	465	1.7	5,926,348	1.6
WYOMING	17	0.6	169	0.6	3,752,031	1.0
CANADA	7	0.2	56	0.2	1,152,871	0.3
MEXICO	7	0.2	46	0.2	534,329	0.1
U.S. TERRITORIES	0	0.0	0	0.0	14,000	0.0
STATE NOT RPTD.	12	0.4	105	0.4	1,247,546	0.3
TOTAL	2,907	99.7	28,018	100.3	380,638,715	100.3

Table 1-8
Percent Fatal Accidents
By State

STATE	FATAL ACCIDENTS	TOTAL ACCIDENTS	% FATAL ACCIDENTS
ALABAMA	60	584	10.3
ALASKA	5	36	13.9
ARIZONA	39	327	11.9
ARKANSAS	41	466	8.8
CALIFORNIA	136	1,270	10.7
COLORADO	25	361	6.9
CONNECTICUT	17	361	4.7
DELAWARE	15	114	13.2
DIST. OF COLUMBIA	2	53	3.8
FLORIDA	124	983	12.6
GEORGIA	98	1,083	9.0
HAWAII	1	11	9.1
IDAHO	9	124	7.3
ILLINOIS	90	1,502	6.0
INDIANA	106	1,120	9.5
IOWA	34	376	9.0
KANSAS	43	381	11.3
KENTUCKY	39	510	7.6
LOUISIANA	55	547	10.1
MAINE	4	126	3.2
MARYLAND	48	598	8.0
MASSACHUSETTS	25	399	6.3
MICHIGAN	58	700	8.3
MINNESOTA	35	311	11.3
MISSISSIPPI	52	361	14.4
MISSOURI	87	787	11.1
MONTANA	13	109	11.9
NEBRASKA	19	231	8.2
NEVADA	14	113	12.4
NEW HAMPSHIRE	6	76	7.9
NEW JERSEY	41	965	4.2
NEW MEXICO	28	281	10.0
NEW YORK	86	1,171	7.3
NORTH CAROLINA	82	952	8.6
NORTH DAKOTA	1	47	2.1
OHIO	130	1,632	8.0
OKLAHOMA	40	418	9.6
OREGON	25	322	7.8
PENNSYLVANIA	159	1,856	8.6
RHODE ISLAND	6	41	14.6
SOUTH CAROLINA	58	522	11.1
SOUTH DAKOTA	4	81	4.9
TENNESSEE	81	904	9.0
TEXAS	163	1,603	10.2
UTAH	9	180	5.0
VERMONT	4	71	5.6
VIRGINIA	63	812	7.8
WASHINGTON	24	320	7.5
WEST VIRGINIA	25	350	7.1
WISCONSIN	51	502	10.2
WYOMING	11	207	5.3
CANADA	5	69	7.2
MEXICO	6	45	13.3
U.S. TERRITORIES	0	1	0.0
STATE NOT RPTD.	8	107	7.5
TOTAL	2,410	27,479	8.8

FIVE-YEAR TRENDS

Figures 1-5 through 1-8 summarize accident trends for the five-year period, 1983–1987. In reviewing these data, note that the property damage thresholds (i.e., the lower-end dollar boundaries at which accidents are reportable according to the Federal property damage criterion) have been adjusted for inflation in terms of 1975 dollars. Hence, those accidents which were reported, but which did not meet the adjusted thresholds, have been excluded from the figures and tables.

Key trends during the five-year period included the following:

- Accidents reported in 1987 increased 6 percent over total accidents reported in 1983 (Figure 1-5). Even so, the 1987 accident total—27,479—was well below the 1984 peak of 29,579 accidents.

- Fatal accidents increased 19 percent over the 1983 total, to reach the 1987 peak of 2,410 (Figure 1-6). Total fatalities increased by 15 percent to 2,907 in 1987 (Figure 1-7).

- Total injuries, exclusive of fatalities, increased 5 percent over the 1983 value, to 28,018 in 1987 (Figure 1-8). However, total injuries reported in 1987 were lower than those reported both in 1984 and 1985.

Table 1-9 summarizes the statistical data for the five-year period. Percentage changes from year to year are shown for each statistic. In general, accidents, fatalities, injuries, and property damage, after declining in 1985 and 1986, increased in 1987.

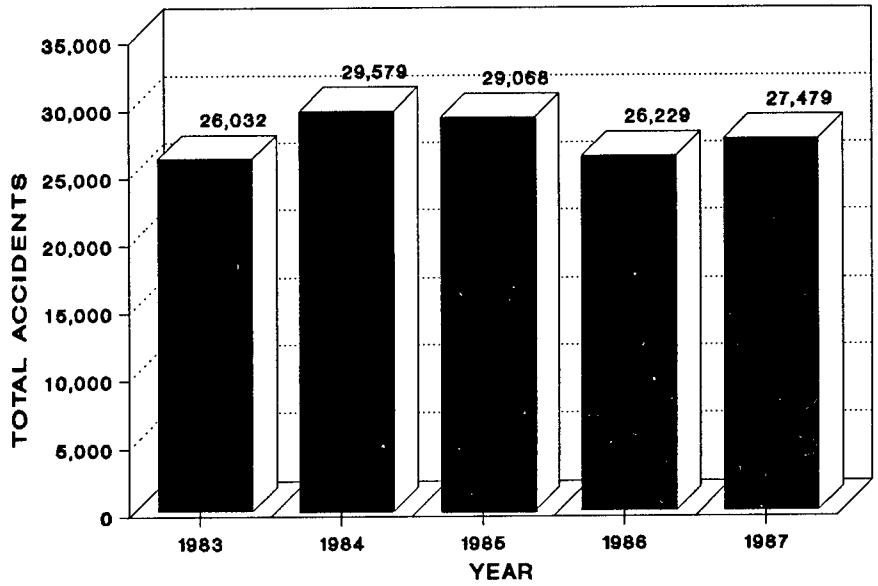

Figure 1-5
Total Accidents
By Year

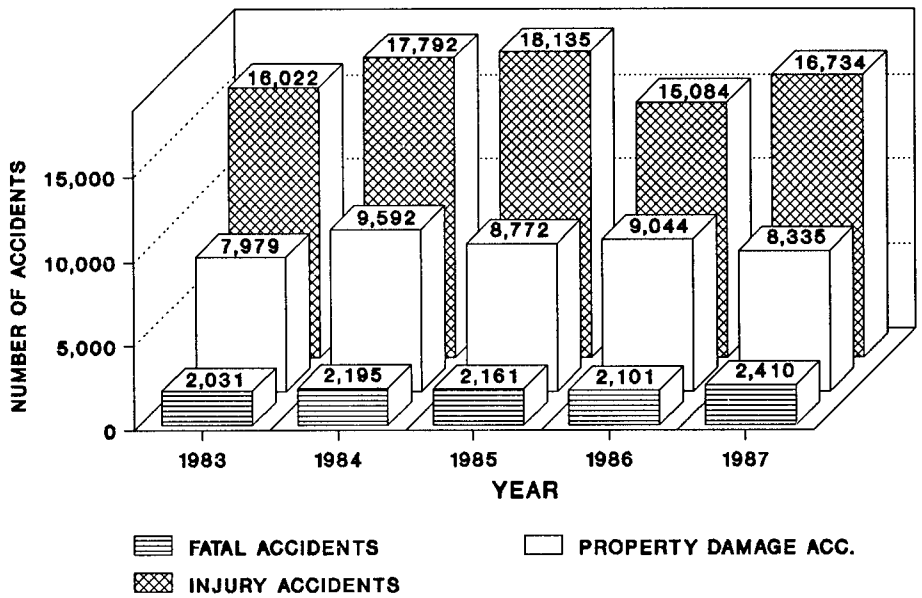

Figure 1-6
Accident Class Totals
By Year

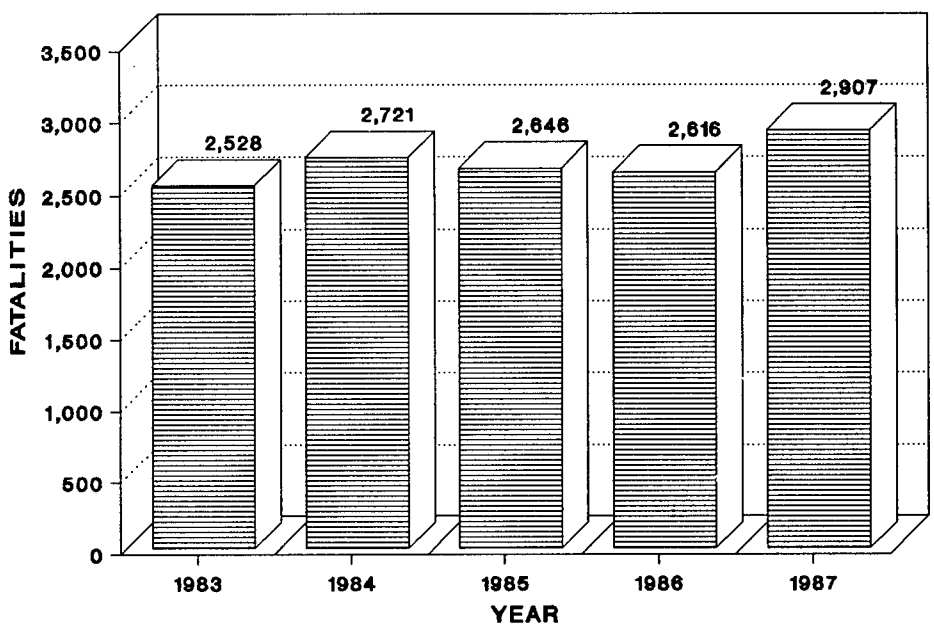

Figure 1-7
Fatalities By Year

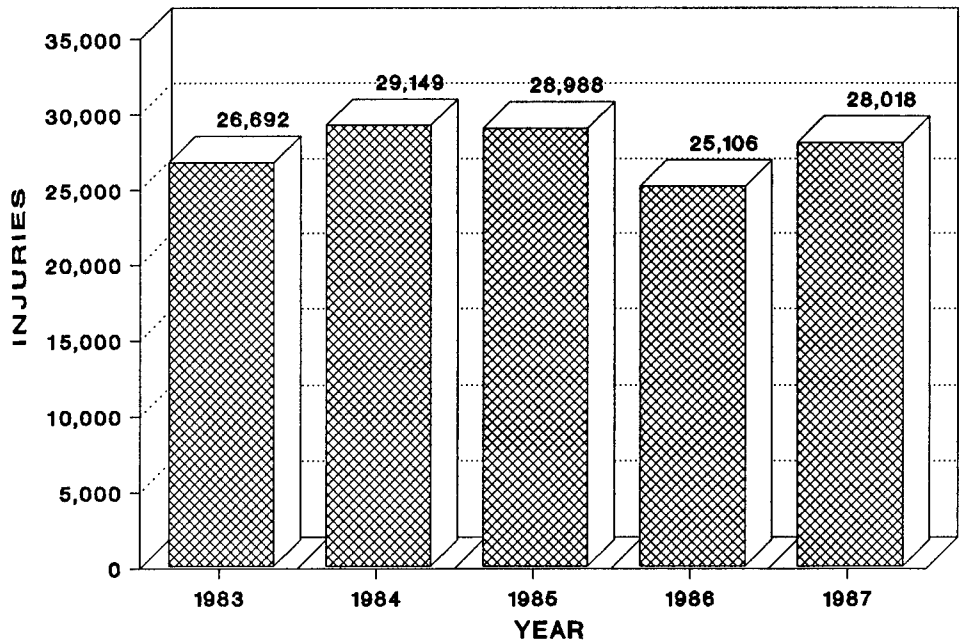

Figure 1-8
Injuries By Year

Table 1-9
Annual Percentage Change in Accident Statistics

	1983-1984	1984-1985	1985-1986	1986-1987	1983-1987
ACCIDENTS					
FATAL	+8.1	-1.5	-2.8	+14.7	+18.7
INJURY	+11.0	+1.9	-16.8	+10.9	+4.4
PROPERTY DAMAGE	+20.2	-8.5	+3.1	-7.8	+4.5
TOTAL	+13.6	-1.7	-9.8	+4.8	+5.6
CONSEQUENCES					
FATALITIES	+7.6	-2.8	-1.1	+11.1	+15.0
INJURIES	+9.2	-0.6	-13.4	+11.6	+5.0

Chapter 2 THE DRIVER

Physical Condition of Drivers
Accidents and Driver Age
Accidents and Hours Driven
Use of Seat Belts

At the time of the accident, the typical professional driver was male, between the ages of 25 and 45, and reported to be in good physical condition. Driver age appeared to have a significant impact on accident severity only when drivers were under 21 or over 64; drivers under 21 tended to be involved in accidents which produced decidedly more severe consequences than the truck driver population at large, while drivers over 64 generally experienced accidents producing less severe consequences. The majority of accidents occurred within the first four hours of vehicle operation, probably because most trips made by commercial vehicles travelling interstate were at least four hours in duration. When accidents occurred, truck drivers who had not worn seat belts were four times more likely to be killed than drivers who used their belts.

PHYSICAL CONDITION OF DRIVERS

In 9 out of 10 accidents, physical impairment of the commercial vehicle driver was not a causal factor, according to carriers' accounts of the accidents reported in 1987. As shown in Table 2-1, driver's condition just prior to the accident was reported as "apparently normal" in 96 percent of the accidents; 2 percent of the drivers were acknowledged to have "dozed at the wheel"; and less than 1 percent of the drivers were reported to have "been drinking." A very small number of drivers (8) involved in accidents were said to have been granted "waiver of certain physical defects" (49 CFR 391.49).

Table 2-1
Accidents, Fatalities, Injuries, and Property Damage
By Condition of Driver at Time of Accident

	ACCIDENTS		FATALITIES		INJURIES		PROPERTY DAMAGE	
	#	%	#	%	#	%	$	%
CONDITION OF DRIVER								
APPARENTLY NORMAL	26,469	96.3	2,784	95.8	27,039	96.5	358,426,881	94.2
SICK	56	0.2	12	0.4	42	0.1	1,067,152	0.3
HAD BEEN DRINKING	176	0.6	17	0.6	177	0.6	3,712,432	1.0
DOZED AT WHEEL	567	2.1	41	1.4	583	2.1	13,586,788	3.6
MEDICAL WAIVER	8	0.0	1	0.0	6	0.0	59,910	0.0
OTHER	173	0.6	46	1.6	145	0.5	3,266,762	0.9
CONDITION NOT RPTD.	30	0.1	6	0.2	26	0.1	518,790	0.1
TOTAL	27,479	99.9	2,907	100.0	28,018	99.9	380,638,715	100.1

In reviewing the data on driver condition, it should be noted that carrier officials actually reporting the accidents to DOT were not usually present at the accident sites to observe the conditions of their drivers firsthand. Also, police reports which could help substantiate carriers' accounts of their drivers' conditions were not routinely available to DOT analysts in 1987.

Table 2-2 reveals that persons killed or injured in commercial vehicle accidents were more likely to be non-occupants of trucks (e.g., drivers and passengers in other vehicles, bicyclists, or pedestrians) than truck occupants. In 1987, 8 out of every 10 persons killed in commercial vehicle accidents were non-occupants of the trucks; nearly 7 out of every 10 persons injured were also non-occupants.

Table 2-2
Fatalities and Injuries Among
Truck Occupants and Truck Non-Occupants

	FATALITIES		INJURIES	
	#	%	#	%
DRIVER	399	13.7	7,310	26.1
RELIEF DRIVER	39	1.3	607	2.2
OTHER AUTHORIZED TRUCK OCCUPANT	26	0.9	644	2.3
UNAUTHORIZED TRUCK OCCUPANT	32	1.1	215	0.8
PERSON NOT IN TRUCK	2,411	82.9	19,242	68.7
TOTAL	2,907	99.9	28,018	100.1

ACCIDENTS AND DRIVER AGE

Figure 2-1 breaks down total accidents by driver age. Not surprisingly, the bulk of the accidents (82 percent) involved drivers between the ages of 25 and 54, which is consistent with the age spread of most of the nation's professional drivers. Approximately 1 percent of the accidents involved drivers under 21 and over 64.

Figure 2-2 compares accident severity by driver age. In general, when driver age was between 21 and 64, age did not appear to significantly impact the severity of accidents (fatalities and injuries per

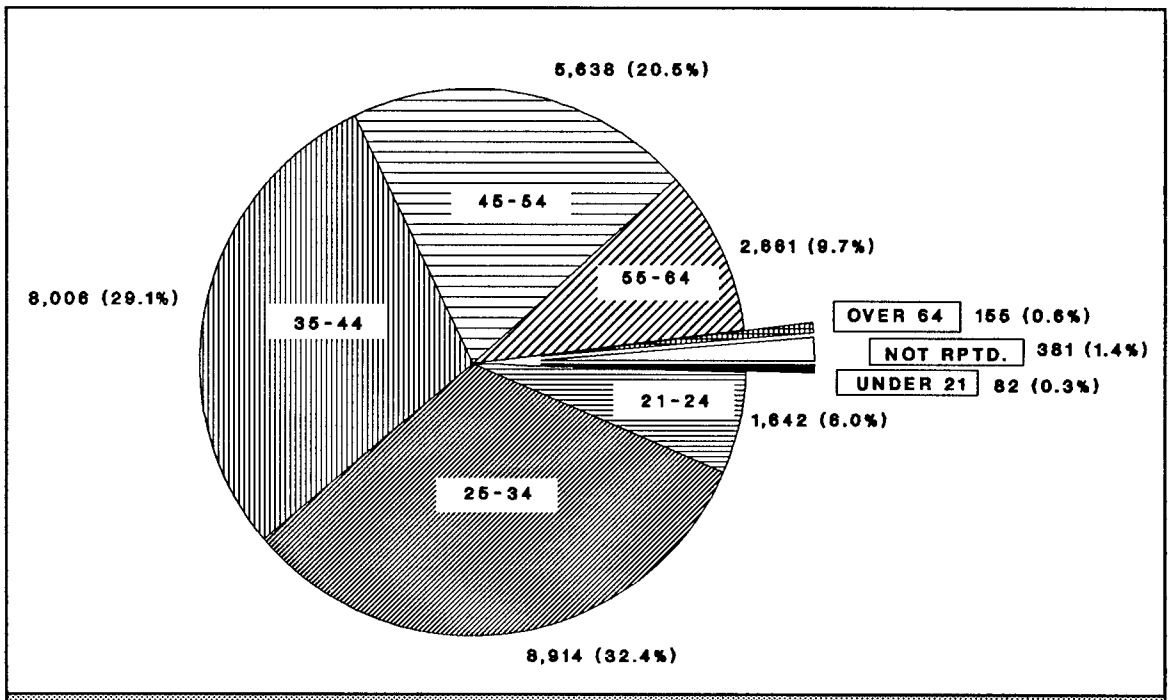

Figure 2-1
Accidents By Driver Age
(N = 27,479)

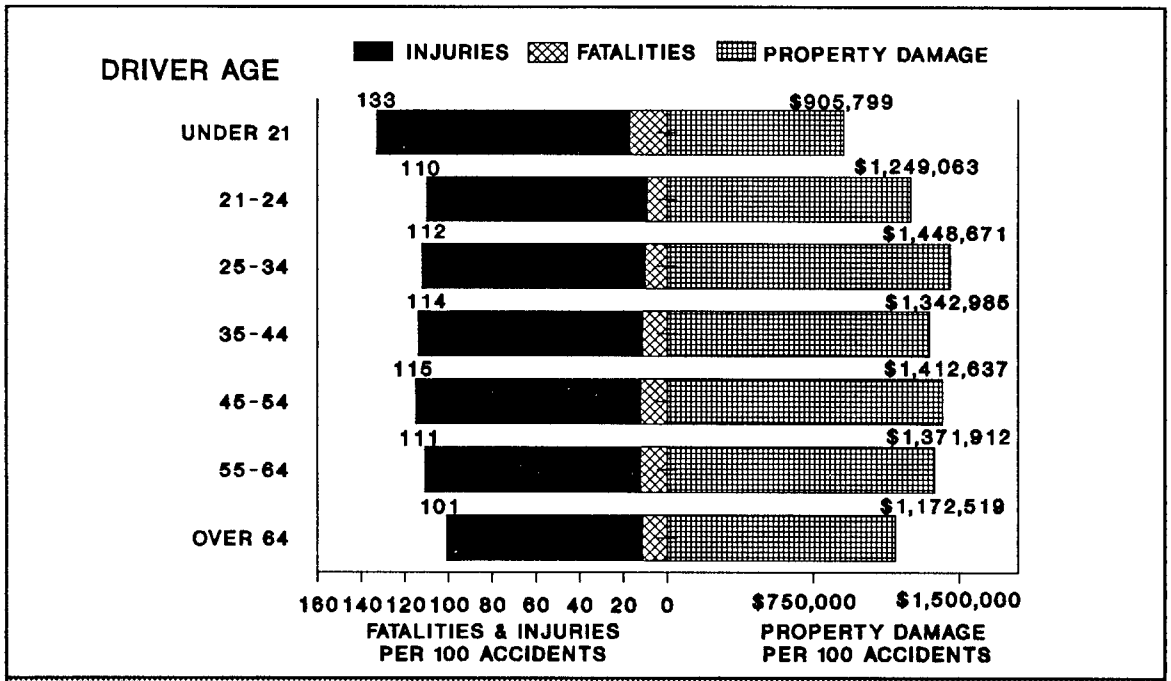

Figure 2-2
Accident Consequences
By Driver Age

100 accidents ranged from 110 for 21–24 year olds to 115 for 45–54 year olds). In contrast, accidents involving drivers under 21 were consistently *more severe* (producing 133 fatalities and injuries per 100 accidents), while drivers over 64 tended to be involved in *less severe* accidents (producing only 101 fatalities and injuries per 100 accidents). Hypotheses accounting for the marked disparity in accident severity experienced by very young and very old drivers were not tested for the 1987 data. It should be noted, however, that drivers under 21 were generally prohibited from operating commercial vehicles subject to Federal regulation (see 49 CFR 391.2 and 391.67, for exceptions).

The 1987 data, viewed in isolation, do not reveal whether drivers in some age groups are more accident-prone than drivers in other groups. To make such a determination, data on accident occurrences by age group would need to be examined in relation to the total number of drivers within each age category.

ACCIDENTS AND HOURS DRIVEN

As driving time increased, total accidents reported declined (Figure 2-3). Hence, 30 percent of all accidents occurred within 1–2 hours after the last eight-hour period off-duty, 24 percent within 3–4 hours, 19 percent within 5–6 hours, etc.

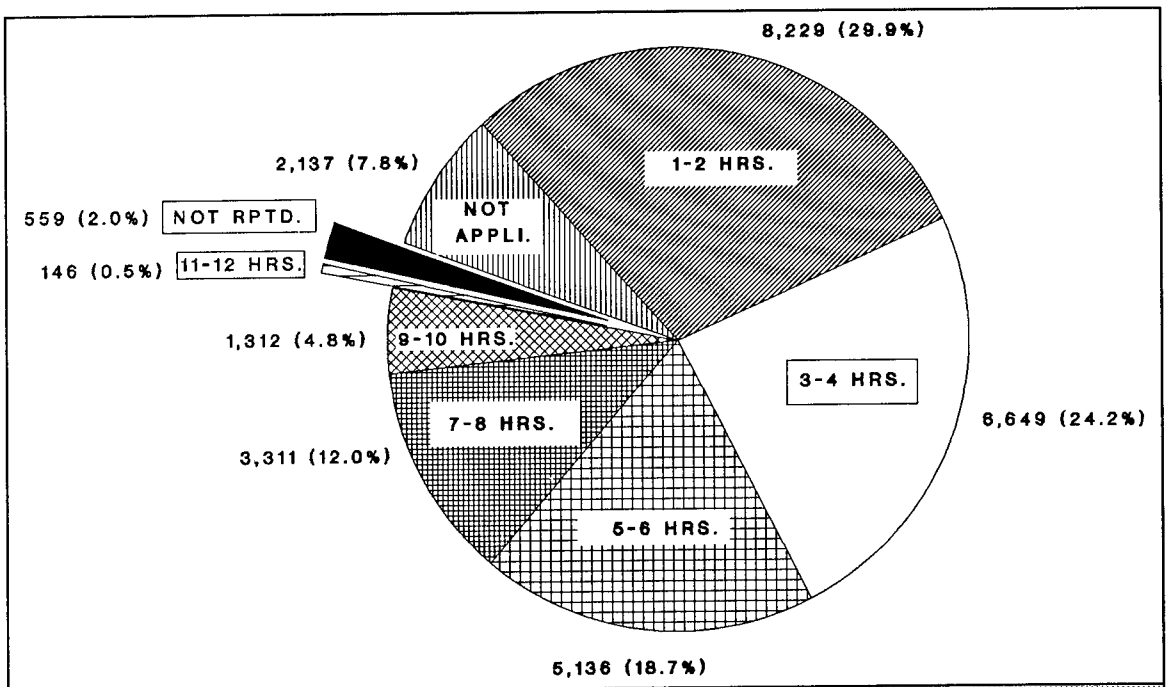

Figure 2-3
Accidents By Hours Driven Since Last Off Duty
(N = 27,479)

This pattern is not surprising since there were more vehicles still on the road 1–2 hours after the last off-duty period than there were, say, 11–12 hours after the last off-duty period. Consequently, the probability of a single accident happening after 1–2 hours was greater than after 11–12 hours.

Accidents were included in the "Not Applicable" category (Figure 2-3) if the last eight hours off-duty were accumulated in two separate rest periods (49 CFR 394.20(a), Item 11E).

Figure 2-4 compares the effect of hours driven on accident severity. In general, hours driven after the last rest period did not have a dramatic impact on fatalities and injuries, although there was a marginal increase in the number of fatalities experienced as hours driven rose (from 9 deaths per 100 accidents after 1–2 hours of driving to 12 deaths per 100 accidents after 11–12 hours of driving). The impact of hours driven on property damage, however, was more pronounced – property damage per 100 accidents increased over 50 percent if the accident occurred when the driver had been operating for 11–12 hours instead of 1–2 hours. This increase may be partially explained by the escalation in non-collision accidents experienced as hours driven increased, particularly after the tenth hour (Table 2-3). Non-collision accidents tended to result in higher levels of property damage than collision accidents (see Chapter 1).

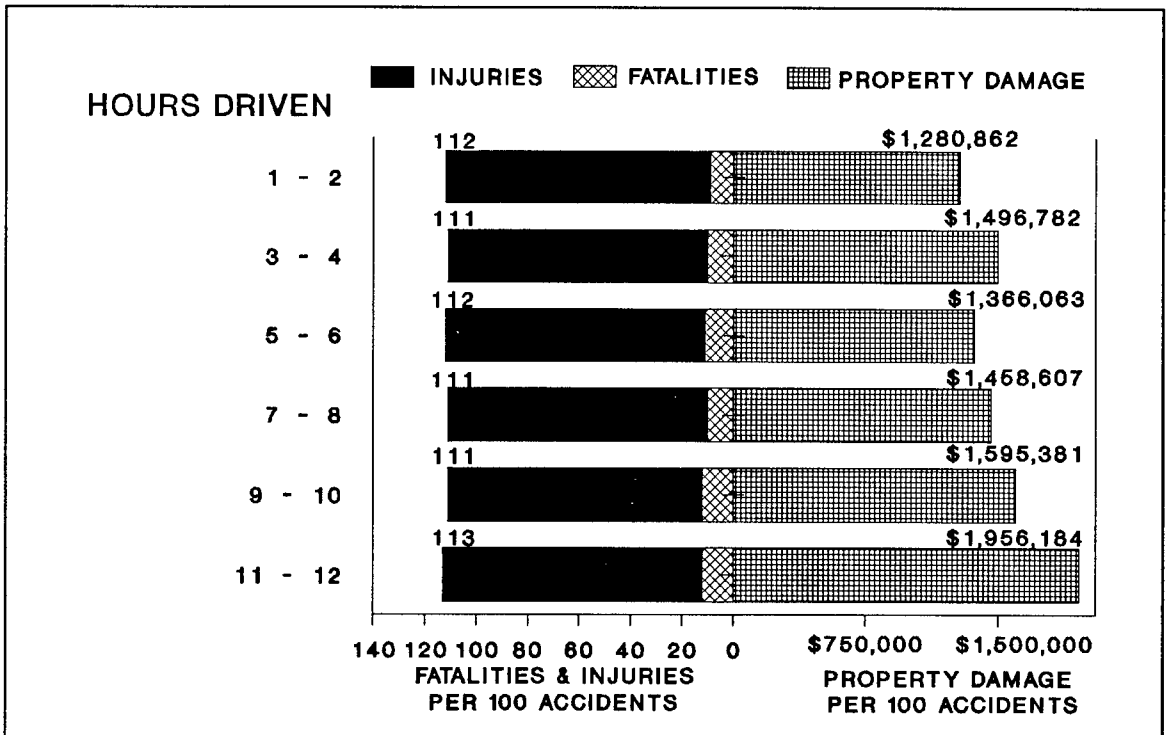

Figure 2-4
Accident Consequences
By Hours Driven

Table 2-3
Accident Type
By Hours Driven

	COLLISION ACCIDENTS		NON-COLLISION ACCIDENTS		NOT REPORTED		TOTAL ACCIDENTS	
	#	%	#	%	#	%	#	%
HOURS DRIVEN								
1-2 HOURS	6,483	78.8	1,746	21.2	0	0.0	8,229	100.0
3-4 HOURS	5,224	78.6	1,423	21.4	2	0.0	6,649	100.0
5-6 HOURS	3,973	77.4	1,162	22.6	1	0.0	5,136	100.0
7-8 HOURS	2,544	76.8	767	23.2	0	0.0	3,311	100.0
9-10 HOURS	992	75.6	320	24.4	0	0.0	1,312	100.0
11-12 HOURS	97	66.4	49	33.6	0	0.0	146	100.0
NOT APPLICABLE	1,668	78.1	469	21.9	0	0.0	2,137	100.0
HOURS NOT RPTD.	402	71.9	157	28.1	0	0.0	559	100.0
TOTAL	21,383	77.8	6,093	22.2	3	0.0	27,479	100.0

USE OF SEAT BELTS

While 98 percent of the commercial vehicles involved in reported accidents in 1987 were equipped with seat belts – and while use of seat belts by commercial drivers was mandated by Federal regulation (49 CFR 392.16) – belts were not worn in at least 18 percent of the accidents, according to the carrier officials who reported the accidents (Figure 2-5). The impact of not wearing seat belts was straightforward – truck drivers who did not use the belts were four times more likely to be killed, and 50 percent more likely to be injured, than drivers who used their belts (Figure 2-6).

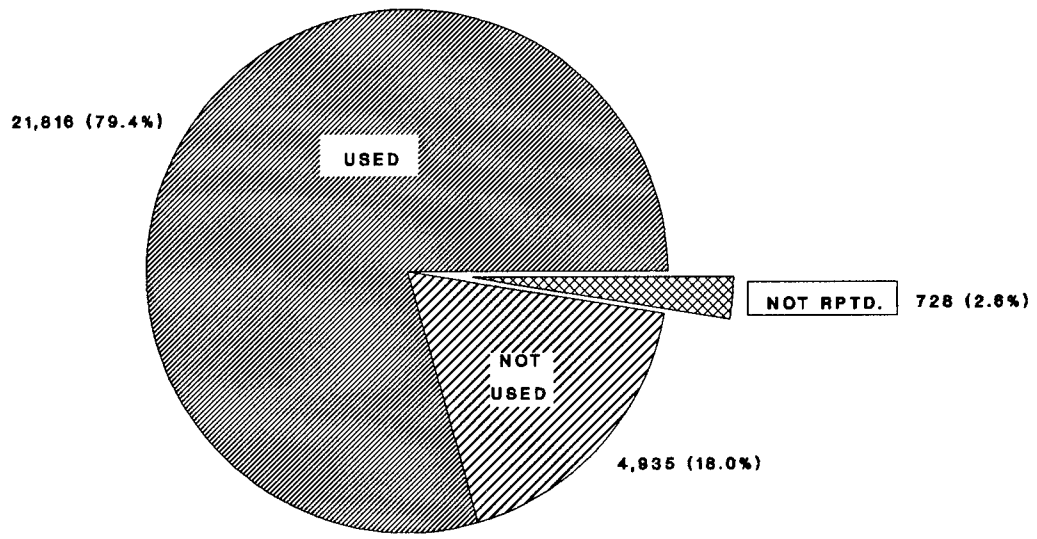

Figure 2-5
Seat Belt Usage
In Accidents
(N = 27,479)

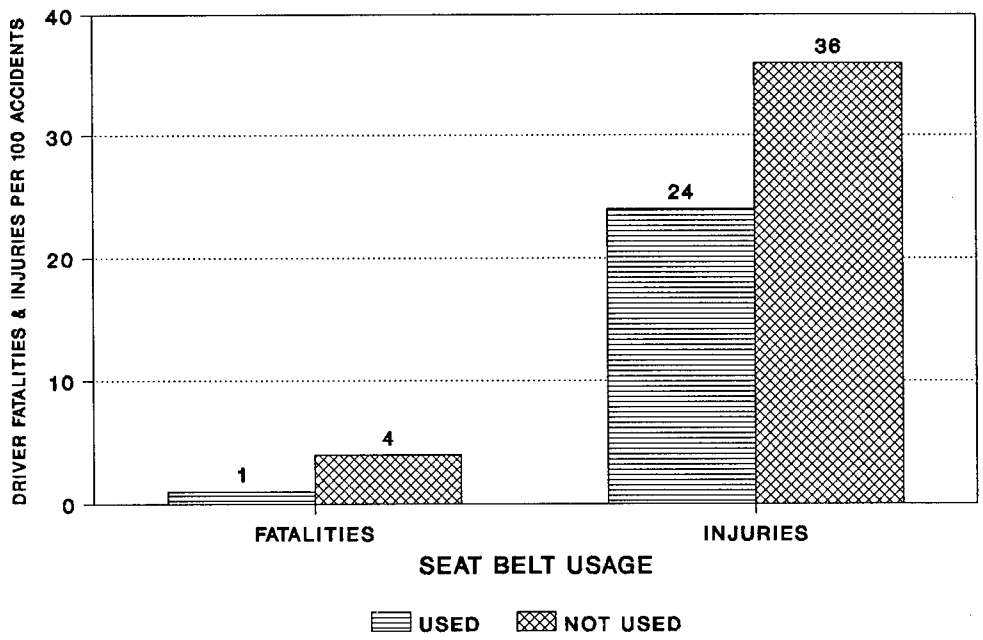

Figure 2-6
Driver Fatalities and Injuries
By Seat Belt Usage

Chapter 3 THE VEHICLE

Vehicle Type and Length
Gross Vehicle Weight
Cargo Types
Hazardous Materials
Mechanical Defects

The typical commercial vehicle involved in reportable accidents was a tractor-semitrailer. The vehicle was between 55 and 65 feet long, had a gross vehicle weight between 45,000 and 80,000 pounds, and was hauling "general freight" at the time of the accident. The average accident involving the typical vehicle resulted in excess of one death or injury. Vehicle defects were rarely cited as the cause of the accident. When defects were acknowledged, however, brake and wheel/tire failures were most often said to have been the problem.

VEHICLE TYPE AND LENGTH

Seventy-nine percent of all accidents reported in 1987 involved the tractor-semitrailer configuration (Table 3-1). These accidents accounted for 81 percent of all fatalities, 78 percent of the injuries, and 84 percent of the property damage reported during the year. In contrast, single-unit trucks accounted for just over 10 percent of all accidents. The tractor-semitrailer-full trailer configuration was involved in 5 percent of the accidents.

Table 3-2 summarizes the variance in total accidents and accident consequences by vehicle length. Three out of every 5 accidents (60.1 percent) involved vehicles between 55 and 64 feet in length, and 1 out of 4 (25 percent) accidents involved vehicles under 55 feet. Vehicle configurations in excess of 64 feet accounted for only 1 in 7 accidents (13.8 percent).

Figure 3-1 examines the relationship between the length of commercial vehicles involved in accidents and accident severity. Interestingly, shorter vehicles tended to be involved in accidents which produced the highest fatality/injury ratios.

Table 3-1
Accidents, Fatalities, Injuries, and Property Damage
By Vehicle Configuration

	ACCIDENTS		FATALITIES		INJURIES		PROPERTY DAMAGE	
	#	%	#	%	#	%	$	%
VEHICLE CONFIGURATION								
TRUCK	2,813	10.2	246	8.5	3,323	11.9	21,515,960	5.7
TRUCK-FULL TRAILER	311	1.1	29	1.0	266	0.9	3,588,595	0.9
TRUCK-OTHER	63	0.2	4	0.1	46	0.2	691,789	0.2
TRACTOR	1,113	4.1	100	3.4	1,276	4.6	10,145,429	2.7
TRACTOR-SEMITRAILER	21,703	79.0	2,350	80.8	21,712	77.5	320,097,271	84.1
TRACTOR-SEMI-FULL	1,323	4.8	167	5.8	1,257	4.5	22,489,136	5.9
TRACTOR-SEMI-FL-FL*	52	0.2	1	0.0	41	0.1	913,489	0.2
TRACTOR-OTHER	38	0.1	3	0.1	45	0.2	498,786	0.1
OTHER	59	0.2	7	0.2	49	0.2	656,442	0.2
CONFIG. NOT RPTD.	4	0.0	0	0.0	3	0.0	41,818	0.0
TOTAL	27,479	99.9	2,907	99.9	28,018	100.1	380,638,715	100.0

*FL = FULL

Table 3-2
Accident Class Totals
By Vehicle Length

	FATAL ACCIDENTS		INJURY ACCIDENTS		PROPERTY DAMAGE ACCIDENTS		TOTAL ACCIDENTS	
	#	%	#	%	#	%	#	%
VEHICLE LENGTH								
UNDER 20 FEET	104	4.3	1,143	6.8	317	3.8	1,564	5.7
20 - 34 FEET	153	6.3	1,360	8.1	463	5.6	1,976	7.2
35 - 49 FEET	124	5.1	925	5.5	406	4.9	1,455	5.3
50 - 54 FEET	225	9.3	1,147	6.9	508	6.1	1,880	6.8
55 - 59 FEET	878	36.4	5,898	35.2	2,832	34.0	9,608	35.0
60 - 64 FEET	553	22.9	3,996	23.9	2,358	28.3	6,907	25.1
65 - 69 FEET	274	11.4	1,651	9.9	1,077	12.9	3,002	10.9
OVER 69 FEET	69	2.9	438	2.6	290	3.5	797	2.9
LENGTH NOT RPTD.	30	1.2	176	1.1	84	1.0	290	1.1
TOTAL	2,410	99.8	16,734	100.0	8,335	100.1	27,479	100.0

GROSS VEHICLE WEIGHT

The gross vehicle weight (GVW) of commercial vehicles involved in accidents reported in 1987 ranged from under 10,000 pounds to more than 80,000 pounds. Table 3-3 shows that nearly 32 percent of all accidents involved vehicles having GVWs between 62,500 and 80,000 pounds; another 23 percent involved GVWs between 27,500 and 45,000 pounds. The data do not reveal whether vehicles in these two weight categories were actually more accident prone, or whether the majority of commercial vehicles (when loaded) fell into these weight categories anyway, and thus would be expected to be involved in a disproportionate number of total accidents.

There appears to be an inverse relationship between GVW and accident fatalities and injuries. In 1987, as GVW increased, the fatality/injury ratio decreased (see Figure 3-2). For instance, accidents involving commercial vehicles with GVWs over 80,000 pounds resulted in 19 percent fewer fatalities/injuries (106 per 100 accidents) than accidents of vehicles under 10,000 pounds (131 per 100 accidents).

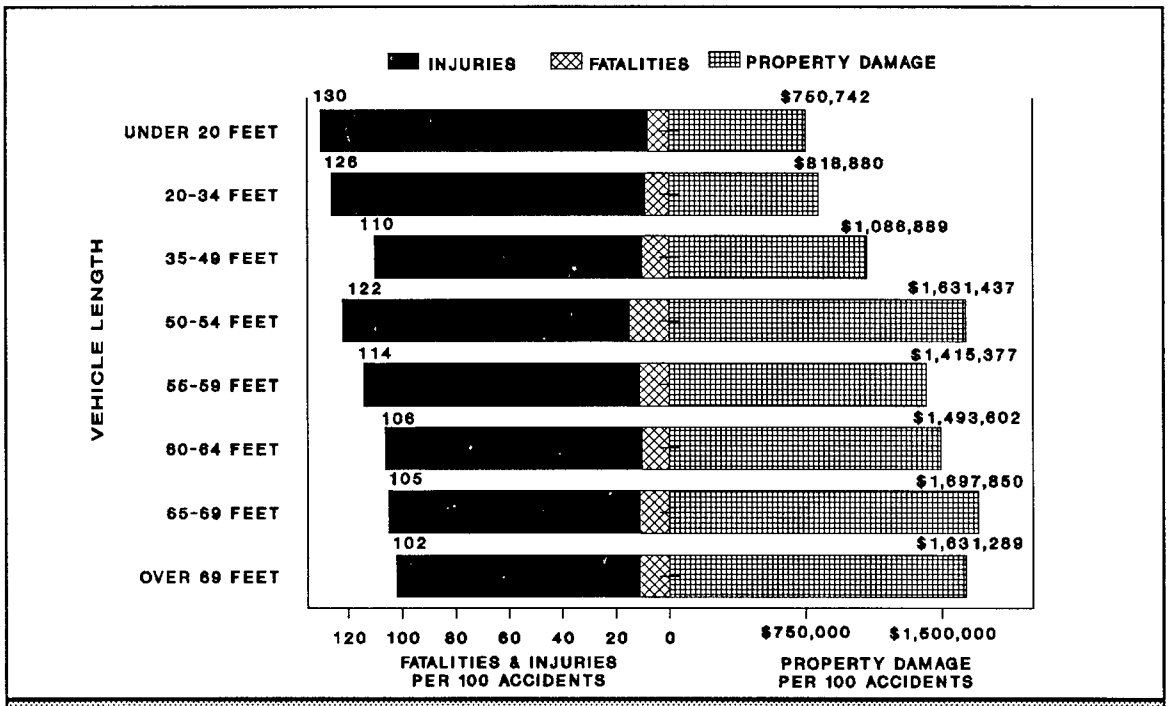

Figure 3-1
Accident Consequences
By Vehicle Length

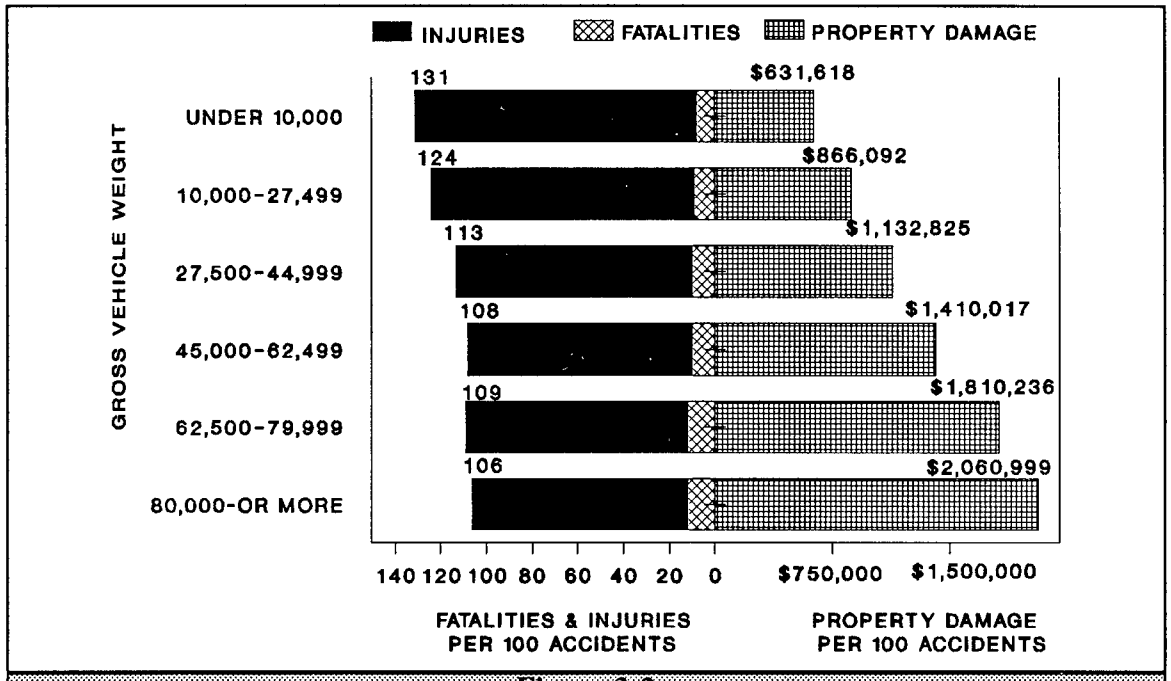

Figure 3-2
Accident Consequences
By Gross Vehicle Weight

Table 3-3
Accident Class Totals
By Gross Vehicle Weight

	FATAL ACCIDENTS		INJURY ACCIDENTS		PROPERTY DAMAGE ACCIDENTS		TOTAL ACCIDENTS	
	#	%	#	%	#	%	#	%
GROSS VEHICLE WEIGHT IN LBS.								
UNDER 10,000	62	2.6	749	4.5	197	2.4	1,008	3.7
10,000-27,499	264	11.0	2,535	15.1	858	10.3	3,657	13.3
27,500-44,999	532	22.1	3,843	23.0	1,948	23.4	6,323	23.0
45,000-62,499	334	13.9	2,271	13.6	1,320	15.8	3,925	14.3
62,500-79,999	868	36.0	5,052	30.2	2,853	34.2	8,773	31.9
80,000 OR MORE	146	6.1	850	5.1	532	6.4	1,528	5.6
WEIGHT NOT RPTD.	204	8.5	1,434	8.6	627	7.5	2,265	8.2
TOTAL	2,410	100.2	16,734	100.1	8,335	100.0	27,479	100.0

CARGO TYPES

Table 3-4 displays accident class totals by cargo type. In 1987, 32 percent of the commercial vehicles involved in reported accidents were carrying "general freight" at the time of the accidents; 21 percent of the vehicles were empty. Accident class totals, when examined by cargo type, tended to mirror the percentage breakdown of total accidents by cargo type. For example, "household goods" were involved in 3.2 percent of all accidents and 2.5, 3.0, and 3.8 percent of all fatal, injury, and property damage accidents, respectively.

When accidents did occur, the likelihood that these accidents would result in fatalities appeared to vary by cargo classification (Table 3-5). For instance,

Table 3-4
Accident Class Totals
By Cargo Classification

	FATAL ACCIDENTS		INJURY ACCIDENTS		PROPERTY DAMAGE ACCIDENTS		TOTAL ACCIDENTS	
	#	%	#	%	#	%	#	%
CARGO CLASSIFICATION								
GENERAL FREIGHT	686	28.5	5,333	31.9	2,718	32.6	8,737	31.8
HOUSEHOLD GOODS	60	2.5	501	3.0	319	3.8	880	3.2
METAL PRODUCTS	160	6.6	734	4.4	372	4.5	1,266	4.6
HEAVY MACHINERY	25	1.0	227	1.4	200	2.4	452	1.6
MOTOR VEHICLES	21	0.9	228	1.4	187	2.2	436	1.6
DRIVEAWAY-TOWAWAY	2	0.1	24	0.1	14	0.2	40	0.1
GASES IN BULK	11	0.5	55	0.3	32	0.4	98	0.4
SOLIDS IN BULK	60	2.5	316	1.9	153	1.8	529	1.9
LIQUIDS IN BULK	124	5.1	763	4.6	325	3.9	1,212	4.4
EXPLOSIVES	3	0.1	11	0.1	10	0.1	24	0.1
LOGS/POLES/LUMBER	59	2.4	342	2.0	171	2.1	572	2.1
EMPTY	470	19.5	3,661	21.9	1,719	20.6	5,850	21.3
REFRIGERATED FOODS	190	7.9	996	6.0	597	7.2	1,783	6.5
MOBILE HOME	5	0.2	33	0.2	28	0.3	66	0.2
FARM PRODUCTS	57	2.4	243	1.5	154	1.8	454	1.7
OTHER	471	19.5	3,241	19.4	1,327	15.9	5,039	18.3
CARGO NOT RPTD.	6	0.2	26	0.2	9	0.1	41	0.1
TOTAL	2,410	99.9	16,734	100.3	8,335	99.9	27,479	99.9

Table 3-5
Percent Fatal Accidents
By Cargo Classification

CARGO CLASSIFICATION	FATAL ACCIDENTS	TOTAL ACCIDENTS	% FATAL ACCIDENTS
GENERAL FREIGHT	686	8,737	7.9
HOUSEHOLD GOODS	60	880	6.8
METAL PRODUCTS	160	1,266	12.6
HEAVY MACHINERY	25	452	5.5
MOTOR VEHICLES	21	436	4.8
DRIVEAWAY-TOWAWAY	2	40	5.0
GASES IN BULK	11	98	11.2
SOLIDS IN BULK	60	529	11.3
LIQUIDS IN BULK	124	1,212	10.2
EXPLOSIVES	3	24	12.5
LOGS/POLES/LUMBER	59	572	10.3
EMPTY	470	5,850	8.0
REFRIGERATED FOODS	190	1,783	10.7
MOBILE HOME	5	66	7.6
FARM PRODUCTS	57	454	12.6
OTHER	471	5,039	9.3
CARGO NOT RPTD.	6	41	14.6
TOTAL	2,410	27,479	8.8

commercial vehicles transporting metal products, farm products, or explosives were involved in accidents which produced fatalities 13 percent of the time. In contrast, commercial vehicles carrying other motor vehicles, driveaways/towaways, or heavy machinery were involved in accidents which resulted in fatalities only 5–6 percent of the time.

HAZARDOUS MATERIALS

Less than 5 percent of the accidents reported during 1987 involved commercial vehicles transporting hazardous materials, as defined by the *Hazardous Materials Regulations* (49 CFR 170 – 177). Table 3-6 shows that accidents in which hazardous materials were present resulted in 158 fatalities, 1,292 injuries, and property damage estimated at $29,436,518. Nearly all the reported accidents involved for-hire carriers – private carriers reported only 11 accidents in which hazardous materials were present.

Figure 3-3 compares the proportion of 1987 accidents, fatalities, injuries, and property damage involving hazardous materials.

Table 3-6
Accidents, Fatalities, Injuries, and Property Damage
Involving Hazardous Materials By Carrier Type

	ACCIDENTS		FATALITIES		INJURIES		PROPERTY DAMAGE	
CARRIER TYPE	#	%	#	%	#	%	$	%
FOR-HIRE	1,264	98.8	154	97.5	1,282	99.2	28,944,018	98.3
PRIVATE	11	0.9	4	2.5	8	0.6	262,500	0.9
TYPE NOT RPTD.	4	0.3	0	0.0	2	0.2	230,000	0.8
TOTAL	1,279	100.0	158	100.0	1,292	100.0	29,436,518	100.0

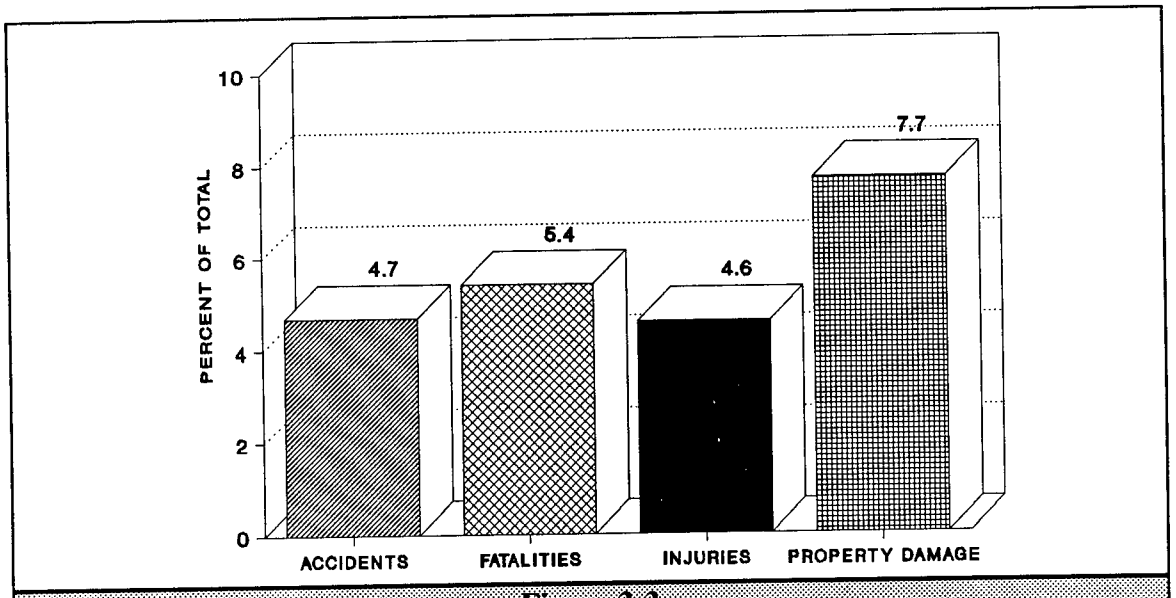

Figure 3-3
Hazardous Materials Accidents as a Percent of Total Accidents, Fatalities, Injuries, and Property Damage

MECHANICAL DEFECTS

Less than 4 percent of all carriers reporting accidents during 1987 said that their vehicles exhibited mechanical defects or failures at the time of the accidents (Figure 3-4). Figure 3-5 indicates that when mechanical defects were cited, brake failures were most often said to be the cause of the accidents (31 percent), followed by problems with wheels and tires (22 percent).

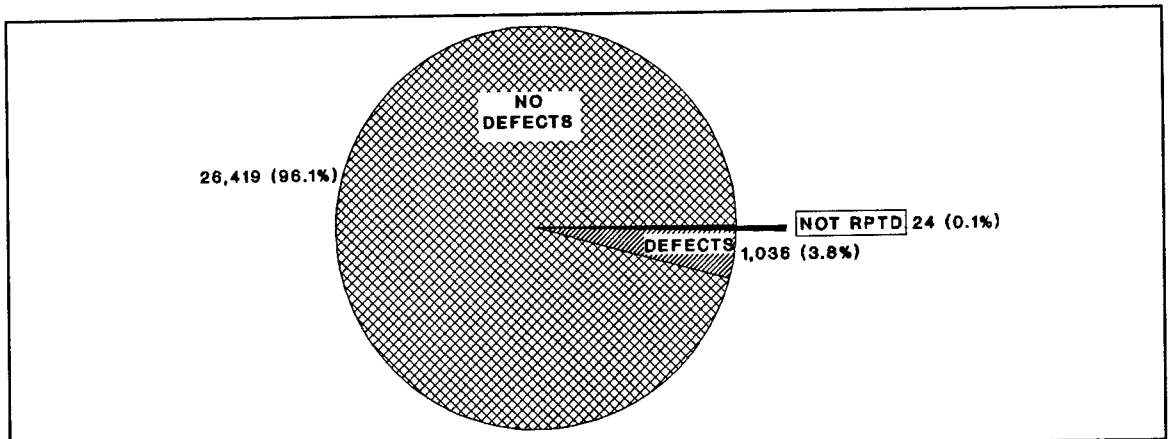

Figure 3-4
Presence of Mechanical Defects In Accidents (N=27,479)

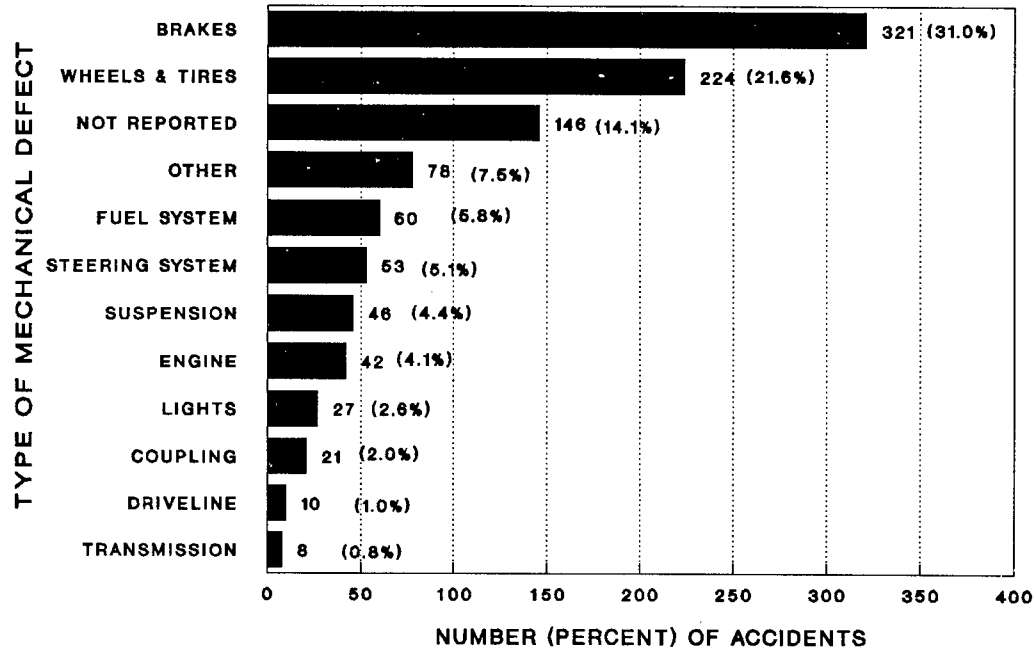

Figure 3-5
Accidents Involving Defects
By Type of Defect
(N = 1,036)

Chapter 4 THE ACCIDENT SETTING

Accident Locale
Environmental Conditions
Time of Day
Day of Week and Month of Year

The typical accident occurred in the autumn or early winter, on a weekday afternoon. At the time of the accident, weather and road conditions were favorable. The accident happened while the truck was travelling on a divided highway through a rural district. When the accident occurred, the truck driver was probably not seriously hurt, but one person not in the truck was injured or, even occasionally, killed.

ACCIDENT LOCALE

Figure 4-1 shows that a larger proportion of the commercial vehicle accidents reported in 1987 occurred in rural districts (58 percent) than in business districts (35 percent). Table 4-1 similarly indicates that more accidents happened on divided highways (53 percent) than on undivided highways (43 percent).

Table 4-1 also reveals that nearly equal numbers of fatal accidents occurred on divided and undivided highways. However, accidents, when they occurred, were more likely to be fatal on undivided highways than on divided highways. In 1987, 10 percent of all commercial vehicle accidents on undivided highways were fatal; only 8 percent of the accidents on divided highways were fatal.

Six percent of the reported accidents occurred on expressway entrance and exit ramps (Table 4-2). Whereas nearly 9 percent of all commercial vehicle accidents were fatal, only 5 percent of all ramp accidents were fatal. Hence, ramp accidents were 42 percent less likely to generate fatalities than commercial vehicle accidents generally.

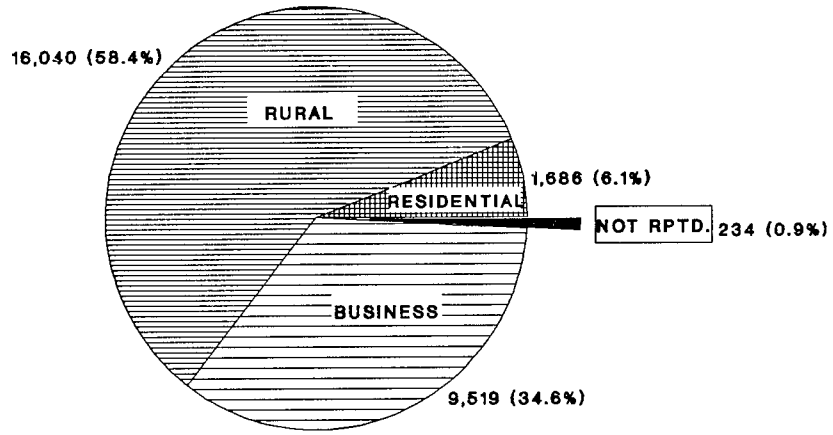

Figure 4-1
Accidents By Land Use
(N=27,479)

Table 4-1
Accident Class Totals
By Highway Type

	FATAL ACCIDENTS		INJURY ACCIDENTS		PROPERTY DAMAGE ACCIDENTS		TOTAL ACCIDENTS	
	#	%	#	%	#	%	#	%
HIGHWAY TYPE								
DIVIDED	1,175	48.8	9,075	54.2	4,274	51.3	14,524	52.9
UNDIVIDED	1,166	48.4	7,119	42.5	3,416	41.0	11,701	42.6
TYPE NOT RPTD.	69	2.9	540	3.2	645	7.7	1,254	4.6
TOTAL	2,410	100.1	16,734	99.9	8,335	100.0	27,479	100.1

Table 4-2
Expressway Ramp Accidents

	FATAL ACCIDENTS		INJURY ACCIDENTS		PROPERTY DAMAGE ACCIDENTS		TOTAL ACCIDENTS	
	#	%	#	%	#	%	#	%
ENTRANCE RAMP	45	5.4	514	61.3	280	33.4	839	100.1
EXIT RAMP	42	4.8	568	64.5	270	30.7	880	100.0
TOTAL RAMP	87	5.1	1,082	62.9	550	32.0	1,719	100.0
ALL ACCIDENTS	2,410	8.8	16,734	60.9	8,335	30.3	27,479	100.0

ENVIRONMENTAL CONDITIONS

Figure 4-2 examines the relationship between weather, road surface, and light conditions. When a carrier reported rain, snow, sleet, fog, or smog at the time of the accident, the weather conditions were classified as "unfavorable." Similarly, when a carrier characterized roads as wet, snowy, or icy, road surface condi-

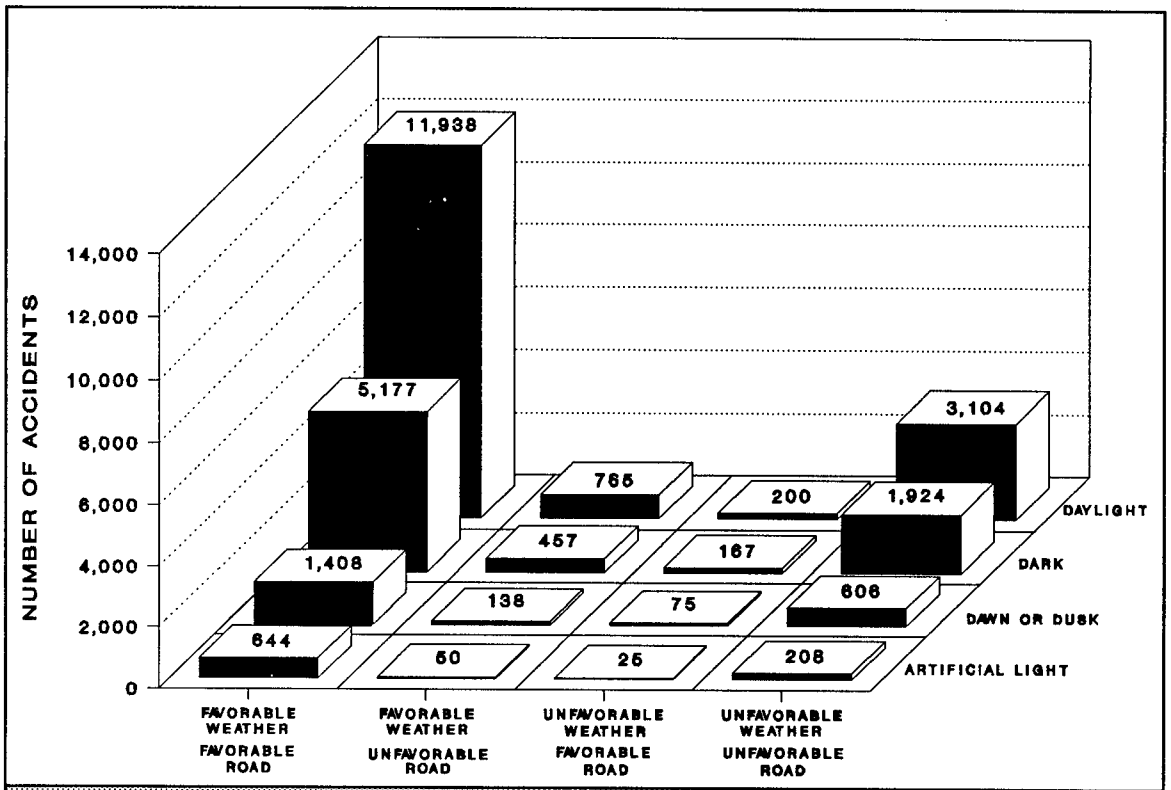

Figure 4-2
Total Accidents
By Light, Weather, and Road Conditions
(N = 26,886)

tions were classified as "unfavorable."

Of all the commercial vehicle accidents reported in 1987, 60 percent occurred in daylight, 29 percent in the dark, 8 percent at dawn or dusk, and 3 percent under artificial light. Approximately 7 out of every 10 accidents occurred under favorable weather/favorable road conditions. In fact, more than 4 out of every 10 reported accidents took place in daylight under favorable weather/favorable road conditions.

Figure 4-3 compares accident consequences generated during daylight under favorable weather/favorable road conditions to those produced in the dark under unfavorable weather/unfavorable road conditions. Interestingly, accidents which occurred under ideal environmental conditions resulted in more fatalities/injuries (113 per 100 accidents) than did accidents which happened under adverse conditions (101 per 100 accidents). Was this because drivers were more cautious—and drove slower—under adverse environmental conditions so that accidents, even when they occurred, were less severe? Or was it simply that there was less traffic on the highways—and consequently fewer opportunities for collisions—when environmental conditions were poorest? In examining these data, it should be remembered that

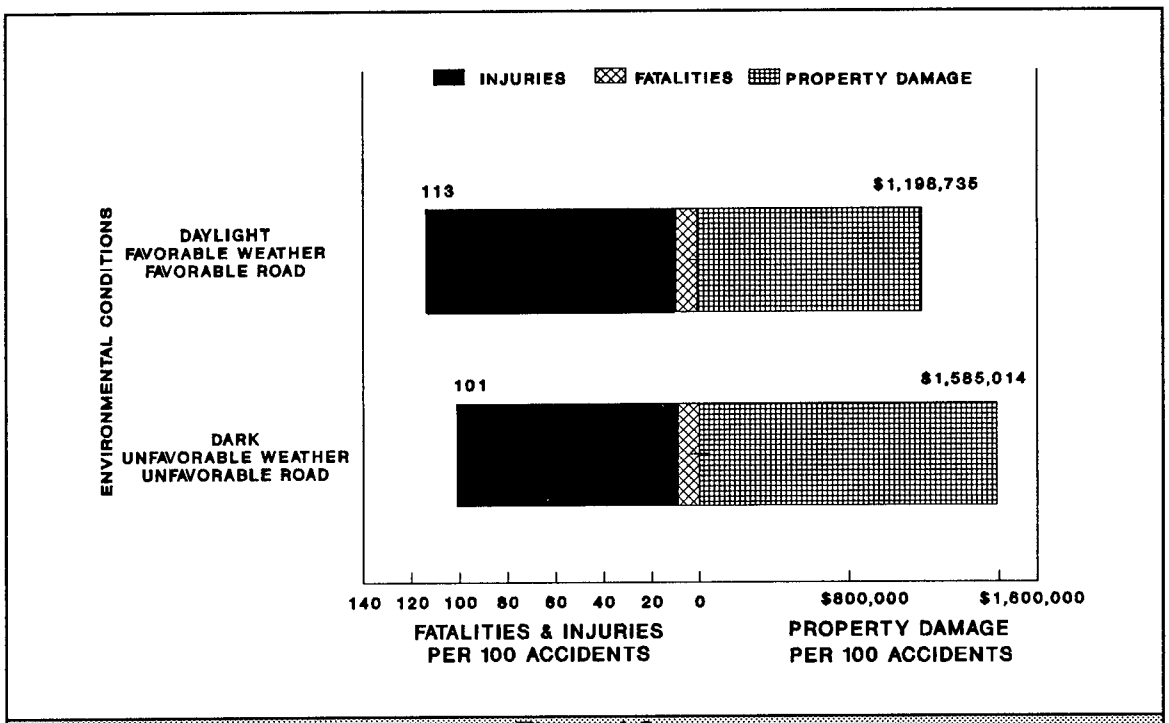

Figure 4-3
Accident Consequences
By Environmental Conditions

they are based on the environmental conditions occurring at the time of the accidents, as reported by the carriers themselves. There is, of course, the possibility that reports of favorable weather/favorable road conditions were exaggerated, given that the *FMCSR* (49 CFR 392.14) specifically prohibit the operation of commercial vehicles under "sufficiently dangerous" conditions.

TIME OF DAY

Two out of every 3 commercial vehicle accidents reported in 1987 occurred between 6 a.m. and 7 p.m., the hours during which traffic normally flowed its heaviest. The fewest accidents occurred during the evening hours, 7 to 10 p.m.

Figures 4-4 through 4-6 compare accident experience by time of day. On weekdays, total accidents appeared to fluctuate with the general flow of traffic, peaking at 10 a.m. and again at 2 to 4 p.m. (Figure 4-4); not surprisingly, counts of weekend accidents showed less variability, regardless of time of day. Collision accidents (Figure 4-5) peaked between 2 and 5 p.m., whereas the largest number of non-collision accidents within a single time period happened in the morning, 5 to 6 a.m. Accidents involving vehicles travelling over-the-road (Figure 4-6) tended to occur at any time, day or night, perhaps reflecting the round-the-clock orientation of long-distance haulers; in contrast, most accidents involving vehicles transporting goods locally happened during the day, 7 a.m. to 7 p.m.

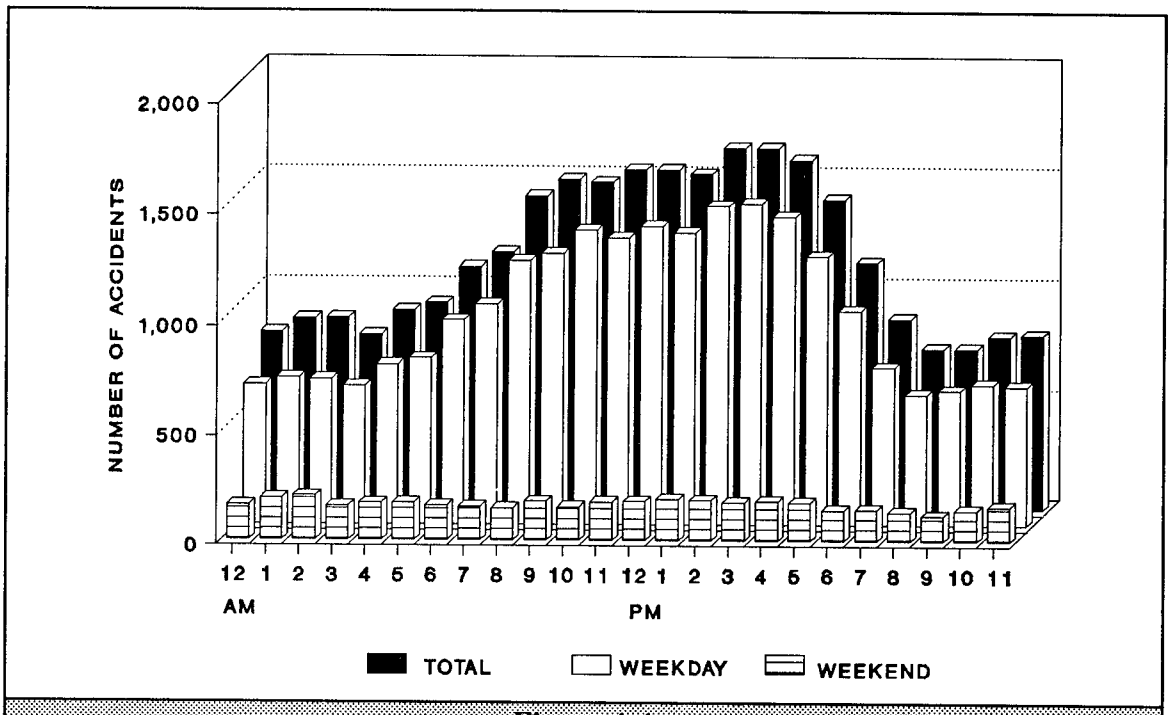

Figure 4-4
Accidents By Time and Type of Day
(N = 27,479)

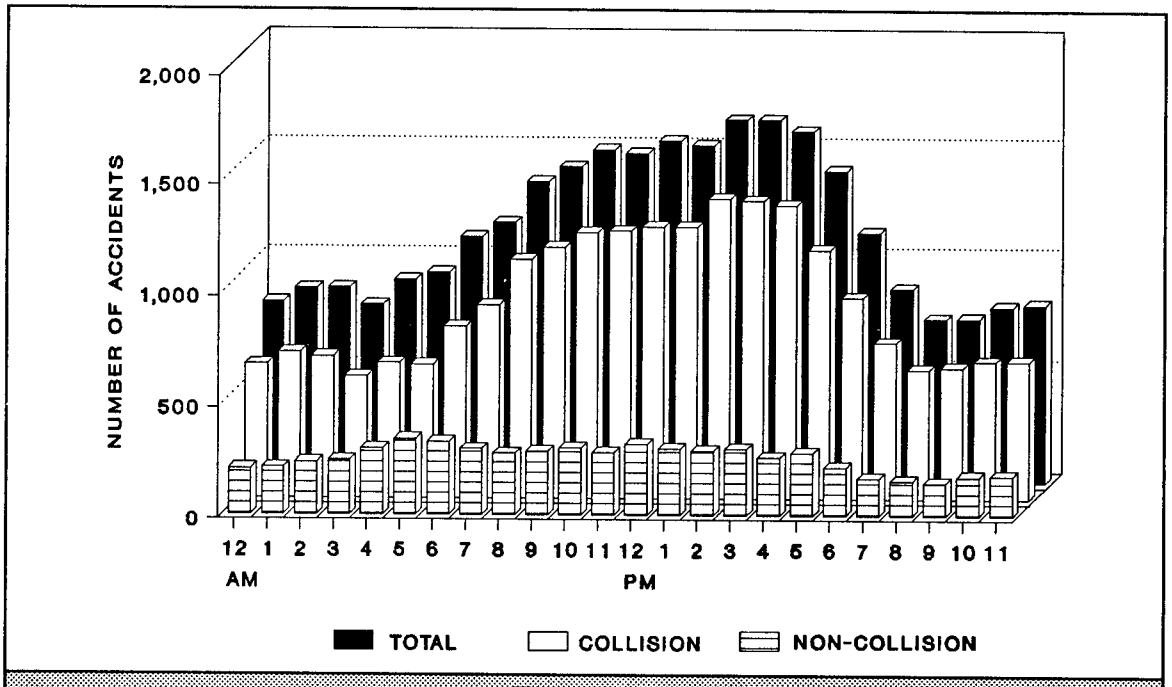

Figure 4-5
Accidents By Time of Day and Accident Type
(N = 27,479)

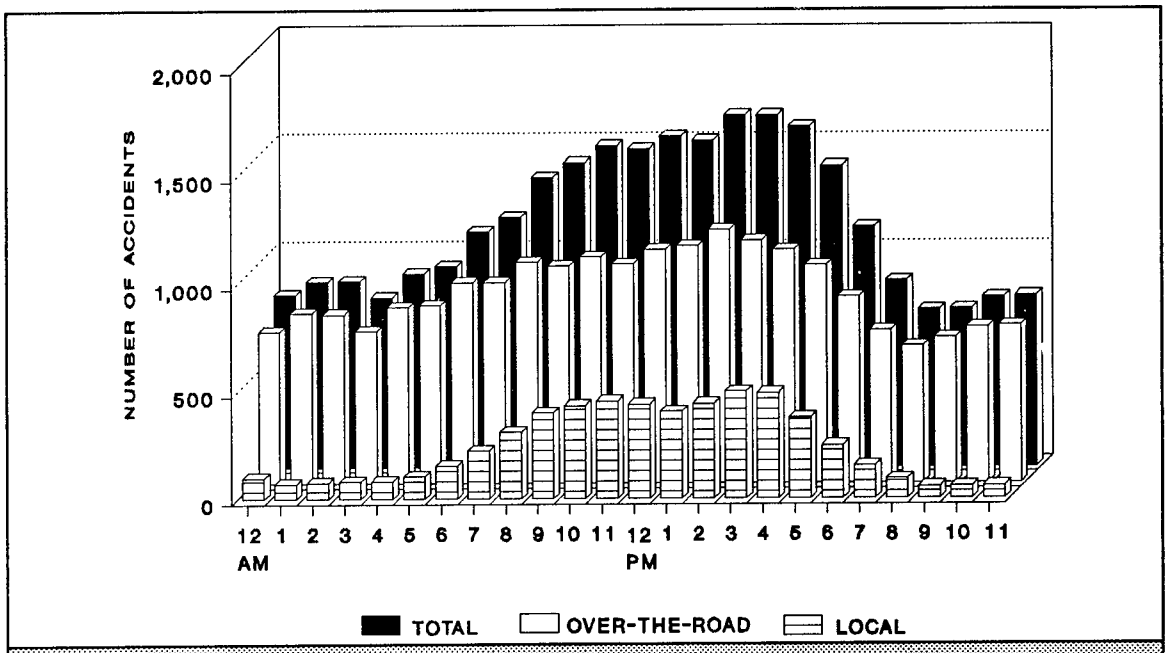

Figure 4-6
Accidents By Time of Day and Trip Type
(N = 27,479)

Figure 4-7 examines fatalities/injuries for truck occupants and truck non-occupants by time of day. In general, the data show that truck occupants were most likely to be killed or injured in accidents which occurred during the predawn hours. For instance, truck drivers were 55 percent more likely to be killed or injured in accidents which happened between 1 and 6 a.m. than between 1 and 6 p.m. The pattern for truck non-occupants was different: persons not in the truck at the time of the accident were killed or injured at a rate 30 percent higher between 1 and 6 p.m. than between 1 and 6 a.m.

Given that truck occupants were most likely to be killed or injured in accidents which occurred in the predawn hours, one might surmise that nighttime accidents would have been even more severe if the traffic flow during those hours had been heavier.

DAY OF WEEK AND MONTH OF YEAR

Figures 4-8 and 4-9 compare the percentages of 1987 accidents by day of week and month of year, respectively. As expected, considerably fewer accidents involving commercial vehicles occurred on Saturdays and Sundays than on other days of the week (Figure 4-8). Also, the greatest numbers of accidents were reported for the months of January, October, November, and December; the fewest accidents occurred in February, March, April, and May (Figure 4-9).

Table 4-3 displays total accidents, fatalities, injuries, and property damage by carrier type and month.

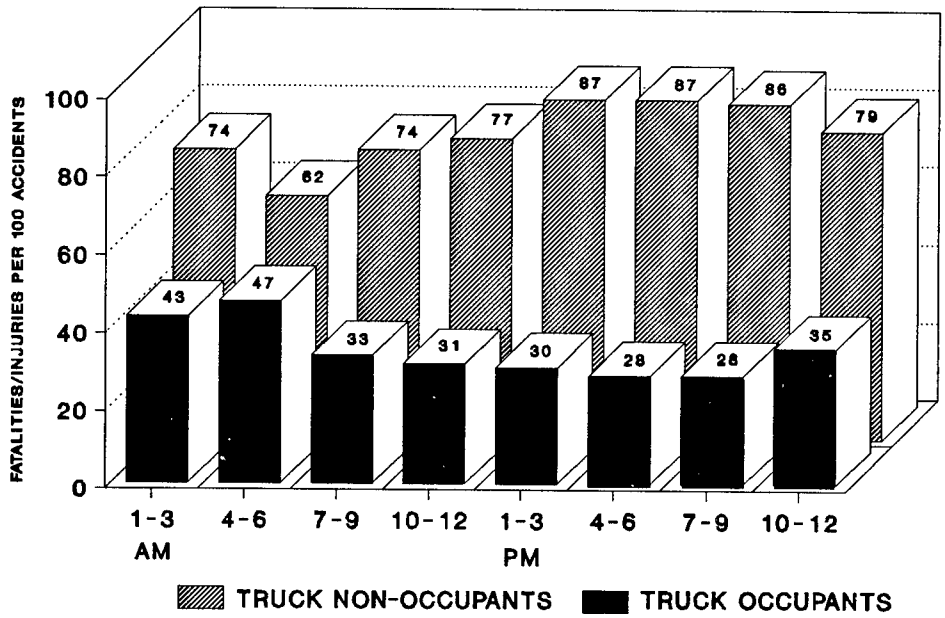

Figure 4-7
Fatalities and Injuries
By Time of Day

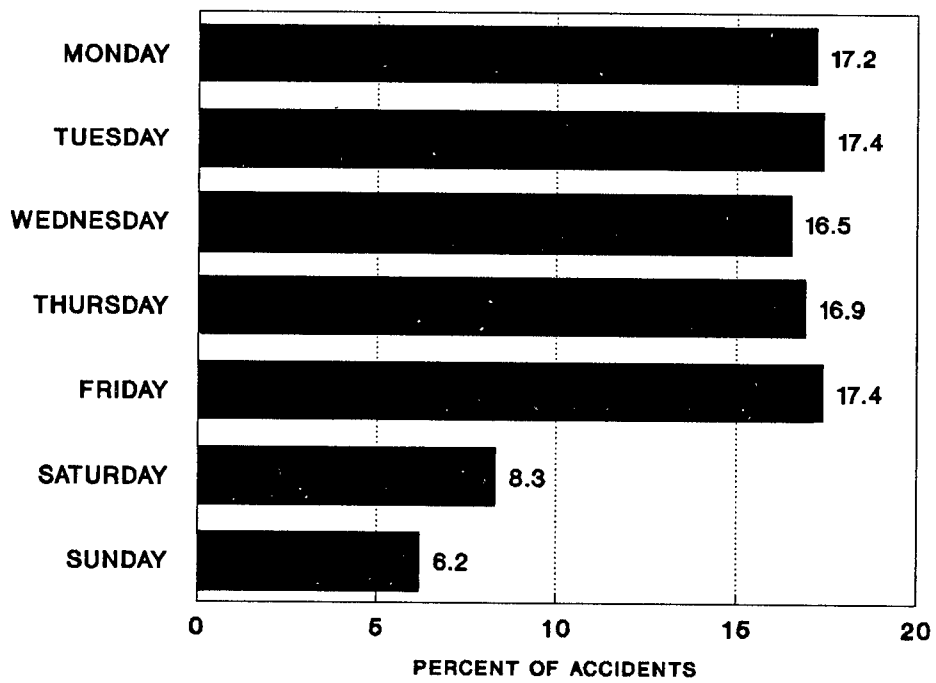

Figure 4-8
Percent of Total Accidents By Day of Week
(N = 27,479)

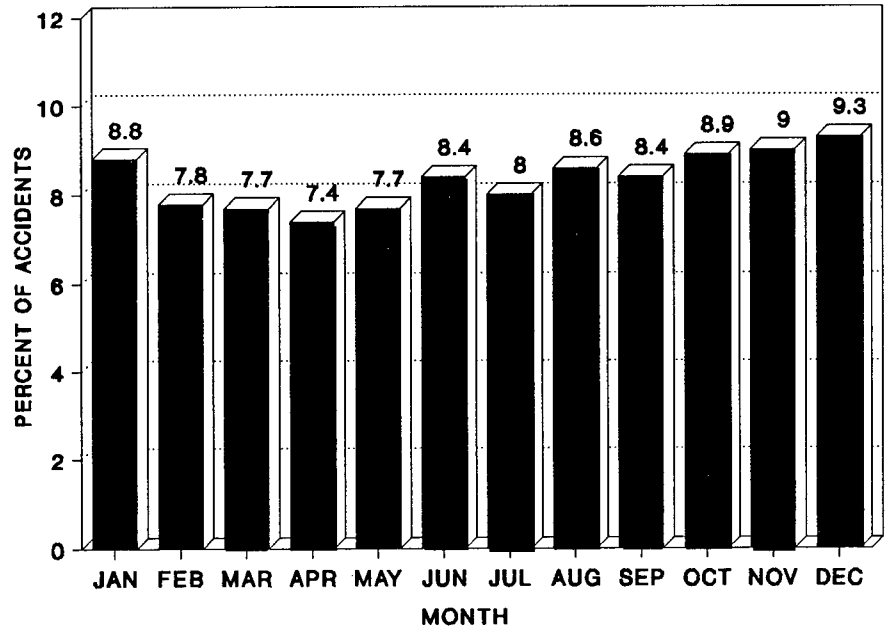

Figure 4-9
Percent of Total Accidents
By Month
(N = 27,479)

Table 4-3
Accidents, Fatalities, Injuries, and Property Damage
By Carrier Type and Month

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ACCIDENTS													
FOR-HIRE	2,367	2,081	2,064	1,982	2,057	2,241	2,143	2,298	2,225	2,381	2,412	2,499	26,750
PRIVATE	50	58	44	42	56	49	60	64	73	57	63	46	662
TYPE NOT RPTD.	5	3	4	7	2	5	7	8	5	7	8	6	67
TOTAL	2,422	2,142	2,112	2,031	2,115	2,295	2,210	2,370	2,303	2,445	2,483	2,551	27,479
FATALITIES													
FOR-HIRE	186	201	208	181	187	250	278	301	247	264	235	252	2,790
PRIVATE	9	5	3	7	13	18	8	9	10	14	5	3	104
TYPE NOT RPTD.	1	5	0	2	0	1	0	0	1	1	1	1	13
TOTAL	196	211	211	190	200	269	286	310	258	279	241	256	2,907
INJURIES													
FOR-HIRE	2,177	2,081	2,110	2,150	2,214	2,348	2,181	2,451	2,409	2,458	2,370	2,450	27,399
PRIVATE	35	57	40	34	38	43	57	48	65	53	43	41	554
TYPE NOT RPTD.	5	4	4	6	1	4	10	4	4	11	6	6	65
TOTAL	2,217	2,142	2,154	2,190	2,253	2,395	2,248	2,503	2,478	2,522	2,419	2,497	28,018
PROPERTY DAMAGE*													
FOR-HIRE	31,547	28,517	27,669	25,670	28,265	31,320	29,848	32,096	29,761	36,511	36,938	31,548	369,689
PRIVATE	823	826	577	546	539	719	1,197	769	1,154	815	1,115	655	9,733
TYPE NOT RPTD.	26	58	186	125	14	176	57	146	76	208	79	66	1,217
TOTAL	32,396	29,401	28,432	26,341	28,819	32,215	31,102	33,010	30,990	37,534	38,131	32,267	380,639

* IN THOUSANDS (000'S) OF DOLLARS

Chapter 5 THE ACCIDENT

Accident Type Overview
Collision Accidents
Non-Collision Accidents

The typical accident entailed a collision between a commercial vehicle and automobile. In 3 out of 4 events, the accident resulted in one or more fatalities or injuries. In general, accident severity appeared to be determined by a variety of factors, including what the commercial vehicle was doing just prior to the accident. For instance, when the truck ventured into an opposing lane of traffic, the ensuing collision tended to be the most severe.

ACCIDENT TYPE OVERVIEW

More than 75 percent of the accidents reported in 1987 involved collisions. Overall, collision accidents were responsible for 92 percent of the fatalities, 84 percent of the injuries, and 69 percent of the property damage reported. Table 5-1 breaks down accidents and their consequences by accident type.

Percentage breakdowns of collision, non-collision, and total accidents by accident class are shown in Figure 5-1.

Table 5-1
Accidents, Fatalities, Injuries, and Property Damage By Accident Type

	COLLISIONS		NON-COLLISIONS		NOT REPORTED		TOTAL	
	#	%	#	%	#	%	#	%
ACCIDENTS								
FATAL	2,214	91.9	196	8.1	0	0.0	2,410	100.0
INJURY	13,557	81.0	3,174	19.0	3	0.0	16,734	100.0
PROPERTY DAMAGE	5,612	67.3	2,723	32.7	0	0.0	8,335	100.0
TOTAL	21,383	77.8	6,093	22.2	3	0.0	27,479	100.0
FATALITIES	2,684	92.3	223	7.7	0	0.0	2,907	100.0
INJURIES	23,661	84.4	4,353	15.5	4	0.0	28,018	99.9
PROPERTY DAMAGE	$263,234,836	69.2	$117,400,879	30.8	$3,000	0.0	$380,638,715	100.0

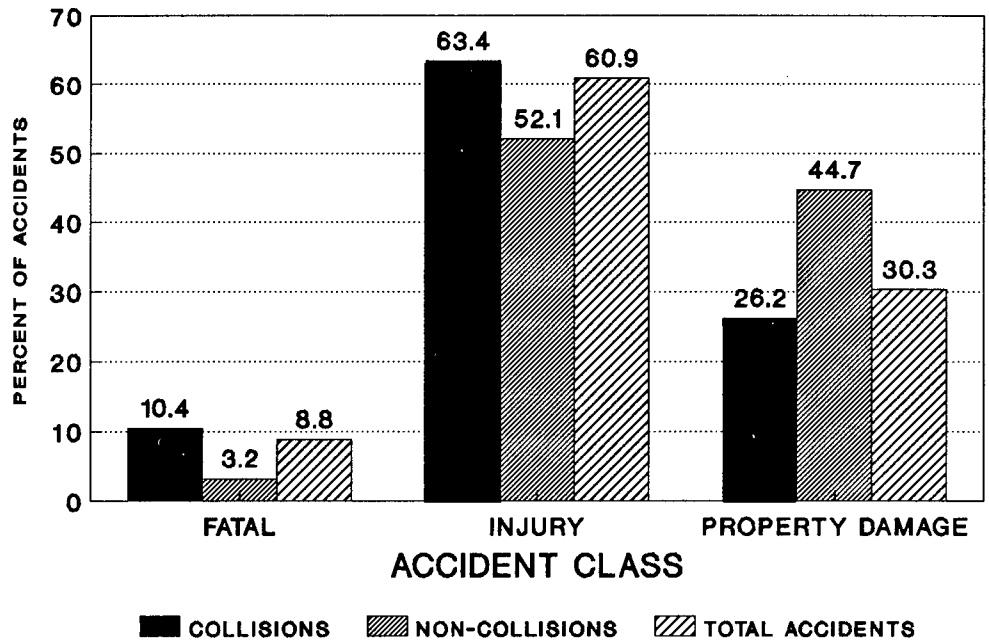

Figure 5-1
Collision, Non-Collision, and Total Accidents By Accident Class

Table 5-2
Accident Consequences By Accident Type

	FATALITIES #	INJURIES #	PROPERTY DAMAGE $
PER 100 COLLISION ACCIDENTS	13	111	1,231,047
PER 100 NON-COLLISION ACCIDENTS	4	71	1,926,816
PER 100 ACCIDENTS	11	102	1,385,199

Seventy-four percent of the collision accidents resulted in fatalities or injuries, while only 55 percent of the non-collision accidents were as severe. Collisions were over three times more likely to result in fatalities, and 20 percent more likely to result in injuries.

Accident severity rates are compared by accident type in Table 5-2. While fatalities and injuries were greater in collisions, property damage was 57 percent higher in non-collision accidents.

COLLISION ACCIDENTS

Table 5-3 indicates that, in 1987, 60 percent of all collision accidents occurred when commercial vehicles and automobiles collided. In fact, truck/automobile accidents accounted for 64 percent of all collision-induced fatalities, 67 percent of the injuries, and

42 percent of the property damage. Although truck/pedestrian accidents comprised only 2 percent of all collisions, they resulted in nearly 7 percent of the collision-induced fatalities. Similarly, truck/bus accidents accounted for just 0.5 percent of collisions, but over 2 percent of the collision-induced injuries.

Figure 5-2 examines fatalities/injuries

Table 5-3
Collision Accidents, Fatalities, Injuries, and Property Damage By Type of Collision

	ACCIDENTS		FATALITIES		INJURIES		PROPERTY DAMAGE	
	#	%	#	%	#	%	$	%
OTHER OBJECT INVOLVED								
COMMERCIAL TRUCK	3,922	18.3	367	13.7	4,181	17.7	78,996,362	30.0
FIXED OBJECT	2,282	10.7	97	3.6	1,192	5.0	43,514,513	16.5
AUTOMOBILE	12,900	60.3	1,714	63.9	15,783	66.7	111,505,330	42.4
PEDESTRIAN	406	1.9	179	6.7	250	1.1	257,938	0.1
BUS	111	0.5	17	0.6	550	2.3	1,213,746	0.5
TRAIN	156	0.7	12	0.4	126	0.5	8,685,471	3.3
BICYCLIST	107	0.5	26	1.0	83	0.4	1,053,905	0.4
ANIMAL	170	0.8	9	0.3	91	0.4	3,535,433	1.3
MOTORCYCLE	208	1.0	73	2.7	172	0.7	539,312	0.2
OTHER	1,102	5.2	188	7.0	1,213	5.1	13,624,762	5.2
OBJECT NOT RPTD.	19	0.1	2	0.1	20	0.1	308,064	0.1
TOTAL	21,383	100.0	2,684	100.0	23,661	100.0	263,234,836	100.0

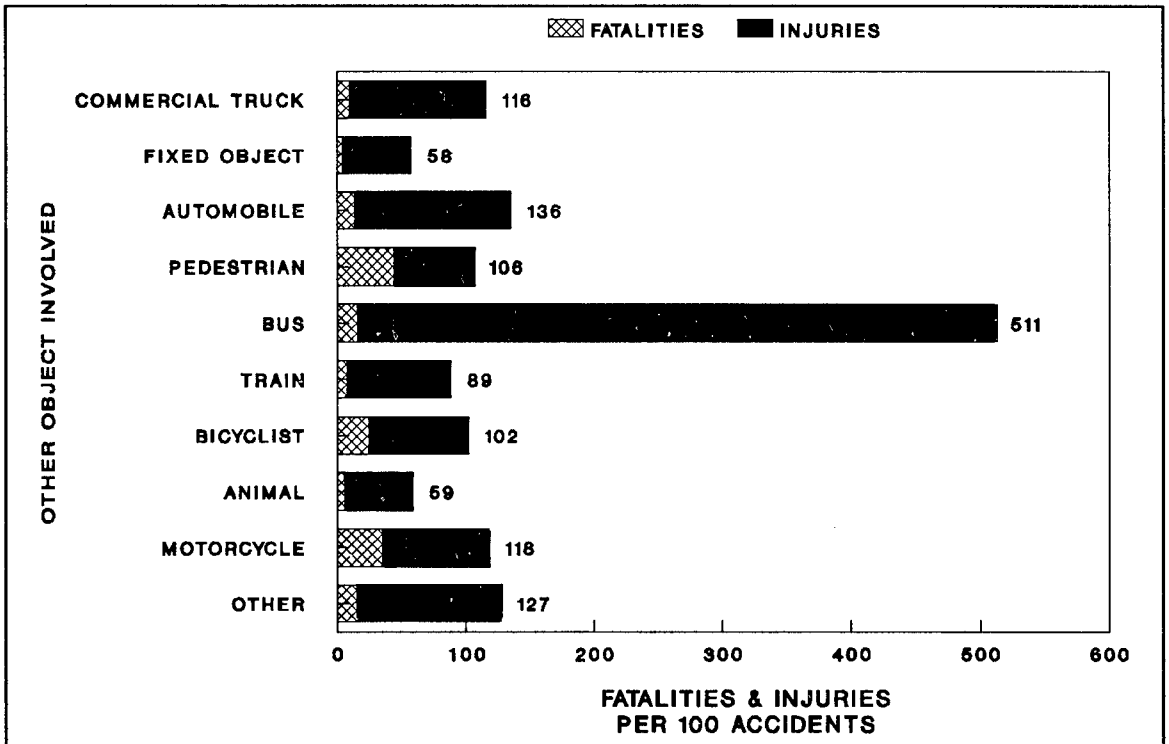

Figure 5-2
Fatalities and Injuries Per 100 Collision Accidents

per 100 accidents for collisions involving different combinations of vehicles, persons, and objects. Truck/bus accidents were the most severe, generating 550 fatalities/injuries per 100 accidents. One might reasonably infer that this was due largely to the disproportionately high number of bus passengers potentially exposed whenever truck/bus accidents occurred.

Accidents were frequently the most severe when commercial vehicles collided with pedestrians and other persons not protected inside vehicles. Hence, truck collisions with pedestrians, bicyclists, and motorcyclists generally resulted in higher rates of fatalities per accident than did truck collisions with other trucks, automobiles, or buses.

The estimated value of property damaged in collisions tended to vary according to the value of the property potentially exposed in each accident. Thus, the average value of property damaged in truck/train collisions was considerably higher than the value of property damaged in truck/truck collisions (Figure 5-3). Similarly, the average value of property damaged in truck/truck collisions was more than that damaged in truck/automobile collisions.

Accident severity by the types of "movements" in which commercial vehicles were engaged just before the collisions occurred is summarized in Figure 5-4. In

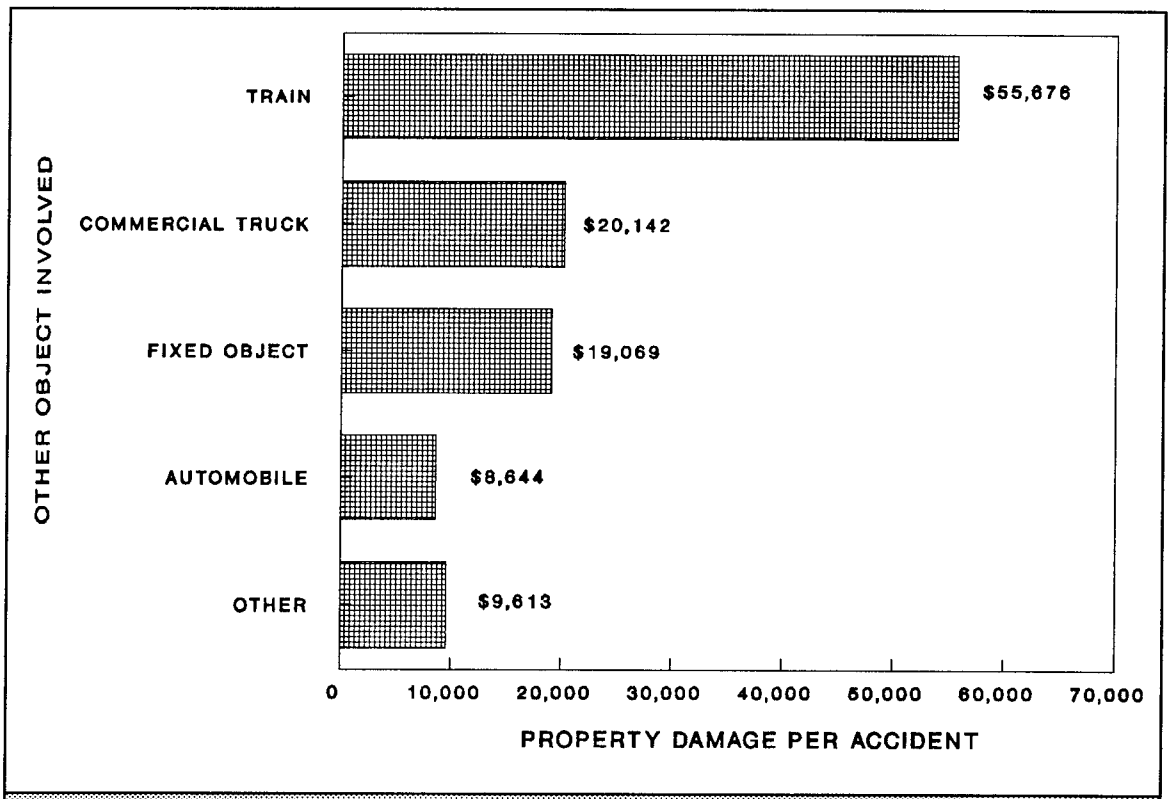

Figure 5-3
Property Damage Per Accident
By Type of Collision

general, accidents were most severe when the commercial vehicles were reported to have crossed into opposing lanes of traffic—the head-on collisions resulting from lane crossings produced, on average, 218 fatalities/injuries per 100 accidents.

In reviewing the data in Figure 5-4, note that the vehicle movements shown pertain to the commercial vehicles only; the movements of other vehicles involved in the accidents are not presented.

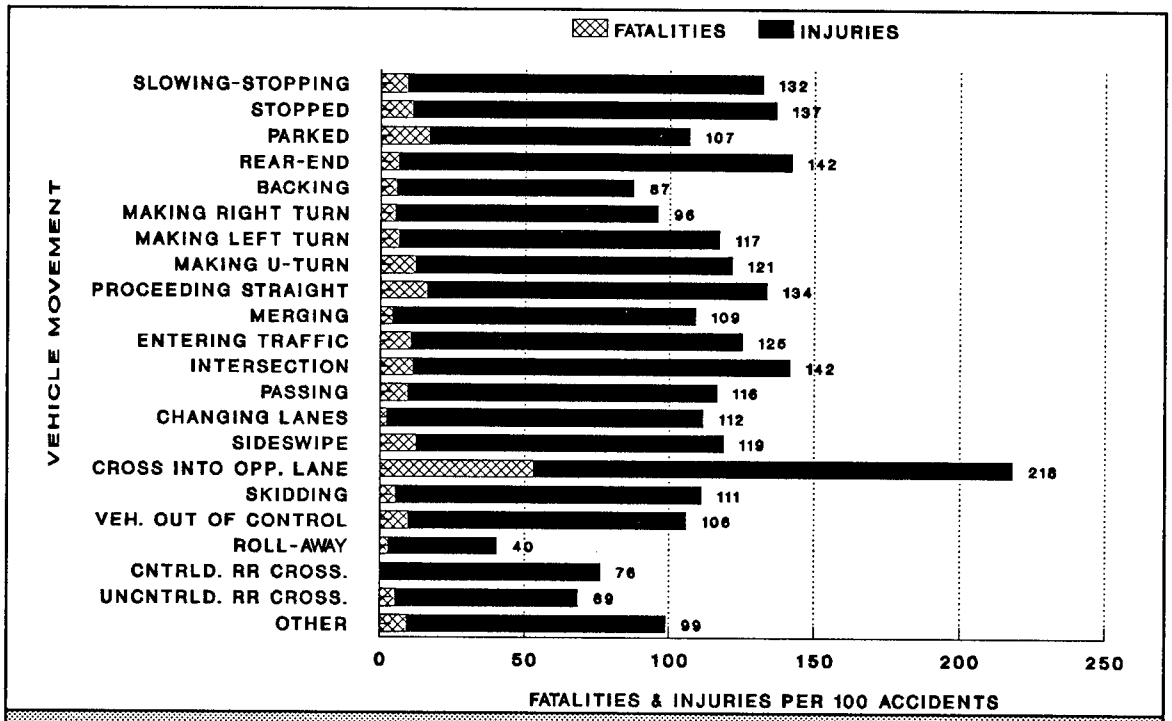

Figure 5-4
Fatalities and Injuries in Vehicular Collisions By Reporting Vehicle Movement

NON-COLLISION ACCIDENTS

As indicated in Table 5-4, most 1987 non-collision accidents were the result of one of three actions: truck overturns (42 percent), trucks running off the road (30 percent), and truck jackknifes (18 percent). Overturns accounted for 52 percent of all non-collision fatalities, while jackknifes resulted in 49 percent of the non-collision injuries.

Jackknifing proved to be the most severe type of non-collision accident, producing 198 fatalities/injuries per 100 accidents (Figure 5-5); fires (when they were the primary event) were the least severe, resulting in only 4 fatalities/injuries per 100 accidents. Fires, however, resulted in the highest property damage, averaging nearly $28,000 per incident (Figure 5-6).

Table 5-4
Non-Collision Accidents, Fatalities, Injuries, and Property Damage By Type of Non-Collision

	ACCIDENTS		FATALITIES		INJURIES		PROPERTY DAMAGE	
	#	%	#	%	#	%	$	%
TYPE OF NON-COLLISION								
OVERTURN	2,586	42.4	115	51.6	1,488	34.2	55,198,559	47.0
RAN OFF THE ROAD	1,834	30.1	8	3.6	547	12.6	38,387,238	32.7
JACKKNIFE	1,110	18.2	86	39.6	2,110	48.5	12,776,722	10.9
FIRE	205	3.4	0	0.0	8	0.2	5,662,488	4.8
LOSS OF CARGO	128	2.1	0	0.0	29	0.7	1,789,307	1.5
CARGO SHIFT	93	1.5	4	1.8	61	1.4	1,678,791	1.4
SEPARATION OF UNITS	58	1.0	3	1.3	52	1.2	800,943	0.7
TYPE NOT RPTD.	53	0.9	2	0.9	15	0.3	782,731	0.7
OTHER	26	0.4	5	2.2	43	1.0	324,100	0.3
TOTAL	6,093	100.0	223	100.0	4,353	100.1	117,400,879	100.0

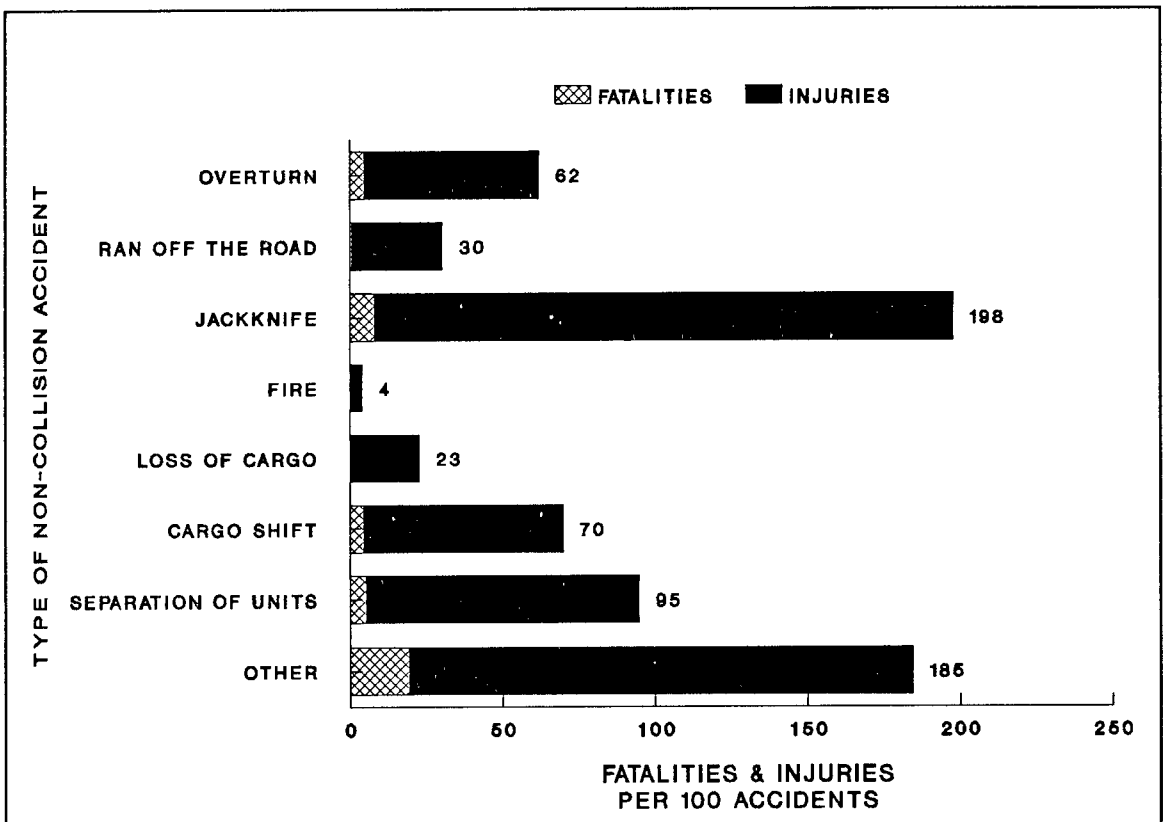

Figure 5-5
Fatalities and Injuries Per 100 Non-Collision Accidents

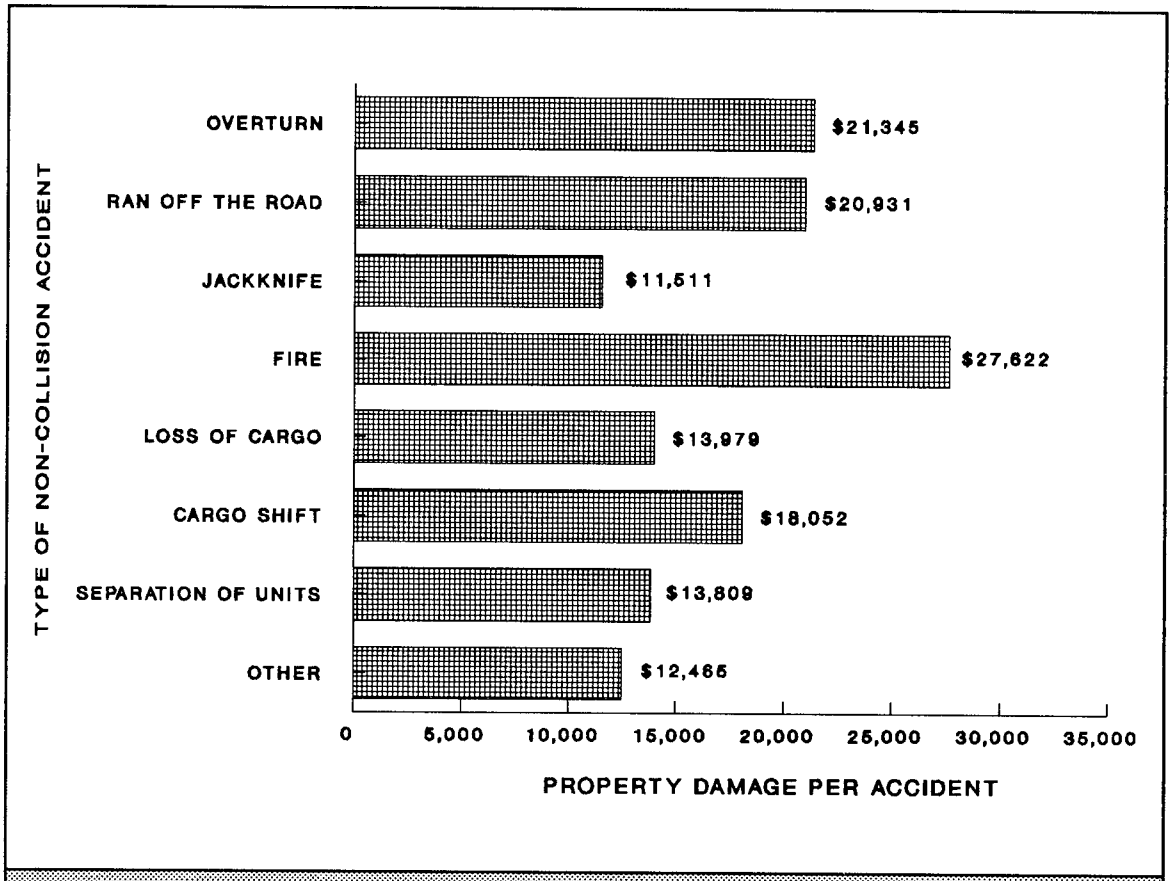

Figure 5-6
Property Damage Per Accident
By Type of Non-Collision

APPENDIX

Glossary
MCS 50-T Accident Report Form

GLOSSARY

Accident Classes. Used to categorize commercial vehicle accidents according to accident severity. The three classes referred to in this report are: fatal accidents, injury accidents, and property damage accidents.

Accident Consequences. The physical results of motor vehicle accidents. Consequences include fatalities, injuries, and property damage.

Accident Severity. Measures the seriousness of an accident according to the type and quantity of the accident's consequences. In this report, fatalities are more severe than injuries, and injuries are more severe than property damage. See also "Fatalities/Injuries."

Accident Type. "Collision" or "non-collision."

Carrier Type. "For-hire" or "private."

Collision Accident. An accident involving a collision between a commercial motor vehicle and another object. Collision objects include trains, other motor vehicles, pedestrians, bicyclists, animals, and fixed objects.

Driveaway-Towaway. Refers to a carrier operation, such as a fleet of tow trucks, used to transport other vehicles, when some or all wheels of the vehicles being transported touch the road surface (49 CFR 390.9).

Fatal Accident. An accident for which at least one fatality was reported.

Fatalities/Injuries. Refers to the average number of fatalities and injuries which occurred per one hundred accidents. Frequently used in this report as an index of accident severity.

Fatality. A death resulting from a motor vehicle accident.

Fatality Rate. The average number of fatalities which occurred per accident or per one hundred accidents.

50-T Report. Form MCS 50-T, the *Motor Carrier Accident Report (Property-Carrying).* Commercial carriers subject to the Department of Transportation Act are required to submit a 50-T report to the Federal Highway Administration on each reportable accident in which they are involved.

FMCSR. *Federal Motor Carrier Safety Regulations*. The FMCSR are contained in the *Code of Federal Regulations*, Title 49, Chapter III, Subchapter B.

For-Hire Carrier. A commercial motor carrier whose primary business activity is the transportation of property by motor vehicle.

ICC Authorized Carrier. A for-hire motor carrier engaged in interstate or foreign commerce, subject to economic regulation by the Interstate Commerce Commission.

ICC Exempt Carrier. A for-hire motor carrier transporting commodities or conducting operations not subject to economic regulation by the Interstate Commerce Commission.

Injury. Bodily injury resulting from a motor vehicle accident. To qualify as an

"injury," the injured person must require and receive medical treatment away from the accident scene.

Injury Accident. An accident for which at least one injury, but no fatalities, were reported.

Injury Rate. The average number of non-fatal injuries per accident or per one hundred accidents.

Jackknife. A non-collision accident in which a tractor and its trailer slide together, forming a V-shaped angle of 90 degrees or less.

Local Trip. An intracity or short mileage trip by commercial motor vehicle.

Non-Collision Accident. A motor vehicle accident which does not involve a collision. Non-collision accidents include jackknifes, overturns, fires, cargo shifts and spills, and incidents in which trucks run off the road.

Over-the-Road Trip. An intercity movement by commercial motor vehicle.

Private Carrier. A commercial motor carrier whose highway transportation activities are incidental to, and in furtherance of, its primary business activity.

Property Damage. The dollar value of property damage incurred in motor vehicle accidents, as estimated by the carrier reporting the accident.

Property Damage Accident. An accident for which property damage of $4,400 or more, but no fatalities or injuries, was reported.

Property Damage Rate. The average amount of property damage per accident or per one hundred accidents.

Property Damage Threshold. The amount of property damage used to determine whether an accident not involving fatalities or injuries is reportable under the *FMCSR*. In 1987, the property damage threshold was $4,400.

Reportable Accident. A motor vehicle accident involving a carrier subject to the Department of Transportation Act, which results in a fatality, injury, or property damage of $4,400 or more (49 CFR 394.3).

Trip Type. "Local" or "over-the-road."

Vehicle Configuration. The combination of vehicular units comprising a commercial motor vehicle. One of the most common vehicle configurations is the "tractor-semitrailer" configuration.

Form Approved
OMB No. 004–R2394

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF MOTOR CARRIER SAFETY

MOTOR CARRIER ACCIDENT REPORT

Original and two copies of MCS 50-T shall be filed with the Director, Regional Motor Carrier Safety Office, FHWA, as required by 394.9. Copy shall be retained in carrier's file. Circle or (X) appropriate boxes below.

1. Name of carrier *(Corporate business name)* (7–21)

2. Principal Address *(Street and no., City, State, ZIP Code.)* (22–50)

3. Type of carrier (51–66) [A] Private, Employer ID No. (IRS)_____ [B] ICC authorized, MC _____ [C] Other *(Specify)* _____ Employer ID No. (IRS)_____

4. Type of trip (67) [A] Over-the-road [B] Local pick-up and delivery operation

5. Place accident occurred *(Nearest Town or City, State)* (68–78)

5A. Type of district (79) [A] Residential [B] Rural [C] Primarily business

6. Street or highway *(Route or Name)* (7–16)

6A. Location if off highway (17–26)

7. Day of week (27) [A] M [B] T [C] W [D] TH [E] F [F] S [G] S

8. Date accident occurred (28–33) ...../...../.....

9. Time accident occurred *(Military time to nearest hour)* (34–35)

10. ACCIDENT TYPE *(Primary Event)*

10A. Collision *(Check appropriate box)* (36) [A] Not applicable [B] Collision with moving object [C] Collision with fixed or parked object

10B. Collision *(Check other object involved)* (37–45)
[A] Not applicable
[B] Commercial truck
[C] Fixed object
[D] Automobile
[E] Pedestrian
[F] Bus
[G] Train
[H] Bicyclist
[I] Animal
[J] Motorcycle
[K] Other *(Specify)*_____

10C. Collision with another vehicle—Accident Classification *(Check appropriate box)* zzz [ ] not applicable

(46–48)	VEHICLES 1	2	3	ACTION	(46–48)	VEHICLES 1	2	3	ACTION
A				Slowing—Stopping	L				Intersection
B				Stopped	M				Passing
C				Parked	N				Changing Lanes
D				Rear-end	O				Sideswipe—Opposite Direction
E				Backing	P				Head-On—Crossed Into Opposing Lane
F				Making Right Turn	Q				Skidding
G				Making Left Turn	R				Vehicle Out-Of-Control
H				Making U-Turn	S				Roll-Away
I				Proceeding Straight	T				Controlled Railroad Crossing
J				Merging	U				Uncontrolled Railroad Crossing
K				Entering Traffic From Shoulder, Median, Parking Strip or Private Drive	V				Other *(Specify)*_____

10D. Non-collision *(Check primary event)* (49–57)
[A] Not applicable
[B] Ran off road
[C] Jackknife
[D] Overturn
[E] Separation of units
[F] Fire
[G] Loss or spillage of cargo
[H] Cargo shift
[I] Other *(Specify)* _____

10E. If not primary event, did accident result in (58) [A] Not applicable [B] Spillage of hazardous cargo [C] Fire [D] Spillage of non-hazardous cargo [E] Explosion

11. DRIVER INFORMATION

11A. Name of your driver (59–72)

11B. Age (73–74)

11C. Social Security No. (7–15) ...../...../.....

11D. How long employed as your driver *(To nearest year)* (16–17)

11E. Hours actually driving since last period of 8 consecutive hours off duty (18)
[A] 1 hr. [B] 2 hrs. [C] 3 hrs. [D] 4 hrs. [E] 5 hrs. [F] 6 hrs. [G] 7 hrs. [H] 8 hrs. [I] 9 hrs. [J] 10 hrs. [K] 11–12 hrs. [L] Not applicable

11F. Estimated hours of driving for entire trip or portion of trip, since last period of 8 consecutive hours off duty (19)
[A] 1 hr. [B] 2 hrs. [C] 3 hrs. [D] 4 hrs. [E] 5 hrs. [F] 6 hrs. [G] 7 hrs. [H] 8 hrs. [I] 9 hrs. [J] 10 hrs. [K] 11–12 hrs. [L] Not applicable

11G. Condition of driver (20–28)
[A] Apparently normal
[B] Sick
[C] Had been drinking
[D] Dozed at wheel
[E] Medical waiver
[F] Other *(Specify)* _____

11H. Date of last medical certificate (29–34) ...../...../.....

Form MCS 50–T (Property-Carrying) (Rev. 8–72) Previous editions of this form are obsolete
(over)

12. CARRIER'S VEHICLE(S)

	Type (35–39)	Year (40–41)	No. of Axles (42–43)	Make (44–53)	Model No. (54–63)	Company No. (64–69)	TYPE OF BODY (70–74) Van	Flat	Tank	Auto Carrier	Other (Specify)
A	Truck										
B	Tractor										
C	Semi-trailer										
D	Full trailer										
E	Full trailer (2nd)										
F	Other (Specify)_____										

13. Total length of vehicle/comb. (7–9) Ft. | 13A. Total width of vehicle or cargo (10–11) Ft. | 13B. Weight (cargo) (12–17) Lbs. | 13C. Weight (gross) (18–23) Lbs.

14. Type of fuel [A] Gasoline [B] Diesel [C] L.P.G. [D] Other (Specify)_____ (24–29)

15. Cargo at time of accident (Your vehicle) (30–38)
[A] Hazardous materials in cargo (Specify classification) _____ [B] Non-hazardous materials in cargo

16. Check one of the following as principal type of cargo
[A] General freight
[B] Household goods or uncrated furniture/fixtures
[C] Metal: Coils, sheets, rods, plates, etc.
[D] Heavy machinery or other large objects
[E] Motor vehicles
[F] Driveaway-towaway
[G] Gases in bulk
[H] Solids in bulk
[I] Liquids in bulk
[J] Explosives
[K] Logs, poles, lumber
[L] Empty
[M] Refrigerated foods
[N] Mobile home (39–44)
[O] Farm products
[P] Other (Specify) _____

17. Was your driver killed? (45) [A] Yes [B] No | 17A. Was driver injured? (46) [A] Yes [B] No | 17B. Was your relief driver killed? (47) [A] Yes [B] No [C] N/A | 17C. Was relief driver injured? (48) [A] Yes [B] No [C] N/A

18. Number of other authorized persons in your vehicle
Killed _____ Injured _____ (49–50)
18A. Number of unauthorized persons in your vehicle
Killed _____ Injured _____ (51–52)

19. Total number of other persons killed____ injured____ (53–56) | 19A. Amount of total property damage in dollars $_____ (57–61)

20. Were mechanical defects or failures apparent on your vehicle at time of accident? [A] Yes [B] No (62)

21. Check appropriate boxes (Mechanical defects or failures) (63–69)
[A] Not applicable
[B] Fuel system
[C] Wheels and tires
[D] Steering system
[E] Suspension
[F] Transmission
[G] Driveline
[H] Engine
[I] Brakes
[J] Lights
[K] Coupling
[L] Other (Specify) _____

22. Was your vehicle equipped with seat belts? [A] Yes [B] No (70)

23. Were seat belts in use by your driver(s) at time of accident? [A] Yes [B] No (71)

24. OTHER VEHICLES INVOLVED

24A. Company name or operator (Vehicle #2) | 24B. Address | 24C. Type of vehicle

24D. Company name or operator (Vehicle #3) | 24E. Address | 24F. Type of vehicle

25. Weather (7–12)
[A] Rain [C] Snow [E] Cloudy/overcast
[B] Clear [D] Fog/Smog [F] Sleet [G] Other (Specify) _____

25A. Light (13–18)
[A] Day [C] Dawn [E] Dusk [F] Dark
[B] Artificial lights [D] Other (Specify) _____

26. Road surface (19–23)
[A] Dry [C] Snowy [E] Other
[B] Wet [D] Icy (Specify)_____

26A. Total number of lanes (24)
[A] One lane [C] Three lanes
[B] Two lanes [D] Four or more lanes

26B. Type of highway (25)
[A] Divided [B] Undivided

26C. Check appropriate box [A] Entrance ramp (Expressway) [B] Exit ramp (Expressway) [C] Not applicable (26)

27. Account of accident by carrier official

28. Name and title of person signing report | 29. Signature

30. Telephone Number
Area Code | 31. Date report submitted (27–32) ...../...../.....

Form MCS 50–T (8–72)

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